

Appendix 13-D

Comparison of Predicted Water Quality to Water Quality Guidelines

HARPER CREEK MINE PROJECT

**Application for an Environmental Assessment Certificate /
Environmental Impact Statement**

Appendix 13-D1a. Open Pit (OP) Hazard Quotients for Total Aluminum Concentrations, Expected Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Screening Based on BC MOE Maximum	Screening Based on BC MOE Maximum
Construction (-2 to-1)	January	0.0267	0.0534	5	5	0.0107	0.0107	No	No
	February	0.0267	0.0534	5	5	0.0107	0.0107	No	No
	March	0.0267	0.0534	5	5	0.0107	0.0107	No	No
	April	0.0177	0.0353	5	5	0.0071	0.0071	No	No
	May	0.0148	0.0296	5	5	0.0059	0.0059	No	No
	June	0.0048	0.0095	5	5	0.0019	0.0019	No	No
	July	0.0067	0.0134	5	5	0.0027	0.0027	No	No
	August	0.0267	0.0534	5	5	0.0107	0.0107	No	No
	September	0.0210	0.0420	5	5	0.0084	0.0084	No	No
	October	0.0179	0.0357	5	5	0.0071	0.0071	No	No
	November	0.0267	0.0534	5	5	0.0107	0.0107	No	No
	December	0.0267	0.0534	5	5	0.0107	0.0107	No	No
Operation 1 Phase (1-23)	January	0.0534	0.0534	5	5	0.0107	0.0107	No	No
	February	0.0534	0.0534	5	5	0.0107	0.0107	No	No
	March	0.0534	0.0534	5	5	0.0107	0.0107	No	No
	April	0.0361	0.0371	5	5	0.0074	0.0074	No	No
	May	0.0343	0.0355	5	5	0.0071	0.0071	No	No
	June	0.0424	0.146	5	5	0.0291	0.0291	No	No
	July	0.0475	0.149	5	5	0.0297	0.0297	No	No
	August	0.0576	0.149	5	5	0.0298	0.0298	No	No
	September	0.0494	0.152	5	5	0.0303	0.0303	No	No
	October	0.0420	0.152	5	5	0.0304	0.0304	No	No
	November	0.0576	0.151	5	5	0.0302	0.0302	No	No
	December	0.0577	0.152	5	5	0.0305	0.0305	No	No
Operations 2 Phase (24-28)	January	0.177	0.203	5	5	0.0405	0.0405	No	No
	February	0.179	0.205	5	5	0.0410	0.0410	No	No
	March	0.180	0.207	5	5	0.0413	0.0413	No	No
	April	0.182	0.209	5	5	0.0418	0.0418	No	No
	May	0.183	0.210	5	5	0.0420	0.0420	No	No
	June	0.182	0.207	5	5	0.0415	0.0415	No	No
	July	0.182	0.207	5	5	0.0414	0.0414	No	No
	August	0.182	0.207	5	5	0.0415	0.0415	No	No
	September	0.184	0.210	5	5	0.0421	0.0421	No	No
	October	0.186	0.212	5	5	0.0425	0.0425	No	No
	November	0.187	0.214	5	5	0.0428	0.0428	No	No
	December	0.188	0.217	5	5	0.0433	0.0433	No	No
Closure Phase (29-35)	January	0.192	0.217	5	5	0.0434	0.0434	No	No
	February	0.192	0.217	5	5	0.0434	0.0434	No	No
	March	0.192	0.217	5	5	0.0433	0.0433	No	No
	April	0.192	0.217	5	5	0.0433	0.0433	No	No
	May	0.192	0.216	5	5	0.0432	0.0432	No	No
	June	0.191	0.214	5	5	0.0427	0.0427	No	No
	July	0.188	0.210	5	5	0.0419	0.0419	No	No
	August	0.186	0.207	5	5	0.0414	0.0414	No	No
	September	0.186	0.207	5	5	0.0414	0.0414	No	No
	October	0.186	0.207	5	5	0.0413	0.0413	No	No
	November	0.186	0.206	5	5	0.0413	0.0413	No	No
	December	0.185	0.206	5	5	0.0413	0.0413	No	No
Post-Closure Phase (36-99)	January	0.128	0.169	5	5	0.0337	0.0337	No	No
	February	0.128	0.169	5	5	0.0337	0.0337	No	No
	March	0.128	0.169	5	5	0.0337	0.0337	No	No
	April	0.128	0.169	5	5	0.0337	0.0337	No	No
	May	0.129	0.169	5	5	0.0337	0.0337	No	No
	June	0.130	0.168	5	5	0.0336	0.0336	No	No
	July	0.128	0.166	5	5	0.0332	0.0332	No	No
	August	0.127	0.164	5	5	0.0329	0.0329	No	No
	September	0.127	0.164	5	5	0.0329	0.0329	No	No
	October	0.127	0.164	5	5	0.0329	0.0329	No	No
	November	0.128	0.164	5	5	0.0329	0.0329	No	No
	December	0.128	0.164	5	5	0.0329	0.0329	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1b. Open Pit (OP) Hazard Quotients for Total Arsenic Concentrations, Expected Case

Project Phase		First Screening Step								Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			Wildlife	Livestock
		Mean	Maximum	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Interim Guideline				
Construction (-2 to-1)	January	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No		
	February	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No		
	March	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No		
	April	0.0021	0.0043	0.025	0.025	0.171	0.171	No	No		
	May	0.0018	0.0035	0.025	0.025	0.142	0.142	No	No		
	June	0.0004	0.0008	0.025	0.025	0.031	0.031	No	No		
	July	0.0006	0.0012	0.025	0.025	0.048	0.048	No	No		
	August	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No		
	September	0.0024	0.0048	0.025	0.025	0.193	0.193	No	No		
	October	0.0022	0.0043	0.025	0.025	0.172	0.172	No	No		
	November	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No		
	December	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No		
Operation 1 Phase (1-23)	January	0.0058	0.0058	0.025	0.025	0.232	0.232	No	No		
	February	0.0058	0.0058	0.025	0.025	0.232	0.232	No	No		
	March	0.0058	0.0058	0.025	0.025	0.232	0.232	No	No		
	April	0.0043	0.0044	0.025	0.025	0.177	0.177	No	No		
	May	0.0041	0.0043	0.025	0.025	0.171	0.171	No	No		
	June	0.0041	0.0132	0.025	0.025	0.528	0.528	No	No		
	July	0.0046	0.0132	0.025	0.025	0.527	0.527	No	No		
	August	0.0061	0.0132	0.025	0.025	0.529	0.529	No	No		
	September	0.0054	0.0133	0.025	0.025	0.530	0.530	No	No		
	October	0.0048	0.0133	0.025	0.025	0.530	0.530	No	No		
	November	0.0061	0.0131	0.025	0.025	0.525	0.525	No	No		
	December	0.0061	0.0132	0.025	0.025	0.527	0.527	No	No		
Operations 2 Phase (24-28)	January	0.0130	0.0132	0.025	0.025	0.528	0.528	No	No		
	February	0.0131	0.0132	0.025	0.025	0.530	0.530	No	No		
	March	0.0131	0.0133	0.025	0.025	0.531	0.531	No	No		
	April	0.0131	0.0133	0.025	0.025	0.533	0.533	No	No		
	May	0.0131	0.0133	0.025	0.025	0.530	0.530	No	No		
	June	0.0129	0.0131	0.025	0.025	0.523	0.523	No	No		
	July	0.0129	0.0130	0.025	0.025	0.521	0.521	No	No		
	August	0.0128	0.0130	0.025	0.025	0.520	0.520	No	No		
	September	0.0129	0.0130	0.025	0.025	0.521	0.521	No	No		
	October	0.0129	0.0130	0.025	0.025	0.522	0.522	No	No		
	November	0.0129	0.0130	0.025	0.025	0.522	0.522	No	No		
	December	0.0129	0.0131	0.025	0.025	0.522	0.522	No	No		
Closure Phase (29-35)	January	0.0107	0.0128	0.025	0.025	0.512	0.512	No	No		
	February	0.0107	0.0128	0.025	0.025	0.512	0.512	No	No		
	March	0.0107	0.0128	0.025	0.025	0.511	0.511	No	No		
	April	0.0107	0.0128	0.025	0.025	0.511	0.511	No	No		
	May	0.0107	0.0127	0.025	0.025	0.507	0.507	No	No		
	June	0.0105	0.0124	0.025	0.025	0.495	0.495	No	No		
	July	0.0103	0.0122	0.025	0.025	0.486	0.486	No	No		
	August	0.0102	0.0120	0.025	0.025	0.480	0.480	No	No		
	September	0.0102	0.0120	0.025	0.025	0.480	0.480	No	No		
	October	0.0102	0.0120	0.025	0.025	0.479	0.479	No	No		
	November	0.0102	0.0119	0.025	0.025	0.477	0.477	No	No		
	December	0.0102	0.0119	0.025	0.025	0.477	0.477	No	No		
Post-Closure Phase (36-99)	January	0.0043	0.0088	0.025	0.025	0.351	0.351	No	No		
	February	0.0043	0.0088	0.025	0.025	0.351	0.351	No	No		
	March	0.0043	0.0088	0.025	0.025	0.351	0.351	No	No		
	April	0.0043	0.0088	0.025	0.025	0.351	0.351	No	No		
	May	0.0043	0.0087	0.025	0.025	0.350	0.350	No	No		
	June	0.0043	0.0086	0.025	0.025	0.345	0.345	No	No		
	July	0.0043	0.0085	0.025	0.025	0.341	0.341	No	No		
	August	0.0042	0.0084	0.025	0.025	0.338	0.338	No	No		
	September	0.0042	0.0084	0.025	0.025	0.338	0.338	No	No		
	October	0.0042	0.0084	0.025	0.025	0.337	0.337	No	No		
	November	0.0042	0.0084	0.025	0.025	0.337	0.337	No	No		
	December	0.0042	0.0084	0.025	0.025	0.337	0.337	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1c. Open Pit (OP) Hazard Quotients for Total Beryllium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.00003	0.00005	0.1	0.00050	No
	February	0.00003	0.00005	0.1	0.00050	No
	March	0.00003	0.00005	0.1	0.00050	No
	April	0.00002	0.00005	0.1	0.00050	No
	May	0.00002	0.00004	0.1	0.00042	No
	June	0.00000	0.00001	0.1	0.00009	No
	July	0.00001	0.00001	0.1	0.00011	No
	August	0.00003	0.00005	0.1	0.00050	No
	September	0.00003	0.00005	0.1	0.00050	No
	October	0.00002	0.00005	0.1	0.00050	No
	November	0.00003	0.00005	0.1	0.00050	No
	December	0.00003	0.00005	0.1	0.00050	No
Operation 1 Phase (1-23)	January	0.00005	0.00005	0.1	0.00050	No
	February	0.00005	0.00005	0.1	0.00050	No
	March	0.00005	0.00005	0.1	0.00050	No
	April	0.00005	0.00005	0.1	0.00050	No
	May	0.00005	0.00005	0.1	0.00050	No
	June	0.00004	0.00014	0.1	0.00137	No
	July	0.00004	0.00005	0.1	0.00052	No
	August	0.00005	0.00005	0.1	0.00052	No
	September	0.00005	0.00005	0.1	0.00052	No
	October	0.00005	0.00005	0.1	0.00052	No
	November	0.00005	0.00005	0.1	0.00052	No
	December	0.00005	0.00005	0.1	0.00052	No
Operations 2 Phase (24-28)	January	0.00005	0.00005	0.1	0.00052	No
	February	0.00005	0.00005	0.1	0.00052	No
	March	0.00005	0.00005	0.1	0.00052	No
	April	0.00005	0.00005	0.1	0.00052	No
	May	0.00005	0.00005	0.1	0.00052	No
	June	0.00005	0.00005	0.1	0.00052	No
	July	0.00005	0.00005	0.1	0.00051	No
	August	0.00005	0.00005	0.1	0.00051	No
	September	0.00005	0.00005	0.1	0.00051	No
	October	0.00005	0.00005	0.1	0.00051	No
	November	0.00005	0.00005	0.1	0.00051	No
	December	0.00005	0.00005	0.1	0.00052	No
Closure Phase (29-35)	January	0.00005	0.00005	0.1	0.00054	No
	February	0.00005	0.00005	0.1	0.00054	No
	March	0.00005	0.00005	0.1	0.00054	No
	April	0.00005	0.00005	0.1	0.00054	No
	May	0.00005	0.00005	0.1	0.00054	No
	June	0.00005	0.00005	0.1	0.00055	No
	July	0.00005	0.00005	0.1	0.00054	No
	August	0.00005	0.00005	0.1	0.00054	No
	September	0.00005	0.00005	0.1	0.00054	No
	October	0.00005	0.00005	0.1	0.00054	No
	November	0.00005	0.00005	0.1	0.00054	No
	December	0.00005	0.00005	0.1	0.00054	No
Post-Closure Phase (36-99)	January	0.00006	0.00007	0.1	0.00072	No
	February	0.00006	0.00007	0.1	0.00072	No
	March	0.00006	0.00007	0.1	0.00072	No
	April	0.00006	0.00007	0.1	0.00072	No
	May	0.00006	0.00007	0.1	0.00073	No
	June	0.00006	0.00007	0.1	0.00074	No
	July	0.00006	0.00007	0.1	0.00073	No
	August	0.00006	0.00007	0.1	0.00072	No
	September	0.00006	0.00007	0.1	0.00072	No
	October	0.00006	0.00007	0.1	0.00072	No
	November	0.00006	0.00007	0.1	0.00073	No
	December	0.00006	0.00007	0.1	0.00073	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D1d. Open Pit (OP) Hazard Quotients for Total Boron Concentrations, Expected Case

Project Phase		First Screening Step								Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs. BC MOE		Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Guideline	Maximum Guideline				
Construction (-2 to-1)	January	0.0070	0.0140	5	5	0.0028	0.0028	No	No		
	February	0.0070	0.0140	5	5	0.0028	0.0028	No	No		
	March	0.0070	0.0140	5	5	0.0028	0.0028	No	No		
	April	0.139	0.279	5	5	0.0557	0.0557	No	No		
	May	0.123	0.246	5	5	0.0491	0.0491	No	No		
	June	0.0137	0.0273	5	5	0.0055	0.0055	No	No		
	July	0.0052	0.0105	5	5	0.0021	0.0021	No	No		
	August	0.0070	0.0140	5	5	0.0028	0.0028	No	No		
	September	0.0907	0.181	5	5	0.0363	0.0363	No	No		
	October	0.137	0.273	5	5	0.0546	0.0546	No	No		
	November	0.0070	0.0140	5	5	0.0028	0.0028	No	No		
	December	0.0070	0.0140	5	5	0.0028	0.0028	No	No		
Operation 1 Phase (1-23)	January	0.0140	0.0140	5	5	0.0028	0.0028	No	No		
	February	0.0140	0.0140	5	5	0.0028	0.0028	No	No		
	March	0.0140	0.0140	5	5	0.0028	0.0028	No	No		
	April	0.268	0.283	5	5	0.0565	0.0565	No	No		
	May	0.275	0.286	5	5	0.0572	0.0572	No	No		
	June	0.0987	0.510	5	5	0.1020	0.1020	No	No		
	July	0.0349	0.302	5	5	0.0604	0.0604	No	No		
	August	0.0266	0.303	5	5	0.0607	0.0607	No	No		
	September	0.148	0.305	5	5	0.0609	0.0609	No	No		
	October	0.257	0.305	5	5	0.0610	0.0610	No	No		
	November	0.0267	0.305	5	5	0.0610	0.0610	No	No		
	December	0.0267	0.305	5	5	0.0610	0.0610	No	No		
Operations 2 Phase (24-28)	January	0.304	0.305	5	5	0.0611	0.0611	No	No		
	February	0.304	0.305	5	5	0.0611	0.0611	No	No		
	March	0.305	0.306	5	5	0.0611	0.0611	No	No		
	April	0.305	0.306	5	5	0.0612	0.0612	No	No		
	May	0.305	0.306	5	5	0.0612	0.0612	No	No		
	June	0.304	0.304	5	5	0.0609	0.0609	No	No		
	July	0.301	0.302	5	5	0.0605	0.0605	No	No		
	August	0.300	0.301	5	5	0.0603	0.0603	No	No		
	September	0.301	0.302	5	5	0.0604	0.0604	No	No		
	October	0.302	0.302	5	5	0.0605	0.0605	No	No		
	November	0.302	0.303	5	5	0.0605	0.0605	No	No		
	December	0.303	0.303	5	5	0.0607	0.0607	No	No		
Closure Phase (29-35)	January	0.258	0.305	5	5	0.0610	0.0610	No	No		
	February	0.258	0.305	5	5	0.0610	0.0610	No	No		
	March	0.258	0.305	5	5	0.0609	0.0609	No	No		
	April	0.258	0.304	5	5	0.0609	0.0609	No	No		
	May	0.257	0.303	5	5	0.0605	0.0605	No	No		
	June	0.253	0.296	5	5	0.0593	0.0593	No	No		
	July	0.249	0.291	5	5	0.0581	0.0581	No	No		
	August	0.246	0.287	5	5	0.0574	0.0574	No	No		
	September	0.246	0.287	5	5	0.0574	0.0574	No	No		
	October	0.246	0.286	5	5	0.0573	0.0573	No	No		
	November	0.245	0.286	5	5	0.0571	0.0571	No	No		
	December	0.245	0.285	5	5	0.0571	0.0571	No	No		
Post-Closure Phase (36-99)	January	0.109	0.212	5	5	0.0425	0.0425	No	No		
	February	0.109	0.212	5	5	0.0425	0.0425	No	No		
	March	0.109	0.212	5	5	0.0425	0.0425	No	No		
	April	0.109	0.212	5	5	0.0425	0.0425	No	No		
	May	0.109	0.212	5	5	0.0424	0.0424	No	No		
	June	0.108	0.210	5	5	0.0419	0.0419	No	No		
	July	0.107	0.207	5	5	0.0414	0.0414	No	No		
	August	0.106	0.205	5	5	0.0410	0.0410	No	No		
	September	0.106	0.205	5	5	0.0410	0.0410	No	No		
	October	0.106	0.205	5	5	0.0410	0.0410	No	No		
	November	0.106	0.205	5	5	0.0409	0.0409	No	No		
	December	0.106	0.205	5	5	0.0409	0.0409	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1e. Open Pit (OP) Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

Project Phase		First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	17.1	34.1	1000	0.0341	No
	February	17.1	34.1	1000	0.0341	No
	March	17.1	34.1	1000	0.0341	No
	April	58.1	116	1000	0.116	No
	May	50.5	101	1000	0.101	No
	June	5.77	11.5	1000	0.0115	No
	July	4.01	8.02	1000	0.0080	No
	August	17.1	34.1	1000	0.0341	No
	September	43.1	86.1	1000	0.0861	No
	October	57.3	115	1000	0.115	No
	November	17.1	34.1	1000	0.0341	No
	December	17.1	34.1	1000	0.0341	No
Operation 1 Phase (1-23)	January	34.1	34.1	1000	0.0341	No
	February	34.1	34.1	1000	0.0341	No
	March	34.1	34.1	1000	0.0341	No
	April	113	117	1000	0.117	No
	May	114	119	1000	0.119	No
	June	49.6	200	1000	0.200	No
	July	33.9	196	1000	0.196	No
	August	41.2	197	1000	0.197	No
	September	78.9	197	1000	0.197	No
	October	113	197	1000	0.197	No
	November	41.1	196	1000	0.196	No
	December	41.2	197	1000	0.197	No
Operations 2 Phase (24-28)	January	196	197	1000	0.197	No
	February	196	197	1000	0.197	No
	March	196	197	1000	0.197	No
	April	197	198	1000	0.198	No
	May	196	197	1000	0.197	No
	June	195	195	1000	0.195	No
	July	193	194	1000	0.194	No
	August	192	193	1000	0.193	No
	September	193	194	1000	0.194	No
	October	194	194	1000	0.194	No
	November	194	194	1000	0.194	No
	December	195	195	1000	0.195	No
Closure Phase (29-35)	January	168	196	1000	0.196	No
	February	168	195	1000	0.195	No
	March	168	195	1000	0.195	No
	April	168	195	1000	0.195	No
	May	168	194	1000	0.194	No
	June	165	191	1000	0.191	No
	July	163	187	1000	0.187	No
	August	161	185	1000	0.185	No
	September	161	185	1000	0.185	No
	October	161	185	1000	0.185	No
	November	161	184	1000	0.184	No
	December	161	184	1000	0.184	No
Post-Closure Phase (36-99)	January	88.1	142	1000	0.142	No
	February	88.0	142	1000	0.142	No
	March	88.0	142	1000	0.142	No
	April	88.0	142	1000	0.142	No
	May	88.4	142	1000	0.142	No
	June	88.6	141	1000	0.141	No
	July	87.5	139	1000	0.139	No
	August	86.8	138	1000	0.138	No
	September	86.8	138	1000	0.138	No
	October	86.8	137	1000	0.137	No
	November	87.0	137	1000	0.137	No
	December	87.0	137	1000	0.137	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D1f. Open Pit (OP) Hazard Quotients for Total Cadmium Concentrations, Expected Case

		First Screening Step				Retained as COPC?
Project Phase	Months	Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Livestock
		Mean	Maximum	Maximum Predicted vs. BC MOE Working Guideline		
				BC MOE Working	Working Guideline	
Construction (-2 to-1)	January	0.00001	0.00003	0.08	0.00031	No
	February	0.00001	0.00003	0.08	0.00031	No
	March	0.00001	0.00003	0.08	0.00031	No
	April	0.00004	0.00008	0.08	0.00099	No
	May	0.00003	0.00007	0.08	0.00086	No
	June	0.00000	0.00001	0.08	0.00010	No
	July	0.00000	0.00001	0.08	0.00007	No
	August	0.00001	0.00003	0.08	0.00031	No
	September	0.00003	0.00006	0.08	0.00074	No
	October	0.00004	0.00008	0.08	0.00097	No
	November	0.00001	0.00003	0.08	0.00031	No
	December	0.00001	0.00003	0.08	0.00031	No
Operation 1 Phase (1-23)	January	0.00003	0.00003	0.08	0.00031	No
	February	0.00003	0.00003	0.08	0.00031	No
	March	0.00003	0.00003	0.08	0.00031	No
	April	0.00008	0.00008	0.08	0.00100	No
	May	0.00008	0.00008	0.08	0.00101	No
	June	0.00003	0.00004	0.08	0.00054	No
	July	0.00002	0.00012	0.08	0.00154	No
	August	0.00003	0.00012	0.08	0.00155	No
	September	0.00006	0.00018	0.08	0.00222	No
	October	0.00008	0.00019	0.08	0.00236	No
	November	0.00003	0.00021	0.08	0.00262	No
	December	0.00003	0.00023	0.08	0.00281	No
Operations 2 Phase (24-28)	January	0.00093	0.00165	0.08	0.0207	No
	February	0.00097	0.00170	0.08	0.0212	No
	March	0.00100	0.00174	0.08	0.0217	No
	April	0.00104	0.00178	0.08	0.0223	No
	May	0.00107	0.00181	0.08	0.0227	No
	June	0.00108	0.00182	0.08	0.0227	No
	July	0.00111	0.00184	0.08	0.0230	No
	August	0.00113	0.00187	0.08	0.0234	No
	September	0.00117	0.00192	0.08	0.0240	No
	October	0.00120	0.00197	0.08	0.0246	No
	November	0.00124	0.00201	0.08	0.0251	No
	December	0.00127	0.00207	0.08	0.0258	No
Closure Phase (29-35)	January	0.00166	0.00206	0.08	0.0258	No
	February	0.00166	0.00206	0.08	0.0258	No
	March	0.00165	0.00206	0.08	0.0258	No
	April	0.00165	0.00206	0.08	0.0257	No
	May	0.00164	0.00204	0.08	0.0255	No
	June	0.00160	0.00197	0.08	0.0247	No
	July	0.00157	0.00194	0.08	0.0242	No
	August	0.00156	0.00191	0.08	0.0239	No
	September	0.00156	0.00191	0.08	0.0239	No
	October	0.00155	0.00191	0.08	0.0238	No
	November	0.00154	0.00189	0.08	0.0237	No
	December	0.00154	0.00189	0.08	0.0237	No
Post-Closure Phase (36-99)	January	0.00041	0.00127	0.08	0.0158	No
	February	0.00041	0.00127	0.08	0.0158	No
	March	0.00041	0.00127	0.08	0.0158	No
	April	0.00041	0.00127	0.08	0.0158	No
	May	0.00041	0.00126	0.08	0.0157	No
	June	0.00040	0.00123	0.08	0.0154	No
	July	0.00039	0.00122	0.08	0.0152	No
	August	0.00039	0.00121	0.08	0.0151	No
	September	0.00039	0.00121	0.08	0.0151	No
	October	0.00039	0.00121	0.08	0.0151	No
	November	0.00039	0.00120	0.08	0.0150	No
	December	0.00039	0.00120	0.08	0.0150	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D1g. Open Pit (OP) Hazard Quotients for Total Chromium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0005	0.0010	0.05	0.0200	No
	February	0.0005	0.0010	0.05	0.0200	No
	March	0.0005	0.0010	0.05	0.0200	No
	April	0.0003	0.0005	0.05	0.0107	No
	May	0.0002	0.0004	0.05	0.0088	No
	June	0.0001	0.0001	0.05	0.0027	No
	July	0.0001	0.0002	0.05	0.0043	No
	August	0.0005	0.0010	0.05	0.0200	No
	September	0.0004	0.0007	0.05	0.0141	No
	October	0.0003	0.0005	0.05	0.0109	No
	November	0.0005	0.0010	0.05	0.0200	No
	December	0.0005	0.0010	0.05	0.0200	No
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.05	0.0200	No
	February	0.0010	0.0010	0.05	0.0200	No
	March	0.0010	0.0010	0.05	0.0200	No
	April	0.0006	0.0006	0.05	0.0116	No
	May	0.0005	0.0005	0.05	0.0108	No
	June	0.0007	0.0018	0.05	0.0353	No
	July	0.0007	0.0010	0.05	0.0200	No
	August	0.0010	0.0010	0.05	0.0200	No
	September	0.0008	0.0008	0.05	0.0167	No
	October	0.0006	0.0006	0.05	0.0123	No
	November	0.0010	0.0010	0.05	0.0200	No
	December	0.0010	0.0010	0.05	0.0200	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.05	0.0106	No
	February	0.0005	0.0005	0.05	0.0106	No
	March	0.0005	0.0005	0.05	0.0106	No
	April	0.0005	0.0005	0.05	0.0106	No
	May	0.0005	0.0005	0.05	0.0106	No
	June	0.0005	0.0005	0.05	0.0105	No
	July	0.0005	0.0005	0.05	0.0105	No
	August	0.0005	0.0005	0.05	0.0104	No
	September	0.0005	0.0005	0.05	0.0104	No
	October	0.0005	0.0005	0.05	0.0104	No
	November	0.0005	0.0005	0.05	0.0104	No
	December	0.0005	0.0005	0.05	0.0104	No
Closure Phase (29-35)	January	0.0006	0.0006	0.05	0.0120	No
	February	0.0006	0.0006	0.05	0.0120	No
	March	0.0006	0.0006	0.05	0.0120	No
	April	0.0006	0.0006	0.05	0.0120	No
	May	0.0006	0.0006	0.05	0.0121	No
	June	0.0006	0.0006	0.05	0.0122	No
	July	0.0006	0.0006	0.05	0.0121	No
	August	0.0006	0.0006	0.05	0.0120	No
	September	0.0006	0.0006	0.05	0.0120	No
	October	0.0006	0.0006	0.05	0.0120	No
	November	0.0006	0.0006	0.05	0.0121	No
	December	0.0006	0.0006	0.05	0.0121	No
Post-Closure Phase (36-99)	January	0.0007	0.0009	0.05	0.0176	No
	February	0.0007	0.0009	0.05	0.0176	No
	March	0.0007	0.0009	0.05	0.0176	No
	April	0.0007	0.0009	0.05	0.0176	No
	May	0.0007	0.0009	0.05	0.0177	No
	June	0.0008	0.0009	0.05	0.0179	No
	July	0.0007	0.0009	0.05	0.0177	No
	August	0.0007	0.0009	0.05	0.0175	No
	September	0.0007	0.0009	0.05	0.0175	No
	October	0.0007	0.0009	0.05	0.0175	No
	November	0.0007	0.0009	0.05	0.0176	No
	December	0.0007	0.0009	0.05	0.0176	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1h. Open Pit (OP) Hazard Quotients for Total Cobalt Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0004	0.0008	1	0.0008	No
	February	0.0004	0.0008	1	0.0008	No
	March	0.0004	0.0008	1	0.0008	No
	April	0.0003	0.0006	1	0.0006	No
	May	0.0003	0.0005	1	0.0005	No
	June	0.0001	0.0001	1	0.0001	No
	July	0.0001	0.0002	1	0.0002	No
	August	0.0004	0.0008	1	0.0008	No
	September	0.0003	0.0007	1	0.0007	No
	October	0.0003	0.0006	1	0.0006	No
	November	0.0004	0.0008	1	0.0008	No
	December	0.0004	0.0008	1	0.0008	No
Operation 1 Phase (1-23)	January	0.0008	0.0008	1	0.0008	No
	February	0.0008	0.0008	1	0.0008	No
	March	0.0008	0.0008	1	0.0008	No
	April	0.0006	0.0006	1	0.0006	No
	May	0.0006	0.0006	1	0.0006	No
	June	0.0006	0.0020	1	0.0020	No
	July	0.0006	0.0028	1	0.0028	No
	August	0.0008	0.0028	1	0.0028	No
	September	0.0008	0.0032	1	0.0032	No
	October	0.0008	0.0033	1	0.0033	No
	November	0.0009	0.0035	1	0.0035	No
	December	0.0009	0.0036	1	0.0036	No
Operations 2 Phase (24-28)	January	0.0097	0.0159	1	0.0159	No
	February	0.0100	0.0163	1	0.0163	No
	March	0.0103	0.0166	1	0.0166	No
	April	0.0107	0.0170	1	0.0170	No
	May	0.0109	0.0173	1	0.0173	No
	June	0.0110	0.0173	1	0.0173	No
	July	0.0112	0.0175	1	0.0175	No
	August	0.0114	0.0177	1	0.0177	No
	September	0.0117	0.0182	1	0.0182	No
	October	0.0120	0.0186	1	0.0186	No
	November	0.0123	0.0189	1	0.0189	No
	December	0.0126	0.0194	1	0.0194	No
Closure Phase (29-35)	January	0.0156	0.0194	1	0.0194	No
	February	0.0156	0.0194	1	0.0194	No
	March	0.0156	0.0194	1	0.0194	No
	April	0.0156	0.0194	1	0.0194	No
	May	0.0154	0.0192	1	0.0192	No
	June	0.0150	0.0186	1	0.0186	No
	July	0.0148	0.0182	1	0.0182	No
	August	0.0146	0.0180	1	0.0180	No
	September	0.0146	0.0180	1	0.0180	No
	October	0.0146	0.0179	1	0.0179	No
	November	0.0145	0.0178	1	0.0178	No
	December	0.0145	0.0178	1	0.0178	No
Post-Closure Phase (36-99)	January	0.0038	0.0119	1	0.0119	No
	February	0.0038	0.0119	1	0.0119	No
	March	0.0038	0.0119	1	0.0119	No
	April	0.0038	0.0119	1	0.0119	No
	May	0.0038	0.0118	1	0.0118	No
	June	0.0037	0.0116	1	0.0116	No
	July	0.0037	0.0115	1	0.0115	No
	August	0.0036	0.0114	1	0.0114	No
	September	0.0036	0.0114	1	0.0114	No
	October	0.0036	0.0113	1	0.0113	No
	November	0.0036	0.0113	1	0.0113	No
	December	0.0036	0.0113	1	0.0113	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1i. Open Pit (OP) Hazard Quotients for Total Copper Concentrations, Expected Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	February	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	March	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	April	0.0029	0.0058	0.3	0.3	0.0194	0.0194	No	No
	May	0.0025	0.0051	0.3	0.3	0.0170	0.0170	No	No
	June	0.0003	0.0005	0.3	0.3	0.0018	0.0018	No	No
	July	0.0001	0.0003	0.3	0.3	0.0009	0.0009	No	No
	August	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	September	0.0020	0.0041	0.3	0.3	0.0136	0.0136	No	No
	October	0.0029	0.0057	0.3	0.3	0.0191	0.0191	No	No
	November	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	December	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.3	0.3	0.0034	0.0034	No	No
	February	0.0010	0.0010	0.3	0.3	0.0034	0.0034	No	No
	March	0.0010	0.0010	0.3	0.3	0.0034	0.0034	No	No
	April	0.0056	0.0059	0.3	0.3	0.0197	0.0197	No	No
	May	0.0057	0.0060	0.3	0.3	0.0199	0.0199	No	No
	June	0.0028	0.0234	0.3	0.3	0.0779	0.0779	No	No
	July	0.0021	0.0306	0.3	0.3	0.102	0.102	No	No
	August	0.0023	0.0307	0.3	0.3	0.102	0.102	No	No
	September	0.0047	0.0339	0.3	0.3	0.113	0.113	No	No
	October	0.0067	0.0345	0.3	0.3	0.115	0.115	No	No
	November	0.0025	0.0344	0.3	0.3	0.115	0.115	No	No
	December	0.0025	0.0347	0.3	0.3	0.116	0.116	No	No
Operations 2 Phase (24-28)	January	0.0349	0.0351	0.3	0.3	0.117	0.117	No	No
	February	0.0351	0.0352	0.3	0.3	0.117	0.117	No	No
	March	0.0352	0.0353	0.3	0.3	0.118	0.118	No	No
	April	0.0352	0.0355	0.3	0.3	0.118	0.118	No	No
	May	0.0351	0.0353	0.3	0.3	0.118	0.118	No	No
	June	0.0346	0.0347	0.3	0.3	0.116	0.116	No	No
	July	0.0344	0.0345	0.3	0.3	0.115	0.115	No	No
	August	0.0343	0.0344	0.3	0.3	0.115	0.115	No	No
	September	0.0345	0.0346	0.3	0.3	0.115	0.115	No	No
	October	0.0347	0.0347	0.3	0.3	0.116	0.116	No	No
	November	0.0347	0.0348	0.3	0.3	0.116	0.116	No	No
	December	0.0348	0.0350	0.3	0.3	0.117	0.117	No	No
Closure Phase (29-35)	January	0.0286	0.0351	0.3	0.3	0.117	0.117	No	No
	February	0.0286	0.0350	0.3	0.3	0.117	0.117	No	No
	March	0.0286	0.0350	0.3	0.3	0.117	0.117	No	No
	April	0.0286	0.0350	0.3	0.3	0.117	0.117	No	No
	May	0.0284	0.0346	0.3	0.3	0.115	0.115	No	No
	June	0.0278	0.0337	0.3	0.3	0.112	0.112	No	No
	July	0.0273	0.0330	0.3	0.3	0.110	0.110	No	No
	August	0.0270	0.0326	0.3	0.3	0.109	0.109	No	No
	September	0.0270	0.0326	0.3	0.3	0.109	0.109	No	No
	October	0.0270	0.0325	0.3	0.3	0.108	0.108	No	No
	November	0.0269	0.0324	0.3	0.3	0.108	0.108	No	No
	December	0.0268	0.0323	0.3	0.3	0.108	0.108	No	No
Post-Closure Phase (36-99)	January	0.0090	0.0225	0.3	0.3	0.0749	0.0749	No	No
	February	0.0090	0.0224	0.3	0.3	0.0748	0.0748	No	No
	March	0.0090	0.0224	0.3	0.3	0.0748	0.0748	No	No
	April	0.0090	0.0224	0.3	0.3	0.0748	0.0748	No	No
	May	0.0090	0.0223	0.3	0.3	0.0744	0.0744	No	No
	June	0.0089	0.0220	0.3	0.3	0.0733	0.0733	No	No
	July	0.0088	0.0217	0.3	0.3	0.0723	0.0723	No	No
	August	0.0087	0.0215	0.3	0.3	0.0716	0.0716	No	No
	September	0.0087	0.0215	0.3	0.3	0.0716	0.0716	No	No
	October	0.0087	0.0215	0.3	0.3	0.0715	0.0715	No	No
	November	0.0087	0.0214	0.3	0.3	0.0714	0.0714	No	No
	December	0.0087	0.0214	0.3	0.3	0.0713	0.0713	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1j. Open Pit (OP) Hazard Quotients for Total Lead Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0001	0.0003	0.1	0.1	0.0027	0.0027	No	No
	February	0.0001	0.0003	0.1	0.1	0.0027	0.0027	No	No
	March	0.0001	0.0003	0.1	0.1	0.0027	0.0027	No	No
	April	0.0002	0.0004	0.1	0.1	0.0041	0.0041	No	No
	May	0.0002	0.0004	0.1	0.1	0.0035	0.0035	No	No
	June	0.0000	0.0001	0.1	0.1	0.0005	0.0005	No	No
	July	0.0000	0.0001	0.1	0.1	0.0006	0.0006	No	No
	August	0.0001	0.0003	0.1	0.1	0.0027	0.0027	No	No
	September	0.0002	0.0004	0.1	0.1	0.0036	0.0036	No	No
	October	0.0002	0.0004	0.1	0.1	0.0041	0.0041	No	No
	November	0.0001	0.0003	0.1	0.1	0.0027	0.0027	No	No
	December	0.0001	0.0003	0.1	0.1	0.0027	0.0027	No	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.1	0.1	0.0027	0.0027	No	No
	February	0.0003	0.0003	0.1	0.1	0.0027	0.0027	No	No
	March	0.0003	0.0003	0.1	0.1	0.0027	0.0027	No	No
	April	0.0004	0.0004	0.1	0.1	0.0042	0.0042	No	No
	May	0.0004	0.0004	0.1	0.1	0.0042	0.0042	No	No
	June	0.0002	0.0004	0.1	0.1	0.0044	0.0044	No	No
	July	0.0002	0.0004	0.1	0.1	0.0044	0.0044	No	No
	August	0.0003	0.0004	0.1	0.1	0.0044	0.0044	No	No
	September	0.0003	0.0004	0.1	0.1	0.0045	0.0045	No	No
	October	0.0004	0.0004	0.1	0.1	0.0045	0.0045	No	No
	November	0.0003	0.0004	0.1	0.1	0.0045	0.0045	No	No
	December	0.0003	0.0005	0.1	0.1	0.0045	0.0045	No	No
Operations 2 Phase (24-28)	January	0.0005	0.0006	0.1	0.1	0.0057	0.0057	No	No
	February	0.0005	0.0006	0.1	0.1	0.0057	0.0057	No	No
	March	0.0005	0.0006	0.1	0.1	0.0058	0.0058	No	No
	April	0.0005	0.0006	0.1	0.1	0.0058	0.0058	No	No
	May	0.0005	0.0006	0.1	0.1	0.0059	0.0059	No	No
	June	0.0005	0.0006	0.1	0.1	0.0058	0.0058	No	No
	July	0.0005	0.0006	0.1	0.1	0.0058	0.0058	No	No
	August	0.0005	0.0006	0.1	0.1	0.0058	0.0058	No	No
	September	0.0005	0.0006	0.1	0.1	0.0059	0.0059	No	No
	October	0.0005	0.0006	0.1	0.1	0.0059	0.0059	No	No
	November	0.0005	0.0006	0.1	0.1	0.0060	0.0060	No	No
	December	0.0005	0.0006	0.1	0.1	0.0060	0.0060	No	No
Closure Phase (29-35)	January	0.0005	0.0006	0.1	0.1	0.0060	0.0060	No	No
	February	0.0005	0.0006	0.1	0.1	0.0060	0.0060	No	No
	March	0.0005	0.0006	0.1	0.1	0.0060	0.0060	No	No
	April	0.0005	0.0006	0.1	0.1	0.0060	0.0060	No	No
	May	0.0005	0.0006	0.1	0.1	0.0060	0.0060	No	No
	June	0.0005	0.0006	0.1	0.1	0.0059	0.0059	No	No
	July	0.0005	0.0006	0.1	0.1	0.0058	0.0058	No	No
	August	0.0005	0.0006	0.1	0.1	0.0057	0.0057	No	No
	September	0.0005	0.0006	0.1	0.1	0.0057	0.0057	No	No
	October	0.0005	0.0006	0.1	0.1	0.0057	0.0057	No	No
	November	0.0005	0.0006	0.1	0.1	0.0057	0.0057	No	No
	December	0.0005	0.0006	0.1	0.1	0.0057	0.0057	No	No
Post-Closure Phase (36-99)	January	0.0003	0.0005	0.1	0.1	0.0045	0.0045	No	No
	February	0.0003	0.0005	0.1	0.1	0.0045	0.0045	No	No
	March	0.0003	0.0005	0.1	0.1	0.0045	0.0045	No	No
	April	0.0003	0.0005	0.1	0.1	0.0045	0.0045	No	No
	May	0.0003	0.0005	0.1	0.1	0.0045	0.0045	No	No
	June	0.0003	0.0004	0.1	0.1	0.0045	0.0045	No	No
	July	0.0003	0.0004	0.1	0.1	0.0044	0.0044	No	No
	August	0.0003	0.0004	0.1	0.1	0.0044	0.0044	No	No
	September	0.0003	0.0004	0.1	0.1	0.0044	0.0044	No	No
	October	0.0003	0.0004	0.1	0.1	0.0044	0.0044	No	No
	November	0.0003	0.0004	0.1	0.1	0.0044	0.0044	No	No
	December	0.0003	0.0004	0.1	0.1	0.0044	0.0044	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1k. Open Pit (OP) Hazard Quotients for Total Mercury Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?		
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
		Mean	Maximum	BC MOE 30-Day Mean if MeHg is 0.5% of THg	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE Maximum Guideline	Wildlife	Livestock
Construction (-2 to-1)	January	0.000025	0.000050	0.0002	0.003	0.125	0.250	0.00167	No	No
	February	0.000025	0.000050	0.0002	0.003	0.125	0.250	0.00167	No	No
	March	0.000025	0.000050	0.0002	0.003	0.125	0.250	0.00167	No	No
	April	0.000002	0.000004	0.0002	0.003	0.00925	0.0185	0.000123	No	No
	May	0.000001	0.000001	0.0002	0.003	0.00359	0.00718	0.0000478	No	No
	June	0.000002	0.000004	0.0002	0.003	0.0104	0.0207	0.000138	No	No
	July	0.000005	0.000010	0.0002	0.003	0.0247	0.0495	0.000330	No	No
	August	0.000025	0.000050	0.0002	0.003	0.125	0.250	0.00167	No	No
	September	0.000010	0.000021	0.0002	0.003	0.0518	0.104	0.000691	No	No
	October	0.000002	0.000005	0.0002	0.003	0.0117	0.0235	0.000157	No	No
	November	0.000025	0.000050	0.0002	0.003	0.125	0.250	0.00167	No	No
	December	0.000025	0.000050	0.0002	0.003	0.125	0.250	0.00167	No	No
Operation 1 Phase (1-23)	January	0.000050	0.000050	0.0002	0.003	0.250	0.250	0.00167	No	No
	February	0.000050	0.000050	0.0002	0.003	0.250	0.250	0.00167	No	No
	March	0.000050	0.000050	0.0002	0.003	0.250	0.250	0.00167	No	No
	April	0.000006	0.000008	0.0002	0.003	0.0277	0.0407	0.000271	No	No
	May	0.000003	0.000004	0.0002	0.003	0.0133	0.0205	0.000137	No	No
	June	0.000063	0.0000911	0.0002	0.003	0.313	4.55	0.0304	Yes	No
	July	0.000074	0.000097	0.0002	0.003	0.368	4.54	0.0302	Yes	No
	August	0.000087	0.0000911	0.0002	0.003	0.437	4.56	0.0304	Yes	No
	September	0.000066	0.0000911	0.0002	0.003	0.331	4.55	0.0304	Yes	No
	October	0.000047	0.0000910	0.0002	0.003	0.236	4.55	0.0303	Yes	No
	November	0.000087	0.0000896	0.0002	0.003	0.434	4.48	0.0299	Yes	No
	December	0.000087	0.0000901	0.0002	0.003	0.435	4.51	0.0300	Yes	No
Operations 2 Phase (24-28)	January	0.0000859	0.0000901	0.0002	0.003	4.29	4.51	0.0300	Yes	No
	February	0.0000860	0.0000903	0.0002	0.003	4.30	4.51	0.0301	Yes	No
	March	0.0000862	0.0000904	0.0002	0.003	4.31	4.52	0.0301	Yes	No
	April	0.0000863	0.0000905	0.0002	0.003	4.32	4.52	0.0302	Yes	No
	May	0.0000858	0.0000897	0.0002	0.003	4.29	4.49	0.0299	Yes	No
	June	0.0000844	0.0000880	0.0002	0.003	4.22	4.40	0.0293	Yes	No
	July	0.0000838	0.0000876	0.0002	0.003	4.19	4.38	0.0292	Yes	No
	August	0.0000834	0.0000873	0.0002	0.003	4.17	4.37	0.0291	Yes	No
	September	0.0000837	0.0000875	0.0002	0.003	4.18	4.37	0.0292	Yes	No
	October	0.0000837	0.0000875	0.0002	0.003	4.19	4.37	0.0292	Yes	No
	November	0.0000835	0.0000873	0.0002	0.003	4.18	4.36	0.0291	Yes	No
	December	0.0000837	0.0000874	0.0002	0.003	4.19	4.37	0.0291	Yes	No
Closure Phase (29-35)	January	0.0000660	0.0000800	0.0002	0.003	3.30	4.00	0.0267	Yes	No
	February	0.0000660	0.0000800	0.0002	0.003	3.30	4.00	0.0267	Yes	No
	March	0.0000659	0.0000799	0.0002	0.003	3.30	4.00	0.0266	Yes	No
	April	0.0000659	0.0000798	0.0002	0.003	3.30	3.99	0.0266	Yes	No
	May	0.0000655	0.0000792	0.0002	0.003	3.28	3.96	0.0264	Yes	No
	June	0.0000642	0.0000771	0.0002	0.003	3.21	3.86	0.0257	Yes	No
	July	0.0000632	0.0000757	0.0002	0.003	3.16	3.78	0.0252	Yes	No
	August	0.0000625	0.0000747	0.0002	0.003	3.13	3.73	0.0249	Yes	No
	September	0.0000625	0.0000747	0.0002	0.003	3.13	3.74	0.0249	Yes	No
	October	0.0000624	0.0000745	0.0002	0.003	3.12	3.73	0.0248	Yes	No
	November	0.0000622	0.0000742	0.0002	0.003	3.11	3.71	0.0247	Yes	No
	December	0.0000621	0.0000741	0.0002	0.003	3.11	3.71	0.0247	Yes	No
Post-Closure Phase (36-99)	January	0.0000238	0.0000526	0.0002	0.003	1.19	2.63	0.0175	Yes	No
	February	0.0000238	0.0000526	0.0002	0.003	1.19	2.63	0.0175	Yes	No
	March	0.0000238	0.0000526	0.0002	0.003	1.19	2.63	0.0175	Yes	No
	April	0.0000238	0.0000525	0.0002	0.003	1.19	2.63	0.0175	Yes	No
	May	0.0000238	0.0000523	0.0002	0.003	1.19	2.62	0.0174	Yes	No
	June	0.0000237	0.0000516	0.0002	0.003	1.18	2.58	0.0172	Yes	No
	July	0.0000234	0.0000509	0.0002	0.003	1.17	2.55	0.0170	Yes	No
	August	0.0000232	0.0000505	0.0002	0.003	1.16	2.52	0.0168	Yes	No
	September	0.0000232	0.0000505	0.0002	0.003	1.16	2.52	0.0168	Yes	No
	October	0.0000232	0.0000504	0.0002	0.003	1.16	2.52	0.0168	Yes	No
	November	0.0000232	0.0000503	0.0002	0.003	1.16	2.51	0.0168	Yes	No
	December	0.0000232	0.0000503	0.0002	0.003	1.16	2.51	0.0168	Yes	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D11. Open Pit (OP) Hazard Quotients for Total Molybdenum Concentrations, Expected Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
	February	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
	March	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
	April	0.0069	0.0137	0.05	0.05	0.274	0.274	No	No
	May	0.0060	0.0120	0.05	0.05	0.241	0.241	No	No
	June	0.0006	0.0011	0.05	0.05	0.0221	0.0221	No	No
	July	0.0001	0.0003	0.05	0.05	0.0057	0.0057	No	No
	August	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
	September	0.0045	0.0089	0.05	0.05	0.179	0.179	No	No
	October	0.0067	0.0134	0.05	0.05	0.269	0.269	No	No
	November	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
	December	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
Operation 1 Phase (1-23)	January	0.0007	0.0007	0.05	0.05	0.0133	0.0133	No	No
	February	0.0007	0.0007	0.05	0.05	0.0133	0.0133	No	No
	March	0.0007	0.0007	0.05	0.05	0.0133	0.0133	No	No
	April	0.0132	0.0139	0.05	0.05	0.278	0.278	No	No
	May	0.0135	0.0141	0.05	0.05	0.282	0.282	No	No
	June	0.0108	0.171	0.05	0.05	3.42	3.42	Yes	Yes
	July	0.0059	0.121	0.05	0.05	2.41	2.41	Yes	Yes
	August	0.0059	0.121	0.05	0.05	2.42	2.42	Yes	Yes
	September	0.0119	0.122	0.05	0.05	2.43	2.43	Yes	Yes
	October	0.0173	0.121	0.05	0.05	2.43	2.43	Yes	Yes
	November	0.0058	0.120	0.05	0.05	2.39	2.39	Yes	Yes
	December	0.0059	0.120	0.05	0.05	2.41	2.41	Yes	Yes
Operations 2 Phase (24-28)	January	0.119	0.121	0.05	0.05	2.41	2.41	Yes	Yes
	February	0.120	0.121	0.05	0.05	2.42	2.42	Yes	Yes
	March	0.120	0.121	0.05	0.05	2.42	2.42	Yes	Yes
	April	0.120	0.121	0.05	0.05	2.43	2.43	Yes	Yes
	May	0.120	0.120	0.05	0.05	2.41	2.41	Yes	Yes
	June	0.118	0.118	0.05	0.05	2.37	2.37	Yes	Yes
	July	0.117	0.118	0.05	0.05	2.36	2.36	Yes	Yes
	August	0.117	0.118	0.05	0.05	2.35	2.35	Yes	Yes
	September	0.118	0.118	0.05	0.05	2.36	2.36	Yes	Yes
	October	0.118	0.118	0.05	0.05	2.36	2.36	Yes	Yes
	November	0.118	0.118	0.05	0.05	2.36	2.36	Yes	Yes
	December	0.118	0.118	0.05	0.05	2.37	2.37	Yes	Yes
Closure Phase (29-35)	January	0.0968	0.119	0.05	0.05	2.38	2.38	Yes	Yes
	February	0.0968	0.119	0.05	0.05	2.38	2.38	Yes	Yes
	March	0.0967	0.119	0.05	0.05	2.38	2.38	Yes	Yes
	April	0.0966	0.119	0.05	0.05	2.38	2.38	Yes	Yes
	May	0.0959	0.118	0.05	0.05	2.35	2.35	Yes	Yes
	June	0.0938	0.114	0.05	0.05	2.29	2.29	Yes	Yes
	July	0.0923	0.112	0.05	0.05	2.24	2.24	Yes	Yes
	August	0.0913	0.111	0.05	0.05	2.21	2.21	Yes	Yes
	September	0.0913	0.111	0.05	0.05	2.21	2.21	Yes	Yes
	October	0.0911	0.110	0.05	0.05	2.21	2.21	Yes	Yes
	November	0.0907	0.110	0.05	0.05	2.20	2.20	Yes	Yes
	December	0.0906	0.110	0.05	0.05	2.19	2.19	Yes	Yes
Post-Closure Phase (36-99)	January	0.0281	0.0755	0.05	0.05	1.51	1.51	Yes	Yes
	February	0.0281	0.0754	0.05	0.05	1.51	1.51	Yes	Yes
	March	0.0281	0.0754	0.05	0.05	1.51	1.51	Yes	Yes
	April	0.0281	0.0754	0.05	0.05	1.51	1.51	Yes	Yes
	May	0.0280	0.0750	0.05	0.05	1.50	1.50	Yes	Yes
	June	0.0277	0.0738	0.05	0.05	1.48	1.48	Yes	Yes
	July	0.0274	0.0728	0.05	0.05	1.46	1.46	Yes	Yes
	August	0.0271	0.0721	0.05	0.05	1.44	1.44	Yes	Yes
	September	0.0271	0.0721	0.05	0.05	1.44	1.44	Yes	Yes
	October	0.0271	0.0720	0.05	0.05	1.44	1.44	Yes	Yes
	November	0.0271	0.0718	0.05	0.05	1.44	1.44	Yes	Yes
	December	0.0271	0.0718	0.05	0.05	1.44	1.44	Yes	Yes

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1m. Open Pit (OP) Hazard Quotients for Total Nickel Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0007	0.0015	1	0.0015	No
	February	0.0007	0.0015	1	0.0015	No
	March	0.0007	0.0015	1	0.0015	No
	April	0.0018	0.0037	1	0.0037	No
	May	0.0016	0.0032	1	0.0032	No
	June	0.0002	0.0004	1	0.0004	No
	July	0.0002	0.0003	1	0.0003	No
	August	0.0007	0.0015	1	0.0015	No
	September	0.0014	0.0029	1	0.0029	No
	October	0.0018	0.0036	1	0.0036	No
	November	0.0007	0.0015	1	0.0015	No
	December	0.0007	0.0015	1	0.0015	No
Operation 1 Phase (1-23)	January	0.0015	0.0015	1	0.0015	No
	February	0.0015	0.0015	1	0.0015	No
	March	0.0015	0.0015	1	0.0015	No
	April	0.0036	0.0037	1	0.0037	No
	May	0.0036	0.0038	1	0.0038	No
	June	0.0017	0.0062	1	0.0062	No
	July	0.0014	0.0065	1	0.0065	No
	August	0.0017	0.0066	1	0.0066	No
	September	0.0027	0.0068	1	0.0068	No
	October	0.0036	0.0069	1	0.0069	No
	November	0.0017	0.0069	1	0.0069	No
	December	0.0017	0.0070	1	0.0070	No
Operations 2 Phase (24-28)	January	0.0102	0.0135	1	0.0135	No
	February	0.0104	0.0137	1	0.0137	No
	March	0.0106	0.0139	1	0.0139	No
	April	0.0108	0.0142	1	0.0142	No
	May	0.0109	0.0143	1	0.0143	No
	June	0.0109	0.0143	1	0.0143	No
	July	0.0110	0.0143	1	0.0143	No
	August	0.0111	0.0144	1	0.0144	No
	September	0.0113	0.0147	1	0.0147	No
	October	0.0114	0.0149	1	0.0149	No
	November	0.0116	0.0151	1	0.0151	No
	December	0.0118	0.0154	1	0.0154	No
Closure Phase (29-35)	January	0.0127	0.0154	1	0.0154	No
	February	0.0127	0.0154	1	0.0154	No
	March	0.0127	0.0154	1	0.0154	No
	April	0.0127	0.0153	1	0.0153	No
	May	0.0126	0.0152	1	0.0152	No
	June	0.0123	0.0148	1	0.0148	No
	July	0.0121	0.0145	1	0.0145	No
	August	0.0120	0.0144	1	0.0144	No
	September	0.0120	0.0144	1	0.0144	No
	October	0.0120	0.0143	1	0.0143	No
	November	0.0119	0.0143	1	0.0143	No
	December	0.0119	0.0142	1	0.0142	No
Post-Closure Phase (36-99)	January	0.0045	0.0101	1	0.0101	No
	February	0.0045	0.0101	1	0.0101	No
	March	0.0045	0.0101	1	0.0101	No
	April	0.0045	0.0101	1	0.0101	No
	May	0.0045	0.0100	1	0.0100	No
	June	0.0044	0.0099	1	0.0099	No
	July	0.0044	0.0098	1	0.0098	No
	August	0.0043	0.0097	1	0.0097	No
	September	0.0043	0.0097	1	0.0097	No
	October	0.0043	0.0097	1	0.0097	No
	November	0.0043	0.0096	1	0.0096	No
	December	0.0043	0.0096	1	0.0096	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D1n. Open Pit (OP) Hazard Quotients for Total Selenium Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?		
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
		Mean	Maximum	30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Wildlife	Livestock
Construction (-2 to-1)	January	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
	February	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
	March	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
	April	0.00339	0.00678	0.002	0.03	1.69	3.39	0.226	Yes	No
	May	0.00298	0.00596	0.002	0.03	1.49	2.98	0.199	Yes	No
	June	0.00026	0.00052	0.002	0.03	0.131	0.262	0.0174	No	No
	July	0.00004	0.00009	0.002	0.03	0.0215	0.0429	0.00286	No	No
	August	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
	September	0.00215	0.00431	0.002	0.03	1.08	2.15	0.144	Yes	No
	October	0.00332	0.00664	0.002	0.03	1.66	3.32	0.221	Yes	No
	November	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
	December	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
Operation 1 Phase (1-23)	January	0.00005	0.00005	0.002	0.03	0.0250	0.0250	0.00167	No	No
	February	0.00005	0.00005	0.002	0.03	0.0250	0.0250	0.00167	No	No
	March	0.00005	0.00005	0.002	0.03	0.0250	0.0250	0.00167	No	No
	April	0.00652	0.00688	0.002	0.03	3.26	3.44	0.229	Yes	No
	May	0.00667	0.00697	0.002	0.03	3.33	3.48	0.232	Yes	No
	June	0.00195	0.00956	0.002	0.03	0.973	4.78	0.319	Yes	No
	July	0.00058	0.00989	0.002	0.03	0.292	4.94	0.330	Yes	No
	August	0.00048	0.00993	0.002	0.03	0.240	4.96	0.331	Yes	No
	September	0.00357	0.0102	0.002	0.03	1.79	5.08	0.338	Yes	No
	October	0.00634	0.0102	0.002	0.03	3.17	5.11	0.341	Yes	No
	November	0.00049	0.0103	0.002	0.03	0.247	5.14	0.343	Yes	No
	December	0.00050	0.0104	0.002	0.03	0.249	5.18	0.346	Yes	No
Operations 2 Phase (24-28)	January	0.0135	0.0167	0.002	0.03	6.75	8.36	0.557	Yes	No
	February	0.0137	0.0169	0.002	0.03	6.85	8.47	0.564	Yes	No
	March	0.0139	0.0171	0.002	0.03	6.93	8.57	0.571	Yes	No
	April	0.0140	0.0174	0.002	0.03	7.02	8.69	0.579	Yes	No
	May	0.0142	0.0175	0.002	0.03	7.08	8.76	0.584	Yes	No
	June	0.0142	0.0174	0.002	0.03	7.08	8.72	0.581	Yes	No
	July	0.0142	0.0174	0.002	0.03	7.10	8.72	0.581	Yes	No
	August	0.0143	0.0175	0.002	0.03	7.15	8.76	0.584	Yes	No
	September	0.0145	0.0178	0.002	0.03	7.24	8.91	0.594	Yes	No
	October	0.0146	0.0180	0.002	0.03	7.32	9.02	0.601	Yes	No
	November	0.0148	0.0182	0.002	0.03	7.40	9.12	0.608	Yes	No
	December	0.0150	0.0185	0.002	0.03	7.49	9.27	0.618	Yes	No
Closure Phase (29-35)	January	0.0155	0.0185	0.002	0.03	7.74	9.27	0.618	Yes	No
	February	0.0155	0.0185	0.002	0.03	7.73	9.27	0.618	Yes	No
	March	0.0155	0.0185	0.002	0.03	7.73	9.26	0.617	Yes	No
	April	0.0154	0.0185	0.002	0.03	7.72	9.25	0.616	Yes	No
	May	0.0154	0.0184	0.002	0.03	7.69	9.18	0.612	Yes	No
	June	0.0151	0.0179	0.002	0.03	7.55	8.97	0.598	Yes	No
	July	0.0149	0.0176	0.002	0.03	7.43	8.80	0.587	Yes	No
	August	0.0147	0.0174	0.002	0.03	7.35	8.69	0.579	Yes	No
	September	0.0147	0.0174	0.002	0.03	7.35	8.69	0.579	Yes	No
	October	0.0147	0.0173	0.002	0.03	7.34	8.67	0.578	Yes	No
	November	0.0146	0.0173	0.002	0.03	7.32	8.63	0.575	Yes	No
	December	0.0146	0.0172	0.002	0.03	7.32	8.62	0.575	Yes	No
Post-Closure Phase (36-99)	January	0.00639	0.0125	0.002	0.03	3.20	6.27	0.418	Yes	No
	February	0.00639	0.0125	0.002	0.03	3.20	6.27	0.418	Yes	No
	March	0.00639	0.0125	0.002	0.03	3.20	6.27	0.418	Yes	No
	April	0.00639	0.0125	0.002	0.03	3.20	6.26	0.418	Yes	No
	May	0.00640	0.0125	0.002	0.03	3.20	6.25	0.417	Yes	No
	June	0.00639	0.0123	0.002	0.03	3.20	6.17	0.412	Yes	No
	July	0.00632	0.0122	0.002	0.03	3.16	6.09	0.406	Yes	No
	August	0.00626	0.0121	0.002	0.03	3.13	6.04	0.402	Yes	No
	September	0.00627	0.0121	0.002	0.03	3.13	6.04	0.403	Yes	No
	October	0.00626	0.0121	0.002	0.03	3.13	6.03	0.402	Yes	No
	November	0.00627	0.0120	0.002	0.03	3.14	6.02	0.401	Yes	No
	December	0.00627	0.0120	0.002	0.03	3.14	6.02	0.401	Yes	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1o. Open Pit (OP) Hazard Quotients for Total Uranium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0006	0.0012	0.2	0.0058	No
	February	0.0006	0.0012	0.2	0.0058	No
	March	0.0006	0.0012	0.2	0.0058	No
	April	0.0006	0.0013	0.2	0.0064	No
	May	0.0005	0.0011	0.2	0.0054	No
	June	0.0001	0.0002	0.2	0.0009	No
	July	0.0001	0.0002	0.2	0.0012	No
	August	0.0006	0.0012	0.2	0.0058	No
	September	0.0006	0.0012	0.2	0.0062	No
	October	0.0006	0.0013	0.2	0.0064	No
	November	0.0006	0.0012	0.2	0.0058	No
	December	0.0006	0.0012	0.2	0.0058	No
Operation 1 Phase (1-23)	January	0.0012	0.0012	0.2	0.0058	No
	February	0.0012	0.0012	0.2	0.0058	No
	March	0.0012	0.0012	0.2	0.0058	No
	April	0.0013	0.0013	0.2	0.0064	No
	May	0.0012	0.0013	0.2	0.0064	No
	June	0.0009	0.0026	0.2	0.0128	No
	July	0.0009	0.0026	0.2	0.0129	No
	August	0.0012	0.0026	0.2	0.0130	No
	September	0.0013	0.0026	0.2	0.0131	No
	October	0.0013	0.0026	0.2	0.0131	No
	November	0.0012	0.0026	0.2	0.0130	No
	December	0.0012	0.0026	0.2	0.0131	No
Operations 2 Phase (24-28)	January	0.0028	0.0030	0.2	0.0152	No
	February	0.0028	0.0031	0.2	0.0153	No
	March	0.0029	0.0031	0.2	0.0154	No
	April	0.0029	0.0031	0.2	0.0155	No
	May	0.0029	0.0031	0.2	0.0155	No
	June	0.0029	0.0031	0.2	0.0154	No
	July	0.0029	0.0031	0.2	0.0153	No
	August	0.0029	0.0031	0.2	0.0153	No
	September	0.0029	0.0031	0.2	0.0154	No
	October	0.0029	0.0031	0.2	0.0155	No
	November	0.0029	0.0031	0.2	0.0156	No
	December	0.0029	0.0031	0.2	0.0157	No
Closure Phase (29-35)	January	0.0027	0.0032	0.2	0.0158	No
	February	0.0027	0.0032	0.2	0.0158	No
	March	0.0027	0.0031	0.2	0.0157	No
	April	0.0027	0.0031	0.2	0.0157	No
	May	0.0026	0.0031	0.2	0.0156	No
	June	0.0026	0.0031	0.2	0.0153	No
	July	0.0026	0.0030	0.2	0.0150	No
	August	0.0025	0.0030	0.2	0.0148	No
	September	0.0025	0.0030	0.2	0.0148	No
	October	0.0025	0.0030	0.2	0.0148	No
	November	0.0025	0.0029	0.2	0.0147	No
	December	0.0025	0.0029	0.2	0.0147	No
Post-Closure Phase (36-99)	January	0.0012	0.0022	0.2	0.0110	No
	February	0.0012	0.0022	0.2	0.0110	No
	March	0.0012	0.0022	0.2	0.0109	No
	April	0.0012	0.0022	0.2	0.0109	No
	May	0.0012	0.0022	0.2	0.0109	No
	June	0.0012	0.0022	0.2	0.0108	No
	July	0.0011	0.0021	0.2	0.0107	No
	August	0.0011	0.0021	0.2	0.0106	No
	September	0.0011	0.0021	0.2	0.0106	No
	October	0.0011	0.0021	0.2	0.0106	No
	November	0.0011	0.0021	0.2	0.0105	No
	December	0.0011	0.0021	0.2	0.0105	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1p. Open Pit (OP) Hazard Quotients for Total Vanadium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0003	0.0005	0.1	0.0050	No
	February	0.0003	0.0005	0.1	0.0050	No
	March	0.0003	0.0005	0.1	0.0050	No
	April	0.0005	0.0010	0.1	0.0096	No
	May	0.0004	0.0008	0.1	0.0083	No
	June	0.0001	0.0001	0.1	0.0014	No
	July	0.0001	0.0001	0.1	0.0014	No
	August	0.0003	0.0005	0.1	0.0050	No
	September	0.0004	0.0008	0.1	0.0079	No
	October	0.0005	0.0010	0.1	0.0095	No
	November	0.0003	0.0005	0.1	0.0050	No
	December	0.0003	0.0005	0.1	0.0050	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.1	0.0050	No
	February	0.0005	0.0005	0.1	0.0050	No
	March	0.0005	0.0005	0.1	0.0050	No
	April	0.0009	0.0010	0.1	0.0097	No
	May	0.0009	0.0010	0.1	0.0098	No
	June	0.0006	0.0023	0.1	0.0235	No
	July	0.0005	0.0024	0.1	0.0244	No
	August	0.0006	0.0024	0.1	0.0245	No
	September	0.0008	0.0025	0.1	0.0251	No
	October	0.0010	0.0025	0.1	0.0252	No
	November	0.0006	0.0025	0.1	0.0252	No
	December	0.0006	0.0025	0.1	0.0255	No
Operations 2 Phase (24-28)	January	0.0033	0.0041	0.1	0.0408	No
	February	0.0034	0.0041	0.1	0.0414	No
	March	0.0034	0.0042	0.1	0.0419	No
	April	0.0034	0.0042	0.1	0.0425	No
	May	0.0035	0.0043	0.1	0.0428	No
	June	0.0035	0.0042	0.1	0.0425	No
	July	0.0035	0.0043	0.1	0.0425	No
	August	0.0035	0.0043	0.1	0.0427	No
	September	0.0035	0.0043	0.1	0.0435	No
	October	0.0036	0.0044	0.1	0.0440	No
	November	0.0036	0.0044	0.1	0.0445	No
	December	0.0037	0.0045	0.1	0.0452	No
Closure Phase (29-35)	January	0.0039	0.0045	0.1	0.0453	No
	February	0.0039	0.0045	0.1	0.0452	No
	March	0.0039	0.0045	0.1	0.0452	No
	April	0.0039	0.0045	0.1	0.0451	No
	May	0.0039	0.0045	0.1	0.0449	No
	June	0.0038	0.0044	0.1	0.0441	No
	July	0.0037	0.0043	0.1	0.0433	No
	August	0.0037	0.0043	0.1	0.0427	No
	September	0.0037	0.0043	0.1	0.0427	No
	October	0.0037	0.0043	0.1	0.0426	No
	November	0.0037	0.0043	0.1	0.0425	No
	December	0.0037	0.0042	0.1	0.0425	No
Post-Closure Phase (36-99)	January	0.0020	0.0033	0.1	0.0325	No
	February	0.0020	0.0033	0.1	0.0325	No
	March	0.0020	0.0033	0.1	0.0325	No
	April	0.0020	0.0032	0.1	0.0325	No
	May	0.0020	0.0032	0.1	0.0325	No
	June	0.0021	0.0032	0.1	0.0322	No
	July	0.0020	0.0032	0.1	0.0318	No
	August	0.0020	0.0031	0.1	0.0315	No
	September	0.0020	0.0032	0.1	0.0315	No
	October	0.0020	0.0031	0.1	0.0315	No
	November	0.0020	0.0031	0.1	0.0315	No
	December	0.0020	0.0031	0.1	0.0314	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D1q. Open Pit (OP) Hazard Quotients for Total Zinc Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.0002	0.0005	2	0.0002	No
	February	0.0002	0.0005	2	0.0002	No
	March	0.0002	0.0005	2	0.0002	No
	April	0.0012	0.0023	2	0.0012	No
	May	0.0010	0.0020	2	0.0010	No
	June	0.0001	0.0002	2	0.0001	No
	July	0.0001	0.0001	2	0.0001	No
	August	0.0002	0.0005	2	0.0002	No
	September	0.0008	0.0017	2	0.0008	No
	October	0.0012	0.0023	2	0.0012	No
	November	0.0002	0.0005	2	0.0002	No
	December	0.0002	0.0005	2	0.0002	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	2	0.0002	No
	February	0.0005	0.0005	2	0.0002	No
	March	0.0005	0.0005	2	0.0002	No
	April	0.0023	0.0024	2	0.0012	No
	May	0.0023	0.0024	2	0.0012	No
	June	0.0009	0.0046	2	0.0023	No
	July	0.0006	0.0047	2	0.0023	No
	August	0.0006	0.0047	2	0.0023	No
	September	0.0015	0.0047	2	0.0024	No
	October	0.0023	0.0047	2	0.0024	No
	November	0.0006	0.0047	2	0.0024	No
	December	0.0006	0.0048	2	0.0024	No
Operations 2 Phase (24-28)	January	0.0052	0.0057	2	0.0028	No
	February	0.0052	0.0057	2	0.0029	No
	March	0.0053	0.0058	2	0.0029	No
	April	0.0053	0.0058	2	0.0029	No
	May	0.0053	0.0058	2	0.0029	No
	June	0.0053	0.0058	2	0.0029	No
	July	0.0053	0.0057	2	0.0029	No
	August	0.0053	0.0057	2	0.0029	No
	September	0.0053	0.0058	2	0.0029	No
	October	0.0053	0.0058	2	0.0029	No
	November	0.0054	0.0059	2	0.0029	No
	December	0.0054	0.0059	2	0.0030	No
Closure Phase (29-35)	January	0.0050	0.0059	2	0.0030	No
	February	0.0050	0.0059	2	0.0030	No
	March	0.0050	0.0059	2	0.0030	No
	April	0.0050	0.0059	2	0.0030	No
	May	0.0050	0.0059	2	0.0029	No
	June	0.0049	0.0058	2	0.0029	No
	July	0.0048	0.0056	2	0.0028	No
	August	0.0047	0.0056	2	0.0028	No
	September	0.0047	0.0056	2	0.0028	No
	October	0.0047	0.0056	2	0.0028	No
	November	0.0047	0.0055	2	0.0028	No
	December	0.0047	0.0055	2	0.0028	No
Post-Closure Phase (36-99)	January	0.0021	0.0041	2	0.0020	No
	February	0.0021	0.0041	2	0.0020	No
	March	0.0021	0.0041	2	0.0020	No
	April	0.0021	0.0041	2	0.0020	No
	May	0.0021	0.0041	2	0.0020	No
	June	0.0021	0.0040	2	0.0020	No
	July	0.0021	0.0040	2	0.0020	No
	August	0.0021	0.0039	2	0.0020	No
	September	0.0021	0.0039	2	0.0020	No
	October	0.0021	0.0039	2	0.0020	No
	November	0.0021	0.0039	2	0.0020	No
	December	0.0021	0.0039	2	0.0020	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1r. Open Pit (OP) Hazard Quotients for Chloride Concentrations, Expected Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.400	0.800	600	600	0.0013	0.0013	No	No
	February	0.400	0.800	600	600	0.0013	0.0013	No	No
	March	0.400	0.800	600	600	0.0013	0.0013	No	No
	April	3.88	7.76	600	600	0.0129	0.0129	No	No
	May	3.40	6.80	600	600	0.0113	0.0113	No	No
	June	0.328	0.657	600	600	0.0011	0.0011	No	No
	July	0.122	0.245	600	600	0.0004	0.0004	No	No
	August	0.400	0.800	600	600	0.0013	0.0013	No	No
	September	2.60	5.21	600	600	0.0087	0.0087	No	No
	October	3.81	7.61	600	600	0.0127	0.0127	No	No
	November	0.400	0.800	600	600	0.0013	0.0013	No	No
	December	0.400	0.800	600	600	0.0013	0.0013	No	No
Operation 1 Phase (1-23)	January	0.800	0.800	600	600	0.0013	0.0013	No	No
	February	0.800	0.800	600	600	0.0013	0.0013	No	No
	March	0.800	0.800	600	600	0.0013	0.0013	No	No
	April	7.49	7.86	600	600	0.0131	0.0131	No	No
	May	7.62	7.95	600	600	0.0133	0.0133	No	No
	June	2.53	10.2	600	600	0.0170	0.0170	No	No
	July	1.13	10.4	600	600	0.0173	0.0173	No	No
	August	1.22	10.4	600	600	0.0173	0.0173	No	No
	September	4.41	10.5	600	600	0.0175	0.0175	No	No
	October	7.27	10.6	600	600	0.0176	0.0176	No	No
	November	1.23	10.6	600	600	0.0176	0.0176	No	No
	December	1.23	10.6	600	600	0.0177	0.0177	No	No
Operations 2 Phase (24-28)	January	12.2	13.9	600	600	0.0231	0.0231	No	No
	February	12.3	14.0	600	600	0.0233	0.0233	No	No
	March	12.4	14.1	600	600	0.0235	0.0235	No	No
	April	12.5	14.2	600	600	0.0237	0.0237	No	No
	May	12.6	14.3	600	600	0.0239	0.0239	No	No
	June	12.6	14.2	600	600	0.0237	0.0237	No	No
	July	12.5	14.2	600	600	0.0236	0.0236	No	No
	August	12.6	14.2	600	600	0.0237	0.0237	No	No
	September	12.7	14.4	600	600	0.0239	0.0239	No	No
	October	12.8	14.5	600	600	0.0241	0.0241	No	No
	November	12.9	14.6	600	600	0.0244	0.0244	No	No
	December	13.0	14.8	600	600	0.0246	0.0246	No	No
Closure Phase (29-35)	January	12.3	14.8	600	600	0.0247	0.0247	No	No
	February	12.3	14.8	600	600	0.0246	0.0246	No	No
	March	12.3	14.8	600	600	0.0246	0.0246	No	No
	April	12.3	14.8	600	600	0.0246	0.0246	No	No
	May	12.2	14.7	600	600	0.0244	0.0244	No	No
	June	12.0	14.3	600	600	0.0239	0.0239	No	No
	July	11.8	14.0	600	600	0.0234	0.0234	No	No
	August	11.7	13.9	600	600	0.0231	0.0231	No	No
	September	11.7	13.9	600	600	0.0231	0.0231	No	No
	October	11.7	13.8	600	600	0.0230	0.0230	No	No
	November	11.6	13.8	600	600	0.0230	0.0230	No	No
	December	11.6	13.8	600	600	0.0229	0.0229	No	No
Post-Closure Phase (36-99)	January	4.60	9.95	600	600	0.0166	0.0166	No	No
	February	4.60	9.95	600	600	0.0166	0.0166	No	No
	March	4.60	9.94	600	600	0.0166	0.0166	No	No
	April	4.60	9.94	600	600	0.0166	0.0166	No	No
	May	4.60	9.91	600	600	0.0165	0.0165	No	No
	June	4.58	9.78	600	600	0.0163	0.0163	No	No
	July	4.52	9.65	600	600	0.0161	0.0161	No	No
	August	4.49	9.57	600	600	0.0159	0.0159	No	No
	September	4.49	9.57	600	600	0.0159	0.0159	No	No
	October	4.48	9.56	600	600	0.0159	0.0159	No	No
	November	4.49	9.54	600	600	0.0159	0.0159	No	No
	December	4.49	9.54	600	600	0.0159	0.0159	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1s. Open Pit (OP) Hazard Quotients for Fluoride Concentrations, Expected Case

Project Phase		First Screening Step											Retained as COPC?		
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline				
				30-Day		30-Day		Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline			Maximum Predicted vs. BC MOE Maximum Guideline
				Mean	Maximum	Mean	Maximum								
Construction (-2 to-1)	January	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
	February	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
	March	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
	April	0.107	0.214	1	1.5	1	2	0.107	0.214	0.142	0.107	0.214	0.107	No	No
	May	0.083	0.166	1	1.5	1	2	0.083	0.166	0.110	0.083	0.166	0.083	No	No
	June	0.032	0.064	1	1.5	1	2	0.032	0.064	0.043	0.032	0.064	0.032	No	No
	July	0.062	0.125	1	1.5	1	2	0.062	0.125	0.083	0.062	0.125	0.062	No	No
	August	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
	September	0.182	0.363	1	1.5	1	2	0.182	0.363	0.242	0.182	0.363	0.182	No	No
	October	0.111	0.223	1	1.5	1	2	0.111	0.223	0.148	0.111	0.223	0.111	No	No
	November	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
	December	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
Operation 1 Phase (1-23)	January	0.620	0.620	1	1.5	1	2	0.620	0.620	0.413	0.620	0.620	0.310	No	No
	February	0.620	0.620	1	1.5	1	2	0.620	0.620	0.413	0.620	0.620	0.310	No	No
	March	0.620	0.620	1	1.5	1	2	0.620	0.620	0.413	0.620	0.620	0.310	No	No
	April	0.230	0.253	1	1.5	1	2	0.230	0.253	0.169	0.230	0.253	0.126	No	No
	May	0.198	0.218	1	1.5	1	2	0.198	0.218	0.145	0.198	0.218	0.109	No	No
	June	0.371	1.137	1	1.5	1	2	0.371	1.14	0.758	0.371	1.14	0.569	Yes	Yes
	July	0.465	0.864	1	1.5	1	2	0.465	0.864	0.576	0.465	0.864	0.432	No	No
	August	0.631	0.868	1	1.5	1	2	0.631	0.868	0.579	0.631	0.868	0.434	No	No
	September	0.445	0.872	1	1.5	1	2	0.445	0.872	0.581	0.445	0.872	0.436	No	No
	October	0.278	0.870	1	1.5	1	2	0.278	0.870	0.580	0.278	0.870	0.435	No	No
	November	0.630	0.859	1	1.5	1	2	0.630	0.859	0.573	0.630	0.859	0.429	No	No
	December	0.631	0.863	1	1.5	1	2	0.631	0.863	0.575	0.631	0.863	0.431	No	No
Operations 2 Phase (24-28)	January	0.854	0.865	1	1.5	1	2	0.854	0.865	0.577	0.854	0.865	0.432	No	No
	February	0.856	0.867	1	1.5	1	2	0.856	0.867	0.578	0.856	0.867	0.433	No	No
	March	0.858	0.868	1	1.5	1	2	0.858	0.868	0.579	0.858	0.868	0.434	No	No
	April	0.860	0.869	1	1.5	1	2	0.860	0.869	0.579	0.860	0.869	0.434	No	No
	May	0.857	0.863	1	1.5	1	2	0.857	0.863	0.575	0.857	0.863	0.432	No	No
	June	0.845	0.849	1	1.5	1	2	0.845	0.849	0.566	0.845	0.849	0.424	No	No
	July	0.839	0.845	1	1.5	1	2	0.839	0.845	0.563	0.839	0.845	0.422	No	No
	August	0.837	0.844	1	1.5	1	2	0.837	0.844	0.562	0.837	0.844	0.422	No	No
	September	0.842	0.847	1	1.5	1	2	0.842	0.847	0.564	0.842	0.847	0.423	No	No
	October	0.844	0.848	1	1.5	1	2	0.844	0.848	0.566	0.844	0.848	0.424	No	No
	November	0.845	0.848	1	1.5	1	2	0.845	0.848	0.565	0.845	0.848	0.424	No	No
	December	0.849	0.850	1	1.5	1	2	0.849	0.850	0.567	0.849	0.850	0.425	No	No
Closure Phase (29-35)	January	0.706	0.851	1	1.5	1	2	0.706	0.851	0.567	0.706	0.851	0.426	No	No
	February	0.706	0.851	1	1.5	1	2	0.706	0.851	0.567	0.706	0.851	0.425	No	No
	March	0.706	0.851	1	1.5	1	2	0.706	0.851	0.567	0.706	0.851	0.425	No	No
	April	0.706	0.851	1	1.5	1	2	0.706	0.851	0.567	0.706	0.851	0.425	No	No
	May	0.701	0.843	1	1.5	1	2	0.701	0.843	0.562	0.701	0.843	0.422	No	No
	June	0.685	0.820	1	1.5	1	2	0.685	0.820	0.546	0.685	0.820	0.410	No	No
	July	0.675	0.804	1	1.5	1	2	0.675	0.804	0.536	0.675	0.804	0.402	No	No
	August	0.668	0.795	1	1.5	1	2	0.668	0.795	0.530	0.668	0.795	0.397	No	No
	September	0.668	0.795	1	1.5	1	2	0.668	0.795	0.530	0.668	0.795	0.398	No	No
	October	0.667	0.794	1	1.5	1	2	0.667	0.794	0.529	0.667	0.794	0.397	No	No
	November	0.665	0.790	1	1.5	1	2	0.665	0.790	0.527	0.665	0.790	0.395	No	No
	December	0.665	0.790	1	1.5	1	2	0.665	0.790	0.526	0.665	0.790	0.395	No	No
Post-Closure Phase (36-99)	January	0.221	0.564	1	1.5	1	2	0.221	0.564	0.376	0.221	0.564	0.282	No	No
	February	0.221	0.564	1	1.5	1	2	0.221	0.564	0.376	0.221	0.564	0.282	No	No
	March	0.222	0.564	1	1.5	1	2	0.222	0.564	0.376	0.222	0.564	0.282	No	No
	April	0.222	0.564	1	1.5	1	2	0.222	0.564	0.376	0.222	0.564	0.282	No	No
	May	0.221	0.562	1	1.5	1	2	0.221	0.562	0.375	0.221	0.562	0.281	No	No
	June	0.218	0.553	1	1.5	1	2	0.218	0.553	0.368	0.218	0.553	0.276	No	No
	July	0.216	0.546	1	1.5	1	2	0.216	0.546	0.364	0.216	0.546	0.273	No	No
	August	0.214	0.541	1	1.5	1	2	0.214	0.541	0.361	0.214	0.541	0.270	No	No
	September	0.214	0.541	1	1.5	1	2	0.214	0.541	0.361	0.214	0.541	0.271	No	No
	October	0.214	0.541	1	1.5	1	2	0.214	0.541	0.360	0.214	0.541	0.270	No	No
	November	0.214	0.539	1	1.5	1	2	0.214	0.539	0.359	0.214	0.539	0.270	No	No
	December	0.214	0.539	1	1.5	1	2	0.214	0.539	0.360	0.214	0.539	0.270	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1t. Open Pit (OP) Hazard Quotients for Nitrate Concentrations, Expected Case

Project Phase		Predicted Concentrations		First Screening Step				Retained as COPC?			
				BC MOE Working Water Quality Guidelines for Wildlife Water Supply		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
				Mean	Maximum	Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Wildlife	Livestock
Construction (-2 to-1)	January	0.00500	0.0100	100	100	0.00010	0.00010	No	No		
	February	0.00500	0.0100	100	100	0.00010	0.00010	No	No		
	March	0.00500	0.0100	100	100	0.00010	0.00010	No	No		
	April	0.00037	0.00074	100	100	0.00001	0.00001	No	No		
	May	0.00014	0.00029	100	100	0.00000	0.00000	No	No		
	June	0.00041	0.00083	100	100	0.00001	0.00001	No	No		
	July	0.00099	0.00198	100	100	0.00002	0.00002	No	No		
	August	0.00500	0.0100	100	100	0.00010	0.00010	No	No		
	September	0.00207	0.00414	100	100	0.00004	0.00004	No	No		
	October	0.00047	0.00094	100	100	0.00001	0.00001	No	No		
	November	0.00500	0.01000	100	100	0.00010	0.00010	No	No		
	December	0.00500	0.01000	100	100	0.00010	0.00010	No	No		
Operation 1 Phase (1-23)	January	0.0100	0.0100	100	100	0.00010	0.00010	No	No		
	February	0.0100	0.0100	100	100	0.00010	0.00010	No	No		
	March	0.0100	0.0100	100	100	0.00010	0.00010	No	No		
	April	0.00111	0.00163	100	100	0.00002	0.00002	No	No		
	May	0.00053	0.00082	100	100	0.00001	0.00001	No	No		
	June	0.00493	0.00789	100	100	0.00008	0.00008	No	No		
	July	0.00719	0.0100	100	100	0.00010	0.00010	No	No		
	August	0.00991	0.0100	100	100	0.00010	0.00010	No	No		
	September	0.00567	0.00791	100	100	0.00008	0.00008	No	No		
	October	0.00187	0.00788	100	100	0.00008	0.00008	No	No		
	November	0.00990	0.01000	100	100	0.00010	0.00010	No	No		
	December	0.00990	0.01000	100	100	0.00010	0.00010	No	No		
Operations 2 Phase (24-28)	January	0.00727	0.00780	100	100	0.00008	0.00008	No	No		
	February	0.00728	0.00781	100	100	0.00008	0.00008	No	No		
	March	0.00728	0.00781	100	100	0.00008	0.00008	No	No		
	April	0.00728	0.00782	100	100	0.00008	0.00008	No	No		
	May	0.00723	0.00775	100	100	0.00008	0.00008	No	No		
	June	0.00710	0.00759	100	100	0.00008	0.00008	No	No		
	July	0.00704	0.00755	100	100	0.00008	0.00008	No	No		
	August	0.00700	0.00752	100	100	0.00008	0.00008	No	No		
	September	0.00701	0.00753	100	100	0.00008	0.00008	No	No		
	October	0.00700	0.00753	100	100	0.00008	0.00008	No	No		
	November	0.00698	0.00751	100	100	0.00008	0.00008	No	No		
	December	0.00698	0.00751	100	100	0.00008	0.00008	No	No		
Closure Phase (29-35)	January	0.00533	0.00637	100	100	0.00006	0.00006	No	No		
	February	0.00533	0.00637	100	100	0.00006	0.00006	No	No		
	March	0.00534	0.00638	100	100	0.00006	0.00006	No	No		
	April	0.00534	0.00638	100	100	0.00006	0.00006	No	No		
	May	0.00530	0.00632	100	100	0.00006	0.00006	No	No		
	June	0.00517	0.00613	100	100	0.00006	0.00006	No	No		
	July	0.00510	0.00602	100	100	0.00006	0.00006	No	No		
	August	0.00505	0.00595	100	100	0.00006	0.00006	No	No		
	September	0.00505	0.00596	100	100	0.00006	0.00006	No	No		
	October	0.00505	0.00596	100	100	0.00006	0.00006	No	No		
	November	0.00503	0.00593	100	100	0.00006	0.00006	No	No		
	December	0.00503	0.00593	100	100	0.00006	0.00006	No	No		
Post-Closure Phase (36-99)	January	0.00162	0.00431	100	100	0.00004	0.00004	No	No		
	February	0.00162	0.00431	100	100	0.00004	0.00004	No	No		
	March	0.00162	0.00431	100	100	0.00004	0.00004	No	No		
	April	0.00162	0.00432	100	100	0.00004	0.00004	No	No		
	May	0.00161	0.00429	100	100	0.00004	0.00004	No	No		
	June	0.00158	0.00422	100	100	0.00004	0.00004	No	No		
	July	0.00157	0.00416	100	100	0.00004	0.00004	No	No		
	August	0.00156	0.00413	100	100	0.00004	0.00004	No	No		
	September	0.00156	0.00413	100	100	0.00004	0.00004	No	No		
	October	0.00156	0.00413	100	100	0.00004	0.00004	No	No		
	November	0.00155	0.00412	100	100	0.00004	0.00004	No	No		
	December	0.00156	0.00412	100	100	0.00004	0.00004	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1u. Open Pit (OP) Hazard Quotients for Nitrite Concentrations, Expected Case

Project Phase		First Screening Step								Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			Wildlife	Livestock
		Mean	Maximum	Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0013	0.0025	10	10	0.0003	0.0003			No	No
	February	0.0013	0.0025	10	10	0.0003	0.0003			No	No
	March	0.0013	0.0025	10	10	0.0003	0.0003			No	No
	April	0.0001	0.0002	10	10	0.0000	0.0000			No	No
	May	0.0000	0.0001	10	10	0.0000	0.0000			No	No
	June	0.0001	0.0002	10	10	0.0000	0.0000			No	No
	July	0.0002	0.0005	10	10	0.0000	0.0000			No	No
	August	0.0013	0.0025	10	10	0.0003	0.0003			No	No
	September	0.0005	0.0010	10	10	0.0001	0.0001			No	No
	October	0.0001	0.0002	10	10	0.0000	0.0000			No	No
	November	0.0013	0.0025	10	10	0.0003	0.0003			No	No
	December	0.0013	0.0025	10	10	0.0003	0.0003			No	No
Operation 1 Phase (1-23)	January	0.0025	0.0025	10	10	0.0003	0.0003			No	No
	February	0.0025	0.0025	10	10	0.0003	0.0003			No	No
	March	0.0025	0.0025	10	10	0.0003	0.0003			No	No
	April	0.0003	0.0004	10	10	0.0000	0.0000			No	No
	May	0.0001	0.0002	10	10	0.0000	0.0000			No	No
	June	0.0012	0.0020	10	10	0.0002	0.0002			No	No
	July	0.0018	0.0025	10	10	0.0003	0.0003			No	No
	August	0.0025	0.0025	10	10	0.0003	0.0003			No	No
	September	0.0014	0.0020	10	10	0.0002	0.0002			No	No
	October	0.0005	0.0020	10	10	0.0002	0.0002			No	No
	November	0.0025	0.0025	10	10	0.0003	0.0003			No	No
	December	0.0025	0.0025	10	10	0.0003	0.0003			No	No
Operations 2 Phase (24-28)	January	0.0018	0.0020	10	10	0.0002	0.0002			No	No
	February	0.0018	0.0020	10	10	0.0002	0.0002			No	No
	March	0.0018	0.0020	10	10	0.0002	0.0002			No	No
	April	0.0018	0.0020	10	10	0.0002	0.0002			No	No
	May	0.0018	0.0019	10	10	0.0002	0.0002			No	No
	June	0.0018	0.0019	10	10	0.0002	0.0002			No	No
	July	0.0018	0.0019	10	10	0.0002	0.0002			No	No
	August	0.0018	0.0019	10	10	0.0002	0.0002			No	No
	September	0.0018	0.0019	10	10	0.0002	0.0002			No	No
	October	0.0018	0.0019	10	10	0.0002	0.0002			No	No
	November	0.0017	0.0019	10	10	0.0002	0.0002			No	No
	December	0.0017	0.0019	10	10	0.0002	0.0002			No	No
Closure Phase (29-35)	January	0.0013	0.0016	10	10	0.0002	0.0002			No	No
	February	0.0013	0.0016	10	10	0.0002	0.0002			No	No
	March	0.0013	0.0016	10	10	0.0002	0.0002			No	No
	April	0.0013	0.0016	10	10	0.0002	0.0002			No	No
	May	0.0013	0.0016	10	10	0.0002	0.0002			No	No
	June	0.0013	0.0015	10	10	0.0002	0.0002			No	No
	July	0.0013	0.0015	10	10	0.0002	0.0002			No	No
	August	0.0013	0.0015	10	10	0.0001	0.0001			No	No
	September	0.0013	0.0015	10	10	0.0001	0.0001			No	No
	October	0.0013	0.0015	10	10	0.0001	0.0001			No	No
	November	0.0013	0.0015	10	10	0.0001	0.0001			No	No
	December	0.0013	0.0015	10	10	0.0001	0.0001			No	No
Post-Closure Phase (36-99)	January	0.0004	0.0011	10	10	0.0001	0.0001			No	No
	February	0.0004	0.0011	10	10	0.0001	0.0001			No	No
	March	0.0004	0.0011	10	10	0.0001	0.0001			No	No
	April	0.0004	0.0011	10	10	0.0001	0.0001			No	No
	May	0.0004	0.0011	10	10	0.0001	0.0001			No	No
	June	0.0004	0.0011	10	10	0.0001	0.0001			No	No
	July	0.0004	0.0010	10	10	0.0001	0.0001			No	No
	August	0.0004	0.0010	10	10	0.0001	0.0001			No	No
	September	0.0004	0.0010	10	10	0.0001	0.0001			No	No
	October	0.0004	0.0010	10	10	0.0001	0.0001			No	No
	November	0.0004	0.0010	10	10	0.0001	0.0001			No	No
	December	0.0004	0.0010	10	10	0.0001	0.0001			No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D1v. Open Pit (OP) Hazard Quotients for Sulphate Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	40.0	79.9	1000	0.0799	No
	February	40.0	79.9	1000	0.0799	No
	March	40.0	79.9	1000	0.0799	No
	April	108	216	1000	0.216	No
	May	93.4	187	1000	0.187	No
	June	11.4	22.7	1000	0.0227	No
	July	9.08	18.2	1000	0.0182	No
	August	40.0	79.9	1000	0.0799	No
	September	82.9	166	1000	0.166	No
	October	106	213	1000	0.213	No
	November	40.0	79.9	1000	0.0799	No
	December	40.0	79.9	1000	0.0799	No
Operation 1 Phase (1-23)	January	79.9	79.9	1000	0.0799	No
	February	79.9	79.9	1000	0.0799	No
	March	79.9	79.9	1000	0.0799	No
	April	210	218	1000	0.218	No
	May	211	219	1000	0.219	No
	June	93.1	226	1000	0.226	No
	July	68.7	236	1000	0.236	No
	August	86.7	237	1000	0.237	No
	September	149	244	1000	0.244	No
	October	205	246	1000	0.246	No
	November	87.3	249	1000	0.249	No
	December	87.4	251	1000	0.251	No
Operations 2 Phase (24-28)	January	348	446	1000	0.446	No
	February	353	452	1000	0.452	No
	March	358	458	1000	0.458	No
	April	364	465	1000	0.465	No
	May	368	469	1000	0.469	No
	June	369	468	1000	0.468	No
	July	370	468	1000	0.468	No
	August	373	471	1000	0.471	No
	September	379	480	1000	0.480	No
	October	383	486	1000	0.486	No
	November	388	492	1000	0.492	No
	December	393	501	1000	0.501	No
Closure Phase (29-35)	January	422	501	1000	0.501	No
	February	422	501	1000	0.501	No
	March	422	500	1000	0.500	No
	April	422	500	1000	0.500	No
	May	420	497	1000	0.497	No
	June	413	486	1000	0.486	No
	July	407	477	1000	0.477	No
	August	402	471	1000	0.471	No
	September	402	471	1000	0.471	No
	October	402	470	1000	0.470	No
	November	401	468	1000	0.468	No
	December	401	468	1000	0.468	No
Post-Closure Phase (36-99)	January	188	347	1000	0.347	No
	February	188	347	1000	0.347	No
	March	188	347	1000	0.347	No
	April	188	347	1000	0.347	No
	May	188	346	1000	0.346	No
	June	188	342	1000	0.342	No
	July	186	338	1000	0.338	No
	August	185	335	1000	0.335	No
	September	185	335	1000	0.335	No
	October	184	334	1000	0.334	No
	November	185	334	1000	0.334	No
	December	185	334	1000	0.334	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2a. Tailings Management Facility (TMF) Hazard Quotients for Total Aluminum Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?			
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	MOE Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Screening Based on BC MOE Maximum	Screening Based on BC MOE Maximum
Construction (-2 to-1)	January	0.0	0.0	5	5	0.0	0.0	No	No
	February	0.0053	0.0106	5	5	0.0021	0.0021	No	No
	March	0.0138	0.0275	5	5	0.0055	0.0055	No	No
	April	0.0053	0.0106	5	5	0.0021	0.0021	No	No
	May	0.0	0.0	5	5	0.0	0.0	No	No
	June	0.0149	0.0298	5	5	0.0060	0.0060	No	No
	July	0.0170	0.0339	5	5	0.0068	0.0068	No	No
	August	0.0170	0.0339	5	5	0.0068	0.0068	No	No
	September	0.0170	0.0339	5	5	0.0068	0.0068	No	No
	October	0.0170	0.0339	5	5	0.0068	0.0068	No	No
	November	0.0170	0.0339	5	5	0.0068	0.0068	No	No
	December	0.0170	0.0339	5	5	0.0068	0.0068	No	No
Operation 1 Phase (1-23)	January	0.0339	0.0339	5	5	0.0068	0.0068	No	No
	February	0.0339	0.0339	5	5	0.0068	0.0068	No	No
	March	0.0339	0.0339	5	5	0.0068	0.0068	No	No
	April	0.0339	0.0339	5	5	0.0068	0.0068	No	No
	May	0.0338	0.0339	5	5	0.0068	0.0068	No	No
	June	0.0336	0.0339	5	5	0.0068	0.0068	No	No
	July	0.0339	0.0339	5	5	0.0068	0.0068	No	No
	August	0.0339	0.0339	5	5	0.0068	0.0068	No	No
	September	0.0339	0.0339	5	5	0.0068	0.0068	No	No
	October	0.0339	0.0339	5	5	0.0068	0.0068	No	No
	November	0.0339	0.0339	5	5	0.0068	0.0068	No	No
	December	0.0339	0.0339	5	5	0.0068	0.0068	No	No
Operations 2 Phase (24-28)	January	0.0331	0.0339	5	5	0.0068	0.0068	No	No
	February	0.0331	0.0339	5	5	0.0068	0.0068	No	No
	March	0.0331	0.0339	5	5	0.0068	0.0068	No	No
	April	0.0331	0.0339	5	5	0.0068	0.0068	No	No
	May	0.0329	0.0339	5	5	0.0068	0.0068	No	No
	June	0.0326	0.0339	5	5	0.0068	0.0068	No	No
	July	0.0327	0.0339	5	5	0.0068	0.0068	No	No
	August	0.0327	0.0339	5	5	0.0068	0.0068	No	No
	September	0.0327	0.0339	5	5	0.0068	0.0068	No	No
	October	0.0327	0.0339	5	5	0.0068	0.0068	No	No
	November	0.0326	0.0339	5	5	0.0068	0.0068	No	No
	December	0.0325	0.0339	5	5	0.0068	0.0068	No	No
Closure Phase (29-35)	January	0.0294	0.0308	5	5	0.0062	0.0062	No	No
	February	0.0293	0.0308	5	5	0.0062	0.0062	No	No
	March	0.0293	0.0308	5	5	0.0062	0.0062	No	No
	April	0.0293	0.0307	5	5	0.0061	0.0061	No	No
	May	0.0292	0.0306	5	5	0.0061	0.0061	No	No
	June	0.0289	0.0302	5	5	0.0060	0.0060	No	No
	July	0.0290	0.0303	5	5	0.0061	0.0061	No	No
	August	0.0291	0.0304	5	5	0.0061	0.0061	No	No
	September	0.0291	0.0304	5	5	0.0061	0.0061	No	No
	October	0.0290	0.0303	5	5	0.0061	0.0061	No	No
	November	0.0290	0.0302	5	5	0.0060	0.0060	No	No
	December	0.0290	0.0302	5	5	0.0060	0.0060	No	No
Post-Closure Phase (36-99)	January	0.0336	0.0339	5	5	0.0068	0.0068	No	No
	February	0.0336	0.0339	5	5	0.0068	0.0068	No	No
	March	0.0336	0.0339	5	5	0.0068	0.0068	No	No
	April	0.0336	0.0339	5	5	0.0068	0.0068	No	No
	May	0.0336	0.0339	5	5	0.0068	0.0068	No	No
	June	0.0336	0.0339	5	5	0.0068	0.0068	No	No
	July	0.0336	0.0339	5	5	0.0068	0.0068	No	No
	August	0.0337	0.0339	5	5	0.0068	0.0068	No	No
	September	0.0337	0.0339	5	5	0.0068	0.0068	No	No
	October	0.0337	0.0339	5	5	0.0068	0.0068	No	No
	November	0.0337	0.0339	5	5	0.0068	0.0068	No	No
	December	0.0337	0.0339	5	5	0.0068	0.0068	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D2b. Tailings Management Facility (TMF) Hazard Quotients for Total Arsenic Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Interim Guideline		
Construction (-2 to-1)	January	0.0	0.0	0.025	0.025	0.0	0.0	No	No
	February	0.00003	0.00006	0.025	0.025	0.00250	0.00250	No	No
	March	0.00039	0.00077	0.025	0.025	0.0309	0.0309	No	No
	April	0.00003	0.00006	0.025	0.025	0.00250	0.00250	No	No
	May	0.0	0.0	0.025	0.025	0.0	0.0	No	No
	June	0.00012	0.00024	0.025	0.025	0.00944	0.00944	No	No
	July	0.00009	0.00018	0.025	0.025	0.00715	0.00715	No	No
	August	0.00012	0.00024	0.025	0.025	0.00947	0.00947	No	No
	September	0.00014	0.00029	0.025	0.025	0.0115	0.0115	No	No
	October	0.00016	0.00031	0.025	0.025	0.0125	0.0125	No	No
	November	0.00016	0.00033	0.025	0.025	0.0131	0.0131	No	No
	December	0.00019	0.00037	0.025	0.025	0.0149	0.0149	No	No
Operation 1 Phase (1-23)	January	0.00226	0.00309	0.025	0.025	0.124	0.124	No	No
	February	0.00226	0.00309	0.025	0.025	0.123	0.123	No	No
	March	0.00226	0.00308	0.025	0.025	0.123	0.123	No	No
	April	0.00227	0.00308	0.025	0.025	0.123	0.123	No	No
	May	0.00226	0.00307	0.025	0.025	0.123	0.123	No	No
	June	0.00221	0.00304	0.025	0.025	0.122	0.122	No	No
	July	0.00221	0.00333	0.025	0.025	0.133	0.133	No	No
	August	0.00228	0.00337	0.025	0.025	0.135	0.135	No	No
	September	0.00235	0.00340	0.025	0.025	0.136	0.136	No	No
	October	0.00238	0.00341	0.025	0.025	0.137	0.137	No	No
	November	0.00238	0.00341	0.025	0.025	0.136	0.136	No	No
	December	0.00239	0.00340	0.025	0.025	0.136	0.136	No	No
Operations 2 Phase (24-28)	January	0.00312	0.00340	0.025	0.025	0.136	0.136	No	No
	February	0.00312	0.00339	0.025	0.025	0.136	0.136	No	No
	March	0.00311	0.00339	0.025	0.025	0.135	0.135	No	No
	April	0.00311	0.00338	0.025	0.025	0.135	0.135	No	No
	May	0.00309	0.00337	0.025	0.025	0.135	0.135	No	No
	June	0.00302	0.00330	0.025	0.025	0.132	0.132	No	No
	July	0.00296	0.00323	0.025	0.025	0.129	0.129	No	No
	August	0.00298	0.00328	0.025	0.025	0.131	0.131	No	No
	September	0.00300	0.00331	0.025	0.025	0.132	0.132	No	No
	October	0.00300	0.00332	0.025	0.025	0.133	0.133	No	No
	November	0.00299	0.00332	0.025	0.025	0.133	0.133	No	No
	December	0.00299	0.00331	0.025	0.025	0.132	0.132	No	No
Closure Phase (29-35)	January	0.00245	0.00269	0.025	0.025	0.108	0.108	No	No
	February	0.00245	0.00269	0.025	0.025	0.108	0.108	No	No
	March	0.00245	0.00269	0.025	0.025	0.108	0.108	No	No
	April	0.00245	0.00269	0.025	0.025	0.107	0.107	No	No
	May	0.00244	0.00267	0.025	0.025	0.107	0.107	No	No
	June	0.00241	0.00263	0.025	0.025	0.105	0.105	No	No
	July	0.00238	0.00259	0.025	0.025	0.104	0.104	No	No
	August	0.00239	0.00260	0.025	0.025	0.104	0.104	No	No
	September	0.00239	0.00260	0.025	0.025	0.104	0.104	No	No
	October	0.00239	0.00260	0.025	0.025	0.104	0.104	No	No
	November	0.00239	0.00259	0.025	0.025	0.104	0.104	No	No
	December	0.00238	0.00259	0.025	0.025	0.103	0.103	No	No
Post-Closure Phase (36-99)	January	0.00210	0.00232	0.025	0.025	0.0927	0.0927	No	No
	February	0.00210	0.00232	0.025	0.025	0.0926	0.0926	No	No
	March	0.00210	0.00232	0.025	0.025	0.0928	0.0928	No	No
	April	0.00211	0.00233	0.025	0.025	0.0930	0.0930	No	No
	May	0.00210	0.00233	0.025	0.025	0.0930	0.0930	No	No
	June	0.00209	0.00231	0.025	0.025	0.0925	0.0925	No	No
	July	0.00208	0.00230	0.025	0.025	0.0921	0.0921	No	No
	August	0.00210	0.00232	0.025	0.025	0.0928	0.0928	No	No
	September	0.00210	0.00232	0.025	0.025	0.0930	0.0930	No	No
	October	0.00210	0.00232	0.025	0.025	0.0929	0.0929	No	No
	November	0.00210	0.00232	0.025	0.025	0.0927	0.0927	No	No
	December	0.00210	0.00232	0.025	0.025	0.0927	0.0927	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2c. Tailings Management Facility (TMF) Hazard Quotients for Total Beryllium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	0.1	0.0	No
	February	0.000003	0.000006	0.1	0.000063	No
	March	0.000016	0.000031	0.1	0.000312	No
	April	0.000003	0.000006	0.1	0.000063	No
	May	0.0	0.0	0.1	0.0	No
	June	0.000012	0.000023	0.1	0.000233	No
	July	0.000012	0.000023	0.1	0.000231	No
	August	0.000014	0.000028	0.1	0.000276	No
	September	0.000014	0.000028	0.1	0.000278	No
	October	0.000014	0.000028	0.1	0.000278	No
	November	0.000014	0.000028	0.1	0.000276	No
	December	0.000014	0.000028	0.1	0.000277	No
Operation 1 Phase (1-23)	January	0.000030	0.000032	0.1	0.000320	No
	February	0.000030	0.000032	0.1	0.000320	No
	March	0.000030	0.000032	0.1	0.000320	No
	April	0.000030	0.000032	0.1	0.000319	No
	May	0.000030	0.000032	0.1	0.000318	No
	June	0.000030	0.000032	0.1	0.000315	No
	July	0.000030	0.000032	0.1	0.000316	No
	August	0.000030	0.000032	0.1	0.000320	No
	September	0.000030	0.000032	0.1	0.000321	No
	October	0.000031	0.000032	0.1	0.000321	No
	November	0.000030	0.000032	0.1	0.000319	No
	December	0.000031	0.000032	0.1	0.000320	No
Operations 2 Phase (24-28)	January	0.000029	0.000031	0.1	0.000313	No
	February	0.000029	0.000031	0.1	0.000313	No
	March	0.000029	0.000031	0.1	0.000312	No
	April	0.000029	0.000031	0.1	0.000312	No
	May	0.000028	0.000031	0.1	0.000311	No
	June	0.000028	0.000031	0.1	0.000306	No
	July	0.000028	0.000030	0.1	0.000301	No
	August	0.000028	0.000030	0.1	0.000304	No
	September	0.000028	0.000030	0.1	0.000304	No
	October	0.000028	0.000030	0.1	0.000304	No
	November	0.000028	0.000030	0.1	0.000303	No
	December	0.000028	0.000030	0.1	0.000303	No
Closure Phase (29-35)	January	0.000024	0.000026	0.1	0.000256	No
	February	0.000024	0.000026	0.1	0.000256	No
	March	0.000024	0.000026	0.1	0.000255	No
	April	0.000024	0.000026	0.1	0.000255	No
	May	0.000024	0.000025	0.1	0.000254	No
	June	0.000024	0.000025	0.1	0.000250	No
	July	0.000024	0.000025	0.1	0.000248	No
	August	0.000024	0.000025	0.1	0.000251	No
	September	0.000024	0.000025	0.1	0.000251	No
	October	0.000024	0.000025	0.1	0.000251	No
	November	0.000024	0.000025	0.1	0.000250	No
	December	0.000024	0.000025	0.1	0.000250	No
Post-Closure Phase (36-99)	January	0.000025	0.000027	0.1	0.000272	No
	February	0.000025	0.000027	0.1	0.000272	No
	March	0.000025	0.000027	0.1	0.000272	No
	April	0.000025	0.000027	0.1	0.000273	No
	May	0.000025	0.000027	0.1	0.000273	No
	June	0.000025	0.000027	0.1	0.000271	No
	July	0.000025	0.000027	0.1	0.000270	No
	August	0.000025	0.000027	0.1	0.000274	No
	September	0.000025	0.000027	0.1	0.000274	No
	October	0.000025	0.000027	0.1	0.000274	No
	November	0.000025	0.000027	0.1	0.000273	No
	December	0.000025	0.000027	0.1	0.000273	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2d. Tailings Management Facility (TMF) Hazard Quotients for Total Boron Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	5	5	0.0	0.0	No	No
	February	0.0156	0.0313	5	5	0.0063	0.0063	No	No
	March	0.0780	0.156	5	5	0.0312	0.0312	No	No
	April	0.0156	0.0313	5	5	0.0063	0.0063	No	No
	May	0.0	0.0	5	5	0.0	0.0	No	No
	June	0.0299	0.0598	5	5	0.0120	0.0120	No	No
	July	0.0254	0.0508	5	5	0.0102	0.0102	No	No
	August	0.0258	0.0516	5	5	0.0103	0.0103	No	No
	September	0.0277	0.0554	5	5	0.0111	0.0111	No	No
	October	0.0293	0.0586	5	5	0.0117	0.0117	No	No
	November	0.0307	0.0613	5	5	0.0123	0.0123	No	No
	December	0.0320	0.0639	5	5	0.0128	0.0128	No	No
Operation 1 Phase (1-23)	January	0.0799	0.0896	5	5	0.0179	0.0179	No	No
	February	0.0802	0.0896	5	5	0.0179	0.0179	No	No
	March	0.0805	0.0895	5	5	0.0179	0.0179	No	No
	April	0.0809	0.0895	5	5	0.0179	0.0179	No	No
	May	0.0811	0.0895	5	5	0.0179	0.0179	No	No
	June	0.0793	0.0893	5	5	0.0179	0.0179	No	No
	July	0.0777	0.0928	5	5	0.0186	0.0186	No	No
	August	0.0784	0.0930	5	5	0.0186	0.0186	No	No
	September	0.0796	0.0934	5	5	0.0187	0.0187	No	No
	October	0.0803	0.0935	5	5	0.0187	0.0187	No	No
	November	0.0807	0.0935	5	5	0.0187	0.0187	No	No
	December	0.0808	0.0935	5	5	0.0187	0.0187	No	No
Operations 2 Phase (24-28)	January	0.0837	0.0934	5	5	0.0187	0.0187	No	No
	February	0.0836	0.0933	5	5	0.0187	0.0187	No	No
	March	0.0836	0.0933	5	5	0.0187	0.0187	No	No
	April	0.0835	0.0933	5	5	0.0187	0.0187	No	No
	May	0.0830	0.0931	5	5	0.0186	0.0186	No	No
	June	0.0811	0.0914	5	5	0.0183	0.0183	No	No
	July	0.0791	0.0891	5	5	0.0178	0.0178	No	No
	August	0.0792	0.0894	5	5	0.0179	0.0179	No	No
	September	0.0794	0.0898	5	5	0.0180	0.0180	No	No
	October	0.0794	0.0899	5	5	0.0180	0.0180	No	No
	November	0.0791	0.0899	5	5	0.0180	0.0180	No	No
	December	0.0791	0.0898	5	5	0.0180	0.0180	No	No
Closure Phase (29-35)	January	0.0621	0.0698	5	5	0.0140	0.0140	No	No
	February	0.0620	0.0698	5	5	0.0140	0.0140	No	No
	March	0.0620	0.0697	5	5	0.0139	0.0139	No	No
	April	0.0620	0.0697	5	5	0.0139	0.0139	No	No
	May	0.0617	0.0694	5	5	0.0139	0.0139	No	No
	June	0.0608	0.0681	5	5	0.0136	0.0136	No	No
	July	0.0599	0.0669	5	5	0.0134	0.0134	No	No
	August	0.0600	0.0669	5	5	0.0134	0.0134	No	No
	September	0.0600	0.0669	5	5	0.0134	0.0134	No	No
	October	0.0600	0.0668	5	5	0.0134	0.0134	No	No
	November	0.0598	0.0667	5	5	0.0133	0.0133	No	No
	December	0.0598	0.0666	5	5	0.0133	0.0133	No	No
Post-Closure Phase (36-99)	January	0.0440	0.0540	5	5	0.0108	0.0108	No	No
	February	0.0440	0.0540	5	5	0.0108	0.0108	No	No
	March	0.0441	0.0541	5	5	0.0108	0.0108	No	No
	April	0.0442	0.0544	5	5	0.0109	0.0109	No	No
	May	0.0442	0.0545	5	5	0.0109	0.0109	No	No
	June	0.0438	0.0541	5	5	0.0108	0.0108	No	No
	July	0.0435	0.0536	5	5	0.0107	0.0107	No	No
	August	0.0437	0.0540	5	5	0.0108	0.0108	No	No
	September	0.0438	0.0541	5	5	0.0108	0.0108	No	No
	October	0.0438	0.0541	5	5	0.0108	0.0108	No	No
	November	0.0437	0.0540	5	5	0.0108	0.0108	No	No
	December	0.0437	0.0540	5	5	0.0108	0.0108	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2e. Tailings Management Facility (TMF) Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	1000	0.0	No
	February	2.53	5.05	1000	0.0051	No
	March	12.9	25.8	1000	0.0258	No
	April	2.53	5.05	1000	0.0051	No
	May	0.0	0.0	1000	0.0	No
	June	5.18	10.4	1000	0.0104	No
	July	4.42	8.84	1000	0.0088	No
	August	4.75	9.51	1000	0.0095	No
	September	5.46	10.9	1000	0.0109	No
	October	5.88	11.8	1000	0.0118	No
	November	6.13	12.3	1000	0.0123	No
	December	6.40	12.8	1000	0.0128	No
Operation 1 Phase (1-23)	January	31.3	38.1	1000	0.0381	No
	February	31.3	38.1	1000	0.0381	No
	March	31.4	38.0	1000	0.0380	No
	April	31.4	38.0	1000	0.0380	No
	May	31.5	37.9	1000	0.0379	No
	June	31.1	37.8	1000	0.0378	No
	July	30.8	42.3	1000	0.0423	No
	August	31.4	42.6	1000	0.0426	No
	September	32.2	42.8	1000	0.0428	No
	October	32.5	42.9	1000	0.0429	No
	November	32.6	42.9	1000	0.0429	No
	December	32.6	42.9	1000	0.0429	No
Operations 2 Phase (24-28)	January	38.9	42.8	1000	0.0428	No
	February	38.8	42.8	1000	0.0428	No
	March	38.8	42.7	1000	0.0427	No
	April	38.8	42.7	1000	0.0427	No
	May	38.5	42.6	1000	0.0426	No
	June	37.7	42.0	1000	0.0420	No
	July	36.8	41.0	1000	0.0410	No
	August	36.9	41.3	1000	0.0413	No
	September	37.1	41.5	1000	0.0415	No
	October	37.1	41.6	1000	0.0416	No
	November	37.0	41.6	1000	0.0416	No
	December	36.9	41.6	1000	0.0416	No
Closure Phase (29-35)	January	29.3	32.8	1000	0.0328	No
	February	29.3	32.8	1000	0.0328	No
	March	29.3	32.8	1000	0.0328	No
	April	29.3	32.7	1000	0.0327	No
	May	29.2	32.6	1000	0.0326	No
	June	28.8	32.0	1000	0.0320	No
	July	28.4	31.5	1000	0.0315	No
	August	28.4	31.5	1000	0.0315	No
	September	28.4	31.5	1000	0.0315	No
	October	28.4	31.4	1000	0.0314	No
	November	28.4	31.4	1000	0.0314	No
	December	28.3	31.3	1000	0.0313	No
Post-Closure Phase (36-99)	January	26.6	28.4	1000	0.0284	No
	February	26.5	28.4	1000	0.0284	No
	March	26.6	28.5	1000	0.0285	No
	April	26.7	28.6	1000	0.0286	No
	May	26.7	28.6	1000	0.0286	No
	June	26.5	28.4	1000	0.0284	No
	July	26.4	28.2	1000	0.0282	No
	August	26.5	28.4	1000	0.0284	No
	September	26.6	28.5	1000	0.0285	No
	October	26.6	28.5	1000	0.0285	No
	November	26.5	28.4	1000	0.0284	No
	December	26.5	28.4	1000	0.0284	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2f. Tailings Management Facility (TMF) Hazard Quotients for Total Cadmium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	0.08	0.0	No
	February	0.000002	0.000003	0.08	0.000039	No
	March	0.000009	0.000017	0.08	0.000215	No
	April	0.000002	0.000003	0.08	0.000039	No
	May	0.0	0.0	0.08	0.0	No
	June	0.000005	0.000010	0.08	0.000128	No
	July	0.000004	0.000008	0.08	0.000101	No
	August	0.000005	0.000009	0.08	0.000116	No
	September	0.000006	0.000012	0.08	0.000150	No
	October	0.000007	0.000013	0.08	0.000164	No
	November	0.000007	0.000013	0.08	0.000167	No
	December	0.000007	0.000014	0.08	0.000169	No
Operation 1 Phase (1-23)	January	0.000060	0.000072	0.08	0.000900	No
	February	0.000060	0.000072	0.08	0.000899	No
	March	0.000060	0.000072	0.08	0.000899	No
	April	0.000061	0.000072	0.08	0.000900	No
	May	0.000061	0.000072	0.08	0.000897	No
	June	0.000059	0.000071	0.08	0.000884	No
	July	0.000057	0.000070	0.08	0.000871	No
	August	0.000059	0.000071	0.08	0.000884	No
	September	0.000061	0.000072	0.08	0.000895	No
	October	0.000062	0.000072	0.08	0.000900	No
	November	0.000062	0.000072	0.08	0.000900	No
	December	0.000062	0.000072	0.08	0.000899	No
Operations 2 Phase (24-28)	January	0.000064	0.000069	0.08	0.000864	No
	February	0.000063	0.000069	0.08	0.000862	No
	March	0.000063	0.000069	0.08	0.000861	No
	April	0.000063	0.000069	0.08	0.000859	No
	May	0.000063	0.000068	0.08	0.000856	No
	June	0.000061	0.000067	0.08	0.000839	No
	July	0.000060	0.000066	0.08	0.000822	No
	August	0.000061	0.000067	0.08	0.000832	No
	September	0.000061	0.000067	0.08	0.000841	No
	October	0.000061	0.000068	0.08	0.000844	No
	November	0.000061	0.000067	0.08	0.000842	No
	December	0.000061	0.000067	0.08	0.000840	No
Closure Phase (29-35)	January	0.000049	0.000055	0.08	0.000684	No
	February	0.000049	0.000055	0.08	0.000683	No
	March	0.000049	0.000055	0.08	0.000682	No
	April	0.000049	0.000055	0.08	0.000681	No
	May	0.000049	0.000054	0.08	0.000678	No
	June	0.000049	0.000053	0.08	0.000667	No
	July	0.000048	0.000053	0.08	0.000657	No
	August	0.000048	0.000053	0.08	0.000659	No
	September	0.000048	0.000053	0.08	0.000659	No
	October	0.000048	0.000053	0.08	0.000658	No
	November	0.000048	0.000052	0.08	0.000656	No
	December	0.000048	0.000052	0.08	0.000655	No
Post-Closure Phase (36-99)	January	0.000086	0.000113	0.08	0.00142	No
	February	0.000086	0.000113	0.08	0.00141	No
	March	0.000086	0.000113	0.08	0.00142	No
	April	0.000086	0.000114	0.08	0.00143	No
	May	0.000086	0.000114	0.08	0.00143	No
	June	0.000086	0.000114	0.08	0.00142	No
	July	0.000085	0.000113	0.08	0.00141	No
	August	0.000086	0.000113	0.08	0.00142	No
	September	0.000086	0.000114	0.08	0.00142	No
	October	0.000086	0.000114	0.08	0.00142	No
	November	0.000086	0.000113	0.08	0.00142	No
	December	0.000086	0.000113	0.08	0.00142	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2g. Tailings Management Facility (TMF) Hazard Quotients for Total Chromium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	0.05	0.0	No
	February	0.00003	0.00006	0.05	0.00125	No
	March	0.00016	0.00031	0.05	0.00626	No
	April	0.00003	0.00006	0.05	0.00125	No
	May	0.0	0.0	0.05	0.0	No
	June	0.00007	0.00014	0.05	0.00270	No
	July	0.00006	0.00013	0.05	0.00251	No
	August	0.00006	0.00013	0.05	0.00257	No
	September	0.00007	0.00014	0.05	0.00272	No
	October	0.00007	0.00014	0.05	0.00283	No
	November	0.00007	0.00015	0.05	0.00292	No
	December	0.00008	0.00016	0.05	0.00312	No
Operation 1 Phase (1-23)	January	0.00026	0.00030	0.05	0.00591	No
	February	0.00026	0.00030	0.05	0.00592	No
	March	0.00026	0.00030	0.05	0.00593	No
	April	0.00026	0.00030	0.05	0.00594	No
	May	0.00026	0.00030	0.05	0.00591	No
	June	0.00025	0.00029	0.05	0.00582	No
	July	0.00025	0.00029	0.05	0.00585	No
	August	0.00025	0.00029	0.05	0.00586	No
	September	0.00026	0.00029	0.05	0.00587	No
	October	0.00026	0.00029	0.05	0.00588	No
	November	0.00026	0.00029	0.05	0.00586	No
	December	0.00026	0.00030	0.05	0.00591	No
Operations 2 Phase (24-28)	January	0.00025	0.00029	0.05	0.00575	No
	February	0.00025	0.00029	0.05	0.00574	No
	March	0.00025	0.00029	0.05	0.00574	No
	April	0.00025	0.00029	0.05	0.00573	No
	May	0.00025	0.00029	0.05	0.00570	No
	June	0.00024	0.00028	0.05	0.00557	No
	July	0.00023	0.00027	0.05	0.00541	No
	August	0.00023	0.00027	0.05	0.00541	No
	September	0.00023	0.00027	0.05	0.00541	No
	October	0.00023	0.00027	0.05	0.00540	No
	November	0.00023	0.00027	0.05	0.00539	No
	December	0.00023	0.00027	0.05	0.00538	No
Closure Phase (29-35)	January	0.00018	0.00020	0.05	0.00400	No
	February	0.00018	0.00020	0.05	0.00399	No
	March	0.00018	0.00020	0.05	0.00399	No
	April	0.00018	0.00020	0.05	0.00399	No
	May	0.00017	0.00020	0.05	0.00397	No
	June	0.00017	0.00019	0.05	0.00389	No
	July	0.00017	0.00019	0.05	0.00382	No
	August	0.00017	0.00019	0.05	0.00382	No
	September	0.00017	0.00019	0.05	0.00382	No
	October	0.00017	0.00019	0.05	0.00381	No
	November	0.00017	0.00019	0.05	0.00380	No
	December	0.00017	0.00019	0.05	0.00380	No
Post-Closure Phase (36-99)	January	0.00016	0.00019	0.05	0.00370	No
	February	0.00016	0.00019	0.05	0.00370	No
	March	0.00017	0.00019	0.05	0.00371	No
	April	0.00017	0.00019	0.05	0.00373	No
	May	0.00017	0.00019	0.05	0.00374	No
	June	0.00017	0.00019	0.05	0.00372	No
	July	0.00016	0.00018	0.05	0.00369	No
	August	0.00017	0.00019	0.05	0.00372	No
	September	0.00017	0.00019	0.05	0.00373	No
	October	0.00017	0.00019	0.05	0.00373	No
	November	0.00017	0.00019	0.05	0.00372	No
	December	0.00017	0.00019	0.05	0.00372	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2h. Tailings Management Facility (TMF) Hazard Quotients for Total Cobalt Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	1.000	0.0	No
	February	0.000004	0.000008	1.000	0.000008	No
	March	0.000057	0.000114	1.000	0.000114	No
	April	0.000004	0.000008	1.000	0.000008	No
	May	0.0	0.0	1.000	0.0	No
	June	0.000029	0.000058	1.000	0.000058	No
	July	0.000047	0.000094	1.000	0.000094	No
	August	0.000168	0.000336	1.000	0.000336	No
	September	0.000386	0.000772	1.000	0.000772	No
	October	0.000474	0.000948	1.000	0.000948	No
	November	0.000468	0.000937	1.000	0.000937	No
	December	0.000458	0.000915	1.000	0.000915	No
Operation 1 Phase (1-23)	January	0.00494	0.00588	1.000	0.00588	No
	February	0.00490	0.00587	1.000	0.00587	No
	March	0.00487	0.00585	1.000	0.00585	No
	April	0.00484	0.00584	1.000	0.00584	No
	May	0.00477	0.00580	1.000	0.00580	No
	June	0.00448	0.00565	1.000	0.00565	No
	July	0.00437	0.00550	1.000	0.00550	No
	August	0.00471	0.00567	1.000	0.00567	No
	September	0.00513	0.00587	1.000	0.00587	No
	October	0.00527	0.00594	1.000	0.00594	No
	November	0.00522	0.00592	1.000	0.00592	No
	December	0.00518	0.00590	1.000	0.00590	No
Operations 2 Phase (24-28)	January	0.00560	0.00588	1.000	0.00588	No
	February	0.00559	0.00587	1.000	0.00587	No
	March	0.00558	0.00585	1.000	0.00585	No
	April	0.00557	0.00584	1.000	0.00584	No
	May	0.00552	0.00579	1.000	0.00579	No
	June	0.00535	0.00559	1.000	0.00559	No
	July	0.00521	0.00546	1.000	0.00546	No
	August	0.00528	0.00563	1.000	0.00563	No
	September	0.00539	0.00585	1.000	0.00585	No
	October	0.00542	0.00593	1.000	0.00593	No
	November	0.00540	0.00591	1.000	0.00591	No
	December	0.00539	0.00590	1.000	0.00590	No
Closure Phase (29-35)	January	0.00392	0.00471	1.000	0.00471	No
	February	0.00392	0.00471	1.000	0.00471	No
	March	0.00391	0.00470	1.000	0.00470	No
	April	0.00391	0.00469	1.000	0.00469	No
	May	0.00389	0.00466	1.000	0.00466	No
	June	0.00381	0.00455	1.000	0.00455	No
	July	0.00373	0.00444	1.000	0.00444	No
	August	0.00373	0.00442	1.000	0.00442	No
	September	0.00372	0.00442	1.000	0.00442	No
	October	0.00372	0.00441	1.000	0.00441	No
	November	0.00370	0.00439	1.000	0.00439	No
	December	0.00370	0.00438	1.000	0.00438	No
Post-Closure Phase (36-99)	January	0.00161	0.00313	1.000	0.00313	No
	February	0.00161	0.00313	1.000	0.00313	No
	March	0.00161	0.00313	1.000	0.00313	No
	April	0.00161	0.00314	1.000	0.00314	No
	May	0.00161	0.00315	1.000	0.00315	No
	June	0.00159	0.00311	1.000	0.00311	No
	July	0.00158	0.00307	1.000	0.00307	No
	August	0.00158	0.00308	1.000	0.00308	No
	September	0.00158	0.00308	1.000	0.00308	No
	October	0.00158	0.00308	1.000	0.00308	No
	November	0.00158	0.00307	1.000	0.00307	No
	December	0.00158	0.00307	1.000	0.00307	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2i. Tailings Management Facility (TMF) Hazard Quotients for Total Copper Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	0.3	0.3	0.0	0.0	No	No
	February	0.0001	0.0002	0.3	0.3	0.0006	0.0006	No	No
	March	0.0006	0.0012	0.3	0.3	0.0041	0.0041	No	No
	April	0.0001	0.0002	0.3	0.3	0.0006	0.0006	No	No
	May	0.0	0.0	0.3	0.3	0.0	0.0	No	No
	June	0.0002	0.0005	0.3	0.3	0.0016	0.0016	No	No
	July	0.0002	0.0005	0.3	0.3	0.0016	0.0016	No	No
	August	0.0003	0.0006	0.3	0.3	0.0020	0.0020	No	No
	September	0.0004	0.0009	0.3	0.3	0.0029	0.0029	No	No
	October	0.0005	0.0010	0.3	0.3	0.0033	0.0033	No	No
	November	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	December	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
Operation 1 Phase (1-23)	January	0.0056	0.0069	0.3	0.3	0.0229	0.0229	No	No
	February	0.0056	0.0069	0.3	0.3	0.0229	0.0229	No	No
	March	0.0057	0.0069	0.3	0.3	0.0229	0.0229	No	No
	April	0.0057	0.0069	0.3	0.3	0.0229	0.0229	No	No
	May	0.0057	0.0068	0.3	0.3	0.0228	0.0228	No	No
	June	0.0055	0.0067	0.3	0.3	0.0224	0.0224	No	No
	July	0.0054	0.0071	0.3	0.3	0.0238	0.0238	No	No
	August	0.0056	0.0072	0.3	0.3	0.0240	0.0240	No	No
	September	0.0058	0.0073	0.3	0.3	0.0243	0.0243	No	No
	October	0.0059	0.0073	0.3	0.3	0.0244	0.0244	No	No
	November	0.0059	0.0073	0.3	0.3	0.0243	0.0243	No	No
	December	0.0059	0.0073	0.3	0.3	0.0243	0.0243	No	No
Operations 2 Phase (24-28)	January	0.0067	0.0073	0.3	0.3	0.0242	0.0242	No	No
	February	0.0067	0.0073	0.3	0.3	0.0242	0.0242	No	No
	March	0.0067	0.0073	0.3	0.3	0.0242	0.0242	No	No
	April	0.0067	0.0072	0.3	0.3	0.0242	0.0242	No	No
	May	0.0066	0.0072	0.3	0.3	0.0240	0.0240	No	No
	June	0.0065	0.0071	0.3	0.3	0.0235	0.0235	No	No
	July	0.0063	0.0069	0.3	0.3	0.0230	0.0230	No	No
	August	0.0064	0.0070	0.3	0.3	0.0233	0.0233	No	No
	September	0.0064	0.0071	0.3	0.3	0.0236	0.0236	No	No
	October	0.0064	0.0071	0.3	0.3	0.0237	0.0237	No	No
	November	0.0064	0.0071	0.3	0.3	0.0236	0.0236	No	No
	December	0.0064	0.0071	0.3	0.3	0.0236	0.0236	No	No
Closure Phase (29-35)	January	0.0052	0.0058	0.3	0.3	0.0193	0.0193	No	No
	February	0.0052	0.0058	0.3	0.3	0.0193	0.0193	No	No
	March	0.0052	0.0058	0.3	0.3	0.0193	0.0193	No	No
	April	0.0052	0.0058	0.3	0.3	0.0192	0.0192	No	No
	May	0.0052	0.0057	0.3	0.3	0.0191	0.0191	No	No
	June	0.0051	0.0056	0.3	0.3	0.0188	0.0188	No	No
	July	0.0051	0.0056	0.3	0.3	0.0185	0.0185	No	No
	August	0.0051	0.0056	0.3	0.3	0.0186	0.0186	No	No
	September	0.0051	0.0056	0.3	0.3	0.0186	0.0186	No	No
	October	0.0051	0.0056	0.3	0.3	0.0186	0.0186	No	No
	November	0.0051	0.0056	0.3	0.3	0.0185	0.0185	No	No
	December	0.0051	0.0055	0.3	0.3	0.0185	0.0185	No	No
Post-Closure Phase (36-99)	January	0.0044	0.0050	0.3	0.3	0.0168	0.0168	No	No
	February	0.0044	0.0050	0.3	0.3	0.0168	0.0168	No	No
	March	0.0044	0.0050	0.3	0.3	0.0168	0.0168	No	No
	April	0.0044	0.0050	0.3	0.3	0.0168	0.0168	No	No
	May	0.0044	0.0051	0.3	0.3	0.0168	0.0168	No	No
	June	0.0043	0.0050	0.3	0.3	0.0167	0.0167	No	No
	July	0.0043	0.0050	0.3	0.3	0.0167	0.0167	No	No
	August	0.0043	0.0050	0.3	0.3	0.0168	0.0168	No	No
	September	0.0044	0.0050	0.3	0.3	0.0168	0.0168	No	No
	October	0.0043	0.0050	0.3	0.3	0.0168	0.0168	No	No
	November	0.0043	0.0050	0.3	0.3	0.0168	0.0168	No	No
	December	0.0043	0.0050	0.3	0.3	0.0168	0.0168	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2j. Tailings Management Facility (TMF) Hazard Quotients for Total Lead Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	0.1	0.1	0.0	0.0	No	No
	February	0.000003	0.000007	0.1	0.1	0.000069	0.000069	No	No
	March	0.000040	0.000079	0.1	0.1	0.000791	0.000791	No	No
	April	0.000003	0.000007	0.1	0.1	0.000069	0.000069	No	No
	May	0.0	0.0	0.1	0.1	0.0	0.0	No	No
	June	0.000014	0.000029	0.1	0.1	0.000290	0.000290	No	No
	July	0.000036	0.000072	0.1	0.1	0.000715	0.000715	No	No
	August	0.000033	0.000066	0.1	0.1	0.000657	0.000657	No	No
	September	0.000034	0.000067	0.1	0.1	0.000674	0.000674	No	No
	October	0.000034	0.000068	0.1	0.1	0.000685	0.000685	No	No
	November	0.000034	0.000068	0.1	0.1	0.000682	0.000682	No	No
	December	0.000035	0.000069	0.1	0.1	0.000690	0.000690	No	No
Operation 1 Phase (1-23)	January	0.000126	0.000150	0.1	0.1	0.00150	0.00150	No	No
	February	0.000126	0.000150	0.1	0.1	0.00150	0.00150	No	No
	March	0.000126	0.000150	0.1	0.1	0.00150	0.00150	No	No
	April	0.000126	0.000150	0.1	0.1	0.00150	0.00150	No	No
	May	0.000126	0.000149	0.1	0.1	0.00149	0.00149	No	No
	June	0.000123	0.000147	0.1	0.1	0.00147	0.00147	No	No
	July	0.000127	0.000156	0.1	0.1	0.00156	0.00156	No	No
	August	0.000127	0.000156	0.1	0.1	0.00156	0.00156	No	No
	September	0.000129	0.000157	0.1	0.1	0.00157	0.00157	No	No
	October	0.000130	0.000157	0.1	0.1	0.00157	0.00157	No	No
	November	0.000130	0.000156	0.1	0.1	0.00156	0.00156	No	No
	December	0.000130	0.000156	0.1	0.1	0.00156	0.00156	No	No
Operations 2 Phase (24-28)	January	0.000142	0.000156	0.1	0.1	0.00156	0.00156	No	No
	February	0.000141	0.000156	0.1	0.1	0.00156	0.00156	No	No
	March	0.000141	0.000155	0.1	0.1	0.00155	0.00155	No	No
	April	0.000141	0.000155	0.1	0.1	0.00155	0.00155	No	No
	May	0.000140	0.000155	0.1	0.1	0.00155	0.00155	No	No
	June	0.000137	0.000152	0.1	0.1	0.00152	0.00152	No	No
	July	0.000136	0.000150	0.1	0.1	0.00150	0.00150	No	No
	August	0.000136	0.000151	0.1	0.1	0.00151	0.00151	No	No
	September	0.000136	0.000151	0.1	0.1	0.00151	0.00151	No	No
	October	0.000136	0.000152	0.1	0.1	0.00152	0.00152	No	No
	November	0.000135	0.000151	0.1	0.1	0.00151	0.00151	No	No
	December	0.000135	0.000151	0.1	0.1	0.00151	0.00151	No	No
Closure Phase (29-35)	January	0.000111	0.000122	0.1	0.1	0.00122	0.00122	No	No
	February	0.000111	0.000121	0.1	0.1	0.00121	0.00121	No	No
	March	0.000111	0.000121	0.1	0.1	0.00121	0.00121	No	No
	April	0.000111	0.000121	0.1	0.1	0.00121	0.00121	No	No
	May	0.000110	0.000120	0.1	0.1	0.00120	0.00120	No	No
	June	0.000109	0.000118	0.1	0.1	0.00118	0.00118	No	No
	July	0.000109	0.000118	0.1	0.1	0.00118	0.00118	No	No
	August	0.000109	0.000118	0.1	0.1	0.00118	0.00118	No	No
	September	0.000109	0.000118	0.1	0.1	0.00118	0.00118	No	No
	October	0.000109	0.000118	0.1	0.1	0.00118	0.00118	No	No
	November	0.000109	0.000117	0.1	0.1	0.00117	0.00117	No	No
	December	0.000108	0.000117	0.1	0.1	0.00117	0.00117	No	No
Post-Closure Phase (36-99)	January	0.000109	0.000113	0.1	0.1	0.00113	0.00113	No	No
	February	0.000109	0.000113	0.1	0.1	0.00113	0.00113	No	No
	March	0.000109	0.000113	0.1	0.1	0.00113	0.00113	No	No
	April	0.000109	0.000113	0.1	0.1	0.00113	0.00113	No	No
	May	0.000109	0.000113	0.1	0.1	0.00113	0.00113	No	No
	June	0.000108	0.000112	0.1	0.1	0.00112	0.00112	No	No
	July	0.000109	0.000113	0.1	0.1	0.00113	0.00113	No	No
	August	0.000110	0.000113	0.1	0.1	0.00113	0.00113	No	No
	September	0.000110	0.000113	0.1	0.1	0.00113	0.00113	No	No
	October	0.000110	0.000113	0.1	0.1	0.00113	0.00113	No	No
	November	0.000109	0.000113	0.1	0.1	0.00113	0.00113	No	No
	December	0.000109	0.000113	0.1	0.1	0.00113	0.00113	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D2k. Tailings Management Facility (TMF) Hazard Quotients for Total Mercury Concentrations, Expected Case

		First Screening Step						Retained as COPC?		
Project Phase	Months	Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
		Mean	Maximum	BC MOE 30-Day Mean if MeHg is 0.5% of THg	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE Maximum Guideline	Wildlife	Livestock
Construction (-2 to-1)	January	0.0	0.0	0.00002	0.003	0.0	0.0	0.0	No	No
	February	0.000003	0.000006	0.00002	0.003	0.156	0.313	0.00208	No	No
	March	0.000003	0.000006	0.00002	0.003	0.157	0.313	0.00209	No	No
	April	0.000003	0.000006	0.00002	0.003	0.156	0.313	0.00208	No	No
	May	0.0	0.0	0.00002	0.003	0.0	0.0	0.0	No	No
	June	0.000005	0.000010	0.00002	0.003	0.244	0.489	0.00326	No	No
	July	0.000005	0.000009	0.00002	0.003	0.237	0.475	0.00317	No	No
	August	0.000005	0.000010	0.00002	0.003	0.239	0.479	0.00319	No	No
	September	0.000005	0.000010	0.00002	0.003	0.239	0.478	0.00319	No	No
	October	0.000005	0.000010	0.00002	0.003	0.239	0.478	0.00318	No	No
	November	0.000005	0.000010	0.00002	0.003	0.238	0.475	0.00317	No	No
	December	0.000005	0.000009	0.00002	0.003	0.237	0.475	0.00317	No	No
Operation 1 Phase (1-23)	January	0.000005	0.000010	0.00002	0.003	0.242	0.476	0.00317	No	No
	February	0.000005	0.000009	0.00002	0.003	0.242	0.465	0.00310	No	No
	March	0.000005	0.000009	0.00002	0.003	0.242	0.459	0.00306	No	No
	April	0.000005	0.000009	0.00002	0.003	0.242	0.457	0.00305	No	No
	May	0.000005	0.000008	0.00002	0.003	0.238	0.422	0.00281	No	No
	June	0.000005	0.000007	0.00002	0.003	0.231	0.351	0.00234	No	No
	July	0.000005	0.000007	0.00002	0.003	0.236	0.333	0.00222	No	No
	August	0.000005	0.000007	0.00002	0.003	0.237	0.328	0.00219	No	No
	September	0.000005	0.000006	0.00002	0.003	0.236	0.324	0.00216	No	No
	October	0.000005	0.000006	0.00002	0.003	0.236	0.324	0.00216	No	No
	November	0.000005	0.000006	0.00002	0.003	0.235	0.322	0.00215	No	No
	December	0.000005	0.000006	0.00002	0.003	0.235	0.322	0.00215	No	No
Operations 2 Phase (24-28)	January	0.000006	0.000006	0.00002	0.003	0.287	0.322	0.00215	No	No
	February	0.000006	0.000006	0.00002	0.003	0.287	0.322	0.00214	No	No
	March	0.000006	0.000006	0.00002	0.003	0.287	0.322	0.00214	No	No
	April	0.000006	0.000006	0.00002	0.003	0.286	0.321	0.00214	No	No
	May	0.000006	0.000006	0.00002	0.003	0.285	0.319	0.00213	No	No
	June	0.000006	0.000006	0.00002	0.003	0.278	0.312	0.00208	No	No
	July	0.000005	0.000006	0.00002	0.003	0.273	0.305	0.00203	No	No
	August	0.000005	0.000006	0.00002	0.003	0.273	0.305	0.00203	No	No
	September	0.000005	0.000006	0.00002	0.003	0.273	0.304	0.00203	No	No
	October	0.000005	0.000006	0.00002	0.003	0.273	0.304	0.00203	No	No
	November	0.000005	0.000006	0.00002	0.003	0.272	0.303	0.00202	No	No
	December	0.000005	0.000006	0.00002	0.003	0.272	0.302	0.00202	No	No
Closure Phase (29-35)	January	0.000005	0.000005	0.00002	0.003	0.227	0.247	0.00165	No	No
	February	0.000005	0.000005	0.00002	0.003	0.227	0.247	0.00165	No	No
	March	0.000005	0.000005	0.00002	0.003	0.227	0.247	0.00165	No	No
	April	0.000005	0.000005	0.00002	0.003	0.227	0.247	0.00165	No	No
	May	0.000005	0.000005	0.00002	0.003	0.226	0.246	0.00164	No	No
	June	0.000004	0.000005	0.00002	0.003	0.223	0.242	0.00161	No	No
	July	0.000004	0.000005	0.00002	0.003	0.220	0.239	0.00159	No	No
	August	0.000004	0.000005	0.00002	0.003	0.221	0.239	0.00160	No	No
	September	0.000004	0.000005	0.00002	0.003	0.221	0.240	0.00160	No	No
	October	0.000004	0.000005	0.00002	0.003	0.221	0.240	0.00160	No	No
	November	0.000004	0.000005	0.00002	0.003	0.221	0.239	0.00159	No	No
	December	0.000004	0.000005	0.00002	0.003	0.221	0.239	0.00159	No	No
Post-Closure Phase (36-99)	January	0.000006	0.000007	0.00002	0.003	0.289	0.332	0.00221	No	No
	February	0.000006	0.000007	0.00002	0.003	0.289	0.332	0.00221	No	No
	March	0.000006	0.000007	0.00002	0.003	0.290	0.333	0.00222	No	No
	April	0.000006	0.000007	0.00002	0.003	0.291	0.334	0.00223	No	No
	May	0.000006	0.000007	0.00002	0.003	0.292	0.335	0.00223	No	No
	June	0.000006	0.000007	0.00002	0.003	0.289	0.332	0.00222	No	No
	July	0.000006	0.000007	0.00002	0.003	0.287	0.330	0.00220	No	No
	August	0.000006	0.000007	0.00002	0.003	0.289	0.332	0.00221	No	No
	September	0.000006	0.000007	0.00002	0.003	0.290	0.333	0.00222	No	No
	October	0.000006	0.000007	0.00002	0.003	0.290	0.333	0.00222	No	No
	November	0.000006	0.000007	0.00002	0.003	0.290	0.332	0.00221	No	No
	December	0.000006	0.000007	0.00002	0.003	0.290	0.332	0.00221	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D2L. Tailings Management Facility (TMF) Hazard Quotients for Total Molybdenum Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	0.05	0.05	0.0	0.0	No	No
	February	0.0002	0.0005	0.05	0.05	0.0091	0.0091	No	No
	March	0.0015	0.0029	0.05	0.05	0.0588	0.0588	No	No
	April	0.0002	0.0005	0.05	0.05	0.0091	0.0091	No	No
	May	0.0	0.0	0.05	0.05	0.0	0.0	No	No
	June	0.0005	0.0010	0.05	0.05	0.0203	0.0203	No	No
	July	0.0004	0.0009	0.05	0.05	0.0175	0.0175	No	No
	August	0.0005	0.0010	0.05	0.05	0.0209	0.0209	No	No
	September	0.0006	0.0013	0.05	0.05	0.0257	0.0257	No	No
	October	0.0007	0.0014	0.05	0.05	0.0283	0.0283	No	No
	November	0.0007	0.0015	0.05	0.05	0.0295	0.0295	No	No
	December	0.0008	0.0015	0.05	0.05	0.0302	0.0302	No	No
Operation 1 Phase (1-23)	January	0.0086	0.0121	0.05	0.05	0.241	0.241	No	No
	February	0.0086	0.0120	0.05	0.05	0.241	0.241	No	No
	March	0.0086	0.0120	0.05	0.05	0.241	0.241	No	No
	April	0.0085	0.0120	0.05	0.05	0.240	0.240	No	No
	May	0.0085	0.0120	0.05	0.05	0.240	0.240	No	No
	June	0.0083	0.0119	0.05	0.05	0.238	0.238	No	No
	July	0.0084	0.0155	0.05	0.05	0.311	0.311	No	No
	August	0.0088	0.0157	0.05	0.05	0.315	0.315	No	No
	September	0.0092	0.0159	0.05	0.05	0.319	0.319	No	No
	October	0.0093	0.0160	0.05	0.05	0.320	0.320	No	No
	November	0.0093	0.0160	0.05	0.05	0.320	0.320	No	No
	December	0.0093	0.0160	0.05	0.05	0.319	0.319	No	No
Operations 2 Phase (24-28)	January	0.0149	0.0160	0.05	0.05	0.319	0.319	No	No
	February	0.0148	0.0159	0.05	0.05	0.319	0.319	No	No
	March	0.0148	0.0159	0.05	0.05	0.318	0.318	No	No
	April	0.0148	0.0159	0.05	0.05	0.318	0.318	No	No
	May	0.0147	0.0158	0.05	0.05	0.317	0.317	No	No
	June	0.0144	0.0155	0.05	0.05	0.310	0.310	No	No
	July	0.0141	0.0152	0.05	0.05	0.304	0.304	No	No
	August	0.0142	0.0154	0.05	0.05	0.309	0.309	No	No
	September	0.0143	0.0156	0.05	0.05	0.313	0.313	No	No
	October	0.0143	0.0157	0.05	0.05	0.314	0.314	No	No
	November	0.0143	0.0157	0.05	0.05	0.314	0.314	No	No
	December	0.0143	0.0157	0.05	0.05	0.313	0.313	No	No
Closure Phase (29-35)	January	0.0119	0.0130	0.05	0.05	0.259	0.259	No	No
	February	0.0119	0.0130	0.05	0.05	0.259	0.259	No	No
	March	0.0118	0.0130	0.05	0.05	0.259	0.259	No	No
	April	0.0118	0.0129	0.05	0.05	0.259	0.259	No	No
	May	0.0118	0.0129	0.05	0.05	0.258	0.258	No	No
	June	0.0117	0.0127	0.05	0.05	0.253	0.253	No	No
	July	0.0115	0.0125	0.05	0.05	0.250	0.250	No	No
	August	0.0116	0.0125	0.05	0.05	0.251	0.251	No	No
	September	0.0116	0.0125	0.05	0.05	0.251	0.251	No	No
	October	0.0116	0.0125	0.05	0.05	0.250	0.250	No	No
	November	0.0116	0.0125	0.05	0.05	0.250	0.250	No	No
	December	0.0116	0.0125	0.05	0.05	0.250	0.250	No	No
Post-Closure Phase (36-99)	January	0.0112	0.0131	0.05	0.05	0.262	0.262	No	No
	February	0.0112	0.0131	0.05	0.05	0.262	0.262	No	No
	March	0.0112	0.0131	0.05	0.05	0.263	0.263	No	No
	April	0.0113	0.0132	0.05	0.05	0.264	0.264	No	No
	May	0.0113	0.0132	0.05	0.05	0.264	0.264	No	No
	June	0.0112	0.0131	0.05	0.05	0.262	0.262	No	No
	July	0.0111	0.0130	0.05	0.05	0.261	0.261	No	No
	August	0.0112	0.0131	0.05	0.05	0.263	0.263	No	No
	September	0.0112	0.0132	0.05	0.05	0.263	0.263	No	No
	October	0.0112	0.0131	0.05	0.05	0.263	0.263	No	No
	November	0.0112	0.0131	0.05	0.05	0.262	0.262	No	No
	December	0.0112	0.0131	0.05	0.05	0.262	0.262	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2m. Tailings Management Facility (TMF) Hazard Quotients for Total Nickel Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	1	0.0	No
	February	0.00001	0.00003	1	0.00003	No
	March	0.00034	0.00068	1	0.00068	No
	April	0.00001	0.00003	1	0.00003	No
	May	0.0	0.0	1	0.0	No
	June	0.00008	0.00017	1	0.00017	No
	July	0.00008	0.00016	1	0.00016	No
	August	0.00012	0.00024	1	0.00024	No
	September	0.00019	0.00039	1	0.00039	No
	October	0.00023	0.00045	1	0.00045	No
	November	0.00023	0.00046	1	0.00046	No
	December	0.00024	0.00047	1	0.00047	No
Operation 1 Phase (1-23)	January	0.00216	0.00278	1	0.00278	No
	February	0.00216	0.00278	1	0.00278	No
	March	0.00215	0.00277	1	0.00277	No
	April	0.00215	0.00277	1	0.00277	No
	May	0.00214	0.00276	1	0.00276	No
	June	0.00208	0.00274	1	0.00274	No
	July	0.00207	0.00283	1	0.00283	No
	August	0.00216	0.00287	1	0.00287	No
	September	0.00225	0.00292	1	0.00292	No
	October	0.00229	0.00293	1	0.00293	No
	November	0.00228	0.00293	1	0.00293	No
	December	0.00227	0.00293	1	0.00293	No
Operations 2 Phase (24-28)	January	0.00279	0.00292	1	0.00292	No
	February	0.00279	0.00292	1	0.00292	No
	March	0.00278	0.00291	1	0.00291	No
	April	0.00278	0.00291	1	0.00291	No
	May	0.00276	0.00290	1	0.00290	No
	June	0.00270	0.00285	1	0.00285	No
	July	0.00266	0.00280	1	0.00280	No
	August	0.00269	0.00286	1	0.00286	No
	September	0.00271	0.00290	1	0.00290	No
	October	0.00272	0.00292	1	0.00292	No
	November	0.00271	0.00291	1	0.00291	No
	December	0.00271	0.00291	1	0.00291	No
Closure Phase (29-35)	January	0.00229	0.00249	1	0.00249	No
	February	0.00229	0.00249	1	0.00249	No
	March	0.00229	0.00249	1	0.00249	No
	April	0.00229	0.00248	1	0.00248	No
	May	0.00228	0.00247	1	0.00247	No
	June	0.00225	0.00243	1	0.00243	No
	July	0.00223	0.00241	1	0.00241	No
	August	0.00224	0.00241	1	0.00241	No
	September	0.00224	0.00241	1	0.00241	No
	October	0.00224	0.00241	1	0.00241	No
	November	0.00224	0.00240	1	0.00240	No
	December	0.00224	0.00240	1	0.00240	No
Post-Closure Phase (36-99)	January	0.00213	0.00234	1	0.00234	No
	February	0.00213	0.00234	1	0.00234	No
	March	0.00213	0.00235	1	0.00235	No
	April	0.00214	0.00235	1	0.00235	No
	May	0.00213	0.00235	1	0.00235	No
	June	0.00212	0.00234	1	0.00234	No
	July	0.00212	0.00233	1	0.00233	No
	August	0.00213	0.00235	1	0.00235	No
	September	0.00213	0.00235	1	0.00235	No
	October	0.00213	0.00235	1	0.00235	No
	November	0.00213	0.00235	1	0.00235	No
	December	0.00213	0.00234	1	0.00234	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D2n. Tailings Management Facility (TMF) Hazard Quotients for Total Selenium Concentrations, Expected Case

Project Phase		Predicted Concentrations		First Screening Step				Retained as COPC?			
				BC MOE Working Water Quality Guidelines for Wildlife Water Supply		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
				Mean	Maximum	30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Wildlife
Construction (-2 to-1)	January	0.0	0.0	0.002	0.03	0.0	0.0	0.0	No	No	
	February	0.00001	0.00003	0.002	0.03	0.00625	0.0125	0.00083	No	No	
	March	0.00063	0.00126	0.002	0.03	0.3141	0.628	0.0419	No	No	
	April	0.00001	0.00003	0.002	0.03	0.00625	0.0125	0.00083	No	No	
	May	0.0	0.0	0.002	0.03	0.0	0.0	0.0	No	No	
	June	0.00011	0.00023	0.002	0.03	0.0563	0.113	0.00751	No	No	
	July	0.00009	0.00018	0.002	0.03	0.0455	0.0910	0.00607	No	No	
	August	0.00017	0.00034	0.002	0.03	0.0852	0.170	0.0114	No	No	
	September	0.00031	0.00063	0.002	0.03	0.157	0.314	0.0209	No	No	
	October	0.00038	0.00076	0.002	0.03	0.191	0.381	0.0254	No	No	
	November	0.00039	0.00079	0.002	0.03	0.197	0.394	0.0263	No	No	
	December	0.00040	0.00080	0.002	0.03	0.199	0.399	0.0266	No	No	
Operation 1 Phase (1-23)	January	0.00954	0.0153	0.002	0.03	4.77	7.67	0.511	Yes	No	
	February	0.00949	0.0153	0.002	0.03	4.74	7.65	0.510	Yes	No	
	March	0.00944	0.0153	0.002	0.03	4.72	7.63	0.509	Yes	No	
	April	0.00940	0.0152	0.002	0.03	4.70	7.61	0.508	Yes	No	
	May	0.00931	0.0151	0.002	0.03	4.65	7.57	0.505	Yes	No	
	June	0.00901	0.0149	0.002	0.03	4.51	7.45	0.497	Yes	No	
	July	0.00897	0.0147	0.002	0.03	4.49	7.33	0.489	Yes	No	
	August	0.00954	0.0151	0.002	0.03	4.77	7.54	0.503	Yes	No	
	September	0.01014	0.0155	0.002	0.03	5.07	7.75	0.517	Yes	No	
	October	0.01036	0.0157	0.002	0.03	5.18	7.83	0.522	Yes	No	
	November	0.01029	0.0156	0.002	0.03	5.15	7.81	0.521	Yes	No	
	December	0.01023	0.0156	0.002	0.03	5.11	7.80	0.520	Yes	No	
Operations 2 Phase (24-28)	January	0.0152	0.0158	0.002	0.03	7.62	7.89	0.526	Yes	No	
	February	0.0152	0.0158	0.002	0.03	7.61	7.88	0.525	Yes	No	
	March	0.0152	0.0157	0.002	0.03	7.60	7.86	0.524	Yes	No	
	April	0.0152	0.0157	0.002	0.03	7.59	7.85	0.523	Yes	No	
	May	0.0151	0.0156	0.002	0.03	7.54	7.79	0.519	Yes	No	
	June	0.0147	0.0152	0.002	0.03	7.37	7.58	0.505	Yes	No	
	July	0.0145	0.0149	0.002	0.03	7.27	7.46	0.497	Yes	No	
	August	0.0148	0.0153	0.002	0.03	7.38	7.67	0.511	Yes	No	
	September	0.0149	0.0157	0.002	0.03	7.46	7.86	0.524	Yes	No	
	October	0.0150	0.0159	0.002	0.03	7.49	7.94	0.530	Yes	No	
	November	0.0149	0.0158	0.002	0.03	7.47	7.92	0.528	Yes	No	
	December	0.0149	0.0158	0.002	0.03	7.46	7.91	0.527	Yes	No	
Closure Phase (29-35)	January	0.0123	0.0138	0.002	0.03	6.14	6.91	0.461	Yes	No	
	February	0.0123	0.0138	0.002	0.03	6.13	6.90	0.460	Yes	No	
	March	0.0123	0.0138	0.002	0.03	6.13	6.89	0.460	Yes	No	
	April	0.0122	0.0138	0.002	0.03	6.12	6.89	0.459	Yes	No	
	May	0.0122	0.0137	0.002	0.03	6.10	6.85	0.457	Yes	No	
	June	0.0120	0.0134	0.002	0.03	6.01	6.72	0.448	Yes	No	
	July	0.0119	0.0132	0.002	0.03	5.94	6.61	0.441	Yes	No	
	August	0.0119	0.0132	0.002	0.03	5.96	6.62	0.442	Yes	No	
	September	0.0119	0.0132	0.002	0.03	5.95	6.62	0.441	Yes	No	
	October	0.0119	0.0132	0.002	0.03	5.95	6.61	0.441	Yes	No	
	November	0.0119	0.0132	0.002	0.03	5.93	6.59	0.439	Yes	No	
	December	0.0119	0.0132	0.002	0.03	5.93	6.58	0.439	Yes	No	
Post-Closure Phase (36-99)	January	0.00761	0.0108	0.002	0.03	3.80	5.41	0.361	Yes	No	
	February	0.00760	0.0108	0.002	0.03	3.80	5.40	0.360	Yes	No	
	March	0.00760	0.0108	0.002	0.03	3.80	5.40	0.360	Yes	No	
	April	0.00760	0.0108	0.002	0.03	3.80	5.40	0.360	Yes	No	
	May	0.00758	0.0108	0.002	0.03	3.79	5.39	0.359	Yes	No	
	June	0.00753	0.0107	0.002	0.03	3.76	5.33	0.355	Yes	No	
	July	0.00751	0.0106	0.002	0.03	3.75	5.28	0.352	Yes	No	
	August	0.00755	0.0106	0.002	0.03	3.78	5.30	0.353	Yes	No	
	September	0.00755	0.0106	0.002	0.03	3.78	5.30	0.353	Yes	No	
	October	0.00755	0.0106	0.002	0.03	3.77	5.30	0.353	Yes	No	
	November	0.00754	0.0106	0.002	0.03	3.77	5.29	0.352	Yes	No	
	December	0.00754	0.0106	0.002	0.03	3.77	5.28	0.352	Yes	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D2o. Tailings Management Facility (TMF) Hazard Quotients for Total Uranium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	0.2	0.0	No
	February	0.0001	0.0001	0.2	0.0007	No
	March	0.0002	0.0003	0.2	0.0017	No
	April	0.0001	0.0001	0.2	0.0007	No
	May	0.0	0.0	0.2	0.0	No
	June	0.0001	0.0002	0.2	0.0012	No
	July	0.0001	0.0002	0.2	0.0011	No
	August	0.0001	0.0002	0.2	0.0012	No
	September	0.0001	0.0003	0.2	0.0014	No
	October	0.0001	0.0003	0.2	0.0014	No
	November	0.0001	0.0003	0.2	0.0015	No
	December	0.0002	0.0003	0.2	0.0015	No
Operation 1 Phase (1-23)	January	0.0013	0.0020	0.2	0.0101	No
	February	0.0013	0.0020	0.2	0.0101	No
	March	0.0013	0.0020	0.2	0.0101	No
	April	0.0013	0.0020	0.2	0.0101	No
	May	0.0013	0.0020	0.2	0.0100	No
	June	0.0013	0.0020	0.2	0.0099	No
	July	0.0013	0.0020	0.2	0.0100	No
	August	0.0013	0.0020	0.2	0.0102	No
	September	0.0014	0.0021	0.2	0.0104	No
	October	0.0014	0.0021	0.2	0.0105	No
	November	0.0014	0.0021	0.2	0.0104	No
	December	0.0014	0.0021	0.2	0.0104	No
Operations 2 Phase (24-28)	January	0.0020	0.0021	0.2	0.0105	No
	February	0.0020	0.0021	0.2	0.0105	No
	March	0.0020	0.0021	0.2	0.0105	No
	April	0.0020	0.0021	0.2	0.0105	No
	May	0.0020	0.0021	0.2	0.0104	No
	June	0.0020	0.0020	0.2	0.0102	No
	July	0.0020	0.0020	0.2	0.0101	No
	August	0.0020	0.0021	0.2	0.0103	No
	September	0.0020	0.0021	0.2	0.0105	No
	October	0.0020	0.0021	0.2	0.0105	No
	November	0.0020	0.0021	0.2	0.0105	No
	December	0.0020	0.0021	0.2	0.0105	No
Closure Phase (29-35)	January	0.0018	0.0019	0.2	0.0096	No
	February	0.0018	0.0019	0.2	0.0096	No
	March	0.0018	0.0019	0.2	0.0096	No
	April	0.0018	0.0019	0.2	0.0096	No
	May	0.0017	0.0019	0.2	0.0095	No
	June	0.0017	0.0019	0.2	0.0094	No
	July	0.0017	0.0019	0.2	0.0093	No
	August	0.0017	0.0019	0.2	0.0093	No
	September	0.0017	0.0019	0.2	0.0093	No
	October	0.0017	0.0019	0.2	0.0093	No
	November	0.0017	0.0018	0.2	0.0092	No
	December	0.0017	0.0018	0.2	0.0092	No
Post-Closure Phase (36-99)	January	0.0013	0.0016	0.2	0.0081	No
	February	0.0013	0.0016	0.2	0.0081	No
	March	0.0013	0.0016	0.2	0.0081	No
	April	0.0013	0.0016	0.2	0.0081	No
	May	0.0013	0.0016	0.2	0.0080	No
	June	0.0013	0.0016	0.2	0.0080	No
	July	0.0013	0.0016	0.2	0.0079	No
	August	0.0013	0.0016	0.2	0.0080	No
	September	0.0013	0.0016	0.2	0.0080	No
	October	0.0013	0.0016	0.2	0.0080	No
	November	0.0013	0.0016	0.2	0.0080	No
	December	0.0013	0.0016	0.2	0.0080	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2p. Tailings Management Facility (TMF) Hazard Quotients for Total Vanadium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	0.1	0.0	No
	February	0.0001	0.0001	0.1	0.0013	No
	March	0.0003	0.0006	0.1	0.0062	No
	April	0.0001	0.0001	0.1	0.0013	No
	May	0.0	0.0	0.1	0.0	No
	June	0.0002	0.0003	0.1	0.0031	No
	July	0.0002	0.0003	0.1	0.0032	No
	August	0.0002	0.0003	0.1	0.0033	No
	September	0.0002	0.0003	0.1	0.0034	No
	October	0.0002	0.0004	0.1	0.0035	No
	November	0.0002	0.0004	0.1	0.0036	No
	December	0.0002	0.0004	0.1	0.0037	No
Operation 1 Phase (1-23)	January	0.0004	0.0005	0.1	0.0046	No
	February	0.0004	0.0005	0.1	0.0046	No
	March	0.0004	0.0005	0.1	0.0046	No
	April	0.0004	0.0005	0.1	0.0046	No
	May	0.0004	0.0005	0.1	0.0046	No
	June	0.0004	0.0005	0.1	0.0046	No
	July	0.0004	0.0005	0.1	0.0049	No
	August	0.0004	0.0005	0.1	0.0050	No
	September	0.0004	0.0005	0.1	0.0050	No
	October	0.0004	0.0005	0.1	0.0050	No
	November	0.0004	0.0005	0.1	0.0050	No
	December	0.0004	0.0005	0.1	0.0049	No
Operations 2 Phase (24-28)	January	0.0004	0.0005	0.1	0.0049	No
	February	0.0004	0.0005	0.1	0.0049	No
	March	0.0004	0.0005	0.1	0.0049	No
	April	0.0004	0.0005	0.1	0.0049	No
	May	0.0004	0.0005	0.1	0.0049	No
	June	0.0004	0.0005	0.1	0.0048	No
	July	0.0004	0.0005	0.1	0.0047	No
	August	0.0004	0.0005	0.1	0.0047	No
	September	0.0004	0.0005	0.1	0.0047	No
	October	0.0004	0.0005	0.1	0.0047	No
	November	0.0004	0.0005	0.1	0.0047	No
	December	0.0004	0.0005	0.1	0.0047	No
Closure Phase (29-35)	January	0.0003	0.0004	0.1	0.0038	No
	February	0.0003	0.0004	0.1	0.0038	No
	March	0.0003	0.0004	0.1	0.0038	No
	April	0.0003	0.0004	0.1	0.0038	No
	May	0.0003	0.0004	0.1	0.0037	No
	June	0.0003	0.0004	0.1	0.0037	No
	July	0.0003	0.0004	0.1	0.0036	No
	August	0.0003	0.0004	0.1	0.0037	No
	September	0.0003	0.0004	0.1	0.0037	No
	October	0.0003	0.0004	0.1	0.0037	No
	November	0.0003	0.0004	0.1	0.0036	No
	December	0.0003	0.0004	0.1	0.0036	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.1	0.0048	No
	February	0.0005	0.0005	0.1	0.0048	No
	March	0.0005	0.0005	0.1	0.0048	No
	April	0.0005	0.0005	0.1	0.0048	No
	May	0.0005	0.0005	0.1	0.0048	No
	June	0.0005	0.0005	0.1	0.0048	No
	July	0.0005	0.0005	0.1	0.0048	No
	August	0.0005	0.0005	0.1	0.0048	No
	September	0.0005	0.0005	0.1	0.0048	No
	October	0.0005	0.0005	0.1	0.0048	No
	November	0.0005	0.0005	0.1	0.0048	No
	December	0.0005	0.0005	0.1	0.0048	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2q. Tailings Management Facility (TMF) Hazard Quotients for Total Zinc Concentrations, Expected Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE Maximum		Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0	0.0	2	0.0	No
	February	0.00001	0.00001	2	0.00001	No
	March	0.00022	0.00043	2	0.00022	No
	April	0.00001	0.00001	2	0.00001	No
	May	0.0	0.0	2	0.0	No
	June	0.00004	0.00009	2	0.00004	No
	July	0.00003	0.00007	2	0.00003	No
	August	0.00005	0.00010	2	0.00005	No
	September	0.00008	0.00016	2	0.00008	No
	October	0.00009	0.00018	2	0.00009	No
	November	0.00010	0.00019	2	0.00010	No
	December	0.00010	0.00020	2	0.00010	No
Operation 1 Phase (1-23)	January	0.00201	0.00305	2	0.00153	No
	February	0.00200	0.00304	2	0.00152	No
	March	0.00199	0.00304	2	0.00152	No
	April	0.00199	0.00303	2	0.00152	No
	May	0.00197	0.00302	2	0.00151	No
	June	0.00193	0.00299	2	0.00149	No
	July	0.00193	0.00303	2	0.00152	No
	August	0.00203	0.00310	2	0.00155	No
	September	0.00213	0.00316	2	0.00158	No
	October	0.00217	0.00318	2	0.00159	No
	November	0.00216	0.00317	2	0.00159	No
	December	0.00215	0.00317	2	0.00158	No
Operations 2 Phase (24-28)	January	0.00310	0.00320	2	0.00160	No
	February	0.00310	0.00319	2	0.00160	No
	March	0.00309	0.00319	2	0.00159	No
	April	0.00309	0.00318	2	0.00159	No
	May	0.00307	0.00316	2	0.00158	No
	June	0.00301	0.00309	2	0.00154	No
	July	0.00298	0.00306	2	0.00153	No
	August	0.00302	0.00313	2	0.00157	No
	September	0.00305	0.00319	2	0.00160	No
	October	0.00306	0.00322	2	0.00161	No
	November	0.00305	0.00321	2	0.00160	No
	December	0.00304	0.00320	2	0.00160	No
Closure Phase (29-35)	January	0.00268	0.00286	2	0.00143	No
	February	0.00268	0.00285	2	0.00143	No
	March	0.00268	0.00285	2	0.00143	No
	April	0.00268	0.00285	2	0.00142	No
	May	0.00267	0.00283	2	0.00142	No
	June	0.00264	0.00280	2	0.00140	No
	July	0.00263	0.00277	2	0.00139	No
	August	0.00264	0.00279	2	0.00139	No
	September	0.00264	0.00279	2	0.00139	No
	October	0.00264	0.00278	2	0.00139	No
	November	0.00264	0.00278	2	0.00139	No
	December	0.00263	0.00277	2	0.00139	No
Post-Closure Phase (36-99)	January	0.00233	0.00254	2	0.00127	No
	February	0.00233	0.00254	2	0.00127	No
	March	0.00233	0.00254	2	0.00127	No
	April	0.00233	0.00254	2	0.00127	No
	May	0.00232	0.00253	2	0.00127	No
	June	0.00231	0.00252	2	0.00126	No
	July	0.00231	0.00251	2	0.00126	No
	August	0.00233	0.00253	2	0.00127	No
	September	0.00233	0.00253	2	0.00127	No
	October	0.00233	0.00253	2	0.00127	No
	November	0.00233	0.00253	2	0.00126	No
	December	0.00233	0.00253	2	0.00126	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2r. Tailings Management Facility (TMF) Hazard Quotients for Chloride Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	600	600	0.0	0.0	No	No
	February	0.188	0.375	600	600	0.0006	0.0006	No	No
	March	0.888	1.78	600	600	0.0030	0.0030	No	No
	April	0.188	0.375	600	600	0.0006	0.0006	No	No
	May	0.0	0.0	600	600	0.0	0.0	No	No
	June	0.385	0.770	600	600	0.0013	0.0013	No	No
	July	0.342	0.684	600	600	0.0011	0.0011	No	No
	August	0.385	0.771	600	600	0.0013	0.0013	No	No
	September	0.467	0.933	600	600	0.0016	0.0016	No	No
	October	0.509	1.02	600	600	0.0017	0.0017	No	No
	November	0.525	1.05	600	600	0.0018	0.0018	No	No
	December	0.536	1.07	600	600	0.0018	0.0018	No	No
Operation 1 Phase (1-23)	January	3.64	4.57	600	600	0.0076	0.0076	No	No
	February	3.63	4.56	600	600	0.0076	0.0076	No	No
	March	3.62	4.56	600	600	0.0076	0.0076	No	No
	April	3.61	4.55	600	600	0.0076	0.0076	No	No
	May	3.59	4.54	600	600	0.0076	0.0076	No	No
	June	3.52	4.52	600	600	0.0075	0.0075	No	No
	July	3.50	4.67	600	600	0.0078	0.0078	No	No
	August	3.64	4.74	600	600	0.0079	0.0079	No	No
	September	3.79	4.81	600	600	0.0080	0.0080	No	No
	October	3.84	4.84	600	600	0.0081	0.0081	No	No
	November	3.83	4.84	600	600	0.0081	0.0081	No	No
	December	3.81	4.83	600	600	0.0081	0.0081	No	No
Operations 2 Phase (24-28)	January	4.63	4.82	600	600	0.0080	0.0080	No	No
	February	4.62	4.82	600	600	0.0080	0.0080	No	No
	March	4.62	4.81	600	600	0.0080	0.0080	No	No
	April	4.61	4.81	600	600	0.0080	0.0080	No	No
	May	4.59	4.79	600	600	0.0080	0.0080	No	No
	June	4.49	4.72	600	600	0.0079	0.0079	No	No
	July	4.43	4.65	600	600	0.0078	0.0078	No	No
	August	4.48	4.74	600	600	0.0079	0.0079	No	No
	September	4.51	4.81	600	600	0.0080	0.0080	No	No
	October	4.52	4.84	600	600	0.0081	0.0081	No	No
	November	4.51	4.83	600	600	0.0081	0.0081	No	No
	December	4.50	4.83	600	600	0.0080	0.0080	No	No
Closure Phase (29-35)	January	3.82	4.15	600	600	0.0069	0.0069	No	No
	February	3.82	4.14	600	600	0.0069	0.0069	No	No
	March	3.81	4.14	600	600	0.0069	0.0069	No	No
	April	3.81	4.14	600	600	0.0069	0.0069	No	No
	May	3.80	4.12	600	600	0.0069	0.0069	No	No
	June	3.76	4.05	600	600	0.0068	0.0068	No	No
	July	3.73	4.01	600	600	0.0067	0.0067	No	No
	August	3.74	4.02	600	600	0.0067	0.0067	No	No
	September	3.74	4.02	600	600	0.0067	0.0067	No	No
	October	3.74	4.02	600	600	0.0067	0.0067	No	No
	November	3.73	4.01	600	600	0.0067	0.0067	No	No
	December	3.73	4.00	600	600	0.0067	0.0067	No	No
Post-Closure Phase (36-99)	January	3.21	3.54	600	600	0.0059	0.0059	No	No
	February	3.21	3.54	600	600	0.0059	0.0059	No	No
	March	3.21	3.54	600	600	0.0059	0.0059	No	No
	April	3.21	3.55	600	600	0.0059	0.0059	No	No
	May	3.20	3.55	600	600	0.0059	0.0059	No	No
	June	3.18	3.52	600	600	0.0059	0.0059	No	No
	July	3.18	3.51	600	600	0.0059	0.0059	No	No
	August	3.20	3.54	600	600	0.0059	0.0059	No	No
	September	3.20	3.55	600	600	0.0059	0.0059	No	No
	October	3.20	3.54	600	600	0.0059	0.0059	No	No
	November	3.20	3.54	600	600	0.0059	0.0059	No	No
	December	3.20	3.54	600	600	0.0059	0.0059	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D2s. Tailings Management Facility (TMF) Hazard Quotients for Fluoride Concentrations, Expected Case

Project Phase		Months		First Screening Step										Retained as COPC?			
				Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			Wildlife	Livestock
						30-Day Mean	Maximum	30-Day Mean	Maximum	30-Day Mean	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Mean Predicted vs. BC MOE 30-Day Mean Guideline		
Construction (-2 to-1)	January	0.0	0.0	1	1.5	1	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	No	No	
	February	0.0088	0.0175	1	1.5	1	2	0.0088	0.0175	0.0117	0.0088	0.0175	0.0088	0.0175	0.0088	No	No
	March	0.0247	0.0495	1	1.5	1	2	0.0247	0.0495	0.0330	0.0247	0.0495	0.0247	0.0495	No	No	
	April	0.0088	0.0175	1	1.5	1	2	0.0088	0.0175	0.0117	0.0088	0.0175	0.0088	0.0175	No	No	
	May	0.0	0.0	1	1.5	1	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	No	No	
	June	0.0155	0.0310	1	1.5	1	2	0.0155	0.0310	0.0207	0.0155	0.0310	0.0155	0.0310	No	No	
	July	0.0143	0.0286	1	1.5	1	2	0.0143	0.0286	0.0191	0.0143	0.0286	0.0143	0.0286	No	No	
	August	0.0155	0.0309	1	1.5	1	2	0.0155	0.0309	0.0206	0.0155	0.0309	0.0155	0.0309	No	No	
	September	0.0180	0.0359	1	1.5	1	2	0.0180	0.0359	0.0240	0.0180	0.0359	0.0180	0.0359	No	No	
	October	0.0190	0.0380	1	1.5	1	2	0.0190	0.0380	0.0253	0.0190	0.0380	0.0190	0.0380	No	No	
	November	0.0193	0.0386	1	1.5	1	2	0.0193	0.0386	0.0257	0.0193	0.0386	0.0193	0.0386	No	No	
	December	0.0214	0.0427	1	1.5	1	2	0.0214	0.0427	0.0285	0.0214	0.0427	0.0214	0.0427	No	No	
Operation 1 Phase (1-23)	January	0.145	0.178	1	1.5	1	2	0.145	0.178	0.119	0.145	0.178	0.0890	0.178	No	No	
	February	0.146	0.178	1	1.5	1	2	0.146	0.178	0.119	0.146	0.178	0.0890	0.178	No	No	
	March	0.147	0.178	1	1.5	1	2	0.147	0.178	0.119	0.147	0.178	0.0891	0.178	No	No	
	April	0.147	0.178	1	1.5	1	2	0.147	0.178	0.119	0.147	0.178	0.0891	0.178	No	No	
	May	0.147	0.177	1	1.5	1	2	0.147	0.177	0.118	0.147	0.177	0.0886	0.177	No	No	
	June	0.142	0.174	1	1.5	1	2	0.142	0.174	0.116	0.142	0.174	0.0871	0.174	No	No	
	July	0.142	0.195	1	1.5	1	2	0.142	0.195	0.130	0.142	0.195	0.0973	0.195	No	No	
	August	0.145	0.196	1	1.5	1	2	0.145	0.196	0.130	0.145	0.196	0.0978	0.196	No	No	
	September	0.148	0.197	1	1.5	1	2	0.148	0.197	0.131	0.148	0.197	0.0983	0.197	No	No	
	October	0.150	0.197	1	1.5	1	2	0.150	0.197	0.131	0.150	0.197	0.0984	0.197	No	No	
	November	0.150	0.196	1	1.5	1	2	0.150	0.196	0.131	0.150	0.196	0.0982	0.196	No	No	
	December	0.152	0.196	1	1.5	1	2	0.152	0.196	0.131	0.152	0.196	0.0980	0.196	No	No	
Operations 2 Phase (24-28)	January	0.174	0.196	1	1.5	1	2	0.174	0.196	0.130	0.174	0.196	0.0978	0.196	No	No	
	February	0.174	0.195	1	1.5	1	2	0.174	0.195	0.130	0.174	0.195	0.0977	0.195	No	No	
	March	0.173	0.195	1	1.5	1	2	0.173	0.195	0.130	0.173	0.195	0.0976	0.195	No	No	
	April	0.173	0.195	1	1.5	1	2	0.173	0.195	0.130	0.173	0.195	0.0975	0.195	No	No	
	May	0.172	0.194	1	1.5	1	2	0.172	0.194	0.129	0.172	0.194	0.0970	0.194	No	No	
	June	0.168	0.189	1	1.5	1	2	0.168	0.189	0.126	0.168	0.189	0.0946	0.189	No	No	
	July	0.164	0.184	1	1.5	1	2	0.164	0.184	0.123	0.164	0.184	0.0922	0.184	No	No	
	August	0.164	0.185	1	1.5	1	2	0.164	0.185	0.124	0.164	0.185	0.0927	0.185	No	No	
	September	0.165	0.187	1	1.5	1	2	0.165	0.187	0.124	0.165	0.187	0.0933	0.187	No	No	
	October	0.165	0.187	1	1.5	1	2	0.165	0.187	0.125	0.165	0.187	0.0934	0.187	No	No	
	November	0.164	0.186	1	1.5	1	2	0.164	0.186	0.124	0.164	0.186	0.0932	0.186	No	No	
	December	0.164	0.186	1	1.5	1	2	0.164	0.186	0.124	0.164	0.186	0.0930	0.186	No	No	
Closure Phase (29-35)	January	0.128	0.144	1	1.5	1	2	0.128	0.144	0.096	0.128	0.144	0.0721	0.144	No	No	
	February	0.128	0.144	1	1.5	1	2	0.128	0.144	0.096	0.128	0.144	0.0721	0.144	No	No	
	March	0.128	0.144	1	1.5	1	2	0.128	0.144	0.096	0.128	0.144	0.0720	0.144	No	No	
	April	0.128	0.144	1	1.5	1	2	0.128	0.144	0.096	0.128	0.144	0.0720	0.144	No	No	
	May	0.128	0.143	1	1.5	1	2	0.128	0.143	0.095	0.128	0.143	0.0716	0.143	No	No	
	June	0.126	0.140	1	1.5	1	2	0.126	0.140	0.094	0.126	0.140	0.0702	0.140	No	No	
	July	0.124	0.138	1	1.5	1	2	0.124	0.138	0.092	0.124	0.138	0.0690	0.138	No	No	
	August	0.124	0.138	1	1.5	1	2	0.124	0.138	0.092	0.124	0.138	0.0691	0.138	No	No	
	September	0.124	0.138	1	1.5	1	2	0.124	0.138	0.092	0.124	0.138	0.0691	0.138	No	No	
	October	0.124	0.138	1	1.5	1	2	0.124	0.138	0.092	0.124	0.138	0.0690	0.138	No	No	
	November	0.124	0.138	1	1.5	1	2	0.124	0.138	0.092	0.124	0.138	0.0688	0.138	No	No	
	December	0.124	0.137	1	1.5	1	2	0.124	0.137	0.092	0.124	0.137	0.0687	0.137	No	No	
Post-Closure Phase (36-99)	January	0.0967	0.117	1	1.5	1	2	0.0967	0.117	0.0782	0.0967	0.117	0.0586	0.117	No	No	
	February	0.0967	0.117	1	1.5	1	2	0.0967	0.117	0.0781	0.0967	0.117	0.0586	0.117	No	No	
	March	0.0968	0.117	1	1.5	1	2	0.0968	0.117	0.0783	0.0968	0.117	0.0587	0.117	No	No	
	April	0.0970	0.118	1	1.5	1	2	0.0970	0.118	0.0786	0.0970	0.118	0.0590	0.118	No	No	
	May	0.0969	0.118	1	1.5	1	2	0.0969	0.118	0.0787	0.0969	0.118	0.0590	0.118	No	No	
	June	0.0961	0.117	1	1.5	1	2	0.0961	0.117	0.0782	0.0961	0.117	0.0586	0.117	No	No	
	July	0.0956	0.117	1	1.5	1	2	0.0956	0.117	0.0777	0.0956	0.117	0.0583	0.117	No	No	
	August	0.0961	0.117	1	1.5	1	2	0.0961	0.117	0.0782	0.0961	0.117	0.0587	0.117	No	No	
	September	0.0963	0.118	1	1.5	1	2	0.0963	0.118	0.0784	0.0963	0.118	0.0588	0.118	No	No	
	October	0.0962	0.118	1	1.5	1	2	0.0962	0.118	0.0783	0.0962	0.118	0.0588	0.118	No	No	
	November	0.0961	0.117	1	1.5	1	2	0.0961	0.117	0.0782	0.0961	0.117	0.0587	0.117	No	No	
	December	0.0961	0.117	1	1.5	1	2	0.0961	0.117	0.0782	0.0961	0.117	0.0586	0.117	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D2t. Tailings Management Facility (TMF) Hazard Quotients for Nitrate Concentrations, Expected Case

Project Phase		Months		First Screening Step				Retained as COPC?			
				Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
				Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	100	100	0.0	0.0	No	No		
	February	0.0306	0.0613	100	100	0.0006	0.0006	No	No		
	March	2.60	5.21	100	100	0.0521	0.0521	No	No		
	April	0.0306	0.0613	100	100	0.0006	0.0006	No	No		
	May	0.0	0.0	100	100	0.0	0.0	No	No		
	June	0.349	0.698	100	100	0.0070	0.0070	No	No		
	July	0.248	0.496	100	100	0.0050	0.0050	No	No		
	August	0.352	0.704	100	100	0.0070	0.0070	No	No		
	September	0.561	1.12	100	100	0.0112	0.0112	No	No		
	October	0.678	1.36	100	100	0.0136	0.0136	No	No		
	November	0.728	1.46	100	100	0.0146	0.0146	No	No		
	December	0.772	1.54	100	100	0.0154	0.0154	No	No		
Operation 1 Phase (1-23)	January	2.84	3.37	100	100	0.0337	0.0337	No	No		
	February	2.84	3.37	100	100	0.0337	0.0337	No	No		
	March	2.84	3.36	100	100	0.0336	0.0336	No	No		
	April	2.84	3.36	100	100	0.0336	0.0336	No	No		
	May	2.86	3.36	100	100	0.0336	0.0336	No	No		
	June	2.78	3.32	100	100	0.0332	0.0332	No	No		
	July	2.71	3.29	100	100	0.0329	0.0329	No	No		
	August	2.77	3.34	100	100	0.0334	0.0334	No	No		
	September	2.84	3.37	100	100	0.0337	0.0337	No	No		
	October	2.87	3.39	100	100	0.0339	0.0339	No	No		
	November	2.88	3.39	100	100	0.0339	0.0339	No	No		
	December	2.87	3.37	100	100	0.0337	0.0337	No	No		
Operations 2 Phase (24-28)	January	2.13	2.47	100	100	0.0247	0.0247	No	No		
	February	2.12	2.46	100	100	0.0246	0.0246	No	No		
	March	2.12	2.46	100	100	0.0246	0.0246	No	No		
	April	2.11	2.45	100	100	0.0245	0.0245	No	No		
	May	2.12	2.44	100	100	0.0244	0.0244	No	No		
	June	2.08	2.55	100	100	0.0255	0.0255	No	No		
	July	2.01	2.45	100	100	0.0245	0.0245	No	No		
	August	1.99	2.43	100	100	0.0243	0.0243	No	No		
	September	1.98	2.42	100	100	0.0242	0.0242	No	No		
	October	1.98	2.42	100	100	0.0242	0.0242	No	No		
	November	1.98	2.48	100	100	0.0248	0.0248	No	No		
	December	1.97	2.47	100	100	0.0247	0.0247	No	No		
Closure Phase (29-35)	January	1.29	1.58	100	100	0.0158	0.0158	No	No		
	February	1.29	1.58	100	100	0.0158	0.0158	No	No		
	March	1.28	1.57	100	100	0.0157	0.0157	No	No		
	April	1.28	1.57	100	100	0.0157	0.0157	No	No		
	May	1.28	1.56	100	100	0.0156	0.0156	No	No		
	June	1.25	1.52	100	100	0.0152	0.0152	No	No		
	July	1.22	1.48	100	100	0.0148	0.0148	No	No		
	August	1.21	1.47	100	100	0.0147	0.0147	No	No		
	September	1.21	1.47	100	100	0.0147	0.0147	No	No		
	October	1.21	1.47	100	100	0.0147	0.0147	No	No		
	November	1.21	1.46	100	100	0.0146	0.0146	No	No		
	December	1.21	1.46	100	100	0.0146	0.0146	No	No		
Post-Closure Phase (36-99)	January	0.250	0.994	100	100	0.0099	0.0099	No	No		
	February	0.249	0.993	100	100	0.0099	0.0099	No	No		
	March	0.249	0.991	100	100	0.0099	0.0099	No	No		
	April	0.248	0.988	100	100	0.0099	0.0099	No	No		
	May	0.247	0.982	100	100	0.0098	0.0098	No	No		
	June	0.242	0.962	100	100	0.0096	0.0096	No	No		
	July	0.237	0.940	100	100	0.0094	0.0094	No	No		
	August	0.236	0.935	100	100	0.0093	0.0093	No	No		
	September	0.236	0.933	100	100	0.0093	0.0093	No	No		
	October	0.236	0.932	100	100	0.0093	0.0093	No	No		
	November	0.235	0.929	100	100	0.0093	0.0093	No	No		
	December	0.235	0.928	100	100	0.0093	0.0093	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D2u. Tailings Management Facility (TMF) Hazard Quotients for Nitrite Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	10	10	0.0	0.0	No	No
	February	0.0016	0.0031	10	10	0.0003	0.0003	No	No
	March	0.0607	0.121	10	10	0.0121	0.0121	No	No
	April	0.0016	0.0031	10	10	0.0003	0.0003	No	No
	May	0.0	0.0	10	10	0.0	0.0	No	No
	June	0.0093	0.0185	10	10	0.0019	0.0019	No	No
	July	0.0069	0.0138	10	10	0.0014	0.0014	No	No
	August	0.0093	0.0185	10	10	0.0019	0.0019	No	No
	September	0.0141	0.0281	10	10	0.0028	0.0028	No	No
	October	0.0168	0.0335	10	10	0.0034	0.0034	No	No
	November	0.0179	0.0358	10	10	0.0036	0.0036	No	No
	December	0.0189	0.0378	10	10	0.0038	0.0038	No	No
Operation 1 Phase (1-23)	January	0.0657	0.0778	10	10	0.0078	0.0078	No	No
	February	0.0656	0.0777	10	10	0.0078	0.0078	No	No
	March	0.0657	0.0776	10	10	0.0078	0.0078	No	No
	April	0.0658	0.0775	10	10	0.0077	0.0077	No	No
	May	0.0661	0.0775	10	10	0.0078	0.0078	No	No
	June	0.0643	0.0765	10	10	0.0077	0.0077	No	No
	July	0.0625	0.0759	10	10	0.0076	0.0076	No	No
	August	0.0640	0.0771	10	10	0.0077	0.0077	No	No
	September	0.0656	0.0778	10	10	0.0078	0.0078	No	No
	October	0.0662	0.0782	10	10	0.0078	0.0078	No	No
	November	0.0665	0.0782	10	10	0.0078	0.0078	No	No
	December	0.0663	0.0779	10	10	0.0078	0.0078	No	No
Operations 2 Phase (24-28)	January	0.0492	0.0570	10	10	0.0057	0.0057	No	No
	February	0.0491	0.0569	10	10	0.0057	0.0057	No	No
	March	0.0490	0.0568	10	10	0.0057	0.0057	No	No
	April	0.0489	0.0566	10	10	0.0057	0.0057	No	No
	May	0.0490	0.0564	10	10	0.0056	0.0056	No	No
	June	0.0482	0.0589	10	10	0.0059	0.0059	No	No
	July	0.0464	0.0568	10	10	0.0057	0.0057	No	No
	August	0.0460	0.0563	10	10	0.0056	0.0056	No	No
	September	0.0458	0.0560	10	10	0.0056	0.0056	No	No
	October	0.0457	0.0561	10	10	0.0056	0.0056	No	No
	November	0.0458	0.0573	10	10	0.0057	0.0057	No	No
	December	0.0457	0.0572	10	10	0.0057	0.0057	No	No
Closure Phase (29-35)	January	0.0298	0.0366	10	10	0.0037	0.0037	No	No
	February	0.0298	0.0365	10	10	0.0036	0.0036	No	No
	March	0.0298	0.0364	10	10	0.0036	0.0036	No	No
	April	0.0297	0.0364	10	10	0.0036	0.0036	No	No
	May	0.0296	0.0362	10	10	0.0036	0.0036	No	No
	June	0.0289	0.0352	10	10	0.0035	0.0035	No	No
	July	0.0283	0.0342	10	10	0.0034	0.0034	No	No
	August	0.0281	0.0341	10	10	0.0034	0.0034	No	No
	September	0.0281	0.0340	10	10	0.0034	0.0034	No	No
	October	0.0281	0.0340	10	10	0.0034	0.0034	No	No
	November	0.0280	0.0338	10	10	0.0034	0.0034	No	No
	December	0.0279	0.0338	10	10	0.0034	0.0034	No	No
Post-Closure Phase (36-99)	January	0.0059	0.0231	10	10	0.0023	0.0023	No	No
	February	0.0059	0.0230	10	10	0.0023	0.0023	No	No
	March	0.0059	0.0230	10	10	0.0023	0.0023	No	No
	April	0.0059	0.0229	10	10	0.0023	0.0023	No	No
	May	0.0059	0.0228	10	10	0.0023	0.0023	No	No
	June	0.0057	0.0223	10	10	0.0022	0.0022	No	No
	July	0.0056	0.0218	10	10	0.0022	0.0022	No	No
	August	0.0056	0.0217	10	10	0.0022	0.0022	No	No
	September	0.0056	0.0217	10	10	0.0022	0.0022	No	No
	October	0.0056	0.0216	10	10	0.0022	0.0022	No	No
	November	0.0056	0.0216	10	10	0.0022	0.0022	No	No
	December	0.0056	0.0215	10	10	0.0022	0.0022	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D2v. Tailings Management Facility (TMF) Hazard Quotients for Sulphate Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.00	0.00	1000	0.0	No
	February	0.572	1.14	1000	0.0011	No
	March	19.7	39.4	1000	0.0394	No
	April	0.572	1.14	1000	0.0011	No
	May	0.00	0.00	1000	0.0	No
	June	3.61	7.23	1000	0.0072	No
	July	2.92	5.84	1000	0.0058	No
	August	5.28	10.6	1000	0.0106	No
	September	9.70	19.4	1000	0.0194	No
	October	11.7	23.5	1000	0.0235	No
	November	12.2	24.3	1000	0.0243	No
	December	12.5	25.1	1000	0.0251	No
Operation 1 Phase (1-23)	January	198	267	1000	0.267	No
	February	197	267	1000	0.267	No
	March	196	266	1000	0.266	No
	April	195	266	1000	0.266	No
	May	194	265	1000	0.265	No
	June	188	262	1000	0.262	No
	July	187	259	1000	0.259	No
	August	197	265	1000	0.265	No
	September	208	270	1000	0.270	No
	October	212	272	1000	0.272	No
	November	211	272	1000	0.272	No
	December	210	271	1000	0.271	No
Operations 2 Phase (24-28)	January	266	274	1000	0.274	No
	February	265	273	1000	0.273	No
	March	265	273	1000	0.273	No
	April	265	272	1000	0.272	No
	May	263	270	1000	0.270	No
	June	258	264	1000	0.264	No
	July	255	261	1000	0.261	No
	August	258	268	1000	0.268	No
	September	261	273	1000	0.273	No
	October	262	275	1000	0.275	No
	November	261	275	1000	0.275	No
	December	260	274	1000	0.274	No
Closure Phase (29-35)	January	226	243	1000	0.243	No
	February	226	243	1000	0.243	No
	March	226	243	1000	0.243	No
	April	226	242	1000	0.242	No
	May	225	241	1000	0.241	No
	June	223	238	1000	0.238	No
	July	221	236	1000	0.236	No
	August	223	237	1000	0.237	No
	September	223	237	1000	0.237	No
	October	222	236	1000	0.236	No
	November	222	236	1000	0.236	No
	December	222	235	1000	0.235	No
Post-Closure Phase (36-99)	January	191	212	1000	0.212	No
	February	191	212	1000	0.212	No
	March	191	212	1000	0.212	No
	April	191	212	1000	0.212	No
	May	191	212	1000	0.212	No
	June	190	210	1000	0.210	No
	July	190	210	1000	0.210	No
	August	191	211	1000	0.211	No
	September	191	211	1000	0.211	No
	October	191	211	1000	0.211	No
	November	191	211	1000	0.211	No
	December	191	211	1000	0.211	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D3b. P Creek Hazard Quotients for Total Antimony Concentrations, Expected Case

Project Phase		Predicted Concentrations		First Screening Step				Retained as COPC?	
				Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
				BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Months	Mean	Maximum							
Construction (-2 to-1)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Closure Phase (29-35)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D3c. P Creek Hazard Quotients for Total Arsenic Concentrations, Expected Case

Project Phase		Months		First Screening Step								Retained as COPC?					
				Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
				Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Interim Guideline	No	No	No	No
Construction (-2 to-1)		January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No		
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No		
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No		
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No		
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No		
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No		
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No		
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No		
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No		
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No		
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No		
Operation 1 Phase (1-23)		January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No		
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No		
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No		
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No		
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No		
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No		
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No		
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No		
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No		
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No		
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No		
Operations 2 Phase (24-28)		January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No		
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No		
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No		
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No		
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No		
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No		
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No		
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No		
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No		
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No		
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No		
Closure Phase (29-35)		January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No		
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No		
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No		
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No		
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No		
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No		
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No		
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No		
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No		
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No		
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No		
Post-Closure Phase (36-99)		January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No		
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No		
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No		
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No		
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No		
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No		
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No		
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No		
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No		
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No		
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D3d. P Creek Hazard Quotients for Total Barium Concentrations, Expected Case

Project Phase	Months	First Screening Step									Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines		Aquatic Life	Drinking Water
							Mean Predicted vs. BC MOE Working 30-Day	Maximum Predicted vs. BC MOE Working 30-Day	Maximum Predicted vs. BC MOE Working	Maximum Predicted vs. Canadian DWQG			
		Mean	Maximum	Working 30-Day Mean	Working Maximum	Canadian DWQG	Mean Guideline	Mean Guideline	Maximum Guideline	DWQG			
Construction (-2 to-1)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No	
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No	
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No	
Operation 1 Phase (1-23)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No	
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No	
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No	
Operations 2 Phase (24-28)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No	
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No	
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No	
Closure Phase (29-35)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No	
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No	
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No	
Post-Closure Phase (36-99)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	March	0.0062	0.0063	1	5	1	0.0062	0.0063	0.0013	0.0063	No	No	
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No	
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No	
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D3e. P Creek Hazard Quotients for Total Beryllium Concentrations, Expected Case

Project Phase		Months		First Screening Step						Retained as COPC?					
				Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
				Mean	Maximum	BC MOE Working (Chronic, 30-day mean)	BC DWQG	BC MOE Working	Mean Predicted vs. BC MOE Working 30-Day	Maximum Predicted vs. BC MOE Working 30-Day	Maximum Predicted vs. BC DWQG	Maximum Predicted vs BC MOE Working Guideline	No	No	No
									Mean Guideline	Mean Guideline					
Construction (-2 to-1)		January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
		November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
		December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Operation 1 Phase (1-23)		January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
		November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
		December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Operations 2 Phase (24-28)		January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
		November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
		December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Closure Phase (29-35)		January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
		November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
		December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Post-Closure Phase (36-99)		January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
		May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
		October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
		November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
		December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D3f. P Creek Hazard Quotients for Total Boron Concentrations, Expected Case

Project Phase		Months		First Screening Step									Retained as COPC?				
				Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Drinking Water			
				Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Water	Wildlife	Livestock
Construction (-2 to-1)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No		
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No		
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No		
Operation 1 Phase (1-23)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No		
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No		
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No		
Operations 2 Phase (24-28)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No		
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No		
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No		
Closure Phase (29-35)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No		
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No		
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No		
Post-Closure Phase (36-99)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No		
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No		
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No		
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D3g. P Creek Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

Project Phase		Months		First Screening Step		Retained as COPC?		
				Predicted Concentrations			BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
				Mean	Maximum		BC MOE Working	Maximum Predicted vs BC MOE Working Guideline
Construction (-2 to-1)	January	21.2	21.2	1000	0.0212	No		
	February	22.0	22.0	1000	0.0220	No		
	March	22.6	22.6	1000	0.0226	No		
	April	22.6	22.6	1000	0.0226	No		
	May	14.9	14.9	1000	0.0149	No		
	June	13.7	13.7	1000	0.0137	No		
	July	18.9	18.9	1000	0.0189	No		
	August	20.7	20.7	1000	0.0207	No		
	September	22.5	22.5	1000	0.0225	No		
	October	21.7	21.7	1000	0.0217	No		
	November	20.6	20.6	1000	0.0206	No		
	December	20.9	20.9	1000	0.0209	No		
Operation 1 Phase (1-23)	January	21.2	21.2	1000	0.0212	No		
	February	22.0	22.0	1000	0.0220	No		
	March	22.6	22.6	1000	0.0226	No		
	April	22.6	22.6	1000	0.0226	No		
	May	14.9	14.9	1000	0.0149	No		
	June	13.7	13.7	1000	0.0137	No		
	July	18.9	18.9	1000	0.0189	No		
	August	20.7	20.7	1000	0.0207	No		
	September	22.5	22.5	1000	0.0225	No		
	October	21.7	21.7	1000	0.0217	No		
	November	20.6	20.6	1000	0.0206	No		
	December	20.9	20.9	1000	0.0209	No		
Operations 2 Phase (24-28)	January	21.2	21.2	1000	0.0212	No		
	February	22.0	22.0	1000	0.0220	No		
	March	22.6	22.6	1000	0.0226	No		
	April	22.6	22.6	1000	0.0226	No		
	May	14.9	14.9	1000	0.0149	No		
	June	13.7	13.7	1000	0.0137	No		
	July	18.9	18.9	1000	0.0189	No		
	August	20.7	20.7	1000	0.0207	No		
	September	22.5	22.5	1000	0.0225	No		
	October	21.7	21.7	1000	0.0217	No		
	November	20.6	20.6	1000	0.0206	No		
	December	20.9	20.9	1000	0.0209	No		
Closure Phase (29-35)	January	21.2	21.2	1000	0.0212	No		
	February	22.0	22.0	1000	0.0220	No		
	March	22.6	22.6	1000	0.0226	No		
	April	22.6	22.6	1000	0.0226	No		
	May	14.9	14.9	1000	0.0149	No		
	June	13.7	13.7	1000	0.0137	No		
	July	18.9	18.9	1000	0.0189	No		
	August	20.7	20.7	1000	0.0207	No		
	September	22.5	22.5	1000	0.0225	No		
	October	21.7	21.7	1000	0.0217	No		
	November	20.6	20.6	1000	0.0206	No		
	December	20.9	20.9	1000	0.0209	No		
Post-Closure Phase (36-99)	January	21.2	21.2	1000	0.0212	No		
	February	22.0	22.0	1000	0.0220	No		
	March	22.6	22.6	1000	0.0226	No		
	April	22.6	22.6	1000	0.0226	No		
	May	14.9	14.9	1000	0.0149	No		
	June	13.7	13.7	1000	0.0137	No		
	July	18.9	18.9	1000	0.0189	No		
	August	20.7	20.7	1000	0.0207	No		
	September	22.5	22.5	1000	0.0225	No		
	October	21.7	21.7	1000	0.0217	No		
	November	20.6	20.6	1000	0.0206	No		
	December	20.9	20.9	1000	0.0209	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D3i. P Creek Hazard Quotients for Total Chromium Concentrations, Expected Case

Project Phase	Months	First Screening Step								Retained as COPC?				
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline			Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline					
		Canadian DWQG	BC MOE Working	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline									
Construction (-2 to-1)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

CCME = Canadian Council of Ministers of the Environment

Appendix 13-D3j. P Creek Hazard Quotients for Total Cobalt Concentrations, Expected Case

Project Phase	Months	First Screening Step									Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Livestock
							Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC MOE Working							
Construction (-2 to-1)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No	
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No	
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No	
Closure Phase (29-35)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No	
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D3L P Creek Hazard Quotients for Dissolved and Total Iron Concentrations, Expected Case

Project Phase	Months	First Screening Step								Retained as COPC?	
		Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life	
		Dissolved Iron		Total Iron		BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Operation 1 Phase (1-23)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Operations 2 Phase (24-28)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Closure Phase (29-35)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Post-Closure Phase (36-99)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D3n. P Creek Hazard Quotients for Total Lithium Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Construction (-2 to-1)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Closure Phase (29-35)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D30. P Creek Hazard Quotients for Total Manganese Concentrations, Expected Case

		First Screening Step							Retained as COPC?
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Aquatic Life
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day	Maximum Predicted vs. BC 30-Day	Maximum Predicted vs. BC MOE	
						Mean Guideline	Mean Guideline	Maximum Guideline	
Construction (-2 to-1)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Closure Phase (29-35)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D3r. P Creek Hazard Quotients for Total Nickel Concentrations, Expected Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Closure Phase (29-35)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guideline is hardness dependent

Appendix 13-D3s. P Creek Hazard Quotients for Total Selenium Concentrations, Expected Case

Project Phase	Months	First Screening Step												Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guideline	BC MOE Working Water Quality Guidelines for Wildlife Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
				BC MOE 30-Day Mean	BC DWQG	30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
		Mean	Maximum	Mean	BC DWQG	30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0800	0.0800	0.0160	0.0800	0.0800	0.0053	No	No	No	No
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067	No	No	No	No
	March	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067	No	No	No	No
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.106	0.106	0.0211	0.106	0.106	0.0070	No	No	No	No
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0517	0.0517	0.0103	0.0517	0.0517	0.0034	No	No	No	No
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0513	0.0513	0.0103	0.0513	0.0513	0.0034	No	No	No	No
	July	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0583	0.0583	0.0117	0.0583	0.0583	0.0039	No	No	No	No
	August	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0667	0.0667	0.0133	0.0667	0.0667	0.0044	No	No	No	No
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0763	0.0763	0.0153	0.0763	0.0763	0.0051	No	No	No	No
	October	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0733	0.0733	0.0147	0.0733	0.0733	0.0049	No	No	No	No
	November	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0725	0.0725	0.0145	0.0725	0.0725	0.0048	No	No	No	No
	December	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0738	0.0738	0.0148	0.0738	0.0738	0.0049	No	No	No	No
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0800	0.0800	0.0160	0.0800	0.0800	0.0053	No	No	No	No
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067	No	No	No	No
	March	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067	No	No	No	No
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.106	0.106	0.0211	0.106	0.106	0.0070	No	No	No	No
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0517	0.0517	0.0103	0.0517	0.0517	0.0034	No	No	No	No
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0513	0.0513	0.0103	0.0513	0.0513	0.0034	No	No	No	No
	July	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0583	0.0583	0.0117	0.0583	0.0583	0.0039	No	No	No	No
	August	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0667	0.0667	0.0133	0.0667	0.0667	0.0044	No	No	No	No
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0763	0.0763	0.0153	0.0763	0.0763	0.0051	No	No	No	No
	October	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0733	0.0733	0.0147	0.0733	0.0733	0.0049	No	No	No	No
	November	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0725	0.0725	0.0145	0.0725	0.0725	0.0048	No	No	No	No
	December	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0738	0.0738	0.0148	0.0738	0.0738	0.0049	No	No	No	No
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0800	0.0800	0.0160	0.0800	0.0800	0.0053	No	No	No	No
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067	No	No	No	No
	March	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067	No	No	No	No
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.106	0.106	0.0211	0.106	0.106	0.0070	No	No	No	No
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0517	0.0517	0.0103	0.0517	0.0517	0.0034	No	No	No	No
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0513	0.0513	0.0103	0.0513	0.0513	0.0034	No	No	No	No
	July	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0583	0.0583	0.0117	0.0583	0.0583	0.0039	No	No	No	No
	August	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0667	0.0667	0.0133	0.0667	0.0667	0.0044	No	No	No	No
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0763	0.0763	0.0153	0.0763	0.0763	0.0051	No	No	No	No
	October	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0733	0.0733	0.0147	0.0733	0.0733	0.0049	No	No	No	No
	November	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0725	0.0725	0.0145	0.0725	0.0725	0.0048	No	No	No	No
	December	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0738	0.0738	0.0148	0.0738	0.0738	0.0049	No	No	No	No
Closure Phase (29-35)	January	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0800	0.0800	0.0160	0.0800	0.0800	0.0053	No	No	No	No
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067	No	No	No	No
	March	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067	No	No	No	No
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.106	0.106	0.0211	0.106	0.106	0.0070	No	No	No	No
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0517	0.0517	0.0103	0.0517	0.0517	0.0034	No	No	No	No
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0513	0.0513	0.0103	0.0513	0.0513	0.0034	No	No	No	No
	July	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0583	0.0583	0.0117	0.0583	0.0583	0.0039	No	No	No	No
	August	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0667	0.0667	0.0133	0.0667	0.0667	0.0044	No	No	No	No
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0763	0.0763	0.0153	0.0763	0.0763	0.0051	No	No	No	No
	October	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0733	0.0733	0.0147	0.0733	0.0733	0.0049	No	No	No	No
	November	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0725	0.0725	0.0145	0.0725	0.0725	0.0048	No	No	No	No
	December	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0738	0.0738	0.0148	0.0738	0.0738	0.0049	No	No	No	No
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0800	0.0800	0.0160	0.0800	0.0800	0.0053	No	No	No	No
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067	No	No	No	No
	March	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067	No	No	No	No
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.106	0.106	0.0211	0.106	0.106	0.0070	No	No	No	No
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0517	0.0517	0.0103	0.0517	0.0517	0.0034	No	No	No	No
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0513	0.0513	0.0103	0.0513	0.0513	0.0034	No	No	No	No
	July	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0583	0.0583	0.0117	0.0583	0.0583	0.0039	No	No	No	No
	August	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0667	0.0667	0.0133	0.0667	0.0667	0.0044	No	No	No	No
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0763	0.0763	0.0153	0.0763	0.0763	0.0051	No	No	No	No
	October	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0733	0.0733	0.0147	0.0733	0.0733	0.0049	No	No	No	No
	November	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0725	0.0725	0.0145	0.0725	0.0725	0.0048	No	No	No	No
	December	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0738	0.0738	0.0148	0.0738	0.0738	0.0049	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D3t. P Creek Hazard Quotients for Total Silver Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
				BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
		Mean	Maximum	Mean	Maximum				
Construction (-2 to-1)	January	0.00002	0.00002	0.00005	0.00010	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.00010	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.00010	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.00010	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.00010	0.245	0.245	0.123	No
Operation 1 Phase (1-23)	January	0.00002	0.00002	0.00005	0.00010	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.00010	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.00010	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.00010	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.00010	0.245	0.245	0.123	No
Operations 2 Phase (24-28)	January	0.00002	0.00002	0.00005	0.00010	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.00010	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.00010	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.00010	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.00010	0.245	0.245	0.123	No
Closure Phase (29-35)	January	0.00002	0.00002	0.00005	0.00010	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.00010	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.00010	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.00010	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.00010	0.245	0.245	0.123	No
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.00005	0.00010	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.00010	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.00010	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.00010	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.00010	0.245	0.245	0.123	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D3u. P Creek Hazard Quotients for Total Thallium Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operation 1 Phase (1-23)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operations 2 Phase (24-28)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Closure Phase (29-35)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Post-Closure Phase (36-99)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.0067	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D3v. P Creek Hazard Quotients for Total Uranium Concentrations, Expected Case

		First Screening Step								Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs. BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D3w. P Creek Hazard Quotients for Total Vanadium Concentrations, Expected Case

Project Phase		Months		First Screening Step						Retained as COPC?			
				Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
									Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline			
				Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value	BC MOE Working			Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Guideline
Construction (-2 to-1)		January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No	
		November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No	
		December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No	
Operation 1 Phase (1-23)		January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No	
		November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No	
		December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No	
Operations 2 Phase (24-28)		January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No	
		November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No	
		December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No	
Closure Phase (29-35)		January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No	
		November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No	
		December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No	
Post-Closure Phase (36-99)		January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
		May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
		October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No	
		November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No	
		December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D3x. P Creek Hazard Quotients for Total Zinc Concentrations, Expected Case

Project Phase	Months	First Screening Step									Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline				
						Mean				Maximum	Mean	Maximum	
Construction (-2 to-1)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Operation 1 Phase (1-23)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Operations 2 Phase (24-28)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Closure Phase (29-35)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Post-Closure Phase (36-99)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D3y. P Creek Hazard Quotients for Chloride Concentrations, Expected Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE Maximum	Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline			
Construction (-2 to-1)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	July	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	August	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.00089	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.00095	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
Operation 1 Phase (1-23)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	July	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	August	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.00089	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.00095	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
Operations 2 Phase (24-28)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	July	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	August	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.00089	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.00095	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
Closure Phase (29-35)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	July	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	August	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.00089	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.00095	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
Post-Closure Phase (36-99)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	July	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	August	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.00089	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.00095	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.00083	0.0008	0.0008	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D3ab. P Creek Hazard Quotients for Nitrite Concentrations, Expected Case

Project Phase	Months	First Screening Step											Retained as COPC?					
		Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean Predicted vs BC MOE 30-Day Guideline	Maximum Predicted vs BC MOE 30-Day Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline				
									Mean	Maximum	Mean							
Construction (-2 to-1)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0389	0.0023	0.0002	0.0002	No	No	No	No
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002	No	No	No	No
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0389	0.0023	0.0002	0.0002	No	No	No	No
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002	No	No	No	No
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0389	0.0023	0.0002	0.0002	No	No	No	No
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002	No	No	No	No
Closure Phase (29-35)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0389	0.0023	0.0002	0.0002	No	No	No	No
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002	No	No	No	No
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0389	0.0023	0.0002	0.0002	No	No	No	No
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are chloride dependent

Appendix 13-D3ac. P Creek Hazard Quotients for Ammonia Concentrations, Expected Case

Project Phase	Months	First Screening Step							Second Screening Step				Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Baseline Concentrations		Hazard Quotient relative to Baseline			Aquatic Life
				BC MOE 30-Day	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline						
		Mean	Maximum	BC MOE 30-Day	BC MOE Maximum	BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Mean	95%ile	Mean	95%ile		
Construction (-2 to-1)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008	1.30	4.42	1.00	0.295	No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219					No	
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117					No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No	
Operation 1 Phase (1-23)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008	1.30	4.42	1.00	0.295	No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219					No	
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117					No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No	
Operations 2 Phase (24-28)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008	1.30	4.42	1.00	0.295	No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219					No	
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117					No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No	
Closure Phase (29-35)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008	1.30	4.42	1.00	0.295	No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219					No	
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117					No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No	
Post-Closure Phase (36-99)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008	1.30	4.42	1.00	0.295	No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219					No	
	September	0.0562	0.0563	0.922	4.80	0.0610	0.0610	0.0117					No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No	
	December	0.0062	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D3ad. P Creek Hazard Quotients for Sulphate Concentrations, Expected Case

Project Phase		First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		Aquatic Life	Drinking Water	Livestock
							Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline					
Months	Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Livestock			
Construction (-2 to-1)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No		
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No		
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No		
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No		
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No		
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No		
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No		
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No		
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No		
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No		
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No		
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No		
Operation 1 Phase (1-23)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No		
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No		
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No		
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No		
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No		
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No		
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No		
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No		
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No		
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No		
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No		
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No		
Operations 2 Phase (24-28)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No		
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No		
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No		
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No		
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No		
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No		
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No		
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No		
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No		
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No		
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No		
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No		
Closure Phase (29-35)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No		
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No		
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No		
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No		
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No		
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No		
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No		
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No		
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No		
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No		
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No		
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No		
Post-Closure Phase (36-99)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No		
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No		
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No		
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No		
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No		
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No		
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No		
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No		
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No		
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No		
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No		
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D4a. Harper Creek downstream of P Creek (HP) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case

		First Screening Step											
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines for Dissolved Aluminum Concentrations ¹		Drinking Water Quality Guidelines for Dissolved Aluminum	BC MOE Working Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline for Dissolved Aluminum		
		Dissolved Aluminum		Total Aluminum		BC MOE 30-Day Mean	BC MOE Maximum	BC maximum DWQG	Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
		Mean	Maximum	Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0025	0.0025	0.0041	0.0041	0.050	0.100	0.2	5	5	0.0500	0.0500	0.0250
	February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330
	March	0.0035	0.0035	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0700	0.0700	0.0350
	April	0.0038	0.0038	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0764	0.0764	0.0382
	May	0.0159	0.0159	0.0861	0.0861	0.050	0.100	0.2	5	5	0.318	0.318	0.159
	June	0.0178	0.0178	0.114	0.114	0.050	0.100	0.2	5	5	0.356	0.356	0.178
	July	0.0087	0.0087	0.0138	0.0138	0.050	0.100	0.2	5	5	0.174	0.174	0.0870
	August	0.0052	0.0052	0.0126	0.0126	0.050	0.100	0.2	5	5	0.104	0.104	0.0518
	September	0.0051	0.0051	0.0088	0.0088	0.050	0.100	0.2	5	5	0.102	0.102	0.0508
	October	0.0038	0.0038	0.0080	0.0080	0.050	0.100	0.2	5	5	0.0765	0.0765	0.0383
	November	0.0046	0.0046	0.0053	0.0053	0.050	0.100	0.2	5	5	0.0920	0.0920	0.0460
	December	0.0036	0.0036	0.0047	0.0047	0.050	0.100	0.2	5	5	0.0710	0.0710	0.0355
Operation 1 Phase (1-23)	January	0.0025	0.0025	0.0041	0.0041	0.050	0.100	0.2	5	5	0.0500	0.0500	0.0250
	February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330
	March	0.0035	0.0035	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0700	0.0700	0.0350
	April	0.0038	0.0038	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0764	0.0764	0.0382
	May	0.0159	0.0159	0.0861	0.0861	0.050	0.100	0.2	5	5	0.318	0.318	0.159
	June	0.0178	0.0178	0.114	0.114	0.050	0.100	0.2	5	5	0.356	0.356	0.178
	July	0.0087	0.0087	0.0138	0.0138	0.050	0.100	0.2	5	5	0.174	0.174	0.0870
	August	0.0052	0.0052	0.0126	0.0126	0.050	0.100	0.2	5	5	0.104	0.104	0.0518
	September	0.0051	0.0051	0.0088	0.0088	0.050	0.100	0.2	5	5	0.102	0.102	0.0508
	October	0.0038	0.0038	0.0080	0.0080	0.050	0.100	0.2	5	5	0.0765	0.0765	0.0383
	November	0.0046	0.0046	0.0053	0.0053	0.050	0.100	0.2	5	5	0.0920	0.0920	0.0460
	December	0.0036	0.0036	0.0047	0.0047	0.050	0.100	0.2	5	5	0.0710	0.0710	0.0355
Operations 2 Phase (24-28)	January	0.0025	0.0025	0.0041	0.0041	0.050	0.100	0.2	5	5	0.0500	0.0500	0.0250
	February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330
	March	0.0035	0.0035	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0700	0.0700	0.0350
	April	0.0038	0.0038	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0764	0.0764	0.0382
	May	0.0159	0.0159	0.0861	0.0861	0.050	0.100	0.2	5	5	0.318	0.318	0.159
	June	0.0178	0.0178	0.114	0.114	0.050	0.100	0.2	5	5	0.356	0.356	0.178
	July	0.0087	0.0087	0.0138	0.0138	0.050	0.100	0.2	5	5	0.174	0.174	0.0870
	August	0.0052	0.0052	0.0126	0.0126	0.050	0.100	0.2	5	5	0.104	0.104	0.0518
	September	0.0051	0.0051	0.0088	0.0088	0.050	0.100	0.2	5	5	0.102	0.102	0.0508
	October	0.0038	0.0038	0.0080	0.0080	0.050	0.100	0.2	5	5	0.0765	0.0765	0.0383
	November	0.0046	0.0046	0.0053	0.0053	0.050	0.100	0.2	5	5	0.0920	0.0920	0.0460
	December	0.0036	0.0036	0.0047	0.0047	0.050	0.100	0.2	5	5	0.0710	0.0710	0.0355
Closure Phase (29-35)	January	0.0025	0.0025	0.0041	0.0041	0.050	0.100	0.2	5	5	0.0500	0.0500	0.0250
	February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330
	March	0.0035	0.0035	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0700	0.0700	0.0350
	April	0.0038	0.0038	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0764	0.0764	0.0382
	May	0.0159	0.0159	0.0861	0.0861	0.050	0.100	0.2	5	5	0.318	0.318	0.159
	June	0.0178	0.0178	0.114	0.114	0.050	0.100	0.2	5	5	0.356	0.356	0.178
	July	0.0087	0.0087	0.0138	0.0138	0.050	0.100	0.2	5	5	0.174	0.174	0.0870
	August	0.0052	0.0052	0.0126	0.0126	0.050	0.100	0.2	5	5	0.104	0.104	0.0518
	September	0.0051	0.0051	0.0088	0.0088	0.050	0.100	0.2	5	5	0.102	0.102	0.0508
	October	0.0038	0.0038	0.0080	0.0080	0.050	0.100	0.2	5	5	0.0765	0.0765	0.0383
	November	0.0046	0.0046	0.0053	0.0053	0.050	0.100	0.2	5	5	0.0920	0.0920	0.0460
	December	0.0036	0.0036	0.0047	0.0047	0.050	0.100	0.2	5	5	0.0710	0.0710	0.0355
Post-Closure Phase (36-99)	January	0.0025	0.0025	0.0041	0.0041	0.050	0.100	0.2	5	5	0.0500	0.0500	0.0250
	February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330
	March	0.0035	0.0035	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0700	0.0700	0.0350
	April	0.0038	0.0038	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0764	0.0764	0.0382
	May	0.0159	0.0159	0.0861	0.0861	0.050	0.100	0.2	5	5	0.318	0.318	0.159
	June	0.0178	0.0178	0.114	0.114	0.050	0.100	0.2	5	5	0.356	0.356	0.178
	July	0.0087	0.0087	0.0138	0.0138	0.050	0.100	0.2	5	5	0.174	0.174	0.0870
	August	0.0052	0.0052	0.0126	0.0126	0.050	0.100	0.2	5	5	0.104	0.104	0.0518
	September	0.0051	0.0051	0.0088	0.0088	0.050	0.100	0.2	5	5	0.102	0.102	0.0508
	October	0.0038	0.0038	0.0080	0.0080	0.050	0.100	0.2	5	5	0.0765	0.0765	0.0383
	November	0.0046	0.0046	0.0053	0.0053	0.050	0.100	0.2	5	5	0.0920	0.0920	0.0460
	December	0.0036	0.0036	0.0047	0.0047	0.050	0.100	0.2	5	5	0.0710	0.0710	0.0355

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH dependent (continued)

Appendix 13-D4a. Harper Creek downstream of P Creek (HP) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case (completed)

		First Screening Step			Retained as COPC?			
Project Phase	Months	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum	Aquatic Life for Dissolved Aluminum	Drinking Water for Dissolved Aluminum	Wildlife for Total Aluminum	Livestock for Total Aluminum
		Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0125	0.0008	0.0008	No	No	No	No
	February	0.0165	0.0007	0.0007	No	No	No	No
	March	0.0175	0.0008	0.0008	No	No	No	No
	April	0.0191	0.0008	0.0008	No	No	No	No
	May	0.0795	0.0172	0.0172	No	No	No	No
	June	0.0890	0.0228	0.0228	No	No	No	No
	July	0.0435	0.0028	0.0028	No	No	No	No
	August	0.0259	0.0025	0.0025	No	No	No	No
	September	0.0254	0.0018	0.0018	No	No	No	No
	October	0.0191	0.0016	0.0016	No	No	No	No
	November	0.0230	0.0011	0.0011	No	No	No	No
	December	0.0178	0.0009	0.0009	No	No	No	No
Operation 1 Phase (1-23)	January	0.0125	0.0008	0.0008	No	No	No	No
	February	0.0165	0.0007	0.0007	No	No	No	No
	March	0.0175	0.0008	0.0008	No	No	No	No
	April	0.0191	0.0008	0.0008	No	No	No	No
	May	0.0795	0.0172	0.0172	No	No	No	No
	June	0.0890	0.0228	0.0228	No	No	No	No
	July	0.0435	0.0028	0.0028	No	No	No	No
	August	0.0259	0.0025	0.0025	No	No	No	No
	September	0.0254	0.0018	0.0018	No	No	No	No
	October	0.0191	0.0016	0.0016	No	No	No	No
	November	0.0230	0.0011	0.0011	No	No	No	No
	December	0.0178	0.0009	0.0009	No	No	No	No
Operations 2 Phase (24-28)	January	0.0125	0.0008	0.0008	No	No	No	No
	February	0.0165	0.0007	0.0007	No	No	No	No
	March	0.0175	0.0008	0.0008	No	No	No	No
	April	0.0191	0.0008	0.0008	No	No	No	No
	May	0.0795	0.0172	0.0172	No	No	No	No
	June	0.0890	0.0228	0.0228	No	No	No	No
	July	0.0435	0.0028	0.0028	No	No	No	No
	August	0.0259	0.0025	0.0025	No	No	No	No
	September	0.0254	0.0018	0.0018	No	No	No	No
	October	0.0191	0.0016	0.0016	No	No	No	No
	November	0.0230	0.0011	0.0011	No	No	No	No
	December	0.0178	0.0009	0.0009	No	No	No	No
Closure Phase (29-35)	January	0.0125	0.0008	0.0008	No	No	No	No
	February	0.0165	0.0007	0.0007	No	No	No	No
	March	0.0175	0.0008	0.0008	No	No	No	No
	April	0.0191	0.0008	0.0008	No	No	No	No
	May	0.0795	0.0172	0.0172	No	No	No	No
	June	0.0890	0.0228	0.0228	No	No	No	No
	July	0.0435	0.0028	0.0028	No	No	No	No
	August	0.0259	0.0025	0.0025	No	No	No	No
	September	0.0254	0.0018	0.0018	No	No	No	No
	October	0.0191	0.0016	0.0016	No	No	No	No
	November	0.0230	0.0011	0.0011	No	No	No	No
	December	0.0178	0.0009	0.0009	No	No	No	No
Post-Closure Phase (36-99)	January	0.0125	0.0008	0.0008	No	No	No	No
	February	0.0165	0.0007	0.0007	No	No	No	No
	March	0.0175	0.0008	0.0008	No	No	No	No
	April	0.0191	0.0008	0.0008	No	No	No	No
	May	0.0795	0.0172	0.0172	No	No	No	No
	June	0.0890	0.0228	0.0228	No	No	No	No
	July	0.0435	0.0028	0.0028	No	No	No	No
	August	0.0259	0.0025	0.0025	No	No	No	No
	September	0.0254	0.0018	0.0018	No	No	No	No
	October	0.0191	0.0016	0.0016	No	No	No	No
	November	0.0230	0.0011	0.0011	No	No	No	No
	December	0.0178	0.0009	0.0009	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

Appendix 13-D4b. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Antimony Concentrations, Expected Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Closure Phase (29-35)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D4c. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Arsenic Concentrations, Expected Case

Project Phase	Months	First Screening Step										Retained as COPC?				
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Interim Guideline					
Construction (-2 to-1)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	0.0072	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	0.0076	No	No	No	No
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	0.0139	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	0.0905	No	No	No	No
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	0.0115	No	No	No	No
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.2050	0.0410	0.0410	0.0410	0.0410	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	0.0097	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	0.0231	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	0.0090	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	0.0087	No	No	No	No
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	0.0072	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	0.0076	No	No	No	No
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	0.0139	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	0.0905	No	No	No	No
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	0.0115	No	No	No	No
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	0.0410	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	0.0097	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	0.0231	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	0.0090	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	0.0087	No	No	No	No
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	0.0072	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	0.0076	No	No	No	No
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	0.0139	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	0.0905	No	No	No	No
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	0.0115	No	No	No	No
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	0.0410	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	0.0097	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	0.0231	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	0.0090	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	0.0087	No	No	No	No
Closure Phase (29-35)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	0.0072	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	0.0076	No	No	No	No
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	0.0139	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	0.0905	No	No	No	No
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	0.0115	No	No	No	No
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	0.0410	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	0.0097	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	0.0231	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	0.0090	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	0.0087	No	No	No	No
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	0.0072	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	0.0076	No	No	No	No
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	0.0139	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	0.0905	No	No	No	No
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	0.0115	No	No	No	No
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	0.0410	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	0.0097	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	0.0231	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	0.0090	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	0.0087	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D4d. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Barium Concentrations, Expected Case

Project Phase	Months	First Screening Step									Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines Canadian DWQG	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. Canadian DWQG	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day	BC MOE Working Maximum		Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline			
Construction (-2 to 1)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Operation 1 Phase (1-23)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Operations 2 Phase (24-28)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Closure Phase (29-35)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Post-Closure Phase (36-99)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0062	0.0063	1	5	1	0.0062	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D4e. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Beryllium Concentrations, Expected Case

Project Phase		First Screening Step										Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines BC MOE Working (Chronic, 30-day mean)	Drinking Water Quality Guidelines BC DWQG	BC MOE Livestock Watering Water Quality Guideline BC MOE Working	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Working Guideline		Aquatic Life	Drinking Water	Livestock
							Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline						
		Months	Mean	Maximum										
Construction (-2 to-1)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Closure Phase (29-35)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D4f. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Boron Concentrations, Expected Case

Project Phase	Months	First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No
Operation 1 Phase (1-23)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No
Operations 2 Phase (24-28)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No
Closure Phase (29-35)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No
Post-Closure Phase (36-99)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D4g. Harper Creek downstream of P Creek (HP) Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE Working		Maximum Predicted vs BC MOE Working Guideline
Construction (-2 to-1)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Operation 1 Phase (1-23)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Operations 2 Phase (24-28)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Closure Phase (29-35)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Post-Closure Phase (36-99)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D4i. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Chromium Concentrations, Expected Case

Project Phase	Months	First Screening Step										Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline			Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline					
		Canadian DWQG	BC MOE Working	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline									
Construction (-2 to-1)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

CCME = Canadian Council of Ministers of the Environment

Appendix 13-D4j. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Cobalt Concentrations, Expected Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Working	Mean Predicted vs. BC MOE 30-Day Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline				Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No	
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No	
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No	
Closure Phase (29-35)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No	
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D4k. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Copper Concentrations, Expected Case

Project Phase	Months	First Screening Step										Second Screening Step				
		Predicted Concentrations		Aquatic Life Guidelines ¹		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline	
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day	Maximum Predicted vs. BC MOE 30-Day	Maximum Predicted vs. BC Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Mean	95%ile	Mean	95%ile
								Mean	Mean							
Construction (-2 to-1)	January	0.0005	0.0005	0.0029	0.0087	0.3	0.3	0.174	0.174	0.0571	0.0017	0.0017				
	February	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.118	0.118	0.0392	0.0012	0.0012				
	March	0.0004	0.0004	0.0031	0.0093	0.3	0.3	0.122	0.122	0.0408	0.0013	0.0013				
	April	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.139	0.139	0.0462	0.0014	0.0014				
	May	0.0016	0.0016	0.0020	0.0065	0.3	0.3	0.805	0.805	0.248	0.0054	0.0054				
	June	0.0035	0.0035	0.0020	0.0061	0.3	0.3	1.76	1.76	0.580	0.0117	0.0117	0.0035	0.0058	1.00	0.602
	July	0.0013	0.0013	0.0024	0.0077	0.3	0.3	0.517	0.517	0.163	0.0042	0.0042				
	August	0.0007	0.0007	0.0029	0.0087	0.3	0.3	0.255	0.255	0.0837	0.0024	0.0024				
	September	0.0007	0.0007	0.0030	0.0090	0.3	0.3	0.225	0.225	0.0745	0.0022	0.0022				
	October	0.0008	0.0008	0.0031	0.0092	0.3	0.3	0.264	0.264	0.0879	0.0027	0.0027				
	November	0.0008	0.0008	0.0028	0.0085	0.3	0.3	0.279	0.279	0.0907	0.0026	0.0026				
	December	0.0006	0.0006	0.0028	0.0086	0.3	0.3	0.215	0.215	0.0702	0.0020	0.0020				
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.0029	0.0087	0.3	0.3	0.174	0.174	0.0571	0.0017	0.0017				
	February	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.118	0.118	0.0392	0.0012	0.0012				
	March	0.0004	0.0004	0.0031	0.0093	0.3	0.3	0.122	0.122	0.0408	0.0013	0.0013				
	April	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.139	0.139	0.0462	0.0014	0.0014				
	May	0.0016	0.0016	0.0020	0.0065	0.3	0.3	0.805	0.805	0.248	0.0054	0.0054				
	June	0.0035	0.0035	0.0020	0.0061	0.3	0.3	1.76	1.76	0.580	0.0117	0.0117	0.0035	0.0058	1.00	0.602
	July	0.0013	0.0013	0.0024	0.0077	0.3	0.3	0.517	0.517	0.163	0.0042	0.0042				
	August	0.0007	0.0007	0.0029	0.0087	0.3	0.3	0.255	0.255	0.0837	0.0024	0.0024				
	September	0.0007	0.0007	0.0030	0.0090	0.3	0.3	0.225	0.225	0.0745	0.0022	0.0022				
	October	0.0008	0.0008	0.0031	0.0092	0.3	0.3	0.264	0.264	0.0879	0.0027	0.0027				
	November	0.0008	0.0008	0.0028	0.0085	0.3	0.3	0.279	0.279	0.0907	0.0026	0.0026				
	December	0.0006	0.0006	0.0028	0.0086	0.3	0.3	0.215	0.215	0.0702	0.0020	0.0020				
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.0029	0.0087	0.3	0.3	0.174	0.174	0.0571	0.0017	0.0017				
	February	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.118	0.118	0.0392	0.0012	0.0012				
	March	0.0004	0.0004	0.0031	0.0093	0.3	0.3	0.122	0.122	0.0408	0.0013	0.0013				
	April	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.139	0.139	0.0462	0.0014	0.0014				
	May	0.0016	0.0016	0.0020	0.0065	0.3	0.3	0.805	0.805	0.248	0.0054	0.0054				
	June	0.0035	0.0035	0.0020	0.0061	0.3	0.3	1.76	1.76	0.580	0.0117	0.0117	0.0035	0.0058	1.00	0.602
	July	0.0013	0.0013	0.0024	0.0077	0.3	0.3	0.517	0.517	0.163	0.0042	0.0042				
	August	0.0007	0.0007	0.0029	0.0087	0.3	0.3	0.255	0.255	0.0837	0.0024	0.0024				
	September	0.0007	0.0007	0.0030	0.0090	0.3	0.3	0.225	0.225	0.0745	0.0022	0.0022				
	October	0.0008	0.0008	0.0031	0.0092	0.3	0.3	0.264	0.264	0.0879	0.0027	0.0027				
	November	0.0008	0.0008	0.0028	0.0085	0.3	0.3	0.279	0.279	0.0907	0.0026	0.0026				
	December	0.0006	0.0006	0.0028	0.0086	0.3	0.3	0.215	0.215	0.0702	0.0020	0.0020				
Closure Phase (29-35)	January	0.0005	0.0005	0.0029	0.0087	0.3	0.3	0.174	0.174	0.0571	0.0017	0.0017				
	February	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.118	0.118	0.0392	0.0012	0.0012				
	March	0.0004	0.0004	0.0031	0.0093	0.3	0.3	0.122	0.122	0.0408	0.0013	0.0013				
	April	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.139	0.139	0.0462	0.0014	0.0014				
	May	0.0016	0.0016	0.0020	0.0065	0.3	0.3	0.805	0.805	0.248	0.0054	0.0054				
	June	0.0035	0.0035	0.0020	0.0061	0.3	0.3	1.76	1.76	0.580	0.0117	0.0117	0.0035	0.0058	1.00	0.602
	July	0.0013	0.0013	0.0024	0.0077	0.3	0.3	0.517	0.517	0.163	0.0042	0.0042				
	August	0.0007	0.0007	0.0029	0.0087	0.3	0.3	0.255	0.255	0.0837	0.0024	0.0024				
	September	0.0007	0.0007	0.0030	0.0090	0.3	0.3	0.225	0.225	0.0745	0.0022	0.0022				
	October	0.0008	0.0008	0.0031	0.0092	0.3	0.3	0.264	0.264	0.0879	0.0027	0.0027				
	November	0.0008	0.0008	0.0028	0.0085	0.3	0.3	0.279	0.279	0.0907	0.0026	0.0026				
	December	0.0006	0.0006	0.0028	0.0086	0.3	0.3	0.215	0.215	0.0702	0.0020	0.0020				
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.0029	0.0087	0.3	0.3	0.174	0.174	0.0571	0.0017	0.0017				
	February	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.118	0.118	0.0392	0.0012	0.0012				
	March	0.0004	0.0004	0.0031	0.0093	0.3	0.3	0.122	0.122	0.0408	0.0013	0.0013				
	April	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.139	0.139	0.0462	0.0014	0.0014				
	May	0.0016	0.0016	0.0020	0.0065	0.3	0.3	0.805	0.805	0.248	0.0054	0.0054				
	June	0.0035	0.0035	0.0020	0.0061	0.3	0.3	1.76	1.76	0.580	0.0117	0.0117	0.0035	0.0058	1.00	0.602
	July	0.0013	0.0013	0.0024	0.0077	0.3	0.3	0.517	0.517	0.163	0.0042	0.0042				
	August	0.0007	0.0007	0.0029	0.0087	0.3	0.3	0.255	0.255	0.0837	0.0024	0.0024				
	September	0.0007	0.0007	0.0030	0.0090	0.3	0.3	0.225	0.225	0.0745	0.0022	0.0022				
	October	0.0008	0.0008	0.0031	0.0092	0.3	0.3	0.264	0.264	0.0879	0.0027	0.0027				
	November	0.0008	0.0008	0.0028	0.0085	0.3	0.3	0.279	0.279	0.0907	0.0026	0.0026				
	December	0.0006	0.0006	0.0028	0.0086	0.3	0.3	0.215	0.215	0.0702	0.0020	0.0020				

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

(completed)

Appendix 13-D4k. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Copper Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?		
		Aquatic Life	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No
	February	No	No	No
	March	No	No	No
	April	No	No	No
	May	No	No	No
	June	No	No	No
	July	No	No	No
	August	No	No	No
	September	No	No	No
	October	No	No	No
	November	No	No	No
	December	No	No	No
Operation 1 Phase (1-23)	January	No	No	No
	February	No	No	No
	March	No	No	No
	April	No	No	No
	May	No	No	No
	June	No	No	No
	July	No	No	No
	August	No	No	No
	September	No	No	No
	October	No	No	No
	November	No	No	No
	December	No	No	No
Operations 2 Phase (24-28)	January	No	No	No
	February	No	No	No
	March	No	No	No
	April	No	No	No
	May	No	No	No
	June	No	No	No
	July	No	No	No
	August	No	No	No
	September	No	No	No
	October	No	No	No
	November	No	No	No
	December	No	No	No
Closure Phase (29-35)	January	No	No	No
	February	No	No	No
	March	No	No	No
	April	No	No	No
	May	No	No	No
	June	No	No	No
	July	No	No	No
	August	No	No	No
	September	No	No	No
	October	No	No	No
	November	No	No	No
	December	No	No	No
Post-Closure Phase (36-99)	January	No	No	No
	February	No	No	No
	March	No	No	No
	April	No	No	No
	May	No	No	No
	June	No	No	No
	July	No	No	No
	August	No	No	No
	September	No	No	No
	October	No	No	No
	November	No	No	No
	December	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent.

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D41. Harper Creek downstream of P Creek (HP) Hazard Quotients for Dissolved and Total Iron Concentrations, Expected Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines BC MOE Maximum Guideline for Dissolved Iron	Aquatic Life Guidelines BC MOE Maximum Guideline for Total Iron	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Aquatic Life	
		Dissolved Iron		Total Iron						Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Operation 1 Phase (1-23)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Operations 2 Phase (24-28)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Closure Phase (29-35)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Post-Closure Phase (36-99)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D4m. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Lead Concentrations, Expected Case

Project Phase	Months	First Screening Step												
		Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				Mean Predicted vs. BC 30-Day Guideline	Maximum Predicted vs. BC 30-Day Guideline	Maximum Predicted vs. BC MOE Maximum Guideline			
		Mean	Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
Construction (-2 to-1)	January	0.00005	0.00005	0.00540	0.0536	0.05	0.1	0.1	0.00926	0.00926	0.00093	0.00100	0.00050	0.00050
	February	0.00001	0.00001	0.00557	0.0580	0.05	0.1	0.1	0.00090	0.00090	0.00009	0.00010	0.00005	0.00005
	March	0.00001	0.00001	0.00563	0.0594	0.05	0.1	0.1	0.00178	0.00178	0.00017	0.00020	0.00010	0.00010
	April	0.00002	0.00002	0.00559	0.0585	0.05	0.1	0.1	0.00358	0.00358	0.00034	0.00040	0.00020	0.00020
	May	0.00013	0.00013	0.00456	0.0320	0.05	0.1	0.1	0.0274	0.0274	0.00391	0.00250	0.00125	0.00125
	June	0.00056	0.00056	0.00434	0.0263	0.05	0.1	0.1	0.129	0.129	0.0212	0.0112	0.00558	0.00558
	July	0.00025	0.00025	0.00503	0.0441	0.05	0.1	0.1	0.0504	0.0504	0.00574	0.00507	0.00253	0.00253
	August	0.00013	0.00013	0.00536	0.0526	0.05	0.1	0.1	0.0249	0.0249	0.00254	0.00267	0.00133	0.00133
	September	0.00004	0.00004	0.00560	0.0586	0.05	0.1	0.1	0.00756	0.00756	0.00072	0.00085	0.00042	0.00042
	October	0.00004	0.00004	0.00546	0.0552	0.05	0.1	0.1	0.00757	0.00757	0.00075	0.00083	0.00041	0.00041
	November	0.00003	0.00003	0.00530	0.0509	0.05	0.1	0.1	0.00633	0.00633	0.00066	0.00067	0.00034	0.00034
	December	0.00004	0.00004	0.00535	0.0522	0.05	0.1	0.1	0.00781	0.00781	0.00080	0.00084	0.00042	0.00042
Operation 1 Phase (1-23)	January	0.00005	0.00005	0.00540	0.0536	0.05	0.1	0.1	0.00926	0.00926	0.00093	0.00100	0.00050	0.00050
	February	0.00001	0.00001	0.00557	0.0580	0.05	0.1	0.1	0.00090	0.00090	0.00009	0.00010	0.00005	0.00005
	March	0.00001	0.00001	0.00563	0.0594	0.05	0.1	0.1	0.00178	0.00178	0.00017	0.00020	0.00010	0.00010
	April	0.00002	0.00002	0.00559	0.0585	0.05	0.1	0.1	0.00358	0.00358	0.00034	0.00040	0.00020	0.00020
	May	0.00013	0.00013	0.00456	0.0320	0.05	0.1	0.1	0.0274	0.0274	0.00391	0.00250	0.00125	0.00125
	June	0.00056	0.00056	0.00434	0.0263	0.05	0.1	0.1	0.129	0.129	0.0212	0.0112	0.00558	0.00558
	July	0.00025	0.00025	0.00503	0.0441	0.05	0.1	0.1	0.0504	0.0504	0.00574	0.00507	0.00253	0.00253
	August	0.00013	0.00013	0.00536	0.0526	0.05	0.1	0.1	0.0249	0.0249	0.00254	0.00267	0.00133	0.00133
	September	0.00004	0.00004	0.00560	0.0586	0.05	0.1	0.1	0.00756	0.00756	0.00072	0.00085	0.00042	0.00042
	October	0.00004	0.00004	0.00546	0.0552	0.05	0.1	0.1	0.00757	0.00757	0.00075	0.00083	0.00041	0.00041
	November	0.00003	0.00003	0.00530	0.0509	0.05	0.1	0.1	0.00633	0.00633	0.00066	0.00067	0.00034	0.00034
	December	0.00004	0.00004	0.00535	0.0522	0.05	0.1	0.1	0.00781	0.00781	0.00080	0.00084	0.00042	0.00042
Operations 2 Phase (24-28)	January	0.00005	0.00005	0.00540	0.0536	0.05	0.1	0.1	0.00926	0.00926	0.00093	0.00100	0.00050	0.00050
	February	0.00001	0.00001	0.00557	0.0580	0.05	0.1	0.1	0.00090	0.00090	0.00009	0.00010	0.00005	0.00005
	March	0.00001	0.00001	0.00563	0.0594	0.05	0.1	0.1	0.00178	0.00178	0.00017	0.00020	0.00010	0.00010
	April	0.00002	0.00002	0.00559	0.0585	0.05	0.1	0.1	0.00358	0.00358	0.00034	0.00040	0.00020	0.00020
	May	0.00013	0.00013	0.00456	0.0320	0.05	0.1	0.1	0.0274	0.0274	0.00391	0.00250	0.00125	0.00125
	June	0.00056	0.00056	0.00434	0.0263	0.05	0.1	0.1	0.129	0.129	0.0212	0.0112	0.00558	0.00558
	July	0.00025	0.00025	0.00503	0.0441	0.05	0.1	0.1	0.0504	0.0504	0.00574	0.00507	0.00253	0.00253
	August	0.00013	0.00013	0.00536	0.0526	0.05	0.1	0.1	0.0249	0.0249	0.00254	0.00267	0.00133	0.00133
	September	0.00004	0.00004	0.00560	0.0586	0.05	0.1	0.1	0.00756	0.00756	0.00072	0.00085	0.00042	0.00042
	October	0.00004	0.00004	0.00546	0.0552	0.05	0.1	0.1	0.00757	0.00757	0.00075	0.00083	0.00041	0.00041
	November	0.00003	0.00003	0.00530	0.0509	0.05	0.1	0.1	0.00633	0.00633	0.00066	0.00067	0.00034	0.00034
	December	0.00004	0.00004	0.00535	0.0522	0.05	0.1	0.1	0.00781	0.00781	0.00080	0.00084	0.00042	0.00042
Closure Phase (29-35)	January	0.00005	0.00005	0.00540	0.0536	0.05	0.1	0.1	0.00926	0.00926	0.00093	0.00100	0.00050	0.00050
	February	0.00001	0.00001	0.00557	0.0580	0.05	0.1	0.1	0.00090	0.00090	0.00009	0.00010	0.00005	0.00005
	March	0.00001	0.00001	0.00563	0.0594	0.05	0.1	0.1	0.00178	0.00178	0.00017	0.00020	0.00010	0.00010
	April	0.00002	0.00002	0.00559	0.0585	0.05	0.1	0.1	0.00358	0.00358	0.00034	0.00040	0.00020	0.00020
	May	0.00013	0.00013	0.00456	0.0320	0.05	0.1	0.1	0.0274	0.0274	0.00391	0.00250	0.00125	0.00125
	June	0.00056	0.00056	0.00434	0.0263	0.05	0.1	0.1	0.129	0.129	0.0212	0.0112	0.00558	0.00558
	July	0.00025	0.00025	0.00503	0.0441	0.05	0.1	0.1	0.0504	0.0504	0.00574	0.00507	0.00253	0.00253
	August	0.00013	0.00013	0.00536	0.0526	0.05	0.1	0.1	0.0249	0.0249	0.00254	0.00267	0.00133	0.00133
	September	0.00004	0.00004	0.00560	0.0586	0.05	0.1	0.1	0.00756	0.00756	0.00072	0.00085	0.00042	0.00042
	October	0.00004	0.00004	0.00546	0.0552	0.05	0.1	0.1	0.00757	0.00757	0.00075	0.00083	0.00041	0.00041
	November	0.00003	0.00003	0.00530	0.0509	0.05	0.1	0.1	0.00633	0.00633	0.00066	0.00067	0.00034	0.00034
	December	0.00004	0.00004	0.00535	0.0522	0.05	0.1	0.1	0.00781	0.00781	0.00080	0.00084	0.00042	0.00042
Post-Closure Phase (36-99)	January	0.00005	0.00005	0.00540	0.0536	0.05	0.1	0.1	0.00926	0.00926	0.00093	0.00100	0.00050	0.00050
	February	0.00001	0.00001	0.00557	0.0580	0.05	0.1	0.1	0.00090	0.00090	0.00009	0.00010	0.00005	0.00005
	March	0.00001	0.00001	0.00563	0.0594	0.05	0.1	0.1	0.00178	0.00178	0.00017	0.00020	0.00010	0.00010
	April	0.00002	0.00002	0.00559	0.0585	0.05	0.1	0.1	0.00358	0.00358	0.00034	0.00040	0.00020	0.00020
	May	0.00013	0.00013	0.00456	0.0320	0.05	0.1	0.1	0.0274	0.0274	0.00391	0.00250	0.00125	0.00125
	June	0.00056	0.00056	0.00434	0.0263	0.05	0.1	0.1	0.129	0.129	0.0212	0.0112	0.00558	0.00558
	July	0.00025	0.00025	0.00503	0.0441	0.05	0.1	0.1	0.0504	0.0504	0.00574	0.00507	0.00253	0.00253
	August	0.00013	0.00013	0.00536	0.0526	0.05	0.1	0.1	0.0249	0.0249	0.00254	0.00267	0.00133	0.00133
	September	0.00004	0.00004	0.00560	0.0586	0.05	0.1	0.1	0.00756	0.00756	0.00072	0.00085	0.00042	0.00042
	October	0.00004	0.00004	0.00546	0.0552	0.05	0.1	0.1	0.00757	0.00757	0.00075	0.00083	0.00041	0.00041
	November	0.00003	0.00003	0.00530	0.0509	0.05	0.1	0.1	0.00633	0.00633	0.00066	0.00067	0.00034	0.00034
	December	0.00004	0.00004	0.00535	0.0522	0.05	0.1	0.1	0.00781	0.00781	0.00080	0.00084	0.00042	0.00042

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent

Appendix 13-D4m. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Lead Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D4n. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Lithium Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
									Aquatic Life
Construction (-2 to-1)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Closure Phase (29-35)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D4o. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Manganese Concentrations, Expected Case

		First Screening Step							Retained as COPC?
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Aquatic Life
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
		Construction (-2 to-1)	January	0.0003	0.0003	0.921	1.33	0.0004	
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Closure Phase (29-35)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D4p. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Mercury Concentrations, Expected Case

		First Screening Step											
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	
		Mean	Maximum	BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	BC DWQG	BC MOE 30-Day Mean if MeHg is 0.5% of THg	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	
Construction (-2 to-1)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
Closure Phase (29-35)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

(continued)

Appendix 13-D4p. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Mercury Concentrations, Expected Case (completed)

Project Phase	Months	First Screening Step	Retained as COPC?			
		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.00333	No	No	No	No
	February	0.00333	No	No	No	No
	March	0.00333	No	No	No	No
	April	0.00333	No	No	No	No
	May	0.00333	No	No	No	No
	June	0.00333	No	No	No	No
	July	0.00333	No	No	No	No
	August	0.00333	No	No	No	No
	September	0.00333	No	No	No	No
	October	0.00333	No	No	No	No
	November	0.00333	No	No	No	No
	December	0.00333	No	No	No	No
Operation 1 Phase (1-23)	January	0.00333	No	No	No	No
	February	0.00333	No	No	No	No
	March	0.00333	No	No	No	No
	April	0.00333	No	No	No	No
	May	0.00333	No	No	No	No
	June	0.00333	No	No	No	No
	July	0.00333	No	No	No	No
	August	0.00333	No	No	No	No
	September	0.00333	No	No	No	No
	October	0.00333	No	No	No	No
	November	0.00333	No	No	No	No
	December	0.00333	No	No	No	No
Operations 2 Phase (24-28)	January	0.00333	No	No	No	No
	February	0.00333	No	No	No	No
	March	0.00333	No	No	No	No
	April	0.00333	No	No	No	No
	May	0.00333	No	No	No	No
	June	0.00333	No	No	No	No
	July	0.00333	No	No	No	No
	August	0.00333	No	No	No	No
	September	0.00333	No	No	No	No
	October	0.00333	No	No	No	No
	November	0.00333	No	No	No	No
	December	0.00333	No	No	No	No
Closure Phase (29-35)	January	0.00333	No	No	No	No
	February	0.00333	No	No	No	No
	March	0.00333	No	No	No	No
	April	0.00333	No	No	No	No
	May	0.00333	No	No	No	No
	June	0.00333	No	No	No	No
	July	0.00333	No	No	No	No
	August	0.00333	No	No	No	No
	September	0.00333	No	No	No	No
	October	0.00333	No	No	No	No
	November	0.00333	No	No	No	No
	December	0.00333	No	No	No	No
Post-Closure Phase (36-99)	January	0.00333	No	No	No	No
	February	0.00333	No	No	No	No
	March	0.00333	No	No	No	No
	April	0.00333	No	No	No	No
	May	0.00333	No	No	No	No
	June	0.00333	No	No	No	No
	July	0.00333	No	No	No	No
	August	0.00333	No	No	No	No
	September	0.00333	No	No	No	No
	October	0.00333	No	No	No	No
	November	0.00333	No	No	No	No
	December	0.00333	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D4r. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Nickel Concentrations, Expected Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	Months								
	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Closure Phase (29-35)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix 13-D4t. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Silver Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Aquatic Life
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
		Construction (-2 to-1)	January	0.00002	0.00002	0.00005	0.0001	0.340	
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No
Operation 1 Phase (1-23)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No
Operations 2 Phase (24-28)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No
Closure Phase (29-35)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D4u. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Thallium Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operation 1 Phase (1-23)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operations 2 Phase (24-28)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Closure Phase (29-35)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Post-Closure Phase (36-99)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D4v. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Uranium Concentrations, Expected Case

		First Screening Step							Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D4w. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Vanadium Concentrations, Expected Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline			
Construction (-2 to-1)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Closure Phase (29-35)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D4z. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Zinc Concentrations, Expected Case

		First Screening Step										Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline				Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Operation 1 Phase (1-23)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Operations 2 Phase (24-28)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Closure Phase (29-35)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Post-Closure Phase (36-99)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D4y. Harper Creek downstream of P Creek (HP) Hazard Quotients for Chloride Concentrations, Expected Case

Project Phase	Months	First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE			Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
		Mean	Maximum	Mean	Maximum	Maximum	Maximum	Mean Guideline	Mean Guideline	Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline			
Construction (-2 to-1)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	August	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Operation 1 Phase (1-23)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	August	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Operations 2 Phase (24-28)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	August	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Closure Phase (29-35)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	August	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Post-Closure Phase (36-99)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	August	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D4z. Harper Creek downstream of P Creek (HP) Hazard Quotients for Fluoride Concentrations, Expected Case (completed)

		First Screening Step			Retained as COPC?			
		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline						
Project Phase	Months	Mean Predicted vs. BC MOE 30-Day		Maximum Predicted vs. BC MOE Maximum	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean Guideline	vs. BC MOE 30-Day	Guideline				
Construction (-2 to-1)	January	0.0300	0.0300	0.0150	No	No	No	No
	February	0.0420	0.0420	0.0210	No	No	No	No
	March	0.0100	0.0100	0.0050	No	No	No	No
	April	0.0370	0.0370	0.0185	No	No	No	No
	May	0.0213	0.0213	0.0107	No	No	No	No
	June	0.0212	0.0212	0.0106	No	No	No	No
	July	0.0258	0.0258	0.0129	No	No	No	No
	August	0.0355	0.0355	0.0178	No	No	No	No
	September	0.0340	0.0340	0.0170	No	No	No	No
	October	0.0353	0.0353	0.0177	No	No	No	No
	November	0.0335	0.0335	0.0168	No	No	No	No
	December	0.0318	0.0318	0.0159	No	No	No	No
Operation 1 Phase (1-23)	January	0.0300	0.0300	0.0150	No	No	No	No
	February	0.0420	0.0420	0.0210	No	No	No	No
	March	0.0100	0.0100	0.0050	No	No	No	No
	April	0.0370	0.0370	0.0185	No	No	No	No
	May	0.0213	0.0213	0.0107	No	No	No	No
	June	0.0212	0.0212	0.0106	No	No	No	No
	July	0.0258	0.0258	0.0129	No	No	No	No
	August	0.0355	0.0355	0.0178	No	No	No	No
	September	0.0340	0.0340	0.0170	No	No	No	No
	October	0.0353	0.0353	0.0177	No	No	No	No
	November	0.0335	0.0335	0.0168	No	No	No	No
	December	0.0318	0.0318	0.0159	No	No	No	No
Operations 2 Phase (24-28)	January	0.0300	0.0300	0.0150	No	No	No	No
	February	0.0420	0.0420	0.0210	No	No	No	No
	March	0.0100	0.0100	0.0050	No	No	No	No
	April	0.0370	0.0370	0.0185	No	No	No	No
	May	0.0213	0.0213	0.0107	No	No	No	No
	June	0.0212	0.0212	0.0106	No	No	No	No
	July	0.0258	0.0258	0.0129	No	No	No	No
	August	0.0355	0.0355	0.0178	No	No	No	No
	September	0.0340	0.0340	0.0170	No	No	No	No
	October	0.0353	0.0353	0.0177	No	No	No	No
	November	0.0335	0.0335	0.0168	No	No	No	No
	December	0.0318	0.0318	0.0159	No	No	No	No
Closure Phase (29-35)	January	0.0300	0.0300	0.0150	No	No	No	No
	February	0.0420	0.0420	0.0210	No	No	No	No
	March	0.0100	0.0100	0.0050	No	No	No	No
	April	0.0370	0.0370	0.0185	No	No	No	No
	May	0.0213	0.0213	0.0107	No	No	No	No
	June	0.0212	0.0212	0.0106	No	No	No	No
	July	0.0258	0.0258	0.0129	No	No	No	No
	August	0.0355	0.0355	0.0178	No	No	No	No
	September	0.0340	0.0340	0.0170	No	No	No	No
	October	0.0353	0.0353	0.0177	No	No	No	No
	November	0.0335	0.0335	0.0168	No	No	No	No
	December	0.0318	0.0318	0.0159	No	No	No	No
Post-Closure Phase (36-99)	January	0.0300	0.0300	0.0150	No	No	No	No
	February	0.0420	0.0420	0.0210	No	No	No	No
	March	0.0100	0.0100	0.0050	No	No	No	No
	April	0.0370	0.0370	0.0185	No	No	No	No
	May	0.0213	0.0213	0.0107	No	No	No	No
	June	0.0212	0.0212	0.0106	No	No	No	No
	July	0.0258	0.0258	0.0129	No	No	No	No
	August	0.0355	0.0355	0.0178	No	No	No	No
	September	0.0340	0.0340	0.0170	No	No	No	No
	October	0.0353	0.0353	0.0177	No	No	No	No
	November	0.0335	0.0335	0.0168	No	No	No	No
	December	0.0318	0.0318	0.0159	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D4aa. Harper Creek downstream of P Creek (HP) Hazard Quotients for Nitrate Concentrations, Expected Case

		First Screening Step												
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE 30-Day	BC MOE Maximum				Mean Predicted vs BC MOE 30-Day	Maximum Predicted vs BC MOE 30-Day	Maximum Predicted vs BC MOE Maximum			
		Mean	Maximum	Mean	Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean	Mean	MOE Maximum	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.306	0.306	3	32.8	10	100	100	0.102	0.102	0.0093	0.0306	0.0031	0.0031
	February	0.301	0.301	3	32.8	10	100	100	0.100	0.100	0.0092	0.0301	0.0030	0.0030
	March	0.297	0.297	3	32.8	10	100	100	0.0990	0.0990	0.0091	0.0297	0.0030	0.0030
	April	0.402	0.402	3	32.8	10	100	100	0.134	0.134	0.0123	0.0402	0.0040	0.0040
	May	0.544	0.544	3	32.8	10	100	100	0.181	0.181	0.0166	0.0544	0.0054	0.0054
	June	0.140	0.140	3	32.8	10	100	100	0.0467	0.0467	0.0043	0.0140	0.0014	0.0014
	July	0.101	0.101	3	32.8	10	100	100	0.0335	0.0335	0.0031	0.0101	0.0010	0.0010
	August	0.131	0.131	3	32.8	10	100	100	0.0435	0.0435	0.0040	0.0131	0.0013	0.0013
	September	0.173	0.173	3	32.8	10	100	100	0.0575	0.0575	0.0053	0.0173	0.0017	0.0017
	October	0.173	0.173	3	32.8	10	100	100	0.0578	0.0578	0.0053	0.0173	0.0017	0.0017
	November	0.225	0.225	3	32.8	10	100	100	0.0748	0.0748	0.0068	0.0225	0.0022	0.0022
	December	0.265	0.265	3	32.8	10	100	100	0.0884	0.0884	0.0081	0.0265	0.0027	0.0027
Operation 1 Phase (1-23)	January	0.306	0.306	3	32.8	10	100	100	0.102	0.102	0.0093	0.0306	0.0031	0.0031
	February	0.301	0.301	3	32.8	10	100	100	0.100	0.100	0.0092	0.0301	0.0030	0.0030
	March	0.297	0.297	3	32.8	10	100	100	0.0990	0.0990	0.0091	0.0297	0.0030	0.0030
	April	0.402	0.402	3	32.8	10	100	100	0.134	0.134	0.0123	0.0402	0.0040	0.0040
	May	0.544	0.544	3	32.8	10	100	100	0.181	0.181	0.0166	0.0544	0.0054	0.0054
	June	0.140	0.140	3	32.8	10	100	100	0.0467	0.0467	0.0043	0.0140	0.0014	0.0014
	July	0.101	0.101	3	32.8	10	100	100	0.0335	0.0335	0.0031	0.0101	0.0010	0.0010
	August	0.131	0.131	3	32.8	10	100	100	0.0435	0.0435	0.0040	0.0131	0.0013	0.0013
	September	0.173	0.173	3	32.8	10	100	100	0.0575	0.0575	0.0053	0.0173	0.0017	0.0017
	October	0.173	0.173	3	32.8	10	100	100	0.0578	0.0578	0.0053	0.0173	0.0017	0.0017
	November	0.225	0.225	3	32.8	10	100	100	0.0748	0.0748	0.0068	0.0225	0.0022	0.0022
	December	0.265	0.265	3	32.8	10	100	100	0.0884	0.0884	0.0081	0.0265	0.0027	0.0027
Operations 2 Phase (24-28)	January	0.306	0.306	3	32.8	10	100	100	0.102	0.102	0.0093	0.0306	0.0031	0.0031
	February	0.301	0.301	3	32.8	10	100	100	0.100	0.100	0.0092	0.0301	0.0030	0.0030
	March	0.297	0.297	3	32.8	10	100	100	0.0990	0.0990	0.0091	0.0297	0.0030	0.0030
	April	0.402	0.402	3	32.8	10	100	100	0.134	0.134	0.0123	0.0402	0.0040	0.0040
	May	0.544	0.544	3	32.8	10	100	100	0.181	0.181	0.0166	0.0544	0.0054	0.0054
	June	0.140	0.140	3	32.8	10	100	100	0.0467	0.0467	0.0043	0.0140	0.0014	0.0014
	July	0.101	0.101	3	32.8	10	100	100	0.0335	0.0335	0.0031	0.0101	0.0010	0.0010
	August	0.131	0.131	3	32.8	10	100	100	0.0435	0.0435	0.0040	0.0131	0.0013	0.0013
	September	0.173	0.173	3	32.8	10	100	100	0.0575	0.0575	0.0053	0.0173	0.0017	0.0017
	October	0.173	0.173	3	32.8	10	100	100	0.0578	0.0578	0.0053	0.0173	0.0017	0.0017
	November	0.225	0.225	3	32.8	10	100	100	0.0748	0.0748	0.0068	0.0225	0.0022	0.0022
	December	0.265	0.265	3	32.8	10	100	100	0.0884	0.0884	0.0081	0.0265	0.0027	0.0027
Closure Phase (29-35)	January	0.306	0.306	3	32.8	10	100	100	0.102	0.102	0.0093	0.0306	0.0031	0.0031
	February	0.301	0.301	3	32.8	10	100	100	0.100	0.100	0.0092	0.0301	0.0030	0.0030
	March	0.297	0.297	3	32.8	10	100	100	0.0990	0.0990	0.0091	0.0297	0.0030	0.0030
	April	0.402	0.402	3	32.8	10	100	100	0.134	0.134	0.0123	0.0402	0.0040	0.0040
	May	0.544	0.544	3	32.8	10	100	100	0.181	0.181	0.0166	0.0544	0.0054	0.0054
	June	0.140	0.140	3	32.8	10	100	100	0.0467	0.0467	0.0043	0.0140	0.0014	0.0014
	July	0.101	0.101	3	32.8	10	100	100	0.0335	0.0335	0.0031	0.0101	0.0010	0.0010
	August	0.131	0.131	3	32.8	10	100	100	0.0435	0.0435	0.0040	0.0131	0.0013	0.0013
	September	0.173	0.173	3	32.8	10	100	100	0.0575	0.0575	0.0053	0.0173	0.0017	0.0017
	October	0.173	0.173	3	32.8	10	100	100	0.0578	0.0578	0.0053	0.0173	0.0017	0.0017
	November	0.225	0.225	3	32.8	10	100	100	0.0748	0.0748	0.0068	0.0225	0.0022	0.0022
	December	0.265	0.265	3	32.8	10	100	100	0.0884	0.0884	0.0081	0.0265	0.0027	0.0027
Post-Closure Phase (36-99)	January	0.306	0.306	3	32.8	10	100	100	0.102	0.102	0.0093	0.0306	0.0031	0.0031
	February	0.301	0.301	3	32.8	10	100	100	0.100	0.100	0.0092	0.0301	0.0030	0.0030
	March	0.297	0.297	3	32.8	10	100	100	0.0990	0.0990	0.0091	0.0297	0.0030	0.0030
	April	0.402	0.402	3	32.8	10	100	100	0.134	0.134	0.0123	0.0402	0.0040	0.0040
	May	0.544	0.544	3	32.8	10	100	100	0.181	0.181	0.0166	0.0544	0.0054	0.0054
	June	0.140	0.140	3	32.8	10	100	100	0.0467	0.0467	0.0043	0.0140	0.0014	0.0014
	July	0.101	0.101	3	32.8	10	100	100	0.0335	0.0335	0.0031	0.0101	0.0010	0.0010
	August	0.131	0.131	3	32.8	10	100	100	0.0435	0.0435	0.0040	0.0131	0.0013	0.0013
	September	0.173	0.173	3	32.8	10	100	100	0.0575	0.0575	0.0053	0.0173	0.0017	0.0017
	October	0.173	0.173	3	32.8	10	100	100	0.0578	0.0578	0.0053	0.0173	0.0017	0.0017
	November	0.225	0.225	3	32.8	10	100	100	0.0748	0.0748	0.0068	0.0225	0.0022	0.0022
	December	0.265	0.265	3	32.8	10	100	100	0.0884	0.0884	0.0081	0.0265	0.0027	0.0027

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

(continued)

Appendix 13-D4aa. Harper Creek downstream of P Creek (HP) Hazard Quotients for Nitrate Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D4ab. Harper Creek downstream of P Creek (HP) Hazard Quotients for Nitrite Concentrations, Expected Case

		First Screening Step												
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	October	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0389	0.0023	0.0002	0.0002
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	October	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0389	0.0023	0.0002	0.0002
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	October	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0389	0.0023	0.0002	0.0002
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002
Closure Phase (29-35)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	October	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0389	0.0023	0.0002	0.0002
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001
	October	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0389	0.0023	0.0002	0.0002
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are chloride dependent

(continued)

Appendix 13-D4ab. Harper Creek downstream of P Creek (HP) Hazard Quotients for Nitrite Concentrations, Expected Case

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are chloride dependent

Appendix 13-D4ac. Harper Creek downstream of P Creek (HP) Hazard Quotients for Ammonia Concentrations, Expected Case

Project Phase	Months	First Screening Step						Second Screening Step				Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Mean	95%ile	Mean			95%ile
Construction (-2 to-1)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008	1.30	4.42	1.00	0.295	No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219					No	
	September	0.0563	0.0563	1.14	5.91	0.0493	0.0493	0.0095					No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No	
Operation 1 Phase (1-23)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008	1.30	4.42	1.00	0.295	No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No	
	August	1.30	1.30	1.15	6.0	1.13	1.13	0.219					No	
	September	0.0563	0.0563	1.14	5.91	0.0493	0.0493	0.0095					No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No	
Operations 2 Phase (24-28)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008	1.30	4.42	1.00	0.295	No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No	
	August	1.30	1.30	1.15	6.0	1.13	1.13	0.219					No	
	September	0.0563	0.0563	1.14	5.91	0.0493	0.0493	0.0095					No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No	
Closure Phase (29-35)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008	1.30	4.42	1.00	0.295	No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No	
	August	1.30	1.30	1.15	6.0	1.13	1.13	0.219					No	
	September	0.0563	0.0563	1.14	5.91	0.0493	0.0493	0.0095					No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No	
Post-Closure Phase (36-99)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008	1.30	4.42	1.00	0.295	No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No	
	August	1.30	1.30	1.15	6.0	1.13	1.13	0.219					No	
	September	0.0562	0.0563	1.14	5.91	0.0493	0.0493	0.0095					No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No	
	December	0.0062	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D4ad. Harper Creek downstream of P Creek (HP) Hazard Quotients for Sulphate Concentrations, Expected Case

Project Phase	Months	First Screening Step								Retained as COPC?			
		Predicted Concentrations		Aquatic Life Water Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No
Operation 1 Phase (1-23)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No
Operations 2 Phase (24-28)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No
Closure Phase (29-35)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No
Post-Closure Phase (36-99)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent

Appendix D-5a. Mid Harper Creek (HM) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case

		First Screening Step														
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines for Dissolved Aluminum Concentrations ¹		Drinking Water Quality Guidelines for Dissolved Aluminum	BC MOE Working Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline for Dissolved Aluminum			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum
		Dissolved Aluminum		Total Aluminum		BC MOE 30-Day Mean	BC MOE Maximum				BC maximum DWQG	Maximum	Maximum			
		Mean	Maximum	Mean	Maximum			30-Day Mean	Maximum	Maximum				Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Guideline
Construction (-2 to-1)	January	0.0060	0.0063	0.0079	0.0089	0.050	0.100	0.2	5	5	0.121	0.125	0.0625	0.0313	0.0018	0.0018
	February	0.0063	0.0067	0.0071	0.0076	0.050	0.100	0.2	5	5	0.126	0.134	0.0670	0.0335	0.0015	0.0015
	March	0.0065	0.0070	0.0068	0.0070	0.050	0.100	0.2	5	5	0.129	0.140	0.0700	0.0350	0.0014	0.0014
	April	0.0103	0.0125	0.0261	0.0349	0.050	0.100	0.2	5	5	0.205	0.249	0.125	0.0623	0.0070	0.0070
	May	0.0347	0.0400	0.103	0.111	0.050	0.100	0.2	5	5	0.695	0.800	0.400	0.200	0.0221	0.0221
	June	0.0290	0.0324	0.105	0.110	0.050	0.100	0.2	5	5	0.579	0.647	0.324	0.162	0.0220	0.0220
	July	0.0147	0.0171	0.0231	0.0276	0.050	0.100	0.2	5	5	0.293	0.342	0.171	0.0856	0.0055	0.0055
	August	0.0092	0.0110	0.0151	0.0192	0.050	0.100	0.2	5	5	0.183	0.219	0.110	0.0548	0.0038	0.0038
	September	0.0085	0.0105	0.0137	0.0195	0.050	0.100	0.2	5	5	0.170	0.211	0.105	0.0527	0.0039	0.0039
	October	0.0101	0.0141	0.0169	0.0261	0.050	0.100	0.2	5	5	0.203	0.282	0.141	0.0706	0.0052	0.0052
	November	0.0075	0.0086	0.0099	0.0127	0.050	0.100	0.2	5	5	0.149	0.172	0.0860	0.0430	0.0025	0.0025
	December	0.0068	0.0074	0.0089	0.0108	0.050	0.100	0.2	5	5	0.135	0.149	0.0743	0.0371	0.0022	0.0022
Operation 1 Phase (1-23)	January	0.0064	0.0065	0.0073	0.0074	0.050	0.100	0.2	5	5	0.128	0.129	0.0647	0.0324	0.0015	0.0015
	February	0.0065	0.0066	0.0073	0.0074	0.050	0.100	0.2	5	5	0.130	0.132	0.0660	0.0330	0.0015	0.0015
	March	0.0065	0.0067	0.0074	0.0075	0.050	0.100	0.2	5	5	0.131	0.133	0.0667	0.0333	0.0015	0.0015
	April	0.0085	0.0085	0.0184	0.0185	0.050	0.100	0.2	5	5	0.170	0.171	0.0855	0.0427	0.0037	0.0037
	May	0.0307	0.0309	0.0956	0.0957	0.050	0.100	0.2	5	5	0.615	0.617	0.309	0.154	0.0191	0.0191
	June	0.0262	0.0263	0.0989	0.0991	0.050	0.100	0.2	5	5	0.524	0.526	0.263	0.131	0.0198	0.0198
	July	0.0125	0.0125	0.0190	0.0190	0.050	0.100	0.2	5	5	0.249	0.250	0.125	0.0626	0.0038	0.0038
	August	0.0076	0.0077	0.0109	0.0109	0.050	0.100	0.2	5	5	0.152	0.154	0.0768	0.0384	0.0022	0.0022
	September	0.0066	0.0067	0.0079	0.0079	0.050	0.100	0.2	5	5	0.133	0.134	0.0671	0.0336	0.0016	0.0016
	October	0.0064	0.0065	0.0078	0.0078	0.050	0.100	0.2	5	5	0.129	0.130	0.0651	0.0326	0.0016	0.0016
	November	0.0065	0.0066	0.0074	0.0075	0.050	0.100	0.2	5	5	0.130	0.132	0.0659	0.0329	0.0015	0.0015
	December	0.0065	0.0066	0.0074	0.0075	0.050	0.100	0.2	5	5	0.130	0.131	0.0656	0.0328	0.0015	0.0015
Operations 2 Phase (24-28)	January	0.0065	0.0065	0.0075	0.0075	0.050	0.100	0.2	5	5	0.130	0.130	0.0649	0.0325	0.0015	0.0015
	February	0.0066	0.0066	0.0074	0.0074	0.050	0.100	0.2	5	5	0.132	0.132	0.0662	0.0331	0.0015	0.0015
	March	0.0067	0.0067	0.0075	0.0075	0.050	0.100	0.2	5	5	0.134	0.134	0.0669	0.0335	0.0015	0.0015
	April	0.0086	0.0086	0.0185	0.0185	0.050	0.100	0.2	5	5	0.171	0.171	0.0856	0.0428	0.0037	0.0037
	May	0.0308	0.0308	0.0956	0.0957	0.050	0.100	0.2	5	5	0.616	0.617	0.308	0.154	0.0191	0.0191
	June	0.0262	0.0263	0.0989	0.0989	0.050	0.100	0.2	5	5	0.525	0.525	0.263	0.131	0.0198	0.0198
	July	0.0125	0.0125	0.0190	0.0190	0.050	0.100	0.2	5	5	0.250	0.250	0.125	0.0626	0.0038	0.0038
	August	0.0077	0.0077	0.0110	0.0110	0.050	0.100	0.2	5	5	0.153	0.154	0.0768	0.0384	0.0022	0.0022
	September	0.0067	0.0067	0.0079	0.0079	0.050	0.100	0.2	5	5	0.134	0.134	0.0671	0.0336	0.0016	0.0016
	October	0.0065	0.0065	0.0078	0.0078	0.050	0.100	0.2	5	5	0.130	0.130	0.0652	0.0326	0.0016	0.0016
	November	0.0066	0.0066	0.0075	0.0075	0.050	0.100	0.2	5	5	0.132	0.132	0.0660	0.0330	0.0015	0.0015
	December	0.0066	0.0066	0.0075	0.0075	0.050	0.100	0.2	5	5	0.131	0.131	0.0657	0.0328	0.0015	0.0015
Closure Phase (29-35)	January	0.0063	0.0063	0.0072	0.0072	0.050	0.100	0.2	5	5	0.126	0.126	0.0628	0.0314	0.0014	0.0014
	February	0.0064	0.0064	0.0072	0.0072	0.050	0.100	0.2	5	5	0.127	0.127	0.0637	0.0318	0.0014	0.0014
	March	0.0064	0.0064	0.0072	0.0072	0.050	0.100	0.2	5	5	0.128	0.128	0.0640	0.0320	0.0014	0.0014
	April	0.0085	0.0085	0.0184	0.0184	0.050	0.100	0.2	5	5	0.169	0.169	0.0846	0.0423	0.0037	0.0037
	May	0.0307	0.0307	0.0956	0.0956	0.050	0.100	0.2	5	5	0.615	0.615	0.307	0.154	0.0191	0.0191
	June	0.0261	0.0262	0.0989	0.0989	0.050	0.100	0.2	5	5	0.523	0.523	0.262	0.131	0.0198	0.0198
	July	0.0124	0.0124	0.0189	0.0189	0.050	0.100	0.2	5	5	0.248	0.248	0.124	0.0621	0.0038	0.0038
	August	0.0076	0.0076	0.0108	0.0109	0.050	0.100	0.2	5	5	0.151	0.151	0.0756	0.0378	0.0022	0.0022
	September	0.0066	0.0066	0.0078	0.0078	0.050	0.100	0.2	5	5	0.131	0.131	0.0657	0.0328	0.0016	0.0016
	October	0.0064	0.0064	0.0077	0.0077	0.050	0.100	0.2	5	5	0.128	0.128	0.0638	0.0319	0.0015	0.0015
	November	0.0064	0.0065	0.0073	0.0073	0.050	0.100	0.2	5	5	0.129	0.129	0.0645	0.0323	0.0015	0.0015
	December	0.0064	0.0064	0.0073	0.0073	0.050	0.100	0.2	5	5	0.128	0.128	0.0639	0.0320	0.0015	0.0015
Post-Closure Phase (36-99)	January	0.0063	0.0063	0.0073	0.0073	0.050	0.100	0.2	5	5	0.126	0.126	0.0632	0.0316	0.0015	0.0015
	February	0.0064	0.0064	0.0072	0.0072	0.050	0.100	0.2	5	5	0.128	0.128	0.0641	0.0321	0.0014	0.0014
	March	0.0064	0.0065	0.0073	0.0073	0.050	0.100	0.2	5	5	0.129	0.129	0.0645	0.0323	0.0015	0.0015
	April	0.0085	0.0085	0.0184	0.0185	0.050	0.100	0.2	5	5	0.169	0.170	0.0848	0.0424	0.0037	0.0037
	May	0.0307	0.0307	0.0956	0.0956	0.050	0.100	0.2	5	5	0.615	0.615	0.307	0.154	0.0191	0.0191
	June	0.0261	0.0262	0.0989	0.0989	0.050	0.100	0.2	5	5	0.523	0.523	0.262	0.131	0.0198	0.0198
	July	0.0124	0.0124	0.0189	0.0189	0.050	0.100	0.2	5	5	0.248	0.248	0.124	0.0621	0.0038	0.0038
	August	0.0076	0.0076	0.0109	0.0109	0.050	0.100	0.2	5	5	0.152	0.152	0.0758	0.0379	0.0022	0.0022
	September	0.0066	0.0066	0.0078	0.0078	0.050	0.100	0.2	5	5	0.132	0.132	0.0659	0.0330	0.0016	0.0016
	October	0.0064	0.0064	0.0077	0.0077	0.050	0.100	0.2	5	5	0.128	0.128	0.0640	0.0320	0.0015	0.0015
	November	0.0065	0.0065	0.0073	0.0073	0.050	0.100	0.2	5	5	0.129	0.129	0.0647	0.0324	0.0015	0.0015
	December	0.0064	0.0064	0.0073	0.0073	0.050	0.100	0.2	5	5	0.128	0.128	0.0642	0.0321	0.0015	0.0015

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH dependent

(continued)

Appendix D-5a. Mid Harper Creek (HM) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life for Dissolved Aluminum	Drinking Water for Dissolved Aluminum	Wildlife for Total Aluminum	Livestock for Total Aluminum
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

Appendix D-5b. Mid Harper Creek (HM) Hazard Quotients for Total Antimony Concentrations, Expected Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00005	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00009	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00013	0.020	0.014	0.00667	0.00952	No	No
	September	0.00008	0.00013	0.020	0.014	0.00667	0.00952	No	No
	October	0.00007	0.00011	0.020	0.014	0.00525	0.00750	No	No
	November	0.00004	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00005	0.00006	0.020	0.014	0.00300	0.00429	No	No
Operation 1 Phase (1-23)	January	0.00014	0.00027	0.020	0.014	0.0136	0.0195	No	No
	February	0.00016	0.00031	0.020	0.014	0.0154	0.0220	No	No
	March	0.00018	0.00037	0.020	0.014	0.0183	0.0261	No	No
	April	0.00007	0.00013	0.020	0.014	0.00649	0.0093	No	No
	May	0.00010	0.00011	0.020	0.014	0.00571	0.00816	No	No
	June	0.00010	0.00012	0.020	0.014	0.00592	0.00845	No	No
	July	0.00011	0.00015	0.020	0.014	0.00743	0.0106	No	No
	August	0.00013	0.00020	0.020	0.014	0.0101	0.0145	No	No
	September	0.00011	0.00020	0.020	0.014	0.00977	0.0140	No	No
	October	0.00011	0.00019	0.020	0.014	0.00959	0.0137	No	No
	November	0.00011	0.00020	0.020	0.014	0.0100	0.0144	No	No
	December	0.00013	0.00024	0.020	0.014	0.0121	0.0172	No	No
Operations 2 Phase (24-28)	January	0.00029	0.00030	0.020	0.014	0.0150	0.0214	No	No
	February	0.00033	0.00034	0.020	0.014	0.0169	0.0241	No	No
	March	0.00039	0.00040	0.020	0.014	0.0200	0.0285	No	No
	April	0.00014	0.00014	0.020	0.014	0.00702	0.0100	No	No
	May	0.00012	0.00012	0.020	0.014	0.00580	0.00829	No	No
	June	0.00012	0.00012	0.020	0.014	0.00600	0.00858	No	No
	July	0.00015	0.00015	0.020	0.014	0.00767	0.0110	No	No
	August	0.00021	0.00021	0.020	0.014	0.0105	0.0150	No	No
	September	0.00021	0.00021	0.020	0.014	0.0104	0.0148	No	No
	October	0.00020	0.00020	0.020	0.014	0.0101	0.0145	No	No
	November	0.00021	0.00021	0.020	0.014	0.0106	0.0151	No	No
	December	0.00025	0.00025	0.020	0.014	0.0127	0.0182	No	No
Closure Phase (29-35)	January	0.00006	0.00006	0.020	0.014	0.00323	0.00462	No	No
	February	0.00006	0.00006	0.020	0.014	0.00299	0.00427	No	No
	March	0.00007	0.00008	0.020	0.014	0.00379	0.00541	No	No
	April	0.00003	0.00004	0.020	0.014	0.00179	0.00256	No	No
	May	0.00010	0.00010	0.020	0.014	0.00486	0.00694	No	No
	June	0.00010	0.00010	0.020	0.014	0.00495	0.00707	No	No
	July	0.00010	0.00010	0.020	0.014	0.00497	0.00710	No	No
	August	0.00010	0.00010	0.020	0.014	0.00517	0.00739	No	No
	September	0.00005	0.00005	0.020	0.014	0.00254	0.00363	No	No
	October	0.00005	0.00005	0.020	0.014	0.00249	0.00356	No	No
	November	0.00005	0.00005	0.020	0.014	0.00256	0.00365	No	No
	December	0.00006	0.00006	0.020	0.014	0.00285	0.00407	No	No
Post-Closure Phase (36-99)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00005	0.00005	0.020	0.014	0.00274	0.00392	No	No
	March	0.00006	0.00007	0.020	0.014	0.00342	0.00489	No	No
	April	0.00003	0.00003	0.020	0.014	0.00170	0.00242	No	No
	May	0.00010	0.00010	0.020	0.014	0.00483	0.00691	No	No
	June	0.00010	0.00010	0.020	0.014	0.00493	0.00705	No	No
	July	0.00010	0.00010	0.020	0.014	0.00495	0.00707	No	No
	August	0.00010	0.00010	0.020	0.014	0.00506	0.00723	No	No
	September	0.00005	0.00005	0.020	0.014	0.00239	0.00342	No	No
	October	0.00005	0.00005	0.020	0.014	0.00234	0.00335	No	No
	November	0.00005	0.00005	0.020	0.014	0.00239	0.00341	No	No
	December	0.00005	0.00005	0.020	0.014	0.00265	0.00379	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-5c. Mid Harper Creek (HM) Hazard Quotients for Total Arsenic Concentrations, Expected Case

Project Phase		First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum												
Construction (-2 to-1)	January	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0960	0.0192	0.0192	0.0192	No	No	No	No
	February	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0960	0.0192	0.0192	0.0192	No	No	No	No
	March	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0840	0.0168	0.0168	0.0168	No	No	No	No
	April	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0965	0.0193	0.0193	0.0193	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0764	0.0153	0.0153	0.0153	No	No	No	No
	June	0.0007	0.0009	0.005	0.025	0.025	0.025	0.189	0.0379	0.0379	0.0379	No	No	No	No
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.102	0.0205	0.0205	0.0205	No	No	No	No
	August	0.0008	0.0010	0.005	0.025	0.025	0.025	0.202	0.0403	0.0403	0.0403	No	No	No	No
	September	0.0005	0.0006	0.005	0.025	0.025	0.025	0.117	0.0235	0.0235	0.0235	No	No	No	No
	October	0.0006	0.0007	0.005	0.025	0.025	0.025	0.148	0.0296	0.0296	0.0296	No	No	No	No
	November	0.0005	0.0005	0.005	0.025	0.025	0.025	0.103	0.0206	0.0206	0.0206	No	No	No	No
	December	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0980	0.0196	0.0196	0.0196	No	No	No	No
Operation 1 Phase (1-23)	January	0.0005	0.0006	0.005	0.025	0.025	0.025	0.122	0.0244	0.0244	0.0244	No	No	No	No
	February	0.0005	0.0006	0.005	0.025	0.025	0.025	0.127	0.0254	0.0254	0.0254	No	No	No	No
	March	0.0006	0.0007	0.005	0.025	0.025	0.025	0.135	0.0270	0.0270	0.0270	No	No	No	No
	April	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0959	0.0192	0.0192	0.0192	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0788	0.0158	0.0158	0.0158	No	No	No	No
	June	0.0009	0.0009	0.005	0.025	0.025	0.025	0.176	0.0351	0.0351	0.0351	No	No	No	No
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.104	0.0208	0.0208	0.0208	No	No	No	No
	August	0.0007	0.0008	0.005	0.025	0.025	0.025	0.151	0.0302	0.0302	0.0302	No	No	No	No
	September	0.0005	0.0006	0.005	0.025	0.025	0.025	0.113	0.0226	0.0226	0.0226	No	No	No	No
	October	0.0005	0.0006	0.005	0.025	0.025	0.025	0.120	0.0239	0.0239	0.0239	No	No	No	No
	November	0.0005	0.0006	0.005	0.025	0.025	0.025	0.112	0.0225	0.0225	0.0225	No	No	No	No
	December	0.0005	0.0006	0.005	0.025	0.025	0.025	0.118	0.0237	0.0237	0.0237	No	No	No	No
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.005	0.025	0.025	0.025	0.126	0.0251	0.0251	0.0251	No	No	No	No
	February	0.0007	0.0007	0.005	0.025	0.025	0.025	0.131	0.0262	0.0262	0.0262	No	No	No	No
	March	0.0007	0.0007	0.005	0.025	0.025	0.025	0.140	0.0279	0.0279	0.0279	No	No	No	No
	April	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0972	0.0194	0.0194	0.0194	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0790	0.0158	0.0158	0.0158	No	No	No	No
	June	0.0009	0.0009	0.005	0.025	0.025	0.025	0.173	0.0347	0.0347	0.0347	No	No	No	No
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.105	0.0209	0.0209	0.0209	No	No	No	No
	August	0.0008	0.0008	0.005	0.025	0.025	0.025	0.152	0.0305	0.0305	0.0305	No	No	No	No
	September	0.0006	0.0006	0.005	0.025	0.025	0.025	0.115	0.0229	0.0229	0.0229	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.121	0.0242	0.0242	0.0242	No	No	No	No
	November	0.0006	0.0006	0.005	0.025	0.025	0.025	0.114	0.0228	0.0228	0.0228	No	No	No	No
	December	0.0006	0.0006	0.005	0.025	0.025	0.025	0.120	0.0240	0.0240	0.0240	No	No	No	No
Closure Phase (29-35)	January	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0943	0.0189	0.0189	0.0189	No	No	No	No
	February	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0940	0.0188	0.0188	0.0188	No	No	No	No
	March	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0967	0.0193	0.0193	0.0193	No	No	No	No
	April	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0834	0.0167	0.0167	0.0167	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0765	0.0153	0.0153	0.0153	No	No	No	No
	June	0.0009	0.0009	0.005	0.025	0.025	0.025	0.171	0.0342	0.0342	0.0342	No	No	No	No
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0973	0.0195	0.0195	0.0195	No	No	No	No
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.138	0.0276	0.0276	0.0276	No	No	No	No
	September	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0939	0.0188	0.0188	0.0188	No	No	No	No
	October	0.0005	0.0005	0.005	0.025	0.025	0.025	0.101	0.0202	0.0202	0.0202	No	No	No	No
	November	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0925	0.0185	0.0185	0.0185	No	No	No	No
	December	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0940	0.0188	0.0188	0.0188	No	No	No	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0939	0.0188	0.0188	0.0188	No	No	No	No
	February	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0936	0.0187	0.0187	0.0187	No	No	No	No
	March	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0961	0.0192	0.0192	0.0192	No	No	No	No
	April	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0832	0.0166	0.0166	0.0166	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0764	0.0153	0.0153	0.0153	No	No	No	No
	June	0.0009	0.0009	0.005	0.025	0.025	0.025	0.171	0.0342	0.0342	0.0342	No	No	No	No
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0973	0.0195	0.0195	0.0195	No	No	No	No
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.138	0.0275	0.0275	0.0275	No	No	No	No
	September	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0937	0.0187	0.0187	0.0187	No	No	No	No
	October	0.0005	0.0005	0.005	0.025	0.025	0.025	0.101	0.0201	0.0201	0.0201	No	No	No	No
	November	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0922	0.0184	0.0184	0.0184	No	No	No	No
	December	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0936	0.0187	0.0187	0.0187	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-5d. Mid Harper Creek (HM) Hazard Quotients for Total Barium Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum		Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline			
						Maximum Predicted vs. Canadian DWQG						
Construction (-2 to 1)	January	0.0102	0.0102	1	5	1	0.0102	0.0102	0.0020	0.0102	No	No
	February	0.0108	0.0114	1	5	1	0.0108	0.0114	0.0023	0.0114	No	No
	March	0.0105	0.0109	1	5	1	0.0105	0.0109	0.0022	0.0109	No	No
	April	0.0099	0.0104	1	5	1	0.0099	0.0104	0.0021	0.0104	No	No
	May	0.0065	0.0066	1	5	1	0.0065	0.0066	0.0013	0.0066	No	No
	June	0.0063	0.0064	1	5	1	0.0063	0.0064	0.0013	0.0064	No	No
	July	0.0077	0.0082	1	5	1	0.0077	0.0082	0.0016	0.0082	No	No
	August	0.0100	0.0102	1	5	1	0.0100	0.0102	0.0020	0.0102	No	No
	September	0.0105	0.0106	1	5	1	0.0105	0.0106	0.0021	0.0106	No	No
	October	0.0100	0.0104	1	5	1	0.0100	0.0104	0.0021	0.0104	No	No
	November	0.0099	0.0103	1	5	1	0.0099	0.0103	0.0021	0.0103	No	No
	December	0.0101	0.0103	1	5	1	0.0101	0.0103	0.0021	0.0103	No	No
Operation 1 Phase (1-23)	January	0.0110	0.0112	1	5	1	0.0110	0.0112	0.0022	0.0112	No	No
	February	0.0111	0.0113	1	5	1	0.0111	0.0113	0.0023	0.0113	No	No
	March	0.0111	0.0114	1	5	1	0.0111	0.0114	0.0023	0.0114	No	No
	April	0.0098	0.0099	1	5	1	0.0098	0.0099	0.0020	0.0099	No	No
	May	0.0065	0.0066	1	5	1	0.0065	0.0066	0.0013	0.0066	No	No
	June	0.0065	0.0066	1	5	1	0.0065	0.0066	0.0013	0.0066	No	No
	July	0.0084	0.0085	1	5	1	0.0084	0.0085	0.0017	0.0085	No	No
	August	0.0106	0.0108	1	5	1	0.0106	0.0108	0.0022	0.0108	No	No
	September	0.0111	0.0112	1	5	1	0.0111	0.0112	0.0022	0.0112	No	No
	October	0.0109	0.0110	1	5	1	0.0109	0.0110	0.0022	0.0110	No	No
	November	0.0108	0.0110	1	5	1	0.0108	0.0110	0.0022	0.0110	No	No
	December	0.0110	0.0111	1	5	1	0.0110	0.0111	0.0022	0.0111	No	No
Operations 2 Phase (24-28)	January	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022	0.0112	No	No
	February	0.0114	0.0114	1	5	1	0.0114	0.0114	0.0023	0.0114	No	No
	March	0.0115	0.0115	1	5	1	0.0115	0.0115	0.0023	0.0115	No	No
	April	0.0099	0.0099	1	5	1	0.0099	0.0099	0.0020	0.0099	No	No
	May	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	June	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	July	0.0085	0.0085	1	5	1	0.0085	0.0085	0.0017	0.0085	No	No
	August	0.0107	0.0108	1	5	1	0.0107	0.0108	0.0022	0.0108	No	No
	September	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022	0.0112	No	No
	October	0.0111	0.0111	1	5	1	0.0111	0.0111	0.0022	0.0111	No	No
	November	0.0110	0.0110	1	5	1	0.0110	0.0110	0.0022	0.0110	No	No
	December	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022	0.0112	No	No
Closure Phase (29-35)	January	0.0108	0.0108	1	5	1	0.0108	0.0108	0.0022	0.0108	No	No
	February	0.0108	0.0108	1	5	1	0.0108	0.0108	0.0022	0.0108	No	No
	March	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	No	No
	April	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No
	May	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No
	June	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No
	July	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No
	August	0.0105	0.0105	1	5	1	0.0105	0.0105	0.0021	0.0105	No	No
	September	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	No	No
	October	0.0108	0.0108	1	5	1	0.0108	0.0108	0.0022	0.0108	No	No
	November	0.0107	0.0107	1	5	1	0.0107	0.0107	0.0021	0.0107	No	No
	December	0.0108	0.0108	1	5	1	0.0108	0.0108	0.0022	0.0108	No	No
Post-Closure Phase (36-99)	January	0.0108	0.0108	1	5	1	0.0108	0.0108	0.0022	0.0108	No	No
	February	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	No	No
	March	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	No	No
	April	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No
	May	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No
	June	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No
	July	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No
	August	0.0106	0.0106	1	5	1	0.0106	0.0106	0.0021	0.0106	No	No
	September	0.0109	0.0110	1	5	1	0.0109	0.0110	0.0022	0.0110	No	No
	October	0.0108	0.0108	1	5	1	0.0108	0.0108	0.0022	0.0108	No	No
	November	0.0107	0.0107	1	5	1	0.0107	0.0107	0.0021	0.0107	No	No
	December	0.0108	0.0108	1	5	1	0.0108	0.0108	0.0022	0.0108	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-5e. Mid Harper Creek (HM) Hazard Quotients for Total Beryllium Concentrations, Expected Case

Project Phase	Months	First Screening Step								Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working (Chronic, 30-day mean)	BC DWQG	BC MOE Working	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.00004	0.00006	0.0053	0.004	0.1	0.00791	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0179	0.0189	0.0250	0.00100	No	No	No
	July	0.00009	0.00010	0.0053	0.004	0.1	0.0161	0.0189	0.0250	0.00100	No	No	No
	August	0.00009	0.00013	0.0053	0.004	0.1	0.0174	0.0252	0.0333	0.00133	No	No	No
	September	0.00006	0.00009	0.0053	0.004	0.1	0.0109	0.0170	0.0225	0.00090	No	No	No
	October	0.00004	0.00006	0.0053	0.004	0.1	0.00740	0.0108	0.0144	0.00058	No	No	No
	November	0.00004	0.00006	0.0053	0.004	0.1	0.00694	0.0104	0.0138	0.00055	No	No	No
	December	0.00004	0.00006	0.0053	0.004	0.1	0.00730	0.0104	0.0138	0.00055	No	No	No
Operation 1 Phase (1-23)	January	0.00002	0.00002	0.0053	0.004	0.1	0.00367	0.00369	0.00489	0.00020	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00194	0.00257	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00192	0.00195	0.00259	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00190	0.00191	0.00253	0.00010	No	No	No
	May	0.00009	0.00009	0.0053	0.004	0.1	0.0175	0.0175	0.0232	0.00093	No	No	No
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0169	0.0169	0.0224	0.00090	No	No	No
	July	0.00007	0.00007	0.0053	0.004	0.1	0.0131	0.0132	0.0175	0.00070	No	No	No
	August	0.00005	0.00005	0.0053	0.004	0.1	0.00906	0.00908	0.0120	0.00048	No	No	No
	September	0.00002	0.00002	0.0053	0.004	0.1	0.00360	0.00362	0.00480	0.00019	No	No	No
	October	0.00002	0.00002	0.0053	0.004	0.1	0.00326	0.00327	0.00434	0.00017	No	No	No
	November	0.00002	0.00002	0.0053	0.004	0.1	0.00297	0.00299	0.00396	0.00016	No	No	No
	December	0.00002	0.00002	0.0053	0.004	0.1	0.00322	0.00324	0.00429	0.00017	No	No	No
Operations 2 Phase (24-28)	January	0.00002	0.00002	0.0053	0.004	0.1	0.00370	0.00370	0.00490	0.00020	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00195	0.00195	0.00258	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00196	0.00196	0.00260	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00191	0.00253	0.00010	No	No	No
	May	0.00009	0.00009	0.0053	0.004	0.1	0.0175	0.0175	0.0232	0.00093	No	No	No
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0169	0.0169	0.0224	0.00089	No	No	No
	July	0.00007	0.00007	0.0053	0.004	0.1	0.0131	0.0131	0.0174	0.00070	No	No	No
	August	0.00005	0.00005	0.0053	0.004	0.1	0.00911	0.00914	0.0121	0.00048	No	No	No
	September	0.00002	0.00002	0.0053	0.004	0.1	0.00363	0.00364	0.00482	0.00019	No	No	No
	October	0.00002	0.00002	0.0053	0.004	0.1	0.00327	0.00327	0.00434	0.00017	No	No	No
	November	0.00002	0.00002	0.0053	0.004	0.1	0.00299	0.00299	0.00396	0.00016	No	No	No
	December	0.00002	0.00002	0.0053	0.004	0.1	0.00324	0.00324	0.00430	0.00017	No	No	No
Closure Phase (29-35)	January	0.00002	0.00002	0.0053	0.004	0.1	0.00364	0.00364	0.00482	0.00019	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00188	0.00188	0.00249	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00188	0.00188	0.00249	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00188	0.00188	0.00250	0.00010	No	No	No
	May	0.00009	0.00009	0.0053	0.004	0.1	0.0175	0.0175	0.0232	0.00093	No	No	No
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0169	0.0169	0.0224	0.00089	No	No	No
	July	0.00007	0.00007	0.0053	0.004	0.1	0.0131	0.0131	0.0174	0.00069	No	No	No
	August	0.00005	0.00005	0.0053	0.004	0.1	0.00908	0.00910	0.0121	0.00048	No	No	No
	September	0.00002	0.00002	0.0053	0.004	0.1	0.00358	0.00359	0.00476	0.00019	No	No	No
	October	0.00002	0.00002	0.0053	0.004	0.1	0.00322	0.00323	0.00428	0.00017	No	No	No
	November	0.00002	0.00002	0.0053	0.004	0.1	0.00295	0.00295	0.00391	0.00016	No	No	No
	December	0.00002	0.00002	0.0053	0.004	0.1	0.00319	0.00319	0.00423	0.00017	No	No	No
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.0053	0.004	0.1	0.00364	0.00365	0.00484	0.00019	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00251	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00009	0.00009	0.0053	0.004	0.1	0.0175	0.0175	0.0232	0.00093	No	No	No
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0169	0.0169	0.0224	0.00089	No	No	No
	July	0.00007	0.00007	0.0053	0.004	0.1	0.0131	0.0131	0.0173	0.00069	No	No	No
	August	0.00005	0.00005	0.0053	0.004	0.1	0.00908	0.00908	0.0120	0.00048	No	No	No
	September	0.00002	0.00002	0.0053	0.004	0.1	0.00357	0.00358	0.00474	0.00019	No	No	No
	October	0.00002	0.00002	0.0053	0.004	0.1	0.00322	0.00323	0.00427	0.00017	No	No	No
	November	0.00002	0.00002	0.0053	0.004	0.1	0.00295	0.00295	0.00391	0.00016	No	No	No
	December	0.00002	0.00002	0.0053	0.004	0.1	0.00319	0.00320	0.00424	0.00017	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-5f. Mid Harper Creek (HM) Hazard Quotients for Total Boron Concentrations, Expected Case

Project Phase	Months	First Screening Step										Retained as COPC?				
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum													
Construction (-2 to-1)	January	0.0358	0.0416	1.2	5	5	5	0.0347	0.0083	0.0083	0.0083	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0115	0.0129	1.2	5	5	5	0.0108	0.0026	0.0026	0.0026	No	No	No	No	
	June	0.0122	0.0143	1.2	5	5	5	0.0120	0.0029	0.0029	0.0029	No	No	No	No	
	July	0.0164	0.0229	1.2	5	5	5	0.0191	0.0046	0.0046	0.0046	No	No	No	No	
	August	0.0225	0.0349	1.2	5	5	5	0.0291	0.0070	0.0070	0.0070	No	No	No	No	
	September	0.0266	0.0432	1.2	5	5	5	0.0360	0.0086	0.0086	0.0086	No	No	No	No	
	October	0.0325	0.0451	1.2	5	5	5	0.0376	0.0090	0.0090	0.0090	No	No	No	No	
	November	0.0381	0.0462	1.2	5	5	5	0.0385	0.0092	0.0092	0.0092	No	No	No	No	
	December	0.0372	0.0445	1.2	5	5	5	0.0371	0.0089	0.0089	0.0089	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0466	0.0474	1.2	5	5	5	0.0095	0.0095	0.0095	0.0095	No	No	No	No	
	February	0.0509	0.0518	1.2	5	5	5	0.0432	0.0104	0.0104	0.0104	No	No	No	No	
	March	0.0510	0.0522	1.2	5	5	5	0.0435	0.0104	0.0104	0.0104	No	No	No	No	
	April	0.0503	0.0507	1.2	5	5	5	0.0422	0.0101	0.0101	0.0101	No	No	No	No	
	May	0.0133	0.0134	1.2	5	5	5	0.0111	0.0027	0.0027	0.0027	No	No	No	No	
	June	0.0148	0.0149	1.2	5	5	5	0.0124	0.0030	0.0030	0.0030	No	No	No	No	
	July	0.0237	0.0240	1.2	5	5	5	0.0200	0.0048	0.0048	0.0048	No	No	No	No	
	August	0.0371	0.0376	1.2	5	5	5	0.0314	0.0075	0.0075	0.0075	No	No	No	No	
	September	0.0465	0.0470	1.2	5	5	5	0.0392	0.0094	0.0094	0.0094	No	No	No	No	
	October	0.0473	0.0478	1.2	5	5	5	0.0399	0.0096	0.0096	0.0096	No	No	No	No	
	November	0.0480	0.0486	1.2	5	5	5	0.0405	0.0097	0.0097	0.0097	No	No	No	No	
	December	0.0476	0.0483	1.2	5	5	5	0.0402	0.0097	0.0097	0.0097	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0476	0.0476	1.2	5	5	5	0.0097	0.0095	0.0095	0.0095	No	No	No	No	
	February	0.0520	0.0520	1.2	5	5	5	0.0434	0.0104	0.0104	0.0104	No	No	No	No	
	March	0.0524	0.0524	1.2	5	5	5	0.0437	0.0105	0.0105	0.0105	No	No	No	No	
	April	0.0508	0.0508	1.2	5	5	5	0.0423	0.0102	0.0102	0.0102	No	No	No	No	
	May	0.0134	0.0134	1.2	5	5	5	0.0112	0.0027	0.0027	0.0027	No	No	No	No	
	June	0.0149	0.0149	1.2	5	5	5	0.0124	0.0030	0.0030	0.0030	No	No	No	No	
	July	0.0241	0.0241	1.2	5	5	5	0.0201	0.0048	0.0048	0.0048	No	No	No	No	
	August	0.0376	0.0377	1.2	5	5	5	0.0314	0.0075	0.0075	0.0075	No	No	No	No	
	September	0.0471	0.0471	1.2	5	5	5	0.0392	0.0094	0.0094	0.0094	No	No	No	No	
	October	0.0479	0.0479	1.2	5	5	5	0.0400	0.0096	0.0096	0.0096	No	No	No	No	
	November	0.0487	0.0487	1.2	5	5	5	0.0406	0.0097	0.0097	0.0097	No	No	No	No	
	December	0.0484	0.0484	1.2	5	5	5	0.0403	0.0097	0.0097	0.0097	No	No	No	No	
Closure Phase (29-35)	January	0.0457	0.0457	1.2	5	5	5	0.0381	0.0091	0.0091	0.0091	No	No	No	No	
	February	0.0498	0.0498	1.2	5	5	5	0.0415	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0498	0.0498	1.2	5	5	5	0.0415	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0499	0.0499	1.2	5	5	5	0.0416	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0132	0.0132	1.2	5	5	5	0.0110	0.0026	0.0026	0.0026	No	No	No	No	
	June	0.0147	0.0147	1.2	5	5	5	0.0123	0.0029	0.0029	0.0029	No	No	No	No	
	July	0.0237	0.0238	1.2	5	5	5	0.0198	0.0048	0.0048	0.0048	No	No	No	No	
	August	0.0367	0.0367	1.2	5	5	5	0.0306	0.0073	0.0073	0.0073	No	No	No	No	
	September	0.0459	0.0459	1.2	5	5	5	0.0383	0.0092	0.0092	0.0092	No	No	No	No	
	October	0.0467	0.0468	1.2	5	5	5	0.0390	0.0094	0.0094	0.0094	No	No	No	No	
	November	0.0474	0.0474	1.2	5	5	5	0.0395	0.0095	0.0095	0.0095	No	No	No	No	
	December	0.0468	0.0468	1.2	5	5	5	0.0390	0.0094	0.0094	0.0094	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0459	0.0460	1.2	5	5	5	0.0383	0.0092	0.0092	0.0092	No	No	No	No	
	February	0.0500	0.0501	1.2	5	5	5	0.0418	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0501	0.0502	1.2	5	5	5	0.0418	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0132	0.0132	1.2	5	5	5	0.0110	0.0026	0.0026	0.0026	No	No	No	No	
	June	0.0147	0.0147	1.2	5	5	5	0.0123	0.0029	0.0029	0.0029	No	No	No	No	
	July	0.0238	0.0238	1.2	5	5	5	0.0199	0.0048	0.0048	0.0048	No	No	No	No	
	August	0.0368	0.0368	1.2	5	5	5	0.0307	0.0074	0.0074	0.0074	No	No	No	No	
	September	0.0460	0.0461	1.2	5	5	5	0.0384	0.0092	0.0092	0.0092	No	No	No	No	
	October	0.0469	0.0469	1.2	5	5	5	0.0391	0.0094	0.0094	0.0094	No	No	No	No	
	November	0.0475	0.0476	1.2	5	5	5	0.0397	0.0095	0.0095	0.0095	No	No	No	No	
	December	0.0470	0.0470	1.2	5	5	5	0.0392	0.0094	0.0094	0.0094	No	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-5g. Mid Harper Creek (HM) Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE Working		Maximum Predicted vs BC MOE Working Guideline
Construction (-2 to-1)	January	14.3	15.0	1000	0.0150	No
	February	14.4	15.3	1000	0.0153	No
	March	14.9	15.6	1000	0.0156	No
	April	14.9	16.3	1000	0.0163	No
	May	9.93	11.1	1000	0.0111	No
	June	8.91	10.0	1000	0.0100	No
	July	11.6	12.9	1000	0.0129	No
	August	13.6	14.4	1000	0.0144	No
	September	13.9	14.9	1000	0.0149	No
	October	13.3	14.9	1000	0.0149	No
	November	13.5	14.8	1000	0.0148	No
	December	13.8	14.8	1000	0.0148	No
Operation 1 Phase (1-23)	January	14.8	15.4	1000	0.0154	No
	February	15.0	15.7	1000	0.0157	No
	March	15.1	16.0	1000	0.0160	No
	April	16.0	16.3	1000	0.0163	No
	May	10.8	10.9	1000	0.0109	No
	June	9.80	9.84	1000	0.0098	No
	July	12.8	12.9	1000	0.0129	No
	August	14.3	14.7	1000	0.0147	No
	September	14.7	15.1	1000	0.0151	No
	October	14.8	15.2	1000	0.0152	No
	November	14.7	15.2	1000	0.0152	No
	December	14.7	15.2	1000	0.0152	No
Operations 2 Phase (24-28)	January	15.5	15.5	1000	0.0155	No
	February	15.8	15.8	1000	0.0158	No
	March	16.2	16.2	1000	0.0162	No
	April	16.3	16.3	1000	0.0163	No
	May	10.9	10.9	1000	0.0109	No
	June	9.87	9.89	1000	0.0099	No
	July	13.0	13.0	1000	0.0130	No
	August	14.7	14.8	1000	0.0148	No
	September	15.1	15.2	1000	0.0152	No
	October	15.2	15.2	1000	0.0152	No
	November	15.2	15.2	1000	0.0152	No
	December	15.3	15.3	1000	0.0153	No
Closure Phase (29-35)	January	14.3	14.3	1000	0.0143	No
	February	14.4	14.4	1000	0.0144	No
	March	14.5	14.5	1000	0.0145	No
	April	15.8	15.8	1000	0.0158	No
	May	10.8	10.8	1000	0.0108	No
	June	9.79	9.79	1000	0.0098	No
	July	12.7	12.7	1000	0.0127	No
	August	14.2	14.2	1000	0.0142	No
	September	14.3	14.3	1000	0.0143	No
	October	14.4	14.4	1000	0.0144	No
	November	14.3	14.4	1000	0.0144	No
	December	14.2	14.2	1000	0.0142	No
Post-Closure Phase (36-99)	January	14.3	14.3	1000	0.0143	No
	February	14.4	14.4	1000	0.0144	No
	March	14.5	14.5	1000	0.0145	No
	April	15.8	15.8	1000	0.0158	No
	May	10.8	10.8	1000	0.0108	No
	June	9.79	9.79	1000	0.0098	No
	July	12.7	12.7	1000	0.0127	No
	August	14.2	14.2	1000	0.0142	No
	September	14.3	14.4	1000	0.0144	No
	October	14.4	14.5	1000	0.0145	No
	November	14.4	14.4	1000	0.0144	No
	December	14.3	14.3	1000	0.0143	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix D-5i. Mid Harper Creek (HM) Hazard Quotients for Total Chromium Concentrations, Expected Case

Project Phase	Months	First Screening Step										Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline	Canadian DWQG	BC MOE Working	Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs. BC MOE Working Guideline			
Construction (-2 to 1)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.203	0.0228	0.0041	0.0041	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.205	0.0230	0.0041	0.0041	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.137	0.0154	0.0027	0.0027	No	No	No
	September	0.0001	0.0002	0.001	0.0089	0.05	0.05	0.187	0.0210	0.0037	0.0037	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.125	0.0140	0.0025	0.0025	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.202	0.0227	0.0040	0.0040	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.107	0.0121	0.0021	0.0021	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.106	0.0120	0.0021	0.0021	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0114	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0115	0.0021	0.0021	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0117	0.0021	0.0021	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.201	0.0226	0.0040	0.0040	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.107	0.0121	0.0021	0.0021	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.107	0.0120	0.0021	0.0021	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.201	0.0226	0.0040	0.0040	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.107	0.0120	0.0021	0.0021	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.109	0.0122	0.0022	0.0022	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0117	0.0021	0.0021	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.201	0.0226	0.0040	0.0040	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.107	0.0120	0.0021	0.0021	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.109	0.0123	0.0022	0.0022	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.105	0.0118	0.0021	0.0021	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 CCME = Canadian Council of Ministers of the Environment

Appendix D-5j. Mid Harper Creek (HM) Hazard Quotients for Total Cobalt Concentrations, Expected Case

Project Phase	Months	First Screening Step								Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Working	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline			
		Mean	Maximum	Mean	Maximum	Working	Mean	Maximum	Maximum	Mean	Maximum	Maximum
Construction (-2 to-1)	January	0.00004	0.00006	0.004	0.110	1.0	0.0111	0.0140	0.00051	0.00006	No	No
	February	0.00001	0.00002	0.004	0.110	1.0	0.00364	0.0038	0.00014	0.00002	No	No
	March	0.00001	0.00001	0.004	0.110	1.0	0.00307	0.0034	0.00012	0.00001	No	No
	April	0.00002	0.00002	0.004	0.110	1.0	0.00465	0.00533	0.00019	0.00002	No	No
	May	0.00010	0.00010	0.004	0.110	1.0	0.0249	0.0258	0.00094	0.00010	No	No
	June	0.00013	0.00014	0.004	0.110	1.0	0.0314	0.0345	0.00126	0.00014	No	No
	July	0.00009	0.00010	0.004	0.110	1.0	0.0216	0.0250	0.00091	0.00010	No	No
	August	0.00009	0.00013	0.004	0.110	1.0	0.0235	0.0333	0.00121	0.00013	No	No
	September	0.00005	0.00008	0.004	0.110	1.0	0.0133	0.0203	0.00074	0.00008	No	No
	October	0.00007	0.00012	0.004	0.110	1.0	0.0182	0.0298	0.00108	0.00012	No	No
	November	0.00004	0.00006	0.004	0.110	1.0	0.0101	0.0140	0.00051	0.00006	No	No
	December	0.00004	0.00006	0.004	0.110	1.0	0.0106	0.0139	0.00051	0.00006	No	No
Operation 1 Phase (1-23)	January	0.00035	0.00067	0.004	0.110	1.0	0.0872	0.167	0.00608	0.00067	No	No
	February	0.00040	0.00078	0.004	0.110	1.0	0.0995	0.194	0.00705	0.00078	No	No
	March	0.00047	0.00091	0.004	0.110	1.0	0.116	0.227	0.00826	0.00091	No	No
	April	0.00016	0.00030	0.004	0.110	1.0	0.0406	0.0761	0.00277	0.00030	No	No
	May	0.00012	0.00015	0.004	0.110	1.0	0.0305	0.0370	0.00135	0.00015	No	No
	June	0.00016	0.00019	0.004	0.110	1.0	0.0402	0.0475	0.00173	0.00019	No	No
	July	0.00015	0.00023	0.004	0.110	1.0	0.0380	0.0570	0.00207	0.00023	No	No
	August	0.00021	0.00036	0.004	0.110	1.0	0.0531	0.0909	0.00331	0.00036	No	No
	September	0.00025	0.00046	0.004	0.110	1.0	0.0622	0.115	0.00418	0.00046	No	No
	October	0.00025	0.00045	0.004	0.110	1.0	0.0618	0.113	0.00412	0.00045	No	No
	November	0.00026	0.00048	0.004	0.110	1.0	0.0650	0.119	0.00433	0.00048	No	No
	December	0.00032	0.00058	0.004	0.110	1.0	0.0793	0.146	0.00529	0.00058	No	No
Operations 2 Phase (24-28)	January	0.00072	0.00073	0.004	0.110	1.0	0.179	0.182	0.00660	0.00073	No	No
	February	0.00083	0.00084	0.004	0.110	1.0	0.207	0.210	0.00764	0.00084	No	No
	March	0.00097	0.00098	0.004	0.110	1.0	0.243	0.246	0.00895	0.00098	No	No
	April	0.00032	0.00033	0.004	0.110	1.0	0.0809	0.0820	0.00298	0.00033	No	No
	May	0.00015	0.00015	0.004	0.110	1.0	0.0378	0.0380	0.00138	0.00015	No	No
	June	0.00019	0.00020	0.004	0.110	1.0	0.0485	0.0488	0.00177	0.00020	No	No
	July	0.00024	0.00024	0.004	0.110	1.0	0.0592	0.0597	0.00217	0.00024	No	No
	August	0.00038	0.00038	0.004	0.110	1.0	0.0947	0.0955	0.00347	0.00038	No	No
	September	0.00048	0.00049	0.004	0.110	1.0	0.121	0.122	0.00443	0.00049	No	No
	October	0.00047	0.00048	0.004	0.110	1.0	0.118	0.120	0.00435	0.00048	No	No
	November	0.00050	0.00050	0.004	0.110	1.0	0.124	0.125	0.00456	0.00050	No	No
	December	0.00060	0.00061	0.004	0.110	1.0	0.151	0.153	0.00555	0.00061	No	No
Closure Phase (29-35)	January	0.00003	0.00004	0.004	0.110	1.0	0.0082	0.0090	0.00033	0.00004	No	No
	February	0.00002	0.00002	0.004	0.110	1.0	0.0060	0.0061	0.00022	0.00002	No	No
	March	0.00003	0.00003	0.004	0.110	1.0	0.0068	0.0070	0.00026	0.00003	No	No
	April	0.00002	0.00002	0.004	0.110	1.0	0.0050	0.0051	0.00018	0.00002	No	No
	May	0.00010	0.00010	0.004	0.110	1.0	0.0240	0.0240	0.00087	0.00010	No	No
	June	0.00013	0.00013	0.004	0.110	1.0	0.0331	0.0331	0.00120	0.00013	No	No
	July	0.00008	0.00008	0.004	0.110	1.0	0.0194	0.0194	0.00071	0.00008	No	No
	August	0.00006	0.00006	0.004	0.110	1.0	0.0158	0.0159	0.00058	0.00006	No	No
	September	0.00003	0.00003	0.004	0.110	1.0	0.0065	0.0066	0.00024	0.00003	No	No
	October	0.00003	0.00003	0.004	0.110	1.0	0.0068	0.0069	0.00025	0.00003	No	No
	November	0.00003	0.00003	0.004	0.110	1.0	0.0066	0.0067	0.00024	0.00003	No	No
	December	0.00003	0.00003	0.004	0.110	1.0	0.0072	0.0073	0.00027	0.00003	No	No
Post-Closure Phase (36-99)	January	0.00003	0.00003	0.004	0.110	1.0	0.0078	0.0079	0.00029	0.00003	No	No
	February	0.00002	0.00002	0.004	0.110	1.0	0.0056	0.0058	0.00021	0.00002	No	No
	March	0.00003	0.00003	0.004	0.110	1.0	0.0064	0.0066	0.00024	0.00003	No	No
	April	0.00002	0.00002	0.004	0.110	1.0	0.0049	0.0050	0.00018	0.00002	No	No
	May	0.00010	0.00010	0.004	0.110	1.0	0.0240	0.0240	0.00087	0.00010	No	No
	June	0.00013	0.00013	0.004	0.110	1.0	0.0331	0.0331	0.00120	0.00013	No	No
	July	0.00008	0.00008	0.004	0.110	1.0	0.0194	0.0194	0.00070	0.00008	No	No
	August	0.00006	0.00006	0.004	0.110	1.0	0.0157	0.0157	0.00057	0.00006	No	No
	September	0.00003	0.00003	0.004	0.110	1.0	0.0063	0.0064	0.00023	0.00003	No	No
	October	0.00003	0.00003	0.004	0.110	1.0	0.0066	0.0067	0.00024	0.00003	No	No
	November	0.00003	0.00003	0.004	0.110	1.0	0.0064	0.0065	0.00024	0.00003	No	No
	December	0.00003	0.00003	0.004	0.110	1.0	0.0069	0.0071	0.00026	0.00003	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix D-5k. Mid Harper Creek (HM) Hazard Quotients for Total Copper Concentrations, Expected Case

Project Phase	Months	First Screening Step									Second Screening Step					
		Predicted Concentrations		Aquatic Life Guidelines ¹		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline	
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Maximum Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE Maximum Guideline			Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Mean	95%ile
Construction (-2 to-1)	January	0.0005	0.0005	0.0020	0.0060	0.3	0.3	0.226	0.230	0.0762	0.0015	0.0015				
	February	0.0004	0.0005	0.0020	0.0061	0.3	0.3	0.220	0.225	0.0741	0.0015	0.0015				
	March	0.0004	0.0005	0.0020	0.0063	0.3	0.3	0.221	0.225	0.0719	0.0015	0.0015				
	April	0.0007	0.0008	0.0020	0.0060	0.3	0.3	0.347	0.403	0.134	0.0027	0.0027				
	May	0.0027	0.0030	0.0020	0.0046	0.3	0.3	1.35	1.51	0.659	0.0101	0.0101	0.0030	0.0030	0.890	1.00
	June	0.0027	0.0028	0.0020	0.0043	0.3	0.3	1.37	1.38	0.642	0.0092	0.0092	0.0028	0.0028	0.991	1.00
	July	0.0011	0.0012	0.0020	0.0051	0.3	0.3	0.551	0.613	0.242	0.0041	0.0041				
	August	0.0007	0.0008	0.0020	0.0058	0.3	0.3	0.343	0.401	0.138	0.0027	0.0027				
	September	0.0006	0.0007	0.0020	0.0058	0.3	0.3	0.300	0.356	0.122	0.0024	0.0024				
	October	0.0008	0.0010	0.0020	0.0055	0.3	0.3	0.390	0.522	0.191	0.0035	0.0035				
	November	0.0006	0.0006	0.0020	0.0057	0.3	0.3	0.282	0.308	0.108	0.0021	0.0021				
	December	0.0005	0.0005	0.0020	0.0059	0.3	0.3	0.252	0.265	0.0903	0.0018	0.0018				
Operation 1 Phase (1-23)	January	0.0006	0.0008	0.0020	0.0060	0.3	0.3	0.306	0.387	0.128	0.0026	0.0026				
	February	0.0006	0.0008	0.0020	0.0061	0.3	0.3	0.312	0.409	0.135	0.0027	0.0027				
	March	0.0007	0.0009	0.0020	0.0063	0.3	0.3	0.331	0.447	0.143	0.0030	0.0030				
	April	0.0007	0.0007	0.0020	0.0060	0.3	0.3	0.333	0.370	0.123	0.0025	0.0025				
	May	0.0024	0.0025	0.0020	0.0046	0.3	0.3	1.22	1.23	0.536	0.0082	0.0082	0.0030	0.0030	0.808	0.815
	June	0.0027	0.0027	0.0020	0.0043	0.3	0.3	1.33	1.34	0.624	0.0089	0.0089	0.0028	0.0028	0.967	0.971
	July	0.0010	0.0011	0.0020	0.0051	0.3	0.3	0.511	0.534	0.211	0.0036	0.0036				
	August	0.0007	0.0008	0.0020	0.0058	0.3	0.3	0.331	0.377	0.130	0.0025	0.0025				
	September	0.0006	0.0007	0.0020	0.0058	0.3	0.3	0.291	0.346	0.119	0.0023	0.0023				
	October	0.0006	0.0007	0.0020	0.0055	0.3	0.3	0.301	0.355	0.130	0.0024	0.0024				
	November	0.0006	0.0007	0.0020	0.0057	0.3	0.3	0.303	0.360	0.127	0.0024	0.0024				
	December	0.0006	0.0007	0.0020	0.0059	0.3	0.3	0.304	0.374	0.127	0.0025	0.0025				
Operations 2 Phase (24-28)	January	0.0008	0.0008	0.0020	0.0060	0.3	0.3	0.402	0.405	0.134	0.0027	0.0027				
	February	0.0008	0.0009	0.0020	0.0061	0.3	0.3	0.424	0.428	0.141	0.0029	0.0029				
	March	0.0009	0.0009	0.0020	0.0063	0.3	0.3	0.466	0.470	0.150	0.0031	0.0031				
	April	0.0008	0.0008	0.0020	0.0060	0.3	0.3	0.376	0.377	0.126	0.0025	0.0025				
	May	0.0025	0.0025	0.0020	0.0046	0.3	0.3	1.23	1.23	0.537	0.0082	0.0082	0.0030	0.0030	0.814	0.815
	June	0.0027	0.0027	0.0020	0.0043	0.3	0.3	1.34	1.35	0.626	0.0090	0.0090	0.0028	0.0028	0.974	0.975
	July	0.0011	0.0011	0.0020	0.0051	0.3	0.3	0.536	0.536	0.212	0.0036	0.0036				
	August	0.0008	0.0008	0.0020	0.0058	0.3	0.3	0.382	0.383	0.132	0.0026	0.0026				
	September	0.0007	0.0007	0.0020	0.0058	0.3	0.3	0.352	0.353	0.121	0.0024	0.0024				
	October	0.0007	0.0007	0.0020	0.0055	0.3	0.3	0.361	0.362	0.133	0.0024	0.0024				
	November	0.0007	0.0007	0.0020	0.0057	0.3	0.3	0.366	0.368	0.129	0.0025	0.0025				
	December	0.0008	0.0008	0.0020	0.0059	0.3	0.3	0.381	0.382	0.130	0.0025	0.0025				
Closure Phase (29-35)	January	0.0005	0.0005	0.0020	0.0060	0.3	0.3	0.249	0.250	0.0827	0.0017	0.0017				
	February	0.0005	0.0005	0.0020	0.0061	0.3	0.3	0.243	0.245	0.0806	0.0016	0.0016				
	March	0.0005	0.0005	0.0020	0.0063	0.3	0.3	0.254	0.256	0.0818	0.0017	0.0017				
	April	0.0006	0.0006	0.0020	0.0060	0.3	0.3	0.308	0.308	0.103	0.0021	0.0021				
	May	0.0024	0.0024	0.0020	0.0046	0.3	0.3	1.22	1.22	0.530	0.0081	0.0081	0.0030	0.0030	0.805	0.805
	June	0.0027	0.0027	0.0020	0.0043	0.3	0.3	1.33	1.33	0.620	0.0089	0.0089	0.0028	0.0028	0.965	0.965
	July	0.0010	0.0010	0.0020	0.0051	0.3	0.3	0.500	0.501	0.198	0.0033	0.0033				
	August	0.0006	0.0006	0.0020	0.0058	0.3	0.3	0.311	0.312	0.107	0.0021	0.0021				
	September	0.0005	0.0005	0.0020	0.0058	0.3	0.3	0.249	0.250	0.0858	0.0017	0.0017				
	October	0.0005	0.0005	0.0020	0.0055	0.3	0.3	0.260	0.261	0.0957	0.0017	0.0017				
	November	0.0005	0.0005	0.0020	0.0057	0.3	0.3	0.260	0.261	0.0917	0.0017	0.0017				
	December	0.0005	0.0005	0.0020	0.0059	0.3	0.3	0.251	0.252	0.0859	0.0017	0.0017				
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.0020	0.0060	0.3	0.3	0.246	0.247	0.0818	0.0016	0.0016				
	February	0.0005	0.0005	0.0020	0.0061	0.3	0.3	0.241	0.242	0.0796	0.0016	0.0016				
	March	0.0005	0.0005	0.0020	0.0063	0.3	0.3	0.250	0.252	0.0804	0.0017	0.0017				
	April	0.0006	0.0006	0.0020	0.0060	0.3	0.3	0.307	0.307	0.102	0.0020	0.0020				
	May	0.0024	0.0024	0.0020	0.0046	0.3	0.3	1.22	1.22	0.530	0.0081	0.0081	0.0030	0.0030	0.805	0.805
	June	0.0027	0.0027	0.0020	0.0043	0.3	0.3	1.33	1.33	0.620	0.0089	0.0089	0.0028	0.0028	0.965	0.965
	July	0.0010	0.0010	0.0020	0.0051	0.3	0.3	0.500	0.500	0.197	0.0033	0.0033				
	August	0.0006	0.0006	0.0020	0.0058	0.3	0.3	0.310	0.311	0.107	0.0021	0.0021				
	September	0.0005	0.0005	0.0020	0.0058	0.3	0.3	0.248	0.248	0.0852	0.0017	0.0017				
	October	0.0005	0.0005	0.0020	0.0055	0.3	0.3	0.258	0.259	0.0950	0.0017	0.0017				
	November	0.0005	0.0005	0.0020	0.0057	0.3	0.3	0.259	0.259	0.0910	0.0017	0.0017				
	December	0.0005	0.0005	0.0020	0.0059	0.3	0.3	0.249	0.250	0.0851	0.0017	0.0017				

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

(continued)

Appendix D-5k. Mid Harper Creek (HM) Hazard Quotients for Total Copper Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?		
		Aquatic Life	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No
	February	No	No	No
	March	No	No	No
	April	No	No	No
	May	No	No	No
	June	No	No	No
	July	No	No	No
	August	No	No	No
	September	No	No	No
	October	No	No	No
	November	No	No	No
	December	No	No	No
Operation 1 Phase (1-23)	January	No	No	No
	February	No	No	No
	March	No	No	No
	April	No	No	No
	May	No	No	No
	June	No	No	No
	July	No	No	No
	August	No	No	No
	September	No	No	No
	October	No	No	No
	November	No	No	No
	December	No	No	No
Operations 2 Phase (24-28)	January	No	No	No
	February	No	No	No
	March	No	No	No
	April	No	No	No
	May	No	No	No
	June	No	No	No
	July	No	No	No
	August	No	No	No
	September	No	No	No
	October	No	No	No
	November	No	No	No
	December	No	No	No
Closure Phase (29-35)	January	No	No	No
	February	No	No	No
	March	No	No	No
	April	No	No	No
	May	No	No	No
	June	No	No	No
	July	No	No	No
	August	No	No	No
	September	No	No	No
	October	No	No	No
	November	No	No	No
	December	No	No	No
Post-Closure Phase (36-99)	January	No	No	No
	February	No	No	No
	March	No	No	No
	April	No	No	No
	May	No	No	No
	June	No	No	No
	July	No	No	No
	August	No	No	No
	September	No	No	No
	October	No	No	No
	November	No	No	No
	December	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix D-51 Mid Harper Creek (HM) Hazard Quotients for Dissolved and Total Iron Concentrations, Expected Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines BC MOE Maximum Guideline for Dissolved Iron	Aquatic Life Guidelines BC MOE Maximum Guideline for Total Iron	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Aquatic Life	
		Dissolved Iron		Total Iron						Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0071	0.0090	0.0086	0.0095	0.35	1	0.0257	0.0095	No	No
	February	0.0044	0.0049	0.0071	0.0072	0.35	1	0.0140	0.0072	No	No
	March	0.0036	0.0040	0.0059	0.0060	0.35	1	0.0114	0.0060	No	No
	April	0.0119	0.0154	0.0402	0.0553	0.35	1	0.0440	0.0553	No	No
	May	0.0184	0.0194	0.144	0.164	0.35	1	0.0554	0.164	No	No
	June	0.0117	0.0125	0.134	0.135	0.35	1	0.0357	0.135	No	No
	July	0.0108	0.0123	0.0317	0.0390	0.35	1	0.0352	0.0390	No	No
	August	0.0110	0.0148	0.0148	0.0195	0.35	1	0.0421	0.0195	No	No
	September	0.0069	0.0092	0.0169	0.0262	0.35	1	0.0263	0.0262	No	No
	October	0.0082	0.0118	0.0138	0.0203	0.35	1	0.0336	0.0203	No	No
	November	0.0062	0.0080	0.0107	0.0145	0.35	1	0.0229	0.0145	No	No
	December	0.0066	0.0085	0.0096	0.0120	0.35	1	0.0243	0.0120	No	No
Operation 1 Phase (1-23)	January	0.0046	0.0046	0.0073	0.0073	0.35	1	0.0132	0.0073	No	No
	February	0.0044	0.0044	0.0071	0.0071	0.35	1	0.0126	0.0071	No	No
	March	0.0037	0.0037	0.0065	0.0065	0.35	1	0.0106	0.0065	No	No
	April	0.0088	0.0088	0.0269	0.0269	0.35	1	0.0251	0.0269	No	No
	May	0.0174	0.0174	0.127	0.128	0.35	1	0.0498	0.128	No	No
	June	0.0110	0.0110	0.131	0.132	0.35	1	0.0314	0.132	No	No
	July	0.0092	0.0092	0.0250	0.0251	0.35	1	0.0263	0.0251	No	No
	August	0.0071	0.0071	0.0102	0.0103	0.35	1	0.0204	0.0103	No	No
	September	0.0044	0.0044	0.0075	0.0075	0.35	1	0.0125	0.0075	No	No
	October	0.0045	0.0045	0.0072	0.0073	0.35	1	0.0128	0.0073	No	No
	November	0.0043	0.0043	0.0070	0.0070	0.35	1	0.0122	0.0070	No	No
	December	0.0044	0.0044	0.0071	0.0072	0.35	1	0.0126	0.0072	No	No
Operations 2 Phase (24-28)	January	0.0046	0.0046	0.0073	0.0073	0.35	1	0.0132	0.0073	No	No
	February	0.0044	0.0044	0.0071	0.0071	0.35	1	0.0126	0.0071	No	No
	March	0.0037	0.0037	0.0065	0.0065	0.35	1	0.0106	0.0065	No	No
	April	0.0088	0.0088	0.0269	0.0269	0.35	1	0.0251	0.0269	No	No
	May	0.0174	0.0174	0.128	0.128	0.35	1	0.0498	0.128	No	No
	June	0.0110	0.0110	0.131	0.131	0.35	1	0.0313	0.131	No	No
	July	0.0092	0.0092	0.0250	0.0251	0.35	1	0.0263	0.0251	No	No
	August	0.0071	0.0071	0.0102	0.0103	0.35	1	0.0204	0.0103	No	No
	September	0.0044	0.0044	0.0075	0.0075	0.35	1	0.0125	0.0075	No	No
	October	0.0045	0.0045	0.0072	0.0072	0.35	1	0.0128	0.0072	No	No
	November	0.0043	0.0043	0.0070	0.0070	0.35	1	0.0122	0.0070	No	No
	December	0.0044	0.0044	0.0071	0.0071	0.35	1	0.0126	0.0071	No	No
Closure Phase (29-35)	January	0.0046	0.0046	0.0073	0.0073	0.35	1	0.0131	0.0073	No	No
	February	0.0044	0.0044	0.0070	0.0070	0.35	1	0.0125	0.0070	No	No
	March	0.0037	0.0037	0.0064	0.0064	0.35	1	0.0105	0.0064	No	No
	April	0.0087	0.0088	0.0269	0.0269	0.35	1	0.0250	0.0269	No	No
	May	0.0174	0.0174	0.127	0.128	0.35	1	0.0497	0.128	No	No
	June	0.0110	0.0110	0.131	0.131	0.35	1	0.0313	0.131	No	No
	July	0.0092	0.0092	0.0249	0.0249	0.35	1	0.0262	0.0249	No	No
	August	0.0071	0.0071	0.0102	0.0102	0.35	1	0.0204	0.0102	No	No
	September	0.0044	0.0044	0.0074	0.0074	0.35	1	0.0125	0.0074	No	No
	October	0.0045	0.0045	0.0072	0.0072	0.35	1	0.0128	0.0072	No	No
	November	0.0042	0.0042	0.0070	0.0070	0.35	1	0.0121	0.0070	No	No
	December	0.0044	0.0044	0.0071	0.0071	0.35	1	0.0126	0.0071	No	No
Post-Closure Phase (36-99)	January	0.0046	0.0046	0.0073	0.0073	0.35	1	0.0132	0.0073	No	No
	February	0.0044	0.0044	0.0071	0.0071	0.35	1	0.0126	0.0071	No	No
	March	0.0037	0.0037	0.0065	0.0065	0.35	1	0.0106	0.0065	No	No
	April	0.0088	0.0088	0.0269	0.0269	0.35	1	0.0251	0.0269	No	No
	May	0.0174	0.0174	0.127	0.128	0.35	1	0.0498	0.128	No	No
	June	0.0110	0.0110	0.131	0.131	0.35	1	0.0313	0.131	No	No
	July	0.0092	0.0092	0.0249	0.0249	0.35	1	0.0262	0.0249	No	No
	August	0.0071	0.0071	0.0102	0.0102	0.35	1	0.0204	0.0102	No	No
	September	0.0044	0.0044	0.0074	0.0074	0.35	1	0.0125	0.0074	No	No
	October	0.0045	0.0045	0.0072	0.0072	0.35	1	0.0128	0.0072	No	No
	November	0.0042	0.0042	0.0070	0.0070	0.35	1	0.0121	0.0070	No	No
	December	0.0044	0.0044	0.0071	0.0071	0.35	1	0.0126	0.0071	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix D-5n. Mid Harper Creek (HM) Hazard Quotients for Total Lithium Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline		Aquatic Life
Construction (-2 to-1)	January	0.0008	0.0008	0.096	0.87	0.0080	0.0085	0.0009	No
	February	0.0009	0.0009	0.096	0.87	0.0089	0.0094	0.0010	No
	March	0.0008	0.0008	0.096	0.87	0.0078	0.0084	0.0009	No
	April	0.0006	0.0006	0.096	0.87	0.0058	0.0064	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	June	0.0005	0.0006	0.096	0.87	0.0056	0.0058	0.0006	No
	July	0.0006	0.0007	0.096	0.87	0.0062	0.0068	0.0007	No
	August	0.0008	0.0008	0.096	0.87	0.0082	0.0084	0.0009	No
	September	0.0008	0.0008	0.096	0.87	0.0079	0.0087	0.0010	No
	October	0.0008	0.0009	0.096	0.87	0.0085	0.0093	0.0010	No
	November	0.0007	0.0008	0.096	0.87	0.0072	0.0086	0.0009	No
	December	0.0007	0.0008	0.096	0.87	0.0076	0.0086	0.0010	No
Operation 1 Phase (1-23)	January	0.0011	0.0013	0.096	0.87	0.0109	0.0130	0.0014	No
	February	0.0011	0.0013	0.096	0.87	0.0113	0.0138	0.0015	No
	March	0.0011	0.0014	0.096	0.87	0.0118	0.0148	0.0016	No
	April	0.0007	0.0008	0.096	0.87	0.0074	0.0084	0.0009	No
	May	0.0005	0.0006	0.096	0.87	0.0057	0.0059	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0061	0.0063	0.0007	No
	July	0.0007	0.0008	0.096	0.87	0.0075	0.0081	0.0009	No
	August	0.0010	0.0011	0.096	0.87	0.0099	0.0111	0.0012	No
	September	0.0010	0.0011	0.096	0.87	0.0104	0.0118	0.0013	No
	October	0.0010	0.0012	0.096	0.87	0.0107	0.0121	0.0013	No
	November	0.0010	0.0011	0.096	0.87	0.0103	0.0118	0.0013	No
	December	0.0010	0.0012	0.096	0.87	0.0108	0.0126	0.0014	No
Operations 2 Phase (24-28)	January	0.0013	0.0013	0.096	0.87	0.0134	0.0135	0.0015	No
	February	0.0014	0.0014	0.096	0.87	0.0142	0.0143	0.0016	No
	March	0.0015	0.0015	0.096	0.87	0.0152	0.0153	0.0017	No
	April	0.0008	0.0008	0.096	0.87	0.0085	0.0086	0.0009	No
	May	0.0006	0.0006	0.096	0.87	0.0059	0.0059	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0063	0.0063	0.0007	No
	July	0.0008	0.0008	0.096	0.87	0.0082	0.0082	0.0009	No
	August	0.0011	0.0011	0.096	0.87	0.0112	0.0112	0.0012	No
	September	0.0011	0.0011	0.096	0.87	0.0119	0.0120	0.0013	No
	October	0.0012	0.0012	0.096	0.87	0.0123	0.0123	0.0014	No
	November	0.0011	0.0012	0.096	0.87	0.0120	0.0120	0.0013	No
	December	0.0012	0.0012	0.096	0.87	0.0127	0.0128	0.0014	No
Closure Phase (29-35)	January	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0010	No
	February	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0011	No
	March	0.0009	0.0009	0.096	0.87	0.0097	0.0098	0.0011	No
	April	0.0006	0.0006	0.096	0.87	0.0068	0.0068	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0056	0.0056	0.0006	No
	June	0.0006	0.0006	0.096	0.87	0.0060	0.0060	0.0007	No
	July	0.0007	0.0007	0.096	0.87	0.0073	0.0073	0.0008	No
	August	0.0009	0.0009	0.096	0.87	0.0094	0.0094	0.0010	No
	September	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	October	0.0009	0.0009	0.096	0.87	0.0097	0.0097	0.0011	No
	November	0.0009	0.0009	0.096	0.87	0.0092	0.0092	0.0010	No
	December	0.0009	0.0009	0.096	0.87	0.0094	0.0094	0.0010	No
Post-Closure Phase (36-99)	January	0.0009	0.0009	0.096	0.87	0.0094	0.0094	0.0010	No
	February	0.0009	0.0009	0.096	0.87	0.0094	0.0095	0.0010	No
	March	0.0009	0.0009	0.096	0.87	0.0097	0.0097	0.0011	No
	April	0.0006	0.0006	0.096	0.87	0.0067	0.0067	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0056	0.0056	0.0006	No
	June	0.0006	0.0006	0.096	0.87	0.0060	0.0060	0.0007	No
	July	0.0007	0.0007	0.096	0.87	0.0073	0.0073	0.0008	No
	August	0.0009	0.0009	0.096	0.87	0.0094	0.0094	0.0010	No
	September	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	October	0.0009	0.0009	0.096	0.87	0.0096	0.0096	0.0011	No
	November	0.0009	0.0009	0.096	0.87	0.0092	0.0092	0.0010	No
	December	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix D-5o. Mid Harper Creek (HM) Hazard Quotients for Total Manganese Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
Construction (-2 to-1)	January	0.0007	0.0007	0.794	1.01	0.0009	0.0009	0.0007	No
	February	0.0007	0.0008	0.796	1.02	0.0009	0.0010	0.0008	No
	March	0.0006	0.0007	0.804	1.04	0.0007	0.0008	0.0006	No
	April	0.0020	0.0027	0.793	1.01	0.0026	0.0034	0.0026	No
	May	0.0066	0.0076	0.727	0.845	0.0091	0.0105	0.0090	No
	June	0.0058	0.0058	0.713	0.810	0.0081	0.0082	0.0072	No
	July	0.0015	0.0018	0.748	0.899	0.0021	0.0024	0.0020	No
	August	0.0012	0.0015	0.784	0.988	0.0015	0.0019	0.0015	No
	September	0.0015	0.0021	0.784	0.989	0.0019	0.0027	0.0022	No
	October	0.0016	0.0024	0.767	0.945	0.0021	0.0031	0.0026	No
	November	0.0010	0.0012	0.778	0.973	0.0013	0.0015	0.0012	No
	December	0.0008	0.0009	0.786	0.993	0.0011	0.0012	0.0010	No
Operation 1 Phase (1-23)	January	0.0021	0.0035	0.794	1.01	0.0026	0.0044	0.0035	No
	February	0.0023	0.0040	0.796	1.02	0.0029	0.0051	0.0040	No
	March	0.0026	0.0047	0.804	1.04	0.0033	0.0058	0.0045	No
	April	0.0021	0.0028	0.793	1.01	0.0027	0.0035	0.0027	No
	May	0.0060	0.0061	0.727	0.845	0.0083	0.0085	0.0073	No
	June	0.0058	0.0060	0.713	0.810	0.0082	0.0084	0.0074	No
	July	0.0018	0.0022	0.748	0.899	0.0023	0.0029	0.0024	No
	August	0.0018	0.0026	0.784	0.988	0.0023	0.0033	0.0027	No
	September	0.0017	0.0027	0.784	0.989	0.0022	0.0034	0.0027	No
	October	0.0017	0.0027	0.767	0.945	0.0022	0.0035	0.0028	No
	November	0.0018	0.0028	0.778	0.973	0.0023	0.0036	0.0028	No
	December	0.0020	0.0032	0.786	0.993	0.0025	0.0041	0.0032	No
Operations 2 Phase (24-28)	January	0.0038	0.0038	0.794	1.01	0.0048	0.0048	0.0038	No
	February	0.0043	0.0043	0.796	1.02	0.0054	0.0055	0.0043	No
	March	0.0050	0.0051	0.804	1.04	0.0062	0.0063	0.0049	No
	April	0.0028	0.0029	0.793	1.01	0.0036	0.0036	0.0028	No
	May	0.0062	0.0062	0.727	0.845	0.0085	0.0085	0.0073	No
	June	0.0060	0.0060	0.713	0.810	0.0084	0.0084	0.0074	No
	July	0.0022	0.0022	0.748	0.899	0.0030	0.0030	0.0025	No
	August	0.0027	0.0027	0.784	0.988	0.0034	0.0035	0.0027	No
	September	0.0028	0.0028	0.784	0.989	0.0036	0.0036	0.0029	No
	October	0.0028	0.0028	0.767	0.945	0.0036	0.0036	0.0029	No
	November	0.0029	0.0029	0.778	0.973	0.0037	0.0037	0.0030	No
	December	0.0033	0.0034	0.786	0.993	0.0042	0.0043	0.0034	No
Closure Phase (29-35)	January	0.0011	0.0012	0.794	1.01	0.0014	0.0015	0.0011	No
	February	0.0011	0.0012	0.796	1.02	0.0014	0.0015	0.0011	No
	March	0.0013	0.0013	0.804	1.04	0.0016	0.0017	0.0013	No
	April	0.0017	0.0017	0.793	1.01	0.0021	0.0021	0.0017	No
	May	0.0059	0.0059	0.727	0.845	0.0082	0.0082	0.0070	No
	June	0.0058	0.0058	0.713	0.810	0.0081	0.0081	0.0071	No
	July	0.0016	0.0016	0.748	0.899	0.0021	0.0021	0.0018	No
	August	0.0014	0.0015	0.784	0.988	0.0018	0.0019	0.0015	No
	September	0.0010	0.0010	0.784	0.989	0.0013	0.0013	0.0010	No
	October	0.0010	0.0010	0.767	0.945	0.0013	0.0013	0.0011	No
	November	0.0010	0.0010	0.778	0.973	0.0013	0.0013	0.0011	No
	December	0.0011	0.0011	0.786	0.993	0.0014	0.0014	0.0011	No
Post-Closure Phase (36-99)	January	0.0011	0.0011	0.794	1.01	0.0013	0.0014	0.0011	No
	February	0.0011	0.0011	0.796	1.02	0.0014	0.0014	0.0011	No
	March	0.0012	0.0013	0.804	1.04	0.0015	0.0016	0.0012	No
	April	0.0016	0.0016	0.793	1.01	0.0021	0.0021	0.0016	No
	May	0.0059	0.0059	0.727	0.845	0.0082	0.0082	0.0070	No
	June	0.0058	0.0058	0.713	0.810	0.0081	0.0081	0.0071	No
	July	0.0016	0.0016	0.748	0.899	0.0021	0.0021	0.0018	No
	August	0.0014	0.0014	0.784	0.988	0.0018	0.0018	0.0015	No
	September	0.0010	0.0010	0.784	0.989	0.0012	0.0013	0.0010	No
	October	0.0010	0.0010	0.767	0.945	0.0013	0.0013	0.0010	No
	November	0.0010	0.0010	0.778	0.973	0.0013	0.0013	0.0010	No
	December	0.0010	0.0010	0.786	0.993	0.0013	0.0013	0.0011	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix D-5p. Mid Harper Creek (HM) Hazard Quotients for Total Mercury Concentrations, Expected Case

		First Screening Step											
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Drinking Water Quality Guidelines BC DWQG	BC MOE Working Water Quality Guidelines for Wildlife Water Supply BC MOE 30-Day Mean if MeHg is 0.5% of THg	BC MOE Livestock Watering Water Quality Guideline Maximum	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs. BC MOE Maximum Guideline
		Mean	Maximum					Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg		Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	
Construction (-2 to 1)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.583	0.667	0.0133	0.583	0.667	0.00444
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.562	0.625	0.0125	0.562	0.625	0.00417
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.500	0.0100	0.498	0.500	0.00333
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.500	0.0100	0.497	0.500	0.00333
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.500	0.0100	0.497	0.500	0.00333
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.501	0.0100	0.499	0.501	0.00334
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.500	0.0100	0.498	0.500	0.00333
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.499	0.0100	0.498	0.499	0.00333
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496	0.0099	0.496	0.496	0.00330
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495	0.0099	0.495	0.495	0.00330
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.494	0.494	0.0099	0.494	0.494	0.00329
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.497	0.0099	0.497	0.497	0.00332
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.497	0.0099	0.497	0.497	0.00331
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496	0.0099	0.496	0.496	0.00331
Closure Phase (29-35)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496	0.0099	0.496	0.496	0.00331
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495	0.0099	0.495	0.495	0.00330
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.494	0.494	0.0099	0.494	0.494	0.00330
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.497	0.0099	0.497	0.497	0.00332
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.497	0.0099	0.497	0.497	0.00332
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.497	0.0099	0.496	0.497	0.00331
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.499	0.0100	0.498	0.499	0.00333
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.499	0.0100	0.498	0.499	0.00332
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.498	0.0100	0.497	0.498	0.00332
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.499	0.0100	0.498	0.499	0.00333

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

(continued)

Appendix D-5p. Mid Harper Creek (HM) Hazard Quotients for Total Mercury Concentrations, Expected Case (completed)

		Retained as COPC?			
Project Phase	Months	Drinking Water			
		Aquatic Life	Wildlife	Livestock	
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

Appendix D-5q. Mid Harper Creek (HM) Hazard Quotients for Total Molybdenum Concentrations, Expected Case

Project Phase	Months	First Screening Step											Retained as COPC?					
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE				Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline							
		Mean	Maximum	Mean	Maximum	BC DWQG	Maximum	Maximum										
Construction (-2 to-1)	January	0.0008	0.0008	1	2	0.25	0.05	0.05	0.0008	0.0008	0.0004	0.0033	0.0166	0.0166	No	No	No	No
	February	0.0008	0.0009	1	2	0.25	0.05	0.05	0.0008	0.0009	0.0004	0.0035	0.0174	0.0174	No	No	No	No
	March	0.0008	0.0008	1	2	0.25	0.05	0.05	0.0008	0.0008	0.0004	0.0033	0.0164	0.0164	No	No	No	No
	April	0.0005	0.0005	1	2	0.25	0.05	0.05	0.0005	0.0005	0.0003	0.0022	0.0109	0.0109	No	No	No	No
	May	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0017	0.0085	0.0085	No	No	No	No
	June	0.0005	0.0005	1	2	0.25	0.05	0.05	0.0005	0.0005	0.0003	0.0021	0.0104	0.0104	No	No	No	No
	July	0.0010	0.0012	1	2	0.25	0.05	0.05	0.0010	0.0012	0.0006	0.0047	0.0236	0.0236	No	No	No	No
	August	0.0010	0.0011	1	2	0.25	0.05	0.05	0.0010	0.0011	0.0006	0.0045	0.0223	0.0223	No	No	No	No
	September	0.0009	0.0011	1	2	0.25	0.05	0.05	0.0009	0.0011	0.0005	0.0043	0.0217	0.0217	No	No	No	No
	October	0.0009	0.0010	1	2	0.25	0.05	0.05	0.0009	0.0010	0.0005	0.0038	0.0191	0.0191	No	No	No	No
	November	0.0008	0.0008	1	2	0.25	0.05	0.05	0.0008	0.0008	0.0004	0.0034	0.0168	0.0168	No	No	No	No
	December	0.0008	0.0008	1	2	0.25	0.05	0.05	0.0008	0.0008	0.0004	0.0033	0.0167	0.0167	No	No	No	No
Operation 1 Phase (1-23)	January	0.0012	0.0017	1	2	0.25	0.05	0.05	0.0012	0.0016	0.0008	0.0063	0.0317	0.0317	No	No	No	No
	February	0.0012	0.0017	1	2	0.25	0.05	0.05	0.0012	0.0017	0.0009	0.0069	0.0345	0.0345	No	No	No	No
	March	0.0013	0.0019	1	2	0.25	0.05	0.05	0.0013	0.0019	0.0010	0.0076	0.0382	0.0382	No	No	No	No
	April	0.0007	0.0009	1	2	0.25	0.05	0.05	0.0007	0.0009	0.0005	0.0037	0.0183	0.0183	No	No	No	No
	May	0.0004	0.0005	1	2	0.25	0.05	0.05	0.0004	0.0005	0.0002	0.0018	0.0090	0.0090	No	No	No	No
	June	0.0005	0.0006	1	2	0.25	0.05	0.05	0.0005	0.0006	0.0003	0.0023	0.0115	0.0115	No	No	No	No
	July	0.0011	0.0012	1	2	0.25	0.05	0.05	0.0011	0.0012	0.0006	0.0047	0.0237	0.0237	No	No	No	No
	August	0.0011	0.0013	1	2	0.25	0.05	0.05	0.0011	0.0013	0.0007	0.0054	0.0268	0.0268	No	No	No	No
	September	0.0011	0.0013	1	2	0.25	0.05	0.05	0.0011	0.0013	0.0007	0.0054	0.0269	0.0269	No	No	No	No
	October	0.0011	0.0013	1	2	0.25	0.05	0.05	0.0011	0.0013	0.0007	0.0053	0.0264	0.0264	No	No	No	No
	November	0.0011	0.0014	1	2	0.25	0.05	0.05	0.0011	0.0014	0.0007	0.0054	0.0271	0.0271	No	No	No	No
	December	0.0011	0.0015	1	2	0.25	0.05	0.05	0.0011	0.0015	0.0007	0.0060	0.0298	0.0298	No	No	No	No
Operations 2 Phase (24-28)	January	0.0017	0.0017	1	2	0.25	0.05	0.05	0.0017	0.0017	0.0008	0.0067	0.0335	0.0335	No	No	No	No
	February	0.0018	0.0018	1	2	0.25	0.05	0.05	0.0018	0.0018	0.0009	0.0073	0.0363	0.0363	No	No	No	No
	March	0.0020	0.0020	1	2	0.25	0.05	0.05	0.0020	0.0020	0.0010	0.0081	0.0404	0.0404	No	No	No	No
	April	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0005	0.0038	0.0189	0.0189	No	No	No	No
	May	0.0005	0.0005	1	2	0.25	0.05	0.05	0.0005	0.0005	0.0002	0.0018	0.0091	0.0091	No	No	No	No
	June	0.0006	0.0006	1	2	0.25	0.05	0.05	0.0006	0.0006	0.0003	0.0023	0.0115	0.0115	No	No	No	No
	July	0.0012	0.0012	1	2	0.25	0.05	0.05	0.0012	0.0012	0.0006	0.0048	0.0239	0.0239	No	No	No	No
	August	0.0014	0.0014	1	2	0.25	0.05	0.05	0.0014	0.0014	0.0007	0.0054	0.0272	0.0272	No	No	No	No
	September	0.0014	0.0014	1	2	0.25	0.05	0.05	0.0014	0.0014	0.0007	0.0055	0.0276	0.0276	No	No	No	No
	October	0.0014	0.0014	1	2	0.25	0.05	0.05	0.0014	0.0014	0.0007	0.0054	0.0271	0.0271	No	No	No	No
	November	0.0014	0.0014	1	2	0.25	0.05	0.05	0.0014	0.0014	0.0007	0.0056	0.0278	0.0278	No	No	No	No
	December	0.0015	0.0015	1	2	0.25	0.05	0.05	0.0015	0.0015	0.0008	0.0061	0.0307	0.0307	No	No	No	No
Closure Phase (29-35)	January	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0005	0.0037	0.0183	0.0183	No	No	No	No
	February	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0005	0.0037	0.0184	0.0184	No	No	No	No
	March	0.0010	0.0010	1	2	0.25	0.05	0.05	0.0010	0.0010	0.0005	0.0039	0.0195	0.0195	No	No	No	No
	April	0.0006	0.0006	1	2	0.25	0.05	0.05	0.0006	0.0006	0.0003	0.0024	0.0122	0.0122	No	No	No	No
	May	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0016	0.0079	0.0079	No	No	No	No
	June	0.0005	0.0005	1	2	0.25	0.05	0.05	0.0005	0.0005	0.0003	0.0020	0.0102	0.0102	No	No	No	No
	July	0.0010	0.0010	1	2	0.25	0.05	0.05	0.0010	0.0010	0.0005	0.0041	0.0204	0.0204	No	No	No	No
	August	0.0010	0.0010	1	2	0.25	0.05	0.05	0.0010	0.0010	0.0005	0.0041	0.0203	0.0203	No	No	No	No
	September	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0004	0.0035	0.0175	0.0175	No	No	No	No
	October	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0004	0.0035	0.0173	0.0173	No	No	No	No
	November	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0004	0.0035	0.0174	0.0174	No	No	No	No
	December	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0004	0.0036	0.0179	0.0179	No	No	No	No
Post-Closure Phase (36-99)	January	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0004	0.0036	0.0180	0.0180	No	No	No	No
	February	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0005	0.0036	0.0181	0.0181	No	No	No	No
	March	0.0009	0.0010	1	2	0.25	0.05	0.05	0.0009	0.0010	0.0005	0.0038	0.0190	0.0190	No	No	No	No
	April	0.0006	0.0006	1	2	0.25	0.05	0.05	0.0006	0.0006	0.0003	0.0024	0.0121	0.0121	No	No	No	No
	May	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0016	0.0079	0.0079	No	No	No	No
	June	0.0005	0.0005	1	2	0.25	0.05	0.05	0.0005	0.0005	0.0003	0.0020	0.0101	0.0101	No	No	No	No
	July	0.0010	0.0010	1	2	0.25	0.05	0.05	0.0010	0.0010	0.0005	0.0041	0.0204	0.0204	No	No	No	No
	August	0.0010	0.0010	1	2	0.25	0.05	0.05	0.0010	0.0010	0.0005	0.0040	0.0201	0.0201	No	No	No	No
	September	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0004	0.0035	0.0174	0.0174	No	No	No	No
	October	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0004	0.0034	0.0171	0.0171	No	No	No	No
	November	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0004	0.0034	0.0172	0.0172	No	No	No	No
	December	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0004	0.0035	0.0177	0.0177	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix D-5r. Mid Harper Creek (HM) Hazard Quotients for Total Nickel Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0002	0.0003	0.025	1	0.0118	0.0003	No	No
	February	0.0001	0.0001	0.025	1	0.0036	0.0001	No	No
	March	0.0001	0.0001	0.025	1	0.0034	0.0001	No	No
	April	0.0001	0.0001	0.025	1	0.0051	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	June	0.0005	0.0006	0.025	1	0.0227	0.0006	No	No
	July	0.0004	0.0005	0.025	1	0.0200	0.0005	No	No
	August	0.0004	0.0005	0.025	1	0.0200	0.0005	No	No
	September	0.0003	0.0004	0.025	1	0.0149	0.0004	No	No
	October	0.0002	0.0003	0.025	1	0.0134	0.0003	No	No
	November	0.0002	0.0003	0.025	1	0.0118	0.0003	No	No
	December	0.0002	0.0003	0.025	1	0.0117	0.0003	No	No
Operation 1 Phase (1-23)	January	0.0002	0.0003	0.025	1	0.0121	0.0003	No	No
	February	0.0002	0.0003	0.025	1	0.0115	0.0003	No	No
	March	0.0002	0.0003	0.025	1	0.0131	0.0003	No	No
	April	0.0001	0.0002	0.025	1	0.0072	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0192	0.0005	No	No
	June	0.0006	0.0006	0.025	1	0.0223	0.0006	No	No
	July	0.0004	0.0004	0.025	1	0.0166	0.0004	No	No
	August	0.0003	0.0003	0.025	1	0.0133	0.0003	No	No
	September	0.0002	0.0002	0.025	1	0.0094	0.0002	No	No
	October	0.0002	0.0002	0.025	1	0.0095	0.0002	No	No
	November	0.0002	0.0002	0.025	1	0.0098	0.0002	No	No
	December	0.0002	0.0003	0.025	1	0.0110	0.0003	No	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.025	1	0.0129	0.0003	No	No
	February	0.0003	0.0003	0.025	1	0.0123	0.0003	No	No
	March	0.0003	0.0004	0.025	1	0.0141	0.0004	No	No
	April	0.0002	0.0002	0.025	1	0.0075	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0193	0.0005	No	No
	June	0.0006	0.0006	0.025	1	0.0225	0.0006	No	No
	July	0.0004	0.0004	0.025	1	0.0167	0.0004	No	No
	August	0.0003	0.0003	0.025	1	0.0136	0.0003	No	No
	September	0.0002	0.0002	0.025	1	0.0097	0.0002	No	No
	October	0.0002	0.0002	0.025	1	0.0098	0.0002	No	No
	November	0.0003	0.0003	0.025	1	0.0101	0.0003	No	No
	December	0.0003	0.0003	0.025	1	0.0113	0.0003	No	No
Closure Phase (29-35)	January	0.0002	0.0002	0.025	1	0.0063	0.0002	No	No
	February	0.0001	0.0001	0.025	1	0.0046	0.0001	No	No
	March	0.0001	0.0001	0.025	1	0.0050	0.0001	No	No
	April	0.0001	0.0001	0.025	1	0.0046	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0188	0.0005	No	No
	June	0.0005	0.0005	0.025	1	0.0219	0.0005	No	No
	July	0.0004	0.0004	0.025	1	0.0152	0.0004	No	No
	August	0.0003	0.0003	0.025	1	0.0106	0.0003	No	No
	September	0.0001	0.0001	0.025	1	0.0053	0.0001	No	No
	October	0.0001	0.0001	0.025	1	0.0056	0.0001	No	No
	November	0.0001	0.0001	0.025	1	0.0056	0.0001	No	No
	December	0.0001	0.0001	0.025	1	0.0058	0.0001	No	No
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.025	1	0.0062	0.0002	No	No
	February	0.0001	0.0001	0.025	1	0.0044	0.0001	No	No
	March	0.0001	0.0001	0.025	1	0.0048	0.0001	No	No
	April	0.0001	0.0001	0.025	1	0.0046	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0188	0.0005	No	No
	June	0.0005	0.0005	0.025	1	0.0219	0.0005	No	No
	July	0.0004	0.0004	0.025	1	0.0151	0.0004	No	No
	August	0.0003	0.0003	0.025	1	0.0105	0.0003	No	No
	September	0.0001	0.0001	0.025	1	0.0053	0.0001	No	No
	October	0.0001	0.0001	0.025	1	0.0055	0.0001	No	No
	November	0.0001	0.0001	0.025	1	0.0055	0.0001	No	No
	December	0.0001	0.0001	0.025	1	0.0057	0.0001	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix D-5s. Mid Harper Creek (HM) Hazard Quotients for Total Selenium Concentrations, Expected Case

		First Screening Step											
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE 30-Day Mean	Drinking Water Quality Guideline BC DWQG	BC MOE Working Water Quality Guidelines for Wildlife Water Supply 30-Day Mean	BC MOE Livestock Watering Water Quality Guideline BC MOE Maximum	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Maximum Guideline
		Mean	Maximum					Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline		Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	
Construction (-2 to 1)	January	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0589	0.0602	0.0120	0.0589	0.0602	0.0040
	February	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0601	0.0651	0.0130	0.0601	0.0651	0.0043
	March	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0604	0.0658	0.0132	0.0604	0.0658	0.0044
	April	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0649	0.0719	0.0144	0.0649	0.0719	0.0048
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0505	0.0510	0.0102	0.0505	0.0510	0.0034
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0505	0.0510	0.0102	0.0505	0.0510	0.0034
	July	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0517	0.0534	0.0107	0.0517	0.0534	0.0036
	August	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0631	0.0667	0.0133	0.0631	0.0667	0.0044
	September	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0544	0.0588	0.0118	0.0544	0.0588	0.0039
	October	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0643	0.0700	0.0140	0.0643	0.0700	0.0047
	November	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0523	0.0595	0.0119	0.0523	0.0595	0.0040
	December	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0552	0.0591	0.0118	0.0552	0.0591	0.0039
Operation 1 Phase (1-23)	January	0.0009	0.0018	0.002	0.01	0.002	0.03	0.444	0.921	0.184	0.444	0.921	0.0614
	February	0.0010	0.0022	0.002	0.01	0.002	0.03	0.516	1.08	0.216	0.516	1.08	0.0719
	March	0.0012	0.0025	0.002	0.01	0.002	0.03	0.600	1.27	0.254	0.600	1.27	0.0846
	April	0.0005	0.0009	0.002	0.01	0.002	0.03	0.242	0.456	0.0912	0.242	0.456	0.0304
	May	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0833	0.123	0.0246	0.0833	0.123	0.0082
	June	0.0002	0.0003	0.002	0.01	0.002	0.03	0.0922	0.141	0.0282	0.092	0.141	0.0094
	July	0.0003	0.0006	0.002	0.01	0.002	0.03	0.165	0.292	0.0584	0.165	0.292	0.0195
	August	0.0006	0.0011	0.002	0.01	0.002	0.03	0.278	0.530	0.106	0.278	0.530	0.0354
	September	0.0007	0.0013	0.002	0.01	0.002	0.03	0.327	0.646	0.129	0.327	0.646	0.0431
	October	0.0006	0.0013	0.002	0.01	0.002	0.03	0.324	0.638	0.128	0.324	0.638	0.0425
	November	0.0007	0.0013	0.002	0.01	0.002	0.03	0.341	0.673	0.135	0.341	0.673	0.0449
	December	0.0008	0.0016	0.002	0.01	0.002	0.03	0.406	0.813	0.163	0.406	0.813	0.0542
Operations 2 Phase (24-28)	January	0.0019	0.0020	0.002	0.01	0.002	0.03	0.944	1.01	0.201	0.944	1.01	0.0671
	February	0.0022	0.0023	0.002	0.01	0.002	0.03	1.10	1.17	0.234	1.10	1.17	0.0782
	March	0.0026	0.0028	0.002	0.01	0.002	0.03	1.29	1.38	0.276	1.29	1.38	0.0919
	April	0.0009	0.0010	0.002	0.01	0.002	0.03	0.463	0.490	0.0981	0.463	0.490	0.0327
	May	0.0002	0.0003	0.002	0.01	0.002	0.03	0.124	0.129	0.0257	0.124	0.129	0.0086
	June	0.0003	0.0003	0.002	0.01	0.002	0.03	0.141	0.146	0.0293	0.141	0.146	0.0098
	July	0.0006	0.0006	0.002	0.01	0.002	0.03	0.293	0.307	0.0614	0.293	0.307	0.0205
	August	0.0011	0.0011	0.002	0.01	0.002	0.03	0.530	0.555	0.111	0.530	0.555	0.0370
	September	0.0013	0.0014	0.002	0.01	0.002	0.03	0.647	0.685	0.137	0.647	0.685	0.0457
	October	0.0013	0.0013	0.002	0.01	0.002	0.03	0.637	0.674	0.135	0.637	0.674	0.0449
	November	0.0013	0.0014	0.002	0.01	0.002	0.03	0.670	0.708	0.142	0.670	0.708	0.0472
	December	0.0016	0.0017	0.002	0.01	0.002	0.03	0.806	0.852	0.170	0.806	0.852	0.0568
Closure Phase (29-35)	January	0.0002	0.0003	0.002	0.01	0.002	0.03	0.111	0.130	0.0260	0.111	0.130	0.0087
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.115	0.118	0.0235	0.115	0.118	0.0078
	March	0.0003	0.0003	0.002	0.01	0.002	0.03	0.136	0.141	0.0282	0.136	0.141	0.0094
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.091	0.0921	0.0184	0.0907	0.0921	0.0061
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0558	0.0561	0.0112	0.0558	0.0561	0.0037
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0629	0.0630	0.0126	0.0629	0.0630	0.0042
	July	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0917	0.0918	0.0184	0.0917	0.0918	0.0061
	August	0.0003	0.0003	0.002	0.01	0.002	0.03	0.129	0.130	0.0260	0.129	0.130	0.0087
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0880	0.0899	0.0180	0.0880	0.0899	0.0060
	October	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0894	0.0914	0.0183	0.0894	0.0914	0.0061
	November	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0929	0.0952	0.0190	0.0929	0.0952	0.0063
	December	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0990	0.102	0.0203	0.0990	0.102	0.0068
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.104	0.0208	0.100	0.104	0.0069
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.106	0.110	0.0221	0.106	0.110	0.0074
	March	0.0002	0.0003	0.002	0.01	0.002	0.03	0.125	0.130	0.0260	0.125	0.130	0.0087
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0875	0.0892	0.0178	0.0875	0.0892	0.0059
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0551	0.0555	0.0111	0.0551	0.0555	0.0037
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0624	0.0627	0.0125	0.0624	0.0627	0.0042
	July	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0910	0.0914	0.0183	0.0910	0.0914	0.0061
	August	0.0003	0.0003	0.002	0.01	0.002	0.03	0.125	0.127	0.0254	0.125	0.127	0.0085
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0837	0.0859	0.0172	0.0837	0.0859	0.0057
	October	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0850	0.0872	0.0174	0.0850	0.0872	0.0058
	November	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0879	0.0904	0.0181	0.0879	0.0904	0.0060
	December	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0934	0.0961	0.0192	0.0934	0.0961	0.0064

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

(continued)

Appendix D-5s. Mid Harper Creek (HM) Hazard Quotients for Total Selenium Concentrations, Expected Case (completed)

Project Phase	Months	Second Screening Step				Retained as COPC?			
		Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	95%ile	Mean	95%ile				
Construction (-2 to-1)	January					No	No	No	No
	February					No	No	No	No
	March					No	No	No	No
	April					No	No	No	No
	May					No	No	No	No
	June					No	No	No	No
	July					No	No	No	No
	August					No	No	No	No
	September					No	No	No	No
	October					No	No	No	No
	November					No	No	No	No
	December					No	No	No	No
Operation 1 Phase (1-23)	January					No	No	No	No
	February	0.0001	0.0001	9.37	19.6	Yes	No	Yes	No
	March	0.0001	0.0001	10.9	23.1	Yes	No	Yes	No
	April					No	No	No	No
	May					No	No	No	No
	June					No	No	No	No
	July					No	No	No	No
	August					No	No	No	No
	September					No	No	No	No
	October					No	No	No	No
	November					No	No	No	No
	December					No	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	16.4	17.5	Yes	No	Yes	No
	February	0.0001	0.0001	20.0	21.3	Yes	No	Yes	No
	March	0.0001	0.0001	23.5	25.1	Yes	No	Yes	No
	April					No	No	No	No
	May					No	No	No	No
	June					No	No	No	No
	July					No	No	No	No
	August					No	No	No	No
	September					No	No	No	No
	October					No	No	No	No
	November					No	No	No	No
	December					No	No	No	No
Closure Phase (29-35)	January					No	No	No	No
	February					No	No	No	No
	March					No	No	No	No
	April					No	No	No	No
	May					No	No	No	No
	June					No	No	No	No
	July					No	No	No	No
	August					No	No	No	No
	September					No	No	No	No
	October					No	No	No	No
	November					No	No	No	No
	December					No	No	No	No
Post-Closure Phase (36-99)	January					No	No	No	No
	February					No	No	No	No
	March					No	No	No	No
	April					No	No	No	No
	May					No	No	No	No
	June					No	No	No	No
	July					No	No	No	No
	August					No	No	No	No
	September					No	No	No	No
	October					No	No	No	No
	November					No	No	No	No
	December					No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix D-5t. Mid Harper Creek (HM) Hazard Quotients for Total Silver Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline		Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.00001	0.00001	0.00005	0.0001	0.185	0.220	0.110	No
	February	0.00000	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00000	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00000	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.196	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.199	0.200	0.100	No
	July	0.00002	0.00002	0.00005	0.0001	0.383	0.467	0.233	No
	August	0.00002	0.00002	0.00005	0.0001	0.331	0.467	0.233	No
	September	0.00001	0.00002	0.00005	0.0001	0.292	0.467	0.233	No
	October	0.00001	0.00002	0.00005	0.0001	0.255	0.380	0.190	No
	November	0.00001	0.00001	0.00005	0.0001	0.130	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.156	0.185	0.0925	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00005	0.0001	0.136	0.148	0.0742	No
	February	0.00001	0.00001	0.00005	0.0001	0.114	0.128	0.0639	No
	March	0.00001	0.00001	0.00005	0.0001	0.116	0.133	0.0667	No
	April	0.00001	0.00001	0.00005	0.0001	0.105	0.111	0.0553	No
	May	0.00001	0.00001	0.00005	0.0001	0.193	0.194	0.0970	No
	June	0.00001	0.00001	0.00005	0.0001	0.197	0.198	0.0990	No
	July	0.00002	0.00002	0.00005	0.0001	0.310	0.314	0.157	No
	August	0.00001	0.00001	0.00005	0.0001	0.204	0.211	0.106	No
	September	0.00001	0.00001	0.00005	0.0001	0.120	0.128	0.0639	No
	October	0.00001	0.00001	0.00005	0.0001	0.127	0.135	0.0677	No
	November	0.00001	0.00001	0.00005	0.0001	0.115	0.123	0.0617	No
	December	0.00001	0.00001	0.00005	0.0001	0.125	0.136	0.0679	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00005	0.0001	0.151	0.151	0.0756	No
	February	0.00001	0.00001	0.00005	0.0001	0.130	0.131	0.0653	No
	March	0.00001	0.00001	0.00005	0.0001	0.136	0.137	0.0684	No
	April	0.00001	0.00001	0.00005	0.0001	0.111	0.112	0.0558	No
	May	0.00001	0.00001	0.00005	0.0001	0.194	0.194	0.0971	No
	June	0.00001	0.00001	0.00005	0.0001	0.198	0.198	0.0992	No
	July	0.00002	0.00002	0.00005	0.0001	0.314	0.314	0.157	No
	August	0.00001	0.00001	0.00005	0.0001	0.212	0.212	0.106	No
	September	0.00001	0.00001	0.00005	0.0001	0.129	0.129	0.0645	No
	October	0.00001	0.00001	0.00005	0.0001	0.136	0.136	0.0682	No
	November	0.00001	0.00001	0.00005	0.0001	0.124	0.124	0.0622	No
	December	0.00001	0.00001	0.00005	0.0001	0.137	0.137	0.0685	No
Closure Phase (29-35)	January	0.00001	0.00001	0.00005	0.0001	0.127	0.128	0.0638	No
	February	0.00001	0.00001	0.00005	0.0001	0.103	0.103	0.0515	No
	March	0.00001	0.00001	0.00005	0.0001	0.104	0.104	0.0522	No
	April	0.00001	0.00001	0.00005	0.0001	0.101	0.101	0.0506	No
	May	0.00001	0.00001	0.00005	0.0001	0.192	0.192	0.0961	No
	June	0.00001	0.00001	0.00005	0.0001	0.196	0.196	0.0982	No
	July	0.00002	0.00002	0.00005	0.0001	0.307	0.307	0.154	No
	August	0.00001	0.00001	0.00005	0.0001	0.201	0.201	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.113	0.113	0.0565	No
	October	0.00001	0.00001	0.00005	0.0001	0.121	0.121	0.0605	No
	November	0.00001	0.00001	0.00005	0.0001	0.108	0.108	0.0542	No
	December	0.00001	0.00001	0.00005	0.0001	0.117	0.117	0.0586	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00005	0.0001	0.127	0.128	0.0638	No
	February	0.00001	0.00001	0.00005	0.0001	0.103	0.103	0.0514	No
	March	0.00001	0.00001	0.00005	0.0001	0.104	0.104	0.0521	No
	April	0.00001	0.00001	0.00005	0.0001	0.101	0.101	0.0506	No
	May	0.00001	0.00001	0.00005	0.0001	0.192	0.192	0.0961	No
	June	0.00001	0.00001	0.00005	0.0001	0.196	0.196	0.0982	No
	July	0.00002	0.00002	0.00005	0.0001	0.307	0.307	0.153	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.201	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.112	0.113	0.0563	No
	October	0.00001	0.00001	0.00005	0.0001	0.121	0.121	0.0603	No
	November	0.00001	0.00001	0.00005	0.0001	0.108	0.108	0.0541	No
	December	0.00001	0.00001	0.00005	0.0001	0.117	0.117	0.0586	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix D-5u. Mid Harper Creek (HM) Hazard Quotients for Total Thallium Concentrations, Expected Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000005	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000009	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	September	0.000008	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	October	0.000007	0.000011	0.0003	0.002	0.0358	0.00538	No	No
	November	0.000004	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000005	0.000006	0.0003	0.002	0.0200	0.00300	No	No
Operation 1 Phase (1-23)	January	0.000004	0.000005	0.0003	0.002	0.0151	0.00226	No	No
	February	0.000003	0.000004	0.0003	0.002	0.0133	0.00200	No	No
	March	0.000003	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	April	0.000002	0.000003	0.0003	0.002	0.00920	0.00138	No	No
	May	0.000009	0.000009	0.0003	0.002	0.0317	0.00475	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0308	0.00462	No	No
	July	0.000008	0.000008	0.0003	0.002	0.0261	0.00391	No	No
	August	0.000006	0.000006	0.0003	0.002	0.0216	0.00324	No	No
	September	0.000003	0.000004	0.0003	0.002	0.0133	0.00199	No	No
	October	0.000003	0.000004	0.0003	0.002	0.0126	0.00189	No	No
	November	0.000003	0.000004	0.0003	0.002	0.0124	0.00186	No	No
	December	0.000003	0.000004	0.0003	0.002	0.0137	0.00205	No	No
Operations 2 Phase (24-28)	January	0.000005	0.000005	0.0003	0.002	0.0157	0.00235	No	No
	February	0.000004	0.000004	0.0003	0.002	0.0140	0.00210	No	No
	March	0.000005	0.000005	0.0003	0.002	0.0154	0.00231	No	No
	April	0.000003	0.000003	0.0003	0.002	0.00944	0.00142	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0317	0.00475	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0309	0.00463	No	No
	July	0.000008	0.000008	0.0003	0.002	0.0261	0.00392	No	No
	August	0.000007	0.000007	0.0003	0.002	0.0219	0.00328	No	No
	September	0.000004	0.000004	0.0003	0.002	0.0136	0.00203	No	No
	October	0.000004	0.000004	0.0003	0.002	0.0129	0.00193	No	No
	November	0.000004	0.000004	0.0003	0.002	0.0127	0.00190	No	No
	December	0.000004	0.000004	0.0003	0.002	0.0140	0.00210	No	No
Closure Phase (29-35)	January	0.000003	0.000003	0.0003	0.002	0.0102	0.00153	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00753	0.00113	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00789	0.00118	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00701	0.00105	No	No
	May	0.000009	0.000009	0.0003	0.002	0.0313	0.00469	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0304	0.00456	No	No
	July	0.000007	0.000007	0.0003	0.002	0.0249	0.00373	No	No
	August	0.000006	0.000006	0.0003	0.002	0.0194	0.00291	No	No
	September	0.000003	0.000003	0.0003	0.002	0.00991	0.00149	No	No
	October	0.000003	0.000003	0.0003	0.002	0.00931	0.00140	No	No
	November	0.000003	0.000003	0.0003	0.002	0.00891	0.00134	No	No
	December	0.000003	0.000003	0.0003	0.002	0.00940	0.00141	No	No
Post-Closure Phase (36-99)	January	0.000003	0.000003	0.0003	0.002	0.0101	0.00152	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00742	0.00111	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00773	0.00116	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00697	0.00105	No	No
	May	0.000009	0.000009	0.0003	0.002	0.0313	0.00469	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0304	0.00456	No	No
	July	0.000007	0.000007	0.0003	0.002	0.0248	0.00373	No	No
	August	0.000006	0.000006	0.0003	0.002	0.0193	0.00289	No	No
	September	0.000003	0.000003	0.0003	0.002	0.00980	0.00147	No	No
	October	0.000003	0.000003	0.0003	0.002	0.00922	0.00138	No	No
	November	0.000003	0.000003	0.0003	0.002	0.00884	0.00133	No	No
	December	0.000003	0.000003	0.0003	0.002	0.00931	0.00140	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-5v. Mid Harper Creek (HM) Hazard Quotients for Total Uranium Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0174	0.0017	No	No	No
	February	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0201	0.0020	No	No	No
	March	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0188	0.0019	No	No	No
	April	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0175	0.0017	No	No	No
	May	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0209	0.0021	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0161	0.0016	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0174	0.0017	No	No	No
	August	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0194	0.0019	No	No	No
	September	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0180	0.0018	No	No	No
	October	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0175	0.0017	No	No	No
	November	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0174	0.0017	No	No	No
	December	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0175	0.0018	No	No	No
Operation 1 Phase (1-23)	January	0.0004	0.0005	0.3	0.02	0.2	0.0018	0.0268	0.0027	No	No	No
	February	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0286	0.0029	No	No	No
	March	0.0005	0.0006	0.3	0.02	0.2	0.0020	0.0305	0.0031	No	No	No
	April	0.0003	0.0004	0.3	0.02	0.2	0.0013	0.0196	0.0020	No	No	No
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0166	0.0017	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0147	0.0015	No	No	No
	July	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0191	0.0019	No	No	No
	August	0.0004	0.0005	0.3	0.02	0.2	0.0016	0.0235	0.0024	No	No	No
	September	0.0004	0.0005	0.3	0.02	0.2	0.0016	0.0244	0.0024	No	No	No
	October	0.0004	0.0005	0.3	0.02	0.2	0.0016	0.0239	0.0024	No	No	No
	November	0.0004	0.0005	0.3	0.02	0.2	0.0016	0.0243	0.0024	No	No	No
	December	0.0004	0.0005	0.3	0.02	0.2	0.0017	0.0259	0.0026	No	No	No
Operations 2 Phase (24-28)	January	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0279	0.0028	No	No	No
	February	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0298	0.0030	No	No	No
	March	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0319	0.0032	No	No	No
	April	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0200	0.0020	No	No	No
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0167	0.0017	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0147	0.0015	No	No	No
	July	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0193	0.0019	No	No	No
	August	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0238	0.0024	No	No	No
	September	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0248	0.0025	No	No	No
	October	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0244	0.0024	No	No	No
	November	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0247	0.0025	No	No	No
	December	0.0005	0.0005	0.3	0.02	0.2	0.0018	0.0265	0.0026	No	No	No
Closure Phase (29-35)	January	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0197	0.0020	No	No	No
	February	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0198	0.0020	No	No	No
	March	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0201	0.0020	No	No	No
	April	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0162	0.0016	No	No	No
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0159	0.0016	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0138	0.0014	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0171	0.0017	No	No	No
	August	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0196	0.0020	No	No	No
	September	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0192	0.0019	No	No	No
	October	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0189	0.0019	No	No	No
	November	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0189	0.0019	No	No	No
	December	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0193	0.0019	No	No	No
Post-Closure Phase (36-99)	January	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0193	0.0019	No	No	No
	February	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0197	0.0020	No	No	No
	March	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0200	0.0020	No	No	No
	April	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0162	0.0016	No	No	No
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0159	0.0016	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0138	0.0014	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0172	0.0017	No	No	No
	August	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0195	0.0020	No	No	No
	September	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0192	0.0019	No	No	No
	October	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0188	0.0019	No	No	No
	November	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0188	0.0019	No	No	No
	December	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0192	0.0019	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-5w. Mid Harper Creek (HM) Hazard Quotients for Total Vanadium Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working Secondary Chronic Value			BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline			
				BC MOE Working	Secondary Chronic Value	Maximum Predicted vs. BC MOE Working Guideline			Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline		
Construction (-2 to-1)	January	0.0005	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0009	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0006	0.0008	0.006	0.02	0.1	0.128	0.0385	0.0077	No	No
	September	0.0005	0.0008	0.006	0.02	0.1	0.128	0.0383	0.0077	No	No
	October	0.0004	0.0006	0.006	0.02	0.1	0.0979	0.0294	0.0059	No	No
	November	0.0004	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0005	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.006	0.02	0.1	0.0480	0.0144	0.0029	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0343	0.0103	0.0021	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0345	0.0103	0.0021	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0337	0.0101	0.0020	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0468	0.0094	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.151	0.0454	0.0091	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0366	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0692	0.0207	0.0041	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0471	0.0141	0.0028	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0445	0.0134	0.0027	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0423	0.0127	0.0025	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0444	0.0133	0.0027	No	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.006	0.02	0.1	0.0481	0.0144	0.0029	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0344	0.0103	0.0021	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0346	0.0104	0.0021	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0337	0.0101	0.0020	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0468	0.0094	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.151	0.0453	0.0091	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0365	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0699	0.0210	0.0042	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0473	0.0142	0.0028	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0445	0.0134	0.0027	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0424	0.0127	0.0025	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0444	0.0133	0.0027	No	No
Closure Phase (29-35)	January	0.0003	0.0003	0.006	0.02	0.1	0.0470	0.0141	0.0028	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0332	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0332	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0468	0.0094	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.151	0.0453	0.0091	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.121	0.0364	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0694	0.0208	0.0042	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0465	0.0140	0.0028	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0438	0.0131	0.0026	No	No
	November	0.0002	0.0002	0.006	0.02	0.1	0.0416	0.0125	0.0025	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0435	0.0131	0.0026	No	No
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.006	0.02	0.1	0.0472	0.0142	0.0028	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0334	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0334	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0334	0.0100	0.0020	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0468	0.0094	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.151	0.0453	0.0091	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.121	0.0364	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0693	0.0208	0.0042	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0465	0.0140	0.0028	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0439	0.0132	0.0026	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0417	0.0125	0.0025	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0437	0.0131	0.0026	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-5x. Mid Harper Creek (HM) Hazard Quotients for Total Zinc Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline			
						Maximum Predicted vs BC MOE Maximum Guideline						
Construction (-2 to-1)	January	0.0013	0.0018	0.008	0.033	2	0.180	0.233	0.0530	0.0009	No	No
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No
	March	0.0005	0.0005	0.008	0.033	2	0.0629	0.0725	0.0165	0.0003	No	No
	April	0.0024	0.0031	0.008	0.033	2	0.316	0.413	0.0939	0.0016	No	No
	May	0.0030	0.0031	0.008	0.033	2	0.395	0.409	0.0929	0.0015	No	No
	June	0.0033	0.0034	0.008	0.033	2	0.439	0.449	0.102	0.0017	No	No
	July	0.0026	0.0030	0.008	0.033	2	0.344	0.400	0.0909	0.0015	No	No
	August	0.0020	0.0027	0.008	0.033	2	0.264	0.356	0.0808	0.0013	No	No
	September	0.0017	0.0027	0.008	0.033	2	0.227	0.360	0.0818	0.0014	No	No
	October	0.0041	0.0074	0.008	0.033	2	0.541	0.980	0.223	0.0037	No	No
	November	0.0012	0.0017	0.008	0.033	2	0.155	0.220	0.0500	0.0008	No	No
	December	0.0012	0.0017	0.008	0.033	2	0.165	0.227	0.0515	0.0009	No	No
Operation 1 Phase (1-23)	January	0.0008	0.0009	0.008	0.033	2	0.106	0.123	0.0279	0.0005	No	No
	February	0.0005	0.0007	0.008	0.033	2	0.0725	0.0927	0.0211	0.0003	No	No
	March	0.0006	0.0008	0.008	0.033	2	0.0842	0.109	0.0247	0.0004	No	No
	April	0.0018	0.0018	0.008	0.033	2	0.234	0.242	0.0550	0.0009	No	No
	May	0.0029	0.0029	0.008	0.033	2	0.380	0.382	0.0868	0.0014	No	No
	June	0.0032	0.0032	0.008	0.033	2	0.423	0.424	0.0963	0.0016	No	No
	July	0.0022	0.0022	0.008	0.033	2	0.289	0.293	0.0666	0.0011	No	No
	August	0.0013	0.0013	0.008	0.033	2	0.169	0.179	0.0406	0.0007	No	No
	September	0.0007	0.0008	0.008	0.033	2	0.0889	0.100	0.0228	0.0004	No	No
	October	0.0007	0.0008	0.008	0.033	2	0.0977	0.109	0.0248	0.0004	No	No
	November	0.0007	0.0008	0.008	0.033	2	0.0898	0.102	0.0231	0.0004	No	No
	December	0.0007	0.0008	0.008	0.033	2	0.0960	0.111	0.0251	0.0004	No	No
Operations 2 Phase (24-28)	January	0.0009	0.0009	0.008	0.033	2	0.126	0.126	0.0287	0.0005	No	No
	February	0.0007	0.0007	0.008	0.033	2	0.0959	0.0967	0.0220	0.0004	No	No
	March	0.0008	0.0008	0.008	0.033	2	0.112	0.113	0.0257	0.0004	No	No
	April	0.0018	0.0018	0.008	0.033	2	0.243	0.244	0.0554	0.0009	No	No
	May	0.0029	0.0029	0.008	0.033	2	0.382	0.382	0.0868	0.0014	No	No
	June	0.0032	0.0032	0.008	0.033	2	0.425	0.425	0.0966	0.0016	No	No
	July	0.0022	0.0022	0.008	0.033	2	0.293	0.294	0.0667	0.0011	No	No
	August	0.0014	0.0014	0.008	0.033	2	0.181	0.181	0.0412	0.0007	No	No
	September	0.0008	0.0008	0.008	0.033	2	0.102	0.102	0.0232	0.0004	No	No
	October	0.0008	0.0008	0.008	0.033	2	0.110	0.110	0.0251	0.0004	No	No
	November	0.0008	0.0008	0.008	0.033	2	0.103	0.103	0.0235	0.0004	No	No
	December	0.0008	0.0008	0.008	0.033	2	0.112	0.112	0.0255	0.0004	No	No
Closure Phase (29-35)	January	0.0007	0.0007	0.008	0.033	2	0.0935	0.0938	0.0213	0.0004	No	No
	February	0.0004	0.0004	0.008	0.033	2	0.0581	0.0583	0.0133	0.0002	No	No
	March	0.0005	0.0005	0.008	0.033	2	0.0681	0.0685	0.0156	0.0003	No	No
	April	0.0017	0.0017	0.008	0.033	2	0.229	0.229	0.0521	0.0009	No	No
	May	0.0028	0.0028	0.008	0.033	2	0.379	0.379	0.0862	0.0014	No	No
	June	0.0032	0.0032	0.008	0.033	2	0.422	0.422	0.0960	0.0016	No	No
	July	0.0021	0.0021	0.008	0.033	2	0.285	0.286	0.0650	0.0011	No	No
	August	0.0012	0.0012	0.008	0.033	2	0.166	0.166	0.0378	0.0006	No	No
	September	0.0006	0.0006	0.008	0.033	2	0.0799	0.0803	0.0183	0.0003	No	No
	October	0.0007	0.0007	0.008	0.033	2	0.0882	0.0888	0.0202	0.0003	No	No
	November	0.0006	0.0006	0.008	0.033	2	0.0807	0.0809	0.0184	0.0003	No	No
	December	0.0006	0.0006	0.008	0.033	2	0.0847	0.0850	0.0193	0.0003	No	No
Post-Closure Phase (36-99)	January	0.0007	0.0007	0.008	0.033	2	0.0931	0.0932	0.0212	0.0003	No	No
	February	0.0004	0.0004	0.008	0.033	2	0.0575	0.0577	0.0131	0.0002	No	No
	March	0.0005	0.0005	0.008	0.033	2	0.0674	0.0676	0.0154	0.0003	No	No
	April	0.0017	0.0017	0.008	0.033	2	0.229	0.229	0.0521	0.0009	No	No
	May	0.0028	0.0028	0.008	0.033	2	0.379	0.379	0.0862	0.0014	No	No
	June	0.0032	0.0032	0.008	0.033	2	0.422	0.422	0.0960	0.0016	No	No
	July	0.0021	0.0021	0.008	0.033	2	0.285	0.285	0.0648	0.0011	No	No
	August	0.0012	0.0012	0.008	0.033	2	0.166	0.166	0.0377	0.0006	No	No
	September	0.0006	0.0006	0.008	0.033	2	0.0795	0.0796	0.0181	0.0003	No	No
	October	0.0007	0.0007	0.008	0.033	2	0.0874	0.0876	0.0199	0.0003	No	No
	November	0.0006	0.0006	0.008	0.033	2	0.0803	0.0804	0.0183	0.0003	No	No
	December	0.0006	0.0006	0.008	0.033	2	0.0844	0.0844	0.0192	0.0003	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix D-5y. Mid Harper Creek (HM) Hazard Quotients for Chloride Concentrations, Expected Case

Project Phase	Months	First Screening Step									Retained as COPC?				
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
		Mean	Maximum	Mean	Maximum	Maximum	Maximum								
Construction (-2 to-1)	January	0.658	0.816	150	600	600	600	0.0044	0.0054	0.0014	0.0014	0.0014	No	No	No
	February	0.855	0.900	150	600	600	600	0.0057	0.0060	0.0015	0.0015	0.0015	No	No	No
	March	0.652	0.804	150	600	600	600	0.0043	0.0054	0.0013	0.0013	0.0013	No	No	No
	April	0.558	0.617	150	600	600	600	0.0037	0.0041	0.0010	0.0010	0.0010	No	No	No
	May	0.515	0.529	150	600	600	600	0.0034	0.0035	0.0009	0.0009	0.0009	No	No	No
	June	0.939	1.02	150	600	600	600	0.0063	0.0068	0.0017	0.0017	0.0017	No	No	No
	July	0.564	0.628	150	600	600	600	0.0038	0.0042	0.0010	0.0010	0.0010	No	No	No
	August	0.563	0.727	150	600	600	600	0.0038	0.0048	0.0012	0.0012	0.0012	No	No	No
	September	0.719	0.837	150	600	600	600	0.0048	0.0056	0.0014	0.0014	0.0014	No	No	No
	October	0.706	0.839	150	600	600	600	0.0047	0.0056	0.0014	0.0014	0.0014	No	No	No
	November	0.663	0.825	150	600	600	600	0.0044	0.0055	0.0014	0.0014	0.0014	No	No	No
	December	0.663	0.827	150	600	600	600	0.0044	0.0055	0.0014	0.0014	0.0014	No	No	No
Operation 1 Phase (1-23)	January	0.988	1.12	150	600	600	600	0.0066	0.0075	0.0019	0.0019	0.0019	No	No	No
	February	1.01	1.17	150	600	600	600	0.0067	0.0078	0.0020	0.0020	0.0020	No	No	No
	March	1.04	1.24	150	600	600	600	0.0069	0.0082	0.0021	0.0021	0.0021	No	No	No
	April	0.686	0.747	150	600	600	600	0.0046	0.0050	0.0012	0.0012	0.0012	No	No	No
	May	0.543	0.555	150	600	600	600	0.0036	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.907	0.925	150	600	600	600	0.0060	0.0062	0.0015	0.0015	0.0015	No	No	No
	July	0.679	0.718	150	600	600	600	0.0045	0.0048	0.0012	0.0012	0.0012	No	No	No
	August	0.827	0.905	150	600	600	600	0.0055	0.0060	0.0015	0.0015	0.0015	No	No	No
	September	0.954	1.05	150	600	600	600	0.0064	0.0070	0.0017	0.0017	0.0017	No	No	No
	October	0.951	1.04	150	600	600	600	0.0063	0.0069	0.0017	0.0017	0.0017	No	No	No
	November	0.947	1.04	150	600	600	600	0.0063	0.0069	0.0017	0.0017	0.0017	No	No	No
	December	0.978	1.09	150	600	600	600	0.0065	0.0073	0.0018	0.0018	0.0018	No	No	No
Operations 2 Phase (24-28)	January	1.15	1.15	150	600	600	600	0.0077	0.0077	0.0019	0.0019	0.0019	No	No	No
	February	1.20	1.20	150	600	600	600	0.0080	0.0080	0.0020	0.0020	0.0020	No	No	No
	March	1.27	1.27	150	600	600	600	0.0084	0.0085	0.0021	0.0021	0.0021	No	No	No
	April	0.756	0.759	150	600	600	600	0.0050	0.0051	0.0013	0.0013	0.0013	No	No	No
	May	0.557	0.557	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.924	0.925	150	600	600	600	0.0062	0.0062	0.0015	0.0015	0.0015	No	No	No
	July	0.723	0.724	150	600	600	600	0.0048	0.0048	0.0012	0.0012	0.0012	No	No	No
	August	0.911	0.912	150	600	600	600	0.0061	0.0061	0.0015	0.0015	0.0015	No	No	No
	September	1.06	1.06	150	600	600	600	0.0070	0.0071	0.0018	0.0018	0.0018	No	No	No
	October	1.05	1.05	150	600	600	600	0.0070	0.0070	0.0018	0.0018	0.0018	No	No	No
	November	1.05	1.05	150	600	600	600	0.0070	0.0070	0.0018	0.0018	0.0018	No	No	No
	December	1.11	1.11	150	600	600	600	0.0074	0.0074	0.0018	0.0018	0.0018	No	No	No
Closure Phase (29-35)	January	0.890	0.892	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	February	0.893	0.895	150	600	600	600	0.0060	0.0060	0.0015	0.0015	0.0015	No	No	No
	March	0.908	0.912	150	600	600	600	0.0061	0.0061	0.0015	0.0015	0.0015	No	No	No
	April	0.641	0.642	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	May	0.536	0.536	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	June	0.898	0.898	150	600	600	600	0.0060	0.0060	0.0015	0.0015	0.0015	No	No	No
	July	0.664	0.665	150	600	600	600	0.0044	0.0044	0.0011	0.0011	0.0011	No	No	No
	August	0.792	0.792	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	September	0.883	0.884	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	October	0.881	0.882	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	November	0.873	0.874	150	600	600	600	0.0058	0.0058	0.0015	0.0015	0.0015	No	No	No
	December	0.886	0.887	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
Post-Closure Phase (36-99)	January	0.888	0.889	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	February	0.891	0.892	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	March	0.906	0.908	150	600	600	600	0.0060	0.0061	0.0015	0.0015	0.0015	No	No	No
	April	0.640	0.640	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	May	0.535	0.535	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	June	0.898	0.898	150	600	600	600	0.0060	0.0060	0.0015	0.0015	0.0015	No	No	No
	July	0.665	0.665	150	600	600	600	0.0044	0.0044	0.0011	0.0011	0.0011	No	No	No
	August	0.791	0.791	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	September	0.882	0.883	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	October	0.880	0.881	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	November	0.872	0.872	150	600	600	600	0.0058	0.0058	0.0015	0.0015	0.0015	No	No	No
	December	0.885	0.885	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix D-5z. Mid Harper Creek (HM) Hazard Quotients for Fluoride Concentrations, Expected Case

Project Phase	Months	First Screening Step															
		Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		
		Mean	Maximum	BC MOE Maximum Guideline	BC 30-Day Mean DWQG	BC Maximum DWQG	30-Day Mean	Maximum	30-Day Mean	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Mean Predicted vs. BC 30-Day DWQG	Maximum predicted vs. BC 30-Day Mean DWQG	Maximum predicted vs. BC Maximum DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to 1)	January	0.0401	0.0442	0.995	1	1.5	1	1.5	1	2	0.0445	0.0401	0.0442	0.0295	0.0401	0.0442	0.0295
	February	0.0473	0.0480	0.998	1	1.5	1	1.5	1	2	0.0481	0.0473	0.0480	0.0320	0.0473	0.0480	0.0320
	March	0.0409	0.0430	1.02	1	1.5	1	1.5	1	2	0.0423	0.0409	0.0430	0.0287	0.0409	0.0430	0.0287
	April	0.0400	0.0410	0.992	1	1.5	1	1.5	1	2	0.0414	0.0400	0.0410	0.0273	0.0400	0.0410	0.0273
	May	0.0278	0.0282	0.817	1	1.5	1	1.5	1	2	0.0345	0.0278	0.0282	0.0188	0.0278	0.0282	0.0188
	June	0.0268	0.0273	0.768	1	1.5	1	1.5	1	2	0.0355	0.0268	0.0273	0.0182	0.0268	0.0273	0.0182
	July	0.0335	0.0357	0.883	1	1.5	1	1.5	1	2	0.0404	0.0335	0.0357	0.0238	0.0335	0.0357	0.0238
	August	0.0417	0.0441	0.972	1	1.5	1	1.5	1	2	0.0453	0.0417	0.0441	0.0294	0.0417	0.0441	0.0294
	September	0.0416	0.0456	0.973	1	1.5	1	1.5	1	2	0.0469	0.0416	0.0456	0.0304	0.0416	0.0456	0.0304
	October	0.0416	0.0457	0.932	1	1.5	1	1.5	1	2	0.0490	0.0416	0.0457	0.0304	0.0416	0.0457	0.0304
	November	0.0411	0.0453	0.959	1	1.5	1	1.5	1	2	0.0472	0.0411	0.0453	0.0302	0.0411	0.0453	0.0302
	December	0.0407	0.0450	0.977	1	1.5	1	1.5	1	2	0.0461	0.0407	0.0450	0.0300	0.0407	0.0450	0.0300
Operation 1 Phase (1-23)	January	0.0487	0.0514	0.995	1	1.5	1	1.5	1	2	0.0517	0.0487	0.0514	0.0343	0.0487	0.0514	0.0343
	February	0.0504	0.0536	0.998	1	1.5	1	1.5	1	2	0.0537	0.0504	0.0536	0.0357	0.0504	0.0536	0.0357
	March	0.0478	0.0516	1.02	1	1.5	1	1.5	1	2	0.0508	0.0478	0.0516	0.0344	0.0478	0.0516	0.0344
	April	0.0425	0.0437	0.992	1	1.5	1	1.5	1	2	0.0441	0.0425	0.0437	0.0292	0.0425	0.0437	0.0292
	May	0.0281	0.0284	0.817	1	1.5	1	1.5	1	2	0.0348	0.0281	0.0284	0.0189	0.0281	0.0284	0.0189
	June	0.0281	0.0284	0.768	1	1.5	1	1.5	1	2	0.0370	0.0281	0.0284	0.0189	0.0281	0.0284	0.0189
	July	0.0371	0.0379	0.883	1	1.5	1	1.5	1	2	0.0429	0.0371	0.0379	0.0253	0.0371	0.0379	0.0253
	August	0.0464	0.0480	0.972	1	1.5	1	1.5	1	2	0.0494	0.0464	0.0480	0.0320	0.0464	0.0480	0.0320
	September	0.0484	0.0502	0.973	1	1.5	1	1.5	1	2	0.0516	0.0484	0.0502	0.0335	0.0484	0.0502	0.0335
	October	0.0483	0.0501	0.932	1	1.5	1	1.5	1	2	0.0537	0.0483	0.0501	0.0334	0.0483	0.0501	0.0334
	November	0.0481	0.0500	0.959	1	1.5	1	1.5	1	2	0.0522	0.0481	0.0500	0.0333	0.0481	0.0500	0.0333
	December	0.0487	0.0510	0.977	1	1.5	1	1.5	1	2	0.0522	0.0487	0.0510	0.0340	0.0487	0.0510	0.0340
Operations 2 Phase (24-28)	January	0.0519	0.0520	0.995	1	1.5	1	1.5	1	2	0.0523	0.0519	0.0520	0.0347	0.0519	0.0520	0.0347
	February	0.0541	0.0543	0.998	1	1.5	1	1.5	1	2	0.0544	0.0541	0.0543	0.0362	0.0541	0.0543	0.0362
	March	0.0523	0.0524	1.02	1	1.5	1	1.5	1	2	0.0516	0.0523	0.0524	0.0349	0.0523	0.0524	0.0349
	April	0.0439	0.0440	0.992	1	1.5	1	1.5	1	2	0.0443	0.0439	0.0440	0.0293	0.0439	0.0440	0.0293
	May	0.0284	0.0284	0.817	1	1.5	1	1.5	1	2	0.0348	0.0284	0.0284	0.0190	0.0284	0.0284	0.0190
	June	0.0284	0.0284	0.768	1	1.5	1	1.5	1	2	0.0370	0.0284	0.0284	0.0190	0.0284	0.0284	0.0190
	July	0.0380	0.0380	0.883	1	1.5	1	1.5	1	2	0.0430	0.0380	0.0380	0.0253	0.0380	0.0380	0.0253
	August	0.0481	0.0481	0.972	1	1.5	1	1.5	1	2	0.0495	0.0481	0.0481	0.0321	0.0481	0.0481	0.0321
	September	0.0504	0.0505	0.973	1	1.5	1	1.5	1	2	0.0519	0.0504	0.0505	0.0337	0.0504	0.0505	0.0337
	October	0.0503	0.0503	0.932	1	1.5	1	1.5	1	2	0.0540	0.0503	0.0503	0.0335	0.0503	0.0503	0.0335
	November	0.0502	0.0502	0.959	1	1.5	1	1.5	1	2	0.0524	0.0502	0.0502	0.0335	0.0502	0.0502	0.0335
	December	0.0512	0.0513	0.977	1	1.5	1	1.5	1	2	0.0525	0.0512	0.0513	0.0342	0.0512	0.0513	0.0342
Closure Phase (29-35)	January	0.0465	0.0466	0.995	1	1.5	1	1.5	1	2	0.0468	0.0465	0.0466	0.0310	0.0465	0.0466	0.0310
	February	0.0478	0.0478	0.998	1	1.5	1	1.5	1	2	0.0479	0.0478	0.0478	0.0319	0.0478	0.0478	0.0319
	March	0.0448	0.0449	1.02	1	1.5	1	1.5	1	2	0.0442	0.0448	0.0449	0.0299	0.0448	0.0449	0.0299
	April	0.0415	0.0415	0.992	1	1.5	1	1.5	1	2	0.0419	0.0415	0.0415	0.0277	0.0415	0.0415	0.0277
	May	0.0280	0.0280	0.817	1	1.5	1	1.5	1	2	0.0342	0.0280	0.0280	0.0187	0.0280	0.0280	0.0187
	June	0.0279	0.0279	0.768	1	1.5	1	1.5	1	2	0.0363	0.0279	0.0279	0.0186	0.0279	0.0279	0.0186
	July	0.0368	0.0368	0.883	1	1.5	1	1.5	1	2	0.0417	0.0368	0.0368	0.0245	0.0368	0.0368	0.0245
	August	0.0456	0.0456	0.972	1	1.5	1	1.5	1	2	0.0469	0.0456	0.0456	0.0304	0.0456	0.0456	0.0304
	September	0.0469	0.0469	0.973	1	1.5	1	1.5	1	2	0.0482	0.0469	0.0469	0.0312	0.0469	0.0469	0.0312
	October	0.0468	0.0468	0.932	1	1.5	1	1.5	1	2	0.0502	0.0468	0.0468	0.0312	0.0468	0.0468	0.0312
	November	0.0465	0.0465	0.959	1	1.5	1	1.5	1	2	0.0485	0.0465	0.0465	0.0310	0.0465	0.0465	0.0310
	December	0.0467	0.0467	0.977	1	1.5	1	1.5	1	2	0.0478	0.0467	0.0467	0.0311	0.0467	0.0467	0.0311
Post-Closure Phase (36-99)	January	0.0466	0.0467	0.995	1	1.5	1	1.5	1	2	0.0469	0.0466	0.0467	0.0311	0.0466	0.0467	0.0311
	February	0.0479	0.0480	0.998	1	1.5	1	1.5	1	2	0.0481	0.0479	0.0480	0.0320	0.0479	0.0480	0.0320
	March	0.0449	0.0450	1.02	1	1.5	1	1.5	1	2	0.0443	0.0449	0.0450	0.0300	0.0449	0.0450	0.0300
	April	0.0416	0.0416	0.992	1	1.5	1	1.5	1	2	0.0419	0.0416	0.0416	0.0277	0.0416	0.0416	0.0277
	May	0.0280	0.0280	0.817	1	1.5	1	1.5	1	2	0.0342	0.0280	0.0280	0.0187	0.0280	0.0280	0.0187
	June	0.0279	0.0279	0.768	1	1.5	1	1.5	1	2	0.0363	0.0279	0.0279	0.0186	0.0279	0.0279	0.0186
	July	0.0368	0.0369	0.883	1	1.5	1	1.5	1	2	0.0417	0.0368	0.0369	0.0246	0.0368	0.0369	0.0246
	August	0.0457	0.0457	0.972	1	1.5	1	1.5	1	2	0.0470	0.0457	0.0457	0.0305	0.0457	0.0457	0.0305
	September	0.0469	0.0470	0.973	1	1.5	1	1.5	1	2	0.0483	0.0469	0.0470	0.0313	0.0469	0.0470	0.0313
	October	0.0468	0.0469	0.932	1	1.5	1	1.5	1	2	0.0503	0.0468	0.0469	0.0313	0.0468	0.0469	0.0313
	November	0.0466	0.0466	0.959	1	1.5	1	1.5	1	2	0.0486	0.0466	0.0466	0.0311	0.0466	0.0466	0.0311
	December	0.0468	0.0468	0.977	1	1.5	1	1.5	1	2	0.0479	0.0468	0.0468	0.0312	0.0468	0.0468	0.0312

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

(continued)

Appendix D-5z. Mid Harper Creek (HM) Hazard Quotients for Fluoride Concentrations, Expected Case (completed)

		First Screening Step			Retained as COPC?			
		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline						
Project Phase	Months	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	0.0401	0.0442	0.0221	No	No	No	No
	February	0.0473	0.0480	0.0240	No	No	No	No
	March	0.0409	0.0430	0.0215	No	No	No	No
	April	0.0400	0.0410	0.0205	No	No	No	No
	May	0.0278	0.0282	0.0141	No	No	No	No
	June	0.0268	0.0273	0.0136	No	No	No	No
	July	0.0335	0.0357	0.0178	No	No	No	No
	August	0.0417	0.0441	0.0220	No	No	No	No
	September	0.0416	0.0456	0.0228	No	No	No	No
	October	0.0416	0.0457	0.0228	No	No	No	No
	November	0.0411	0.0453	0.0226	No	No	No	No
	December	0.0407	0.0450	0.0225	No	No	No	No
Operation 1 Phase (1-23)	January	0.0487	0.0514	0.0257	No	No	No	No
	February	0.0504	0.0536	0.0268	No	No	No	No
	March	0.0478	0.0516	0.0258	No	No	No	No
	April	0.0425	0.0437	0.0219	No	No	No	No
	May	0.0281	0.0284	0.0142	No	No	No	No
	June	0.0281	0.0284	0.0142	No	No	No	No
	July	0.0371	0.0379	0.0190	No	No	No	No
	August	0.0464	0.0480	0.0240	No	No	No	No
	September	0.0484	0.0502	0.0251	No	No	No	No
	October	0.0483	0.0501	0.0250	No	No	No	No
	November	0.0481	0.0500	0.0250	No	No	No	No
	December	0.0487	0.0510	0.0255	No	No	No	No
Operations 2 Phase (24-28)	January	0.0519	0.0520	0.0260	No	No	No	No
	February	0.0541	0.0543	0.0271	No	No	No	No
	March	0.0523	0.0524	0.0262	No	No	No	No
	April	0.0439	0.0440	0.0220	No	No	No	No
	May	0.0284	0.0284	0.0142	No	No	No	No
	June	0.0284	0.0284	0.0142	No	No	No	No
	July	0.0380	0.0380	0.0190	No	No	No	No
	August	0.0481	0.0481	0.0241	No	No	No	No
	September	0.0504	0.0505	0.0252	No	No	No	No
	October	0.0503	0.0503	0.0252	No	No	No	No
	November	0.0502	0.0502	0.0251	No	No	No	No
	December	0.0512	0.0513	0.0256	No	No	No	No
Closure Phase (29-35)	January	0.0465	0.0466	0.0233	No	No	No	No
	February	0.0478	0.0478	0.0239	No	No	No	No
	March	0.0448	0.0449	0.0224	No	No	No	No
	April	0.0415	0.0415	0.0208	No	No	No	No
	May	0.0280	0.0280	0.0140	No	No	No	No
	June	0.0279	0.0279	0.0140	No	No	No	No
	July	0.0368	0.0368	0.0184	No	No	No	No
	August	0.0456	0.0456	0.0228	No	No	No	No
	September	0.0469	0.0469	0.0234	No	No	No	No
	October	0.0468	0.0468	0.0234	No	No	No	No
	November	0.0465	0.0465	0.0233	No	No	No	No
	December	0.0467	0.0467	0.0234	No	No	No	No
Post-Closure Phase (36-99)	January	0.0466	0.0467	0.0234	No	No	No	No
	February	0.0479	0.0480	0.0240	No	No	No	No
	March	0.0449	0.0450	0.0225	No	No	No	No
	April	0.0416	0.0416	0.0208	No	No	No	No
	May	0.0280	0.0280	0.0140	No	No	No	No
	June	0.0279	0.0279	0.0140	No	No	No	No
	July	0.0368	0.0369	0.0184	No	No	No	No
	August	0.0457	0.0457	0.0228	No	No	No	No
	September	0.0469	0.0470	0.0235	No	No	No	No
	October	0.0468	0.0469	0.0234	No	No	No	No
	November	0.0466	0.0466	0.0233	No	No	No	No
	December	0.0468	0.0468	0.0234	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix D-5aa. Mid Harper Creek (HM) Hazard Quotients for Nitrate Concentrations, Expected Case

		First Screening Step												
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE 30-Day	BC MOE Maximum				BC DWQG	Maximum	BC MOE Maximum			
		Mean	Maximum	Day Mean	Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean	Mean	MOE Maximum	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.212	0.226	3	32.8	10	100	100	0.0707	0.0754	0.0069	0.0226	0.0023	
	February	0.216	0.227	3	32.8	10	100	100	0.0719	0.0755	0.0069	0.0227	0.0023	
	March	0.212	0.227	3	32.8	10	100	100	0.0707	0.0757	0.0069	0.0227	0.0023	
	April	0.264	0.282	3	32.8	10	100	100	0.0878	0.0940	0.0086	0.0282	0.0028	
	May	0.334	0.372	3	32.8	10	100	100	0.111	0.124	0.0113	0.0372	0.0037	
	June	0.171	0.174	3	32.8	10	100	100	0.0570	0.0580	0.0053	0.0174	0.0017	
	July	0.0913	0.117	3	32.8	10	100	100	0.0304	0.0390	0.0036	0.0117	0.0012	
	August	0.125	0.167	3	32.8	10	100	100	0.0417	0.0556	0.0051	0.0167	0.0017	
	September	0.156	0.200	3	32.8	10	100	100	0.0520	0.0665	0.0061	0.0200	0.0020	
	October	0.159	0.200	3	32.8	10	100	100	0.0532	0.0666	0.0061	0.0200	0.0020	
	November	0.188	0.213	3	32.8	10	100	100	0.0627	0.0711	0.0065	0.0213	0.0021	
	December	0.199	0.218	3	32.8	10	100	100	0.0663	0.0725	0.0066	0.0218	0.0022	
Operation 1 Phase (1-23)	January	0.245	0.381	3	32.8	10	100	100	0.0818	0.127	0.0116	0.0381	0.0038	
	February	0.249	0.401	3	32.8	10	100	100	0.0831	0.134	0.0122	0.0401	0.0040	
	March	0.256	0.434	3	32.8	10	100	100	0.0853	0.145	0.0132	0.0434	0.0043	
	April	0.285	0.342	3	32.8	10	100	100	0.0950	0.114	0.0104	0.0342	0.0034	
	May	0.359	0.368	3	32.8	10	100	100	0.120	0.123	0.0112	0.0368	0.0037	
	June	0.175	0.188	3	32.8	10	100	100	0.0583	0.0626	0.0057	0.0188	0.0019	
	July	0.132	0.166	3	32.8	10	100	100	0.0440	0.0555	0.0051	0.0166	0.0017	
	August	0.196	0.263	3	32.8	10	100	100	0.0653	0.0877	0.0080	0.0263	0.0026	
	September	0.223	0.311	3	32.8	10	100	100	0.0742	0.104	0.0095	0.0311	0.0031	
	October	0.222	0.310	3	32.8	10	100	100	0.0741	0.103	0.0094	0.0310	0.0031	
	November	0.231	0.323	3	32.8	10	100	100	0.0769	0.108	0.0099	0.0323	0.0032	
	December	0.239	0.353	3	32.8	10	100	100	0.0798	0.118	0.0108	0.0353	0.0035	
Operations 2 Phase (24-28)	January	0.214	0.214	3	32.8	10	100	100	0.0713	0.0714	0.0065	0.0214	0.0021	
	February	0.213	0.213	3	32.8	10	100	100	0.0709	0.0710	0.0065	0.0213	0.0021	
	March	0.212	0.212	3	32.8	10	100	100	0.0706	0.0707	0.0065	0.0212	0.0021	
	April	0.271	0.271	3	32.8	10	100	100	0.0903	0.0904	0.0083	0.0271	0.0027	
	May	0.355	0.355	3	32.8	10	100	100	0.118	0.118	0.0108	0.0355	0.0036	
	June	0.170	0.170	3	32.8	10	100	100	0.0567	0.0568	0.0052	0.0170	0.0017	
	July	0.117	0.117	3	32.8	10	100	100	0.0390	0.0391	0.0036	0.0117	0.0012	
	August	0.168	0.168	3	32.8	10	100	100	0.0560	0.0561	0.0051	0.0168	0.0017	
	September	0.200	0.200	3	32.8	10	100	100	0.0667	0.0668	0.0061	0.0200	0.0020	
	October	0.200	0.200	3	32.8	10	100	100	0.0667	0.0667	0.0061	0.0200	0.0020	
	November	0.206	0.206	3	32.8	10	100	100	0.0687	0.0688	0.0063	0.0206	0.0021	
	December	0.210	0.210	3	32.8	10	100	100	0.0699	0.0699	0.0064	0.0210	0.0021	
Closure Phase (29-35)	January	0.214	0.214	3	32.8	10	100	100	0.0712	0.0712	0.0065	0.0214	0.0021	
	February	0.213	0.213	3	32.8	10	100	100	0.0709	0.0710	0.0065	0.0213	0.0021	
	March	0.212	0.212	3	32.8	10	100	100	0.0706	0.0707	0.0065	0.0212	0.0021	
	April	0.271	0.271	3	32.8	10	100	100	0.0903	0.0904	0.0083	0.0271	0.0027	
	May	0.356	0.356	3	32.8	10	100	100	0.119	0.119	0.0108	0.0356	0.0036	
	June	0.170	0.170	3	32.8	10	100	100	0.0567	0.0567	0.0052	0.0170	0.0017	
	July	0.118	0.118	3	32.8	10	100	100	0.0392	0.0392	0.0036	0.0118	0.0012	
	August	0.168	0.168	3	32.8	10	100	100	0.0560	0.0561	0.0051	0.0168	0.0017	
	September	0.200	0.200	3	32.8	10	100	100	0.0668	0.0668	0.0061	0.0200	0.0020	
	October	0.200	0.200	3	32.8	10	100	100	0.0667	0.0667	0.0061	0.0200	0.0020	
	November	0.206	0.206	3	32.8	10	100	100	0.0687	0.0688	0.0063	0.0206	0.0021	
	December	0.210	0.210	3	32.8	10	100	100	0.0699	0.0699	0.0064	0.0210	0.0021	
Post-Closure Phase (36-99)	January	0.215	0.215	3	32.8	10	100	100	0.0715	0.0716	0.0066	0.0215	0.0021	
	February	0.214	0.214	3	32.8	10	100	100	0.0713	0.0714	0.0065	0.0214	0.0021	
	March	0.213	0.214	3	32.8	10	100	100	0.0711	0.0712	0.0065	0.0214	0.0021	
	April	0.271	0.272	3	32.8	10	100	100	0.0905	0.0906	0.0083	0.0272	0.0027	
	May	0.356	0.356	3	32.8	10	100	100	0.119	0.119	0.0108	0.0356	0.0036	
	June	0.170	0.170	3	32.8	10	100	100	0.0567	0.0567	0.0052	0.0170	0.0017	
	July	0.118	0.118	3	32.8	10	100	100	0.0393	0.0393	0.0036	0.0118	0.0012	
	August	0.169	0.169	3	32.8	10	100	100	0.0562	0.0562	0.0051	0.0169	0.0017	
	September	0.201	0.201	3	32.8	10	100	100	0.0670	0.0671	0.0061	0.0201	0.0020	
	October	0.201	0.201	3	32.8	10	100	100	0.0669	0.0670	0.0061	0.0201	0.0020	
	November	0.207	0.207	3	32.8	10	100	100	0.0690	0.0690	0.0063	0.0207	0.0021	
	December	0.211	0.211	3	32.8	10	100	100	0.0702	0.0703	0.0064	0.0211	0.0021	

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

(continued)

Appendix D-5aa. Mid Harper Creek (HM) Hazard Quotients for Nitrate Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DIWQG = Drinking water quality guideline

Appendix D-5ab. Mid Harper Creek (HM) Hazard Quotients for Nitrite Concentrations, Expected Case

Project Phase		First Screening Step												
		Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				Maximum Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE Maximum Guideline			
		Month				BC DWQG	Maximum	BC MOE Maximum				Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0036	0.0042	0.02	0.06	1	10	10	0.179	0.208	0.0694	0.0042	0.0004	
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	
	May	0.0011	0.0013	0.02	0.06	1	10	10	0.0574	0.0649	0.0216	0.0013	0.0001	
	June	0.0022	0.0022	0.02	0.06	1	10	10	0.108	0.108	0.0361	0.0022	0.0002	
	July	0.0016	0.0023	0.02	0.06	1	10	10	0.0825	0.115	0.0383	0.0023	0.0002	
	August	0.0025	0.0036	0.02	0.06	1	10	10	0.123	0.179	0.0595	0.0036	0.0004	
	September	0.0027	0.0043	0.02	0.06	1	10	10	0.133	0.217	0.0722	0.0043	0.0004	
	October	0.0034	0.0045	0.02	0.06	1	10	10	0.169	0.226	0.0754	0.0045	0.0005	
	November	0.0039	0.0047	0.02	0.06	1	10	10	0.193	0.236	0.0788	0.0047	0.0005	
	December	0.0037	0.0045	0.02	0.06	1	10	10	0.187	0.224	0.0747	0.0045	0.0004	
Operation 1 Phase (1-23)	January	0.0053	0.0084	0.02	0.06	1	10	10	0.264	0.420	0.140	0.0084	0.0008	
	February	0.0058	0.0093	0.02	0.06	1	10	10	0.289	0.463	0.154	0.0093	0.0009	
	March	0.0060	0.0101	0.02	0.06	1	10	10	0.298	0.503	0.168	0.0101	0.0010	
	April	0.0053	0.0066	0.02	0.06	1	10	10	0.265	0.331	0.110	0.0066	0.0007	
	May	0.0014	0.0016	0.02	0.06	1	10	10	0.0692	0.0814	0.0271	0.0016	0.0002	
	June	0.0024	0.0027	0.02	0.06	1	10	10	0.118	0.133	0.0443	0.0027	0.0003	
	July	0.0027	0.0035	0.02	0.06	1	10	10	0.134	0.174	0.0580	0.0035	0.0003	
	August	0.0044	0.0059	0.02	0.06	1	10	10	0.218	0.295	0.0984	0.0059	0.0006	
	September	0.0051	0.0071	0.02	0.06	1	10	10	0.254	0.356	0.119	0.0071	0.0007	
	October	0.0052	0.0072	0.02	0.06	1	10	10	0.258	0.359	0.120	0.0072	0.0007	
	November	0.0053	0.0074	0.02	0.06	1	10	10	0.264	0.370	0.123	0.0074	0.0007	
	December	0.0053	0.0080	0.02	0.06	1	10	10	0.267	0.398	0.133	0.0080	0.0008	
Operations 2 Phase (24-28)	January	0.0045	0.0046	0.02	0.06	1	10	10	0.227	0.228	0.0759	0.0046	0.0005	
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.248	0.248	0.0826	0.0050	0.0005	
	March	0.0049	0.0049	0.02	0.06	1	10	10	0.247	0.247	0.0825	0.0049	0.0005	
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.249	0.249	0.0831	0.0050	0.0005	
	May	0.0013	0.0013	0.02	0.06	1	10	10	0.0660	0.0661	0.0220	0.0013	0.0001	
	June	0.0022	0.0022	0.02	0.06	1	10	10	0.112	0.112	0.0375	0.0022	0.0002	
	July	0.0023	0.0023	0.02	0.06	1	10	10	0.117	0.117	0.0391	0.0023	0.0002	
	August	0.0037	0.0037	0.02	0.06	1	10	10	0.186	0.186	0.0621	0.0037	0.0004	
	September	0.0046	0.0046	0.02	0.06	1	10	10	0.228	0.229	0.0762	0.0046	0.0005	
	October	0.0047	0.0047	0.02	0.06	1	10	10	0.233	0.233	0.0776	0.0047	0.0005	
	November	0.0047	0.0047	0.02	0.06	1	10	10	0.236	0.236	0.0787	0.0047	0.0005	
	December	0.0047	0.0047	0.02	0.06	1	10	10	0.233	0.233	0.0777	0.0047	0.0005	
Closure Phase (29-35)	January	0.0045	0.0045	0.02	0.06	1	10	10	0.227	0.227	0.0758	0.0045	0.0005	
	February	0.0049	0.0050	0.02	0.06	1	10	10	0.247	0.248	0.0825	0.0050	0.0005	
	March	0.0049	0.0049	0.02	0.06	1	10	10	0.247	0.247	0.0824	0.0049	0.0005	
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.249	0.249	0.0830	0.0050	0.0005	
	May	0.0013	0.0013	0.02	0.06	1	10	10	0.0660	0.0660	0.0220	0.0013	0.0001	
	June	0.0022	0.0022	0.02	0.06	1	10	10	0.112	0.112	0.0373	0.0022	0.0002	
	July	0.0024	0.0024	0.02	0.06	1	10	10	0.118	0.118	0.0393	0.0024	0.0002	
	August	0.0037	0.0037	0.02	0.06	1	10	10	0.186	0.186	0.0619	0.0037	0.0004	
	September	0.0046	0.0046	0.02	0.06	1	10	10	0.229	0.229	0.0763	0.0046	0.0005	
	October	0.0047	0.0047	0.02	0.06	1	10	10	0.233	0.233	0.0777	0.0047	0.0005	
	November	0.0047	0.0047	0.02	0.06	1	10	10	0.236	0.236	0.0787	0.0047	0.0005	
	December	0.0047	0.0047	0.02	0.06	1	10	10	0.233	0.233	0.0777	0.0047	0.0005	
Post-Closure Phase (36-99)	January	0.0046	0.0046	0.02	0.06	1	10	10	0.228	0.229	0.0762	0.0046	0.0005	
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.249	0.249	0.0831	0.0050	0.0005	
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.249	0.249	0.0830	0.0050	0.0005	
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0832	0.0050	0.0005	
	May	0.0013	0.0013	0.02	0.06	1	10	10	0.0661	0.0661	0.0220	0.0013	0.0001	
	June	0.0022	0.0022	0.02	0.06	1	10	10	0.112	0.112	0.0374	0.0022	0.0002	
	July	0.0024	0.0024	0.02	0.06	1	10	10	0.118	0.118	0.0394	0.0024	0.0002	
	August	0.0037	0.0037	0.02	0.06	1	10	10	0.186	0.186	0.0621	0.0037	0.0004	
	September	0.0046	0.0046	0.02	0.06	1	10	10	0.229	0.230	0.0766	0.0046	0.0005	
	October	0.0047	0.0047	0.02	0.06	1	10	10	0.234	0.234	0.0780	0.0047	0.0005	
	November	0.0047	0.0047	0.02	0.06	1	10	10	0.237	0.237	0.0790	0.0047	0.0005	
	December	0.0047	0.0047	0.02	0.06	1	10	10	0.234	0.234	0.0780	0.0047	0.0005	

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are chloride dependent

(continued)

Appendix D-5ab. Mid Harper Creek (HM) Hazard Quotients for Nitrite Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

¹ Guidelines are chloride dependent

Appendix D-5ac. Mid Harper Creek (HM) Hazard Quotients for Ammonia Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Maximum Guideline		
									Mean
Construction (-2 to-1)	January	0.0183	0.0190	1.75	9.12	0.0105	0.0109	0.0021	No
	February	0.0244	0.0277	1.48	7.71	0.0165	0.0187	0.0036	No
	March	0.0151	0.0181	2.09	10.8	0.0072	0.0087	0.0017	No
	April	0.0146	0.0151	1.73	8.98	0.0085	0.0087	0.0017	No
	May	0.0099	0.0104	2.00	15.5	0.0049	0.0052	0.0007	No
	June	0.0099	0.0101	1.95	10.1	0.0051	0.0052	0.0010	No
	July	0.0315	0.0363	1.89	9.83	0.0167	0.0192	0.0037	No
	August	0.615	0.832	1.87	11.3	0.329	0.445	0.0736	No
	September	0.0215	0.0268	1.63	8.48	0.0132	0.0165	0.0032	No
	October	0.0151	0.0189	1.97	11.9	0.0076	0.0096	0.0016	No
	November	0.0163	0.0190	1.78	9.26	0.0091	0.0107	0.0021	No
	December	0.0174	0.0185	1.78	9.26	0.0098	0.0104	0.0020	No
Operation 1 Phase (1-23)	January	0.0232	0.0404	1.75	9.12	0.0133	0.0231	0.0044	No
	February	0.0285	0.0476	1.48	7.71	0.0192	0.0322	0.0062	No
	March	0.0251	0.0477	2.09	10.8	0.0120	0.0228	0.0044	No
	April	0.0166	0.0238	1.73	8.98	0.0096	0.0138	0.0027	No
	May	0.0101	0.0115	2.00	15.5	0.0051	0.0057	0.0007	No
	June	0.0110	0.0126	1.95	10.1	0.0056	0.0065	0.0012	No
	July	0.0294	0.0338	1.89	9.83	0.0156	0.0179	0.0034	No
	August	0.341	0.348	1.87	11.3	0.182	0.186	0.0308	No
	September	0.0271	0.0383	1.63	8.48	0.0166	0.0235	0.0045	No
	October	0.0223	0.0333	1.97	11.9	0.0113	0.0169	0.0028	No
	November	0.0223	0.0340	1.78	9.26	0.0125	0.0191	0.0037	No
	December	0.0231	0.0375	1.78	9.26	0.0130	0.0211	0.0040	No
Operations 2 Phase (24-28)	January	0.0192	0.0193	1.75	9.12	0.0110	0.0110	0.0021	No
	February	0.0239	0.0240	1.48	7.71	0.0162	0.0162	0.0031	No
	March	0.0196	0.0196	2.09	10.8	0.0094	0.0094	0.0018	No
	April	0.0148	0.0148	1.73	8.98	0.0086	0.0086	0.0017	No
	May	0.0098	0.0098	2.00	15.5	0.0049	0.0049	0.0006	No
	June	0.0104	0.0104	1.95	10.1	0.0053	0.0053	0.0010	No
	July	0.0275	0.0276	1.89	9.83	0.0146	0.0146	0.0028	No
	August	0.341	0.344	1.87	11.3	0.182	0.184	0.0304	No
	September	0.0243	0.0243	1.63	8.48	0.0149	0.0149	0.0029	No
	October	0.0195	0.0195	1.97	11.9	0.0099	0.0099	0.0016	No
	November	0.0192	0.0192	1.78	9.26	0.0108	0.0108	0.0021	No
	December	0.0194	0.0194	1.78	9.26	0.0109	0.0109	0.0021	No
Closure Phase (29-35)	January	0.0192	0.0192	1.75	9.12	0.0110	0.0110	0.0021	No
	February	0.0239	0.0239	1.48	7.71	0.0162	0.0162	0.0031	No
	March	0.0196	0.0196	2.09	10.8	0.0094	0.0094	0.0018	No
	April	0.0148	0.0148	1.73	8.98	0.0086	0.0086	0.0016	No
	May	0.0098	0.0098	2.00	15.5	0.0049	0.0049	0.0006	No
	June	0.0103	0.0103	1.95	10.1	0.0053	0.0053	0.0010	No
	July	0.0274	0.0274	1.89	9.83	0.0145	0.0145	0.0028	No
	August	0.342	0.343	1.87	11.3	0.183	0.184	0.0304	No
	September	0.0243	0.0243	1.63	8.48	0.0149	0.0149	0.0029	No
	October	0.0195	0.0195	1.97	11.9	0.0099	0.0099	0.0016	No
	November	0.0192	0.0192	1.78	9.26	0.0108	0.0108	0.0021	No
	December	0.0194	0.0194	1.78	9.26	0.0109	0.0109	0.0021	No
Post-Closure Phase (36-99)	January	0.0193	0.0193	1.75	9.12	0.0110	0.0110	0.0021	No
	February	0.0240	0.0241	1.48	7.71	0.0162	0.0163	0.0031	No
	March	0.0197	0.0198	2.09	10.8	0.0094	0.0094	0.0018	No
	April	0.0148	0.0148	1.73	8.98	0.0086	0.0086	0.0017	No
	May	0.0098	0.0098	2.00	15.5	0.0049	0.0049	0.0006	No
	June	0.0103	0.0104	1.95	10.1	0.0053	0.0053	0.0010	No
	July	0.0275	0.0275	1.89	9.83	0.0145	0.0145	0.0028	No
	August	0.342	0.342	1.87	11.3	0.183	0.183	0.0303	No
	September	0.0244	0.0244	1.63	8.48	0.0150	0.0150	0.0029	No
	October	0.0196	0.0196	1.97	11.9	0.0099	0.0099	0.0016	No
	November	0.0193	0.0193	1.78	9.26	0.0108	0.0108	0.0021	No
	December	0.0194	0.0195	1.78	9.26	0.0109	0.0109	0.0021	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Appendix D-5ad. Mid Harper Creek (HM) Hazard Quotients for Sulphate Concentrations, Expected Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				BC MOE 30-Day Mean Guideline	BC DWQG					
		Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	9.63	9.93	218	500	1000	0.0442	0.0456	0.0199	0.0099	No	No	No
	February	9.90	10.4	218	500	1000	0.0454	0.0475	0.0207	0.0104	No	No	No
	March	12.1	13.3	218	500	1000	0.0556	0.0610	0.0266	0.0133	No	No	No
	April	9.00	9.65	218	500	1000	0.0413	0.0442	0.0193	0.0096	No	No	No
	May	4.94	5.30	128	500	1000	0.0386	0.0414	0.0106	0.0053	No	No	No
	June	5.38	5.61	128	500	1000	0.0420	0.0438	0.0112	0.0056	No	No	No
	July	7.00	7.64	218	500	1000	0.0321	0.0350	0.0153	0.0076	No	No	No
	August	8.85	9.31	218	500	1000	0.0406	0.0427	0.0186	0.0093	No	No	No
	September	9.49	10.0	218	500	1000	0.0435	0.0460	0.0201	0.0100	No	No	No
	October	8.56	9.9	218	500	1000	0.0393	0.0455	0.0198	0.0099	No	No	No
	November	9.10	9.90	218	500	1000	0.0417	0.0454	0.0198	0.0099	No	No	No
	December	9.35	9.88	218	500	1000	0.0429	0.0453	0.0198	0.0099	No	No	No
Operation 1 Phase (1-23)	January	19.2	29.3	218	500	1000	0.0883	0.134	0.0585	0.0293	No	No	No
	February	21.1	33.0	218	500	1000	0.0968	0.151	0.0660	0.0330	No	No	No
	March	23.5	37.8	218	500	1000	0.1078	0.173	0.0756	0.0378	No	No	No
	April	13.8	18.3	218	500	1000	0.0632	0.084	0.0366	0.0183	No	No	No
	May	6.09	6.93	128	500	1000	0.0475	0.0542	0.0139	0.0069	No	No	No
	June	6.78	7.88	128	500	1000	0.0530	0.0616	0.0158	0.0079	No	No	No
	July	10.82	13.7	218	500	1000	0.0496	0.0629	0.0274	0.0137	No	No	No
	August	15.4	21.1	218	500	1000	0.0706	0.0970	0.0423	0.0211	No	No	No
	September	16.5	23.2	218	500	1000	0.0756	0.106	0.0464	0.0232	No	No	No
	October	16.4	23.0	218	500	1000	0.0753	0.106	0.0460	0.0230	No	No	No
	November	16.8	23.8	218	500	1000	0.0772	0.109	0.0476	0.0238	No	No	No
	December	18.4	26.9	218	500	1000	0.0845	0.124	0.0539	0.0269	No	No	No
Operations 2 Phase (24-28)	January	31.1	31.5	218	500	1000	0.143	0.143	0.0630	0.0315	No	No	No
	February	34.8	35.3	218	500	1000	0.160	0.162	0.0706	0.0353	No	No	No
	March	40.0	40.5	218	500	1000	0.184	0.186	0.0811	0.0405	No	No	No
	April	19.0	19.2	218	500	1000	0.087	0.088	0.0383	0.0192	No	No	No
	May	7.05	7.08	128	500	1000	0.0551	0.0553	0.0142	0.0071	No	No	No
	June	7.99	8.01	128	500	1000	0.0624	0.0626	0.0160	0.0080	No	No	No
	July	14.0	14.1	218	500	1000	0.0643	0.0646	0.0282	0.0141	No	No	No
	August	21.7	21.8	218	500	1000	0.0995	0.0999	0.0436	0.0218	No	No	No
	September	24.0	24.2	218	500	1000	0.110	0.111	0.0483	0.0242	No	No	No
	October	23.8	23.9	218	500	1000	0.109	0.110	0.0478	0.0239	No	No	No
	November	24.6	24.7	218	500	1000	0.113	0.113	0.0494	0.0247	No	No	No
	December	27.8	28.0	218	500	1000	0.128	0.128	0.0560	0.0280	No	No	No
Closure Phase (29-35)	January	12.4	12.5	218	500	1000	0.0568	0.0575	0.0251	0.0125	No	No	No
	February	12.8	13.0	218	500	1000	0.0588	0.0596	0.0260	0.0130	No	No	No
	March	14.2	14.5	218	500	1000	0.0652	0.0665	0.0290	0.0145	No	No	No
	April	10.7	10.7	218	500	1000	0.0489	0.0493	0.0215	0.0107	No	No	No
	May	5.54	5.55	128	500	1000	0.0433	0.0434	0.0111	0.0056	No	No	No
	June	6.31	6.31	128	500	1000	0.0493	0.0493	0.0126	0.0063	No	No	No
	July	9.76	9.77	218	500	1000	0.0448	0.0448	0.0195	0.0098	No	No	No
	August	13.1	13.2	218	500	1000	0.0601	0.0604	0.0263	0.0132	No	No	No
	September	11.5	11.6	218	500	1000	0.0526	0.0530	0.0231	0.0116	No	No	No
	October	11.5	11.6	218	500	1000	0.0527	0.0532	0.0232	0.0116	No	No	No
	November	11.6	11.8	218	500	1000	0.0533	0.0539	0.0235	0.0118	No	No	No
	December	11.9	12.1	218	500	1000	0.0548	0.0555	0.0242	0.0121	No	No	No
Post-Closure Phase (36-99)	January	12.0	12.2	218	500	1000	0.0551	0.0559	0.0244	0.0122	No	No	No
	February	12.4	12.6	218	500	1000	0.0569	0.0578	0.0252	0.0126	No	No	No
	March	13.7	13.9	218	500	1000	0.0626	0.0638	0.0278	0.0139	No	No	No
	April	10.5	10.6	218	500	1000	0.0482	0.0485	0.0212	0.0106	No	No	No
	May	5.50	5.52	128	500	1000	0.0430	0.0431	0.0110	0.0055	No	No	No
	June	6.29	6.30	128	500	1000	0.0491	0.0492	0.0126	0.0063	No	No	No
	July	9.73	9.75	218	500	1000	0.0446	0.0447	0.0195	0.0098	No	No	No
	August	12.9	13.0	218	500	1000	0.0592	0.0597	0.0260	0.0130	No	No	No
	September	11.2	11.3	218	500	1000	0.0516	0.0520	0.0227	0.0113	No	No	No
	October	11.3	11.4	218	500	1000	0.0517	0.0521	0.0227	0.0114	No	No	No
	November	11.4	11.5	218	500	1000	0.0522	0.0527	0.0230	0.0115	No	No	No
	December	11.7	11.8	218	500	1000	0.0535	0.0541	0.0236	0.0118	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D6a. T Creek Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case

		First Screening Step												
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines for Dissolved Aluminum Concentrations ¹		Drinking Water Quality Guidelines for Dissolved Aluminum	BC MOE Working Water Quality Guidelines for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline for Dissolved Aluminum			Hazard Quotient relative to Drinking Water Quality Guidelines
		Dissolved Aluminum		Total Aluminum		BC MOE 30-Day Mean	BC MOE Maximum	BC maximum DWQG	Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG
		Mean	Maximum	Mean	Maximum									
Construction (-2 to-1)	January	0.0174	0.0174	0.0190	0.0190	0.050	0.100	0.2	5	5	0.348	0.348	0.174	0.0870
	February	0.0168	0.0168	0.0169	0.0169	0.050	0.100	0.2	5	5	0.336	0.336	0.168	0.0840
	March	0.0158	0.0158	0.0162	0.0162	0.050	0.100	0.2	5	5	0.316	0.316	0.158	0.0790
	April	0.0285	0.0286	0.0346	0.0347	0.050	0.100	0.2	5	5	0.570	0.572	0.286	0.143
	May	0.0802	0.0803	0.139	0.139	0.050	0.100	0.2	5	5	1.60	1.61	0.803	0.401
	June	0.0682	0.0684	0.216	0.216	0.050	0.100	0.2	5	5	1.36	1.37	0.684	0.342
	July	0.0330	0.0331	0.0422	0.0423	0.050	0.100	0.2	5	5	0.660	0.662	0.331	0.165
	August	0.0186	0.0186	0.0371	0.0371	0.050	0.100	0.2	5	5	0.372	0.372	0.186	0.0929
	September	0.0175	0.0175	0.0276	0.0276	0.050	0.100	0.2	5	5	0.349	0.349	0.175	0.0873
	October	0.0210	0.0308	0.0263	0.0389	0.050	0.100	0.2	5	5	0.419	0.616	0.308	0.154
	November	0.0157	0.0252	0.0169	0.0273	0.050	0.100	0.2	5	5	0.313	0.503	0.252	0.126
	December	0.0374	0.0374	0.0434	0.0434	0.050	0.100	0.2	5	5	0.748	0.748	0.374	0.187
Operation 1 Phase (1-23)	January	0.0174	0.0174	0.0190	0.0190	0.050	0.100	0.2	5	5	0.348	0.348	0.174	0.0870
	February	0.0168	0.0168	0.0169	0.0169	0.050	0.100	0.2	5	5	0.336	0.336	0.168	0.0840
	March	0.0158	0.0158	0.0162	0.0162	0.050	0.100	0.2	5	5	0.316	0.316	0.158	0.0790
	April	0.0286	0.0286	0.0347	0.0347	0.050	0.100	0.2	5	5	0.572	0.572	0.286	0.143
	May	0.0803	0.0803	0.139	0.139	0.050	0.100	0.2	5	5	1.61	1.61	0.803	0.402
	June	0.0683	0.0684	0.216	0.216	0.050	0.100	0.2	5	5	1.37	1.37	0.684	0.342
	July	0.0331	0.0331	0.0423	0.0424	0.050	0.100	0.2	5	5	0.662	0.662	0.331	0.166
	August	0.0186	0.0186	0.0371	0.0371	0.050	0.100	0.2	5	5	0.372	0.372	0.186	0.0929
	September	0.0175	0.0175	0.0276	0.0276	0.050	0.100	0.2	5	5	0.349	0.349	0.175	0.0873
	October	0.0294	0.0310	0.0371	0.0392	0.050	0.100	0.2	5	5	0.588	0.620	0.310	0.155
	November	0.0238	0.0252	0.0258	0.0274	0.050	0.100	0.2	5	5	0.475	0.504	0.252	0.126
	December	0.0374	0.0374	0.0434	0.0434	0.050	0.100	0.2	5	5	0.748	0.748	0.374	0.187
Operations 2 Phase (24-28)	January	0.0174	0.0174	0.0190	0.0190	0.050	0.100	0.2	5	5	0.348	0.348	0.174	0.0870
	February	0.0168	0.0168	0.0169	0.0169	0.050	0.100	0.2	5	5	0.336	0.336	0.168	0.0840
	March	0.0158	0.0158	0.0162	0.0162	0.050	0.100	0.2	5	5	0.316	0.316	0.158	0.0790
	April	0.0286	0.0286	0.0347	0.0347	0.050	0.100	0.2	5	5	0.572	0.572	0.286	0.143
	May	0.0803	0.0803	0.139	0.139	0.050	0.100	0.2	5	5	1.61	1.61	0.803	0.402
	June	0.0684	0.0684	0.216	0.216	0.050	0.100	0.2	5	5	1.37	1.37	0.684	0.342
	July	0.0331	0.0331	0.0424	0.0424	0.050	0.100	0.2	5	5	0.662	0.662	0.331	0.166
	August	0.0186	0.0186	0.0371	0.0371	0.050	0.100	0.2	5	5	0.372	0.372	0.186	0.0929
	September	0.0175	0.0175	0.0276	0.0276	0.050	0.100	0.2	5	5	0.349	0.349	0.175	0.0873
	October	0.0310	0.0310	0.0392	0.0392	0.050	0.100	0.2	5	5	0.620	0.620	0.310	0.155
	November	0.0252	0.0252	0.0274	0.0274	0.050	0.100	0.2	5	5	0.504	0.504	0.252	0.126
	December	0.0374	0.0374	0.0434	0.0434	0.050	0.100	0.2	5	5	0.748	0.748	0.374	0.187
Closure Phase (29-35)	January	0.0180	0.0189	0.0245	0.0292	0.050	0.100	0.2	5	5	0.360	0.378	0.189	0.0944
	February	0.0177	0.0189	0.0236	0.0292	0.050	0.100	0.2	5	5	0.354	0.377	0.189	0.0944
	March	0.0173	0.0189	0.0233	0.0292	0.050	0.100	0.2	5	5	0.346	0.377	0.189	0.0943
	April	0.0235	0.0286	0.0317	0.0347	0.050	0.100	0.2	5	5	0.471	0.572	0.286	0.143
	May	0.0552	0.0803	0.0944	0.139	0.050	0.100	0.2	5	5	1.10	1.61	0.803	0.402
	June	0.0428	0.0684	0.120	0.216	0.050	0.100	0.2	5	5	0.856	1.37	0.684	0.342
	July	0.0263	0.0331	0.0361	0.0424	0.050	0.100	0.2	5	5	0.526	0.662	0.331	0.166
	August	0.0184	0.0188	0.0327	0.0371	0.050	0.100	0.2	5	5	0.369	0.377	0.188	0.0942
	September	0.0181	0.0189	0.0284	0.0293	0.050	0.100	0.2	5	5	0.361	0.378	0.189	0.0945
	October	0.0220	0.0310	0.0317	0.0392	0.050	0.100	0.2	5	5	0.439	0.620	0.310	0.155
	November	0.0203	0.0252	0.0282	0.0292	0.050	0.100	0.2	5	5	0.405	0.504	0.252	0.126
	December	0.0237	0.0374	0.0328	0.0434	0.050	0.100	0.2	5	5	0.475	0.748	0.374	0.187
Post-Closure Phase (36-99)	January	0.0275	0.0306	0.0380	0.0405	0.050	0.100	0.2	5	5	0.551	0.613	0.306	0.153
	February	0.0275	0.0306	0.0379	0.0405	0.050	0.100	0.2	5	5	0.551	0.612	0.306	0.153
	March	0.0276	0.0307	0.0380	0.0405	0.050	0.100	0.2	5	5	0.552	0.614	0.307	0.153
	April	0.0270	0.0296	0.0366	0.0388	0.050	0.100	0.2	5	5	0.540	0.592	0.296	0.148
	May	0.0415	0.0436	0.0650	0.0668	0.050	0.100	0.2	5	5	0.831	0.873	0.436	0.218
	June	0.0379	0.0400	0.0850	0.0867	0.050	0.100	0.2	5	5	0.758	0.800	0.400	0.200
	July	0.0292	0.0313	0.0393	0.0410	0.050	0.100	0.2	5	5	0.583	0.626	0.313	0.156
	August	0.0261	0.0285	0.0380	0.0399	0.050	0.100	0.2	5	5	0.523	0.571	0.285	0.143
	September	0.0263	0.0290	0.0363	0.0384	0.050	0.100	0.2	5	5	0.527	0.580	0.290	0.145
	October	0.0266	0.0293	0.0366	0.0387	0.050	0.100	0.2	5	5	0.532	0.586	0.293	0.147
	November	0.0278	0.0307	0.0382	0.0406	0.050	0.100	0.2	5	5	0.555	0.614	0.307	0.154
	December	0.0278	0.0307	0.0382	0.0406	0.050	0.100	0.2	5	5	0.555	0.614	0.307	0.154

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

(continued)

Appendix 13-D6a. T Creek Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case (completed)

Project Phase	Months	First Screening Step		Second Screening Step						Retained as COPC?					
		Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum	Baseline Concentrations				Hazard Quotient relative to Baseline				Aquatic Life for Dissolved Aluminum	Drinking Water for Dissolved Aluminum	Wildlife for Total Aluminum	Livestock for Total Aluminum
				Dissolved Aluminum		Total Aluminum		Dissolved Aluminum		Total Aluminum					
				Mean	95%ile	Mean	95%ile	Mean	95%ile	Mean	95%ile				
Construction (-2 to-1)	January	0.0038	0.0038									No	No	No	No
	February	0.0034	0.0034									No	No	No	No
	March	0.0032	0.0032									No	No	No	No
	April	0.0069	0.0069									No	No	No	No
	May	0.0278	0.0278	0.0803	0.0947	0.139	0.176	0.998	0.848	0.998	0.792	No	No	No	No
	June	0.0432	0.0432	0.0684	0.0822	0.216	0.505	0.998	0.832	0.998	0.428	No	No	No	No
	July	0.0085	0.0085									No	No	No	No
	August	0.0074	0.0074									No	No	No	No
	September	0.0055	0.0055									No	No	No	No
	October	0.0078	0.0078									No	No	No	No
	November	0.0055	0.0055									No	No	No	No
	December	0.0087	0.0087									No	No	No	No
Operation 1 Phase (1-23)	January	0.0038	0.0038									No	No	No	No
	February	0.0034	0.0034									No	No	No	No
	March	0.0032	0.0032									No	No	No	No
	April	0.0069	0.0069									No	No	No	No
	May	0.0278	0.0278	0.0803	0.0947	0.139	0.176	1.00	0.848	1.00	0.792	No	No	No	No
	June	0.0432	0.0432	0.0684	0.0822	0.216	0.505	1.00	0.832	1.00	0.428	No	No	No	No
	July	0.0085	0.0085									No	No	No	No
	August	0.0074	0.0074									No	No	No	No
	September	0.0055	0.0055									No	No	No	No
	October	0.0078	0.0078									No	No	No	No
	November	0.0055	0.0055									No	No	No	No
	December	0.0087	0.0087									No	No	No	No
Operations 2 Phase (24-28)	January	0.0038	0.0038									No	No	No	No
	February	0.0034	0.0034									No	No	No	No
	March	0.0032	0.0032									No	No	No	No
	April	0.0069	0.0069									No	No	No	No
	May	0.0278	0.0278	0.0803	0.0947	0.139	0.176	1.00	0.848	1.00	0.792	No	No	No	No
	June	0.0432	0.0432	0.0684	0.0822	0.216	0.505	1.00	0.832	1.00	0.428	No	No	No	No
	July	0.0085	0.0085									No	No	No	No
	August	0.0074	0.0074									No	No	No	No
	September	0.0055	0.0055									No	No	No	No
	October	0.0078	0.0078									No	No	No	No
	November	0.0055	0.0055									No	No	No	No
	December	0.0087	0.0087									No	No	No	No
Closure Phase (29-35)	January	0.0058	0.0058									No	No	No	No
	February	0.0058	0.0058									No	No	No	No
	March	0.0058	0.0058									No	No	No	No
	April	0.0069	0.0069									No	No	No	No
	May	0.0278	0.0278	0.0803	0.0947	0.139	0.176	0.688	0.848	0.679	0.792	No	No	No	No
	June	0.0432	0.0432	0.0684	0.0822	0.216	0.505	0.626	0.832	0.556	0.428	No	No	No	No
	July	0.0085	0.0085									No	No	No	No
	August	0.0074	0.0074									No	No	No	No
	September	0.0059	0.0059									No	No	No	No
	October	0.0078	0.0078									No	No	No	No
	November	0.0058	0.0058									No	No	No	No
	December	0.0087	0.0087									No	No	No	No
Post-Closure Phase (36-99)	January	0.0081	0.0081									No	No	No	No
	February	0.0081	0.0081									No	No	No	No
	March	0.0081	0.0081									No	No	No	No
	April	0.0078	0.0078									No	No	No	No
	May	0.0134	0.0134									No	No	No	No
	June	0.0173	0.0173									No	No	No	No
	July	0.0082	0.0082									No	No	No	No
	August	0.0080	0.0080									No	No	No	No
	September	0.0077	0.0077									No	No	No	No
	October	0.0077	0.0077									No	No	No	No
	November	0.0081	0.0081									No	No	No	No
	December	0.0081	0.0081									No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D6b. T Creek Hazard Quotients for Total Antimony Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00012	0.00012	0.020	0.014	0.00625	0.00893	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00013	0.00013	0.020	0.014	0.00666	0.00952	No	No
	August	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	September	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	October	0.00008	0.00010	0.020	0.014	0.00522	0.00745	No	No
	November	0.00004	0.00006	0.020	0.014	0.00299	0.00428	No	No
	December	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
Operation 1 Phase (1-23)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00103	0.00147	No	No
	May	0.00012	0.00013	0.020	0.014	0.00625	0.00893	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	August	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	September	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	October	0.00010	0.00011	0.020	0.014	0.00525	0.00750	No	No
	November	0.00006	0.00007	0.020	0.014	0.00348	0.00498	No	No
	December	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00013	0.00013	0.020	0.014	0.00625	0.00893	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	August	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	September	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	October	0.00011	0.00011	0.020	0.014	0.00525	0.00750	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
Closure Phase (29-35)	January	0.00152	0.00267	0.020	0.014	0.133	0.191	No	No
	February	0.00150	0.00267	0.020	0.014	0.133	0.191	No	No
	March	0.00150	0.00267	0.020	0.014	0.133	0.190	No	No
	April	0.00131	0.00234	0.020	0.014	0.117	0.167	No	No
	May	0.00113	0.00193	0.020	0.014	0.0964	0.138	No	No
	June	0.00138	0.00194	0.020	0.014	0.0968	0.138	No	No
	July	0.00126	0.00181	0.020	0.014	0.0906	0.129	No	No
	August	0.00142	0.00207	0.020	0.014	0.104	0.148	No	No
	September	0.00187	0.00263	0.020	0.014	0.132	0.188	No	No
	October	0.00189	0.00267	0.020	0.014	0.133	0.191	No	No
	November	0.00188	0.00267	0.020	0.014	0.133	0.191	No	No
	December	0.00188	0.00267	0.020	0.014	0.134	0.191	No	No
Post-Closure Phase (36-99)	January	0.00234	0.00255	0.020	0.014	0.127	0.182	No	No
	February	0.00234	0.00255	0.020	0.014	0.127	0.182	No	No
	March	0.00234	0.00255	0.020	0.014	0.127	0.182	No	No
	April	0.00204	0.00231	0.020	0.014	0.115	0.165	No	No
	May	0.00165	0.00188	0.020	0.014	0.0938	0.134	No	No
	June	0.00166	0.00188	0.020	0.014	0.0938	0.134	No	No
	July	0.00168	0.00184	0.020	0.014	0.0920	0.131	No	No
	August	0.00196	0.00216	0.020	0.014	0.108	0.154	No	No
	September	0.00218	0.00249	0.020	0.014	0.125	0.178	No	No
	October	0.00223	0.00254	0.020	0.014	0.127	0.181	No	No
	November	0.00233	0.00254	0.020	0.014	0.127	0.181	No	No
	December	0.00233	0.00254	0.020	0.014	0.127	0.181	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D6c. T Creek Hazard Quotients for Total Arsenic Concentrations, Expected Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Interim Guideline				
Construction (-2 to-1)	January	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0170	0.0034	0.0034	0.0034	No	No	No	No
	February	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0200	0.0040	0.0040	0.0040	No	No	No	No
	March	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0180	0.0036	0.0036	0.0036	No	No	No	No
	April	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0244	0.0049	0.0049	0.0049	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.110	0.0221	0.0221	0.0221	No	No	No	No
	June	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0345	0.0069	0.0069	0.0069	No	No	No	No
	July	0.0008	0.0008	0.005	0.025	0.025	0.025	0.160	0.0320	0.0320	0.0320	No	No	No	No
	August	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0933	0.0187	0.0187	0.0187	No	No	No	No
	September	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0220	0.0044	0.0044	0.0044	No	No	No	No
	October	0.0002	0.0003	0.005	0.025	0.025	0.025	0.0591	0.0118	0.0118	0.0118	No	No	No	No
	November	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0200	0.0040	0.0040	0.0040	No	No	No	No
	December	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0185	0.0037	0.0037	0.0037	No	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0170	0.0034	0.0034	0.0034	No	No	No	No
	February	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0200	0.0040	0.0040	0.0040	No	No	No	No
	March	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0180	0.0036	0.0036	0.0036	No	No	No	No
	April	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0244	0.0049	0.0049	0.0049	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.111	0.0221	0.0221	0.0221	No	No	No	No
	June	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0345	0.0069	0.0069	0.0069	No	No	No	No
	July	0.0008	0.0008	0.005	0.025	0.025	0.025	0.160	0.0320	0.0320	0.0320	No	No	No	No
	August	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0933	0.0187	0.0187	0.0187	No	No	No	No
	September	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0220	0.0044	0.0044	0.0044	No	No	No	No
	October	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0595	0.0119	0.0119	0.0119	No	No	No	No
	November	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0231	0.0046	0.0046	0.0046	No	No	No	No
	December	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0185	0.0037	0.0037	0.0037	No	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0170	0.0034	0.0034	0.0034	No	No	No	No
	February	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0200	0.0040	0.0040	0.0040	No	No	No	No
	March	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0180	0.0036	0.0036	0.0036	No	No	No	No
	April	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0244	0.0049	0.0049	0.0049	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.111	0.0221	0.0221	0.0221	No	No	No	No
	June	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0345	0.0069	0.0069	0.0069	No	No	No	No
	July	0.0008	0.0008	0.005	0.025	0.025	0.025	0.160	0.0320	0.0320	0.0320	No	No	No	No
	August	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0933	0.0187	0.0187	0.0187	No	No	No	No
	September	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0220	0.0044	0.0044	0.0044	No	No	No	No
	October	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0595	0.0119	0.0119	0.0119	No	No	No	No
	November	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0200	0.0040	0.0040	0.0040	No	No	No	No
	December	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0185	0.0037	0.0037	0.0037	No	No	No	No
Closure Phase (29-35)	January	0.0014	0.0024	0.005	0.025	0.025	0.025	0.485	0.0970	0.0970	0.0970	No	No	No	No
	February	0.0014	0.0024	0.005	0.025	0.025	0.025	0.485	0.0970	0.0970	0.0970	No	No	No	No
	March	0.0014	0.0024	0.005	0.025	0.025	0.025	0.485	0.0969	0.0969	0.0969	No	No	No	No
	April	0.0012	0.0021	0.005	0.025	0.025	0.025	0.427	0.0855	0.0855	0.0855	No	No	No	No
	May	0.0013	0.0019	0.005	0.025	0.025	0.025	0.376	0.0751	0.0751	0.0751	No	No	No	No
	June	0.0013	0.0018	0.005	0.025	0.025	0.025	0.356	0.0712	0.0712	0.0712	No	No	No	No
	July	0.0015	0.0019	0.005	0.025	0.025	0.025	0.376	0.0752	0.0752	0.0752	No	No	No	No
	August	0.0014	0.0020	0.005	0.025	0.025	0.025	0.393	0.0786	0.0786	0.0786	No	No	No	No
	September	0.0017	0.0024	0.005	0.025	0.025	0.025	0.478	0.0956	0.0956	0.0956	No	No	No	No
	October	0.0017	0.0024	0.005	0.025	0.025	0.025	0.485	0.0971	0.0971	0.0971	No	No	No	No
	November	0.0017	0.0024	0.005	0.025	0.025	0.025	0.485	0.0970	0.0970	0.0970	No	No	No	No
	December	0.0017	0.0024	0.005	0.025	0.025	0.025	0.485	0.0971	0.0971	0.0971	No	No	No	No
Post-Closure Phase (36-99)	January	0.0021	0.0023	0.005	0.025	0.025	0.025	0.463	0.0927	0.0927	0.0927	No	No	No	No
	February	0.0021	0.0023	0.005	0.025	0.025	0.025	0.463	0.0926	0.0926	0.0926	No	No	No	No
	March	0.0021	0.0023	0.005	0.025	0.025	0.025	0.464	0.0928	0.0928	0.0928	No	No	No	No
	April	0.0018	0.0021	0.005	0.025	0.025	0.025	0.417	0.0833	0.0833	0.0833	No	No	No	No
	May	0.0016	0.0018	0.005	0.025	0.025	0.025	0.363	0.0726	0.0726	0.0726	No	No	No	No
	June	0.0015	0.0017	0.005	0.025	0.025	0.025	0.343	0.0686	0.0686	0.0686	No	No	No	No
	July	0.0017	0.0019	0.005	0.025	0.025	0.025	0.374	0.0748	0.0748	0.0748	No	No	No	No
	August	0.0018	0.0020	0.005	0.025	0.025	0.025	0.405	0.0810	0.0810	0.0810	No	No	No	No
	September	0.0020	0.0023	0.005	0.025	0.025	0.025	0.450	0.0900	0.0900	0.0900	No	No	No	No
	October	0.0020	0.0023	0.005	0.025	0.025	0.025	0.458	0.0917	0.0917	0.0917	No	No	No	No
	November	0.0021	0.0023	0.005	0.025	0.025	0.025	0.463	0.0927	0.0927	0.0927	No	No	No	No
	December	0.0021	0.0023	0.005	0.025	0.025	0.025	0.464	0.0927	0.0927	0.0927	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D6d. T Creek Hazard Quotients for Total Barium Concentrations, Expected Case

Project Phase	Months	First Screening Step									Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum		Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Guideline	Maximum Predicted vs. BC MOE Working 30-Day Guideline			
						Mean				Maximum		
Construction (-2 to-1)	January	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	No	No
	February	0.0076	0.0076	1	5	1	0.0076	0.0076	0.0015	0.0076	No	No
	March	0.0074	0.0074	1	5	1	0.0074	0.0074	0.0015	0.0074	No	No
	April	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
	May	0.0060	0.0060	1	5	1	0.0060	0.0060	0.0012	0.0060	No	No
	June	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	July	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	August	0.0079	0.0079	1	5	1	0.0079	0.0079	0.0016	0.0079	No	No
	September	0.0078	0.0078	1	5	1	0.0078	0.0078	0.0016	0.0078	No	No
	October	0.0042	0.0063	1	5	1	0.0042	0.0063	0.0013	0.0063	No	No
	November	0.0040	0.0068	1	5	1	0.0040	0.0068	0.0014	0.0068	No	No
	December	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
Operation 1 Phase (1-23)	January	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	No	No
	February	0.0076	0.0076	1	5	1	0.0076	0.0076	0.0015	0.0076	No	No
	March	0.0074	0.0074	1	5	1	0.0074	0.0074	0.0015	0.0074	No	No
	April	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
	May	0.0060	0.0060	1	5	1	0.0060	0.0060	0.0012	0.0060	No	No
	June	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	July	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	August	0.0079	0.0079	1	5	1	0.0079	0.0079	0.0016	0.0079	No	No
	September	0.0078	0.0078	1	5	1	0.0078	0.0078	0.0016	0.0078	No	No
	October	0.0060	0.0064	1	5	1	0.0060	0.0064	0.0013	0.0064	No	No
	November	0.0063	0.0068	1	5	1	0.0063	0.0068	0.0014	0.0068	No	No
	December	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
Operations 2 Phase (24-28)	January	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	No	No
	February	0.0076	0.0076	1	5	1	0.0076	0.0076	0.0015	0.0076	No	No
	March	0.0074	0.0074	1	5	1	0.0074	0.0074	0.0015	0.0074	No	No
	April	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
	May	0.0060	0.0060	1	5	1	0.0060	0.0060	0.0012	0.0060	No	No
	June	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	July	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	August	0.0079	0.0079	1	5	1	0.0079	0.0079	0.0016	0.0079	No	No
	September	0.0078	0.0078	1	5	1	0.0078	0.0078	0.0016	0.0078	No	No
	October	0.0064	0.0064	1	5	1	0.0064	0.0064	0.0013	0.0064	No	No
	November	0.0068	0.0068	1	5	1	0.0068	0.0068	0.0014	0.0068	No	No
	December	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
Closure Phase (29-35)	January	0.0101	0.0128	1	5	1	0.0101	0.0128	0.0026	0.0128	No	No
	February	0.0103	0.0128	1	5	1	0.0103	0.0128	0.0026	0.0128	No	No
	March	0.0102	0.0128	1	5	1	0.0102	0.0128	0.0026	0.0128	No	No
	April	0.0097	0.0121	1	5	1	0.0097	0.0121	0.0024	0.0121	No	No
	May	0.0086	0.0108	1	5	1	0.0086	0.0108	0.0022	0.0108	No	No
	June	0.0094	0.0110	1	5	1	0.0094	0.0110	0.0022	0.0110	No	No
	July	0.0090	0.0106	1	5	1	0.0090	0.0106	0.0021	0.0106	No	No
	August	0.0102	0.0117	1	5	1	0.0102	0.0117	0.0023	0.0117	No	No
	September	0.0109	0.0128	1	5	1	0.0109	0.0128	0.0026	0.0128	No	No
	October	0.0105	0.0128	1	5	1	0.0105	0.0128	0.0026	0.0128	No	No
	November	0.0106	0.0128	1	5	1	0.0106	0.0128	0.0026	0.0128	No	No
	December	0.0107	0.0128	1	5	1	0.0107	0.0128	0.0026	0.0128	No	No
Post-Closure Phase (36-99)	January	0.0108	0.0120	1	5	1	0.0108	0.0120	0.0024	0.0120	No	No
	February	0.0108	0.0120	1	5	1	0.0108	0.0120	0.0024	0.0120	No	No
	March	0.0108	0.0120	1	5	1	0.0108	0.0120	0.0024	0.0120	No	No
	April	0.0101	0.0115	1	5	1	0.0101	0.0115	0.0023	0.0115	No	No
	May	0.0092	0.0103	1	5	1	0.0092	0.0103	0.0021	0.0103	No	No
	June	0.0093	0.0104	1	5	1	0.0093	0.0104	0.0021	0.0104	No	No
	July	0.0094	0.0103	1	5	1	0.0094	0.0103	0.0021	0.0103	No	No
	August	0.0102	0.0113	1	5	1	0.0102	0.0113	0.0023	0.0113	No	No
	September	0.0102	0.0118	1	5	1	0.0102	0.0118	0.0024	0.0118	No	No
	October	0.0103	0.0119	1	5	1	0.0103	0.0119	0.0024	0.0119	No	No
	November	0.0107	0.0120	1	5	1	0.0107	0.0120	0.0024	0.0120	No	No
	December	0.0107	0.0120	1	5	1	0.0107	0.0120	0.0024	0.0120	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D6e. T Creek Hazard Quotients for Total Beryllium Concentrations, Expected Case

Project Phase	Months	First Screening Step								Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working (Chronic, 30-day mean)	BC DWQG	BC MOE Working	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Working Guideline			
Construction (-2 to-1)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00188	0.00189	0.00250	0.00010	No	No	No
	May	0.00012	0.00012	0.0053	0.004	0.1	0.0235	0.0236	0.0312	0.00125	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0189	0.0250	0.00100	No	No	No
	July	0.00013	0.00013	0.0053	0.004	0.1	0.0251	0.0251	0.0333	0.00133	No	No	No
	August	0.00013	0.00013	0.0053	0.004	0.1	0.0252	0.0252	0.0333	0.00133	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0242	0.00097	No	No	No
	October	0.00004	0.00006	0.0053	0.004	0.1	0.00712	0.0108	0.0143	0.00057	No	No	No
	November	0.00003	0.00005	0.0053	0.004	0.1	0.00611	0.0104	0.0137	0.00055	No	No	No
	December	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
Operation 1 Phase (1-23)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00012	0.00013	0.0053	0.004	0.1	0.0236	0.0236	0.0313	0.00125	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	July	0.00013	0.00013	0.0053	0.004	0.1	0.0251	0.0252	0.0333	0.00133	No	No	No
	August	0.00013	0.00013	0.0053	0.004	0.1	0.0252	0.0252	0.0333	0.00133	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0242	0.00097	No	No	No
	October	0.00005	0.00006	0.0053	0.004	0.1	0.0102	0.0108	0.0144	0.00058	No	No	No
	November	0.00005	0.00006	0.0053	0.004	0.1	0.00964	0.0104	0.0138	0.00055	No	No	No
	December	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00013	0.00013	0.0053	0.004	0.1	0.0236	0.0236	0.0313	0.00125	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	July	0.00013	0.00013	0.0053	0.004	0.1	0.0252	0.0252	0.0333	0.00133	No	No	No
	August	0.00013	0.00013	0.0053	0.004	0.1	0.0252	0.0252	0.0333	0.00133	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0242	0.00097	No	No	No
	October	0.00006	0.00006	0.0053	0.004	0.1	0.0108	0.0108	0.0144	0.00058	No	No	No
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	December	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
Closure Phase (29-35)	January	0.00004	0.00006	0.0053	0.004	0.1	0.00698	0.0104	0.0138	0.00055	No	No	No
	February	0.00002	0.00002	0.0053	0.004	0.1	0.00334	0.00452	0.00598	0.00024	No	No	No
	March	0.00002	0.00002	0.0053	0.004	0.1	0.00334	0.00451	0.00598	0.00024	No	No	No
	April	0.00002	0.00002	0.0053	0.004	0.1	0.00315	0.00418	0.00554	0.00022	No	No	No
	May	0.00008	0.00013	0.0053	0.004	0.1	0.0158	0.0236	0.0313	0.00125	No	No	No
	June	0.00006	0.00010	0.0053	0.004	0.1	0.0115	0.0189	0.0250	0.00100	No	No	No
	July	0.00008	0.00013	0.0053	0.004	0.1	0.0156	0.0252	0.0333	0.00133	No	No	No
	August	0.00008	0.00013	0.0053	0.004	0.1	0.0144	0.0252	0.0333	0.00133	No	No	No
	September	0.00005	0.00010	0.0053	0.004	0.1	0.00858	0.0182	0.0242	0.00097	No	No	No
	October	0.00003	0.00006	0.0053	0.004	0.1	0.00627	0.0108	0.0144	0.00058	No	No	No
	November	0.00003	0.00006	0.0053	0.004	0.1	0.00612	0.0104	0.0138	0.00055	No	No	No
	December	0.00003	0.00006	0.0053	0.004	0.1	0.00612	0.0104	0.0138	0.00055	No	No	No
Post-Closure Phase (36-99)	January	0.00003	0.00003	0.0053	0.004	0.1	0.00476	0.00514	0.00681	0.00027	No	No	No
	February	0.00003	0.00003	0.0053	0.004	0.1	0.00475	0.00514	0.00680	0.00027	No	No	No
	March	0.00003	0.00003	0.0053	0.004	0.1	0.00476	0.00514	0.00681	0.00027	No	No	No
	April	0.00002	0.00002	0.0053	0.004	0.1	0.00434	0.00466	0.00618	0.00025	No	No	No
	May	0.00005	0.00005	0.0053	0.004	0.1	0.00984	0.0101	0.0134	0.00054	No	No	No
	June	0.00004	0.00005	0.0053	0.004	0.1	0.00842	0.00869	0.0115	0.00046	No	No	No
	July	0.00006	0.00006	0.0053	0.004	0.1	0.0107	0.0110	0.0146	0.00058	No	No	No
	August	0.00004	0.00005	0.0053	0.004	0.1	0.00823	0.00867	0.0115	0.00046	No	No	No
	September	0.00003	0.00003	0.0053	0.004	0.1	0.00490	0.00524	0.00695	0.00028	No	No	No
	October	0.00002	0.00003	0.0053	0.004	0.1	0.00459	0.00493	0.00654	0.00026	No	No	No
	November	0.00003	0.00003	0.0053	0.004	0.1	0.00478	0.00516	0.00684	0.00027	No	No	No
	December	0.00003	0.00003	0.0053	0.004	0.1	0.00477	0.00515	0.00683	0.00027	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D6f. T Creek Hazard Quotients for Total Boron Concentrations, Expected Case

Project Phase		First Screening Step											Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline					
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
Construction (-2 to-1)	January	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	0.0060	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0498	0.0500	1.2	5	5	5	0.0416	0.0100	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0154	0.0199	1.2	5	5	5	0.0166	0.0040	0.0040	0.0040	0.0040	No	No	No	No
	November	0.0203	0.0299	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	0.0060	No	No	No	No
Operation 1 Phase (1-23)	January	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	0.0060	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0101	1.2	5	5	5	0.0084	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0100	0.0101	1.2	5	5	5	0.0084	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	July	0.0100	0.0101	1.2	5	5	5	0.0084	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0198	0.0208	1.2	5	5	5	0.0173	0.0042	0.0042	0.0042	0.0042	No	No	No	No
	November	0.0290	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	0.0060	No	No	No	No
Operations 2 Phase (24-28)	January	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	0.0060	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	0.0040	No	No	No	No
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	0.0060	No	No	No	No
Closure Phase (29-35)	January	0.0463	0.0615	1.2	5	5	5	0.0513	0.0123	0.0123	0.0123	0.0123	No	No	No	No
	February	0.0549	0.0615	1.2	5	5	5	0.0513	0.0123	0.0123	0.0123	0.0123	No	No	No	No
	March	0.0549	0.0615	1.2	5	5	5	0.0512	0.0123	0.0123	0.0123	0.0123	No	No	No	No
	April	0.0542	0.0601	1.2	5	5	5	0.0500	0.0120	0.0120	0.0120	0.0120	No	No	No	No
	May	0.0295	0.0465	1.2	5	5	5	0.0388	0.0093	0.0093	0.0093	0.0093	No	No	No	No
	June	0.0348	0.0471	1.2	5	5	5	0.0392	0.0094	0.0094	0.0094	0.0094	No	No	No	No
	July	0.0320	0.0443	1.2	5	5	5	0.0369	0.0089	0.0089	0.0089	0.0089	No	No	No	No
	August	0.0348	0.0493	1.2	5	5	5	0.0411	0.0099	0.0099	0.0099	0.0099	No	No	No	No
	September	0.0434	0.0607	1.2	5	5	5	0.0506	0.0121	0.0121	0.0121	0.0121	No	No	No	No
	October	0.0469	0.0616	1.2	5	5	5	0.0513	0.0123	0.0123	0.0123	0.0123	No	No	No	No
	November	0.0498	0.0615	1.2	5	5	5	0.0513	0.0123	0.0123	0.0123	0.0123	No	No	No	No
	December	0.0498	0.0616	1.2	5	5	5	0.0513	0.0123	0.0123	0.0123	0.0123	No	No	No	No
Post-Closure Phase (36-99)	January	0.0440	0.0540	1.2	5	5	5	0.0450	0.0108	0.0108	0.0108	0.0108	No	No	No	No
	February	0.0440	0.0540	1.2	5	5	5	0.0450	0.0108	0.0108	0.0108	0.0108	No	No	No	No
	March	0.0441	0.0541	1.2	5	5	5	0.0451	0.0108	0.0108	0.0108	0.0108	No	No	No	No
	April	0.0435	0.0540	1.2	5	5	5	0.0450	0.0108	0.0108	0.0108	0.0108	No	No	No	No
	May	0.0334	0.0422	1.2	5	5	5	0.0352	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	June	0.0336	0.0422	1.2	5	5	5	0.0352	0.0084	0.0084	0.0084	0.0084	No	No	No	No
	July	0.0338	0.0412	1.2	5	5	5	0.0343	0.0082	0.0082	0.0082	0.0082	No	No	No	No
	August	0.0380	0.0470	1.2	5	5	5	0.0392	0.0094	0.0094	0.0094	0.0094	No	No	No	No
	September	0.0411	0.0532	1.2	5	5	5	0.0443	0.0106	0.0106	0.0106	0.0106	No	No	No	No
	October	0.0419	0.0540	1.2	5	5	5	0.0450	0.0108	0.0108	0.0108	0.0108	No	No	No	No
	November	0.0437	0.0540	1.2	5	5	5	0.0450	0.0108	0.0108	0.0108	0.0108	No	No	No	No
	December	0.0437	0.0540	1.2	5	5	5	0.0450	0.0108	0.0108	0.0108	0.0108	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D6g. T Creek Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE Working		Maximum Predicted vs BC MOE Working Guideline
Construction (-2 to-1)	January	7.23	7.23	1000	0.0072	No
	February	8.08	8.08	1000	0.0081	No
	March	7.91	7.91	1000	0.0079	No
	April	6.76	6.78	1000	0.0068	No
	May	4.44	4.44	1000	0.0044	No
	June	3.71	3.71	1000	0.0037	No
	July	5.54	5.55	1000	0.0056	No
	August	6.68	6.68	1000	0.0067	No
	September	7.10	7.10	1000	0.0071	No
	October	4.33	6.02	1000	0.0060	No
	November	4.05	6.14	1000	0.0061	No
	December	6.50	6.50	1000	0.0065	No
Operation 1 Phase (1-23)	January	7.23	7.23	1000	0.0072	No
	February	8.08	8.08	1000	0.0081	No
	March	7.91	7.91	1000	0.0079	No
	April	6.78	6.78	1000	0.0068	No
	May	4.44	4.44	1000	0.0044	No
	June	3.71	3.71	1000	0.0037	No
	July	5.55	5.55	1000	0.0056	No
	August	6.68	6.68	1000	0.0067	No
	September	7.10	7.10	1000	0.0071	No
	October	5.86	6.06	1000	0.0061	No
	November	5.91	6.16	1000	0.0062	No
	December	6.50	6.50	1000	0.0065	No
Operations 2 Phase (24-28)	January	7.23	7.23	1000	0.0072	No
	February	8.08	8.08	1000	0.0081	No
	March	7.91	7.91	1000	0.0079	No
	April	6.78	6.78	1000	0.0068	No
	May	4.44	4.44	1000	0.0044	No
	June	3.71	3.71	1000	0.0037	No
	July	5.55	5.55	1000	0.0056	No
	August	6.68	6.68	1000	0.0067	No
	September	7.10	7.10	1000	0.0071	No
	October	6.06	6.06	1000	0.0061	No
	November	6.16	6.16	1000	0.0062	No
	December	6.50	6.50	1000	0.0065	No
Closure Phase (29-35)	January	19.0	29.0	1000	0.0290	No
	February	19.3	29.0	1000	0.0290	No
	March	19.2	29.0	1000	0.0290	No
	April	17.2	26.2	1000	0.0262	No
	May	13.8	21.8	1000	0.0218	No
	June	16.0	21.9	1000	0.0219	No
	July	15.6	21.2	1000	0.0212	No
	August	17.5	23.8	1000	0.0238	No
	September	21.4	28.7	1000	0.0287	No
	October	21.3	29.0	1000	0.0290	No
	November	21.3	29.0	1000	0.0290	No
	December	21.4	29.0	1000	0.0290	No
Post-Closure Phase (36-99)	January	26.6	28.4	1000	0.0284	No
	February	26.5	28.4	1000	0.0284	No
	March	26.6	28.5	1000	0.0285	No
	April	23.9	25.6	1000	0.0256	No
	May	19.7	21.1	1000	0.0211	No
	June	19.7	21.0	1000	0.0210	No
	July	20.3	21.7	1000	0.0217	No
	August	23.1	24.8	1000	0.0248	No
	September	25.0	27.0	1000	0.0270	No
	October	25.4	27.4	1000	0.0274	No
	November	26.5	28.4	1000	0.0284	No
	December	26.5	28.4	1000	0.0284	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D6h. T Creek Hazard Quotients for Dissolved and Total Cadmium Concentrations, Expected Case

Project Phase	Months	First Screening Step										
		Predicted Concentrations				Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		
		Dissolved Cadmium		Total Cadmium		BC MOE Draft Guideline for Mean Dissolved Cadmium	BC MOE Draft Guideline for Maximum Dissolved Cadmium	Canadian DWQG	BC MOE Working	Mean Predicted vs. BC MOE Draft Guideline for Mean Dissolved Cadmium	Maximum Predicted vs. BC MOE Draft Guideline for Mean Dissolved Cadmium	Maximum Predicted vs. BC MOE Draft Guideline for Maximum Dissolved Cadmium
		Mean	Maximum	Mean	Maximum							
Construction (-2 to-1)	January	0.000008	0.000008	0.000008	0.000008	0.000024	0.000067	0.005	0.08	0.317	0.317	0.111
	February	0.000005	0.000005	0.000005	0.000005	0.000026	0.000076	0.005	0.08	0.194	0.194	0.066
	March	0.000005	0.000005	0.000005	0.000005	0.000025	0.000075	0.005	0.08	0.196	0.196	0.067
	April	0.000005	0.000005	0.000005	0.000005	0.000023	0.000064	0.005	0.08	0.220	0.221	0.079
	May	0.000009	0.000009	0.000041	0.000041	0.000016	0.000039	0.005	0.08	0.598	0.599	0.244
	June	0.000013	0.000013	0.000014	0.000014	0.000014	0.000034	0.005	0.08	0.916	0.917	0.388
	July	0.000010	0.000010	0.000010	0.000010	0.000018	0.000045	0.005	0.08	0.594	0.595	0.232
	August	0.000038	0.000038	0.000038	0.000038	0.000022	0.000062	0.005	0.08	1.72	1.72	0.617
	September	0.000010	0.000010	0.000010	0.000010	0.000023	0.000065	0.005	0.08	0.411	0.411	0.145
	October	0.000005	0.000008	0.000005	0.000008	0.000019	0.000050	0.005	0.08	0.278	0.404	0.153
	November	0.000005	0.000007	0.000005	0.000007	0.000013	0.000029	0.005	0.08	0.365	0.585	0.257
	December	0.000008	0.000008	0.000012	0.000012	0.000023	0.000065	0.005	0.08	0.327	0.327	0.116
Operation 1 Phase (1-23)	January	0.000008	0.000008	0.000008	0.000008	0.000024	0.000067	0.005	0.08	0.317	0.317	0.111
	February	0.000005	0.000005	0.000005	0.000005	0.000026	0.000076	0.005	0.08	0.194	0.194	0.066
	March	0.000005	0.000005	0.000005	0.000005	0.000025	0.000075	0.005	0.08	0.196	0.196	0.067
	April	0.000005	0.000005	0.000005	0.000005	0.000023	0.000064	0.005	0.08	0.221	0.221	0.079
	May	0.000009	0.000009	0.000041	0.000041	0.000016	0.000039	0.005	0.08	0.599	0.599	0.244
	June	0.000013	0.000013	0.000014	0.000014	0.000014	0.000034	0.005	0.08	0.917	0.918	0.388
	July	0.000010	0.000011	0.000010	0.000011	0.000018	0.000045	0.005	0.08	0.595	0.595	0.232
	August	0.000038	0.000038	0.000038	0.000038	0.000022	0.000062	0.005	0.08	1.721	1.72	0.617
	September	0.000010	0.000010	0.000010	0.000010	0.000023	0.000065	0.005	0.08	0.411	0.411	0.145
	October	0.000007	0.000008	0.000008	0.000008	0.000019	0.000050	0.005	0.08	0.387	0.406	0.154
	November	0.000007	0.000008	0.000007	0.000008	0.000013	0.000029	0.005	0.08	0.553	0.586	0.257
	December	0.000008	0.000008	0.000012	0.000012	0.000023	0.000065	0.005	0.08	0.327	0.327	0.116
Operations 2 Phase (24-28)	January	0.000008	0.000008	0.000008	0.000008	0.000024	0.000067	0.005	0.08	0.317	0.317	0.111
	February	0.000005	0.000005	0.000005	0.000005	0.000026	0.000076	0.005	0.08	0.194	0.194	0.066
	March	0.000005	0.000005	0.000005	0.000005	0.000025	0.000075	0.005	0.08	0.196	0.196	0.067
	April	0.000005	0.000005	0.000005	0.000005	0.000023	0.000064	0.005	0.08	0.221	0.221	0.079
	May	0.000009	0.000009	0.000041	0.000041	0.000016	0.000039	0.005	0.08	0.599	0.599	0.244
	June	0.000013	0.000013	0.000014	0.000014	0.000014	0.000034	0.005	0.08	0.918	0.918	0.388
	July	0.000011	0.000011	0.000011	0.000011	0.000018	0.000045	0.005	0.08	0.595	0.595	0.232
	August	0.000038	0.000038	0.000038	0.000038	0.000022	0.000062	0.005	0.08	1.721	1.72	0.617
	September	0.000010	0.000010	0.000010	0.000010	0.000023	0.000065	0.005	0.08	0.411	0.411	0.145
	October	0.000008	0.000008	0.000008	0.000008	0.000019	0.000050	0.005	0.08	0.406	0.406	0.154
	November	0.000008	0.000008	0.000008	0.000008	0.000013	0.000029	0.005	0.08	0.586	0.586	0.257
	December	0.000008	0.000008	0.000012	0.000012	0.000023	0.000065	0.005	0.08	0.327	0.327	0.116
Closure Phase (29-35)	January	0.000029	0.000047	0.000030	0.000049	0.000024	0.000067	0.005	0.08	1.24	2.00	0.699
	February	0.000028	0.000047	0.000029	0.000049	0.000026	0.000076	0.005	0.08	1.09	1.83	0.621
	March	0.000028	0.000047	0.000029	0.000049	0.000025	0.000075	0.005	0.08	1.10	1.85	0.632
	April	0.000025	0.000042	0.000026	0.000043	0.000023	0.000064	0.005	0.08	1.11	1.85	0.658
	May	0.000024	0.000036	0.000044	0.000046	0.000016	0.000039	0.005	0.08	1.52	2.30	0.937
	June	0.000030	0.000038	0.000031	0.000039	0.000014	0.000034	0.005	0.08	2.09	2.65	1.12
	July	0.000026	0.000035	0.000027	0.000036	0.000018	0.000045	0.005	0.08	1.49	1.98	0.772
	August	0.000042	0.000045	0.000043	0.000047	0.000022	0.000062	0.005	0.08	1.88	2.03	0.728
	September	0.000034	0.000047	0.000036	0.000048	0.000023	0.000065	0.005	0.08	1.49	2.02	0.713
	October	0.000034	0.000047	0.000036	0.000049	0.000019	0.000050	0.005	0.08	1.80	2.48	0.939
	November	0.000034	0.000047	0.000035	0.000049	0.000013	0.000029	0.005	0.08	2.68	3.69	1.62
	December	0.000034	0.000047	0.000037	0.000049	0.000023	0.000065	0.005	0.08	1.50	2.06	0.731
Post-Closure Phase (36-99)	January	0.000084	0.000112	0.000086	0.000113	0.000024	0.000067	0.005	0.08	3.56	4.72	1.66
	February	0.000084	0.000112	0.000086	0.000113	0.000026	0.000076	0.005	0.08	3.26	4.33	1.47
	March	0.000084	0.000112	0.000086	0.000113	0.000025	0.000075	0.005	0.08	3.32	4.39	1.50
	April	0.000074	0.000099	0.000076	0.000100	0.000023	0.000064	0.005	0.08	3.29	4.35	1.55
	May	0.000062	0.000081	0.000071	0.000091	0.000016	0.000039	0.005	0.08	3.92	5.14	2.09
	June	0.000063	0.000082	0.000064	0.000084	0.000014	0.000034	0.005	0.08	4.45	5.81	2.45
	July	0.000063	0.000082	0.000064	0.000083	0.000018	0.000045	0.005	0.08	3.55	4.65	1.82
	August	0.000077	0.000100	0.000078	0.000101	0.000022	0.000062	0.005	0.08	3.44	4.48	1.60
	September	0.000079	0.000105	0.000081	0.000106	0.000023	0.000065	0.005	0.08	3.43	4.53	1.60
	October	0.000081	0.000107	0.000082	0.000108	0.000019	0.000050	0.005	0.08	4.24	5.60	2.12
	November	0.000084	0.000112	0.000086	0.000113	0.000013	0.000029	0.005	0.08	6.60	8.73	3.83
	December	0.000084	0.000112	0.000086	0.000113	0.000023	0.000065	0.005	0.08	3.68	4.88	1.73

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guideline is hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

(continued)

Appendix 13-D6h. T Creek Hazard Quotients for Dissolved and Total Cadmium Concentrations, Expected Case (completed)

Project Phase	Months	First Screening Step		Second Screening Step						Retained as COPC?				
		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations				Hazard Quotient relative to Baseline				Aquatic Life	Drinking Water	Livestock
				Dissolved Cadmium		Total Cadmium		Cd Dissolved		Cd Total		Dissolved Cadmium	Total Cadmium	Total Cadmium
				Mean	95%ile	Mean	95%ile	Mean	95%ile	Mean	95%ile			
Construction (-2 to-1)	January	0.00150	0.000094									No	No	No
	February	0.00100	0.000063									No	No	No
	March	0.00100	0.000063									No	No	No
	April	0.00100	0.000062									No	No	No
	May	0.00826	0.000517									No	No	No
	June	0.00273	0.000171									No	No	No
	July	0.00210	0.000131									No	No	No
	August	0.00767	0.000479	0.000038	0.000082	0.000038	0.000082	1.00	0.466	1.00	0.466	No	No	No
	September	0.00190	0.000119									No	No	No
	October	0.00159	0.000099									No	No	No
	November	0.00150	0.000094									No	No	No
	December	0.00240	0.000150									No	No	No
Operation 1 Phase (1-23)	January	0.00150	0.000094									No	No	No
	February	0.00100	0.000063									No	No	No
	March	0.00100	0.000063									No	No	No
	April	0.00100	0.000063									No	No	No
	May	0.00827	0.000517									No	No	No
	June	0.00273	0.000171									No	No	No
	July	0.00210	0.000131									No	No	No
	August	0.00767	0.000479	0.000038	0.000082	0.000038	0.000082	1.00	0.466	1.00	0.466	No	No	No
	September	0.00190	0.000119									No	No	No
	October	0.00160	0.000100									No	No	No
	November	0.00150	0.000094									No	No	No
	December	0.00240	0.000150									No	No	No
Operations 2 Phase (24-28)	January	0.00150	0.000094									No	No	No
	February	0.00100	0.000063									No	No	No
	March	0.00100	0.000063									No	No	No
	April	0.00100	0.000063									No	No	No
	May	0.00827	0.000517									No	No	No
	June	0.00273	0.000171									No	No	No
	July	0.00210	0.000131									No	No	No
	August	0.00767	0.000479	0.000038	0.000082	0.000038	0.000082	1.00	0.466	1.00	0.466	No	No	No
	September	0.00190	0.000119									No	No	No
	October	0.00160	0.000100									No	No	No
	November	0.00150	0.000094									No	No	No
	December	0.00240	0.000150									No	No	No
Closure Phase (29-35)	January	0.00977	0.000611	0.000008	0.000010	0.000008	0.000010	3.89	4.84	4.02	5.01	Yes	No	No
	February	0.00976	0.000610	0.000005	0.000005	0.000005	0.000005	5.62	9.43	5.81	9.76	Yes	No	No
	March	0.00976	0.000610	0.000005	0.000005	0.000005	0.000005	5.62	9.42	5.80	9.76	Yes	No	No
	April	0.00867	0.000542	0.000005	0.000005	0.000005	0.000005	5.03	8.38	5.19	8.67	Yes	No	No
	May	0.00930	0.000581	0.000009	0.000010	0.000041	0.000139	2.54	3.61	1.05	0.334	Yes	No	No
	June	0.00778	0.000487	0.000013	0.000016	0.000014	0.000019	2.27	2.34	2.25	2.07	Yes	No	No
	July	0.00720	0.000450	0.000011	0.000016	0.000011	0.000016	2.51	2.24	2.58	2.31	Yes	No	No
	August	0.00931	0.000582	0.000038	0.000082	0.000038	0.000082	1.09	0.550	1.11	0.57	Yes	No	No
	September	0.00967	0.000604	0.000010	0.000010	0.000010	0.000010	3.63	4.67	3.74	4.83	Yes	No	No
	October	0.00978	0.000612	0.000008	0.000010	0.000008	0.000010	4.44	4.72	4.45	4.89	Yes	No	No
	November	0.00978	0.000611	0.000008	0.000010	0.000008	0.000010	4.57	4.84	4.72	5.01	Yes	No	No
	December	0.00978	0.000611	0.000008	0.000010	0.000012	0.000012	4.57	4.84	3.06	4.07	Yes	No	No
Post-Closure Phase (36-99)	January	0.0226	0.00142	0.000008	0.000010	0.000008	0.000010	11.2	11.5	11.4	11.6	Yes	No	No
	February	0.0226	0.00141	0.000005	0.000005	0.000005	0.000005	16.8	22.3	17.1	22.6	Yes	No	No
	March	0.0227	0.00142	0.000005	0.000005	0.000005	0.000005	16.9	22.4	17.1	22.7	Yes	No	No
	April	0.0200	0.00125	0.000005	0.000005	0.000005	0.000005	14.9	19.7	15.1	20.0	Yes	No	No
	May	0.0181	0.00113	0.000009	0.000010	0.000041	0.000139	6.55	8.07	1.73	0.652	Yes	No	No
	June	0.0167	0.00105	0.000013	0.000016	0.000014	0.000019	4.85	5.14	4.70	4.45	Yes	No	No
	July	0.0166	0.00104	0.000011	0.000016	0.000011	0.000016	5.96	5.26	6.05	5.33	Yes	No	No
	August	0.0202	0.00126	0.000038	0.000082	0.000038	0.000082	2.00	1.21	2.03	1.23	Yes	No	No
	September	0.0213	0.00133	0.000010	0.000010	0.000010	0.000010	8.34	10.5	8.47	10.6	Yes	No	No
	October	0.0217	0.00135	0.000008	0.000010	0.000008	0.000010	10.4	10.7	10.3	10.8	Yes	No	No
	November	0.0227	0.00142	0.000008	0.000010	0.000008	0.000010	11.3	11.5	11.4	11.6	Yes	No	No
	December	0.0227	0.00142	0.000008	0.000010	0.000012	0.000012	11.3	11.5	7.15	9.44	Yes	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guideline is hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D6i. T Creek Hazard Quotients for Total Chromium Concentrations, Expected Case

Project Phase	Months	First Screening Step								Retained as COPC?					
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline	Canadian DWQG	BC MOE Working	Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline				
Construction (-2 to-1)	January	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	February	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	March	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	April	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	May	0.00019	0.00019	0.001	0.0089	0.05	0.05	0.192	0.0216	0.00385	0.00385	No	No	No	
	June	0.00021	0.00021	0.001	0.0089	0.05	0.05	0.213	0.0240	0.00427	0.00427	No	No	No	
	July	0.00014	0.00014	0.001	0.0089	0.05	0.05	0.143	0.0161	0.00287	0.00287	No	No	No	
	August	0.00013	0.00013	0.001	0.0089	0.05	0.05	0.133	0.0150	0.00267	0.00267	No	No	No	
	September	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.153	0.0172	0.00307	0.00307	No	No	No	
	October	0.00009	0.00013	0.001	0.0089	0.05	0.05	0.129	0.0145	0.00258	0.00258	No	No	No	
	November	0.00006	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	December	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	February	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	March	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	April	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	May	0.00019	0.00019	0.001	0.0089	0.05	0.05	0.193	0.0216	0.00385	0.00385	No	No	No	
	June	0.00021	0.00021	0.001	0.0089	0.05	0.05	0.213	0.0240	0.00427	0.00427	No	No	No	
	July	0.00014	0.00014	0.001	0.0089	0.05	0.05	0.143	0.0161	0.00287	0.00287	No	No	No	
	August	0.00013	0.00013	0.001	0.0089	0.05	0.05	0.133	0.0150	0.00267	0.00267	No	No	No	
	September	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.153	0.0172	0.00307	0.00307	No	No	No	
	October	0.00012	0.00013	0.001	0.0089	0.05	0.05	0.130	0.0146	0.00260	0.00260	No	No	No	
	November	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	December	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	February	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	March	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	April	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	May	0.00019	0.00019	0.001	0.0089	0.05	0.05	0.193	0.0216	0.00385	0.00385	No	No	No	
	June	0.00021	0.00021	0.001	0.0089	0.05	0.05	0.213	0.0240	0.00427	0.00427	No	No	No	
	July	0.00014	0.00014	0.001	0.0089	0.05	0.05	0.143	0.0161	0.00287	0.00287	No	No	No	
	August	0.00013	0.00013	0.001	0.0089	0.05	0.05	0.133	0.0150	0.00267	0.00267	No	No	No	
	September	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.153	0.0172	0.00307	0.00307	No	No	No	
	October	0.00013	0.00013	0.001	0.0089	0.05	0.05	0.130	0.0146	0.00260	0.00260	No	No	No	
	November	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
	December	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200	0.00200	No	No	No	
Closure Phase (29-35)	January	0.00014	0.00017	0.001	0.0089	0.05	0.05	0.174	0.0196	0.00348	0.00348	No	No	No	
	February	0.00014	0.00017	0.001	0.0089	0.05	0.05	0.174	0.0195	0.00348	0.00348	No	No	No	
	March	0.00014	0.00017	0.001	0.0089	0.05	0.05	0.174	0.0195	0.00348	0.00348	No	No	No	
	April	0.00013	0.00016	0.001	0.0089	0.05	0.05	0.165	0.0185	0.00329	0.00329	No	No	No	
	May	0.00018	0.00019	0.001	0.0089	0.05	0.05	0.193	0.0216	0.00385	0.00385	No	No	No	
	June	0.00019	0.00021	0.001	0.0089	0.05	0.05	0.213	0.0240	0.00427	0.00427	No	No	No	
	July	0.00015	0.00016	0.001	0.0089	0.05	0.05	0.164	0.0184	0.00328	0.00328	No	No	No	
	August	0.00015	0.00016	0.001	0.0089	0.05	0.05	0.165	0.0185	0.00330	0.00330	No	No	No	
	September	0.00016	0.00017	0.001	0.0089	0.05	0.05	0.174	0.0196	0.00349	0.00349	No	No	No	
	October	0.00015	0.00017	0.001	0.0089	0.05	0.05	0.175	0.0196	0.00349	0.00349	No	No	No	
	November	0.00014	0.00017	0.001	0.0089	0.05	0.05	0.174	0.0196	0.00348	0.00348	No	No	No	
	December	0.00014	0.00017	0.001	0.0089	0.05	0.05	0.174	0.0196	0.00348	0.00348	No	No	No	
Post-Closure Phase (36-99)	January	0.00016	0.00019	0.001	0.0089	0.05	0.05	0.185	0.0208	0.00370	0.00370	No	No	No	
	February	0.00016	0.00019	0.001	0.0089	0.05	0.05	0.185	0.0208	0.00370	0.00370	No	No	No	
	March	0.00017	0.00019	0.001	0.0089	0.05	0.05	0.186	0.0209	0.00371	0.00371	No	No	No	
	April	0.00015	0.00017	0.001	0.0089	0.05	0.05	0.172	0.0193	0.00344	0.00344	No	No	No	
	May	0.00017	0.00018	0.001	0.0089	0.05	0.05	0.183	0.0205	0.00365	0.00365	No	No	No	
	June	0.00017	0.00019	0.001	0.0089	0.05	0.05	0.188	0.0211	0.00376	0.00376	No	No	No	
	July	0.00016	0.00017	0.001	0.0089	0.05	0.05	0.173	0.0194	0.00345	0.00345	No	No	No	
	August	0.00016	0.00018	0.001	0.0089	0.05	0.05	0.176	0.0198	0.00353	0.00353	No	No	No	
	September	0.00016	0.00018	0.001	0.0089	0.05	0.05	0.177	0.0199	0.00354	0.00354	No	No	No	
	October	0.00016	0.00018	0.001	0.0089	0.05	0.05	0.177	0.0199	0.00355	0.00355	No	No	No	
	November	0.00017	0.00019	0.001	0.0089	0.05	0.05	0.186	0.0209	0.00372	0.00372	No	No	No	
	December	0.00017	0.00019	0.001	0.0089	0.05	0.05	0.186	0.0209	0.00372	0.00372	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 CCME = Canadian Council of Ministers of the Environment

Appendix 13-D6j. T Creek Hazard Quotients for Total Cobalt Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Working	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Working Guideline	Aquatic Life
Construction (-2 to-1)	January	0.00006	0.00006	0.004	0.110	1	0.0141	0.0141	0.00051	0.00006	No	No
	February	0.00001	0.00001	0.004	0.110	1	0.00300	0.00300	0.00011	0.00001	No	No
	March	0.00001	0.00001	0.004	0.110	1	0.00300	0.00300	0.00011	0.00001	No	No
	April	0.00002	0.00002	0.004	0.110	1	0.00444	0.00445	0.00016	0.00002	No	No
	May	0.00012	0.00012	0.004	0.110	1	0.0312	0.0312	0.00114	0.00012	No	No
	June	0.00016	0.00016	0.004	0.110	1	0.0399	0.0400	0.00145	0.00016	No	No
	July	0.00013	0.00013	0.004	0.110	1	0.0332	0.0333	0.00121	0.00013	No	No
	August	0.00013	0.00013	0.004	0.110	1	0.0333	0.0333	0.00121	0.00013	No	No
	September	0.00008	0.00008	0.004	0.110	1	0.0197	0.0197	0.00072	0.00008	No	No
	October	0.00007	0.00011	0.004	0.110	1	0.0177	0.0263	0.00096	0.00011	No	No
	November	0.00003	0.00005	0.004	0.110	1	0.00835	0.0134	0.00049	0.00005	No	No
	December	0.00006	0.00006	0.004	0.110	1	0.0138	0.0138	0.00050	0.00006	No	No
Operation 1 Phase (1-23)	January	0.00006	0.00006	0.004	0.110	1	0.0141	0.0141	0.00051	0.00006	No	No
	February	0.00001	0.00001	0.004	0.110	1	0.00300	0.00300	0.00011	0.00001	No	No
	March	0.00001	0.00001	0.004	0.110	1	0.00300	0.00300	0.00011	0.00001	No	No
	April	0.00002	0.00002	0.004	0.110	1	0.00445	0.00445	0.00016	0.00002	No	No
	May	0.00012	0.00013	0.004	0.110	1	0.0312	0.0313	0.00114	0.00013	No	No
	June	0.00016	0.00016	0.004	0.110	1	0.0400	0.0400	0.00145	0.00016	No	No
	July	0.00013	0.00013	0.004	0.110	1	0.0333	0.0333	0.00121	0.00013	No	No
	August	0.00013	0.00013	0.004	0.110	1	0.0333	0.0333	0.00121	0.00013	No	No
	September	0.00008	0.00008	0.004	0.110	1	0.0197	0.0197	0.00072	0.00008	No	No
	October	0.00010	0.00011	0.004	0.110	1	0.0250	0.0265	0.00096	0.00011	No	No
	November	0.00005	0.00005	0.004	0.110	1	0.0126	0.0134	0.00049	0.00005	No	No
	December	0.00006	0.00006	0.004	0.110	1	0.0138	0.0138	0.00050	0.00006	No	No
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.004	0.110	1	0.0141	0.0141	0.00051	0.00006	No	No
	February	0.00001	0.00001	0.004	0.110	1	0.00300	0.00300	0.00011	0.00001	No	No
	March	0.00001	0.00001	0.004	0.110	1	0.00300	0.00300	0.00011	0.00001	No	No
	April	0.00002	0.00002	0.004	0.110	1	0.00445	0.00445	0.00016	0.00002	No	No
	May	0.00013	0.00013	0.004	0.110	1	0.0313	0.0313	0.00114	0.00013	No	No
	June	0.00016	0.00016	0.004	0.110	1	0.0400	0.0400	0.00145	0.00016	No	No
	July	0.00013	0.00013	0.004	0.110	1	0.0333	0.0333	0.00121	0.00013	No	No
	August	0.00013	0.00013	0.004	0.110	1	0.0333	0.0333	0.00121	0.00013	No	No
	September	0.00008	0.00008	0.004	0.110	1	0.0197	0.0197	0.00072	0.00008	No	No
	October	0.00011	0.00011	0.004	0.110	1	0.0265	0.0265	0.00096	0.00011	No	No
	November	0.00005	0.00005	0.004	0.110	1	0.0134	0.0134	0.00049	0.00005	No	No
	December	0.00006	0.00006	0.004	0.110	1	0.0138	0.0138	0.00050	0.00006	No	No
Closure Phase (29-35)	January	0.00206	0.00386	0.004	0.110	1	0.516	0.964	0.0351	0.00386	No	No
	February	0.00204	0.00385	0.004	0.110	1	0.510	0.963	0.0350	0.00385	No	No
	March	0.00204	0.00385	0.004	0.110	1	0.510	0.962	0.0350	0.00385	No	No
	April	0.00178	0.00337	0.004	0.110	1	0.445	0.843	0.0306	0.00337	No	No
	May	0.00151	0.00276	0.004	0.110	1	0.377	0.690	0.0251	0.00276	No	No
	June	0.00191	0.00285	0.004	0.110	1	0.477	0.714	0.0260	0.00285	No	No
	July	0.00169	0.00263	0.004	0.110	1	0.422	0.658	0.0239	0.00263	No	No
	August	0.00189	0.00299	0.004	0.110	1	0.471	0.748	0.0272	0.00299	No	No
	September	0.00247	0.00381	0.004	0.110	1	0.618	0.953	0.0347	0.00381	No	No
	October	0.00252	0.00387	0.004	0.110	1	0.631	0.967	0.0352	0.00387	No	No
	November	0.00250	0.00386	0.004	0.110	1	0.626	0.966	0.0351	0.00386	No	No
	December	0.00250	0.00386	0.004	0.110	1	0.626	0.965	0.0351	0.00386	No	No
Post-Closure Phase (36-99)	January	0.00161	0.00313	0.004	0.110	1	0.403	0.783	0.0285	0.00313	No	No
	February	0.00161	0.00313	0.004	0.110	1	0.403	0.782	0.0284	0.00313	No	No
	March	0.00161	0.00313	0.004	0.110	1	0.403	0.783	0.0285	0.00313	No	No
	April	0.00141	0.00284	0.004	0.110	1	0.353	0.711	0.0258	0.00284	No	No
	May	0.00116	0.00231	0.004	0.110	1	0.289	0.578	0.0210	0.00231	No	No
	June	0.00117	0.00232	0.004	0.110	1	0.292	0.580	0.0211	0.00232	No	No
	July	0.00116	0.00223	0.004	0.110	1	0.290	0.557	0.0203	0.00223	No	No
	August	0.00134	0.00261	0.004	0.110	1	0.334	0.653	0.0237	0.00261	No	No
	September	0.00148	0.00302	0.004	0.110	1	0.371	0.754	0.0274	0.00302	No	No
	October	0.00151	0.00307	0.004	0.110	1	0.378	0.768	0.0279	0.00307	No	No
	November	0.00158	0.00307	0.004	0.110	1	0.394	0.767	0.0279	0.00307	No	No
	December	0.00158	0.00307	0.004	0.110	1	0.394	0.767	0.0279	0.00307	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D61. T Creek Hazard Quotients for Dissolved and Total Iron Concentrations, Expected Case

Project Phase		First Screening Step										Retained as COPC?			
		Predicted Concentrations				Aquatic Life Guidelines		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Aquatic Life Guideline		Aquatic Life	
		Dissolved Iron		Total Iron		BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron				
		Mean	Maximum	Mean	Maximum										
Construction (-2 to-1)	January	0.0075	0.0075	0.0090	0.0090	0.35	1	0.0214	0.0090	No	No				
	February	0.0040	0.0040	0.0050	0.0050	0.35	1	0.0114	0.0050	No	No				
	March	0.0030	0.0030	0.0040	0.0040	0.35	1	0.0086	0.0040	No	No				
	April	0.0196	0.0197	0.0205	0.0206	0.35	1	0.0562	0.0206	No	No				
	May	0.0333	0.0333	0.102	0.102	0.35	1	0.0952	0.1025	No	No				
	June	0.0233	0.0233	0.189	0.189	0.35	1	0.0666	0.1889	No	No				
	July	0.0150	0.0150	0.0244	0.0245	0.35	1	0.0428	0.0245	No	No				
	August	0.0090	0.0090	0.0158	0.0158	0.35	1	0.0257	0.0158	No	No				
	September	0.0085	0.0085	0.0184	0.0184	0.35	1	0.0243	0.0184	No	No				
	October	0.0108	0.0164	0.0149	0.0226	0.35	1	0.0468	0.0226	No	No				
	November	0.0063	0.0105	0.0080	0.0135	0.35	1	0.0299	0.0135	No	No				
	December	0.0090	0.0090	0.0320	0.0320	0.35	1	0.0257	0.0320	No	No				
Operation 1 Phase (1-23)	January	0.0075	0.0075	0.0090	0.0090	0.35	1	0.0214	0.0090	No	No				
	February	0.0040	0.0040	0.0050	0.0050	0.35	1	0.0114	0.0050	No	No				
	March	0.0030	0.0030	0.0040	0.0040	0.35	1	0.0086	0.0040	No	No				
	April	0.0197	0.0197	0.0206	0.0206	0.35	1	0.0563	0.0206	No	No				
	May	0.0333	0.0333	0.102	0.103	0.35	1	0.0952	0.1025	No	No				
	June	0.0233	0.0233	0.189	0.189	0.35	1	0.0667	0.1890	No	No				
	July	0.0150	0.0150	0.0245	0.0245	0.35	1	0.0429	0.0245	No	No				
	August	0.0090	0.0090	0.0158	0.0158	0.35	1	0.0257	0.0158	No	No				
	September	0.0085	0.0085	0.0184	0.0184	0.35	1	0.0243	0.0184	No	No				
	October	0.0155	0.0165	0.0214	0.0228	0.35	1	0.0471	0.0228	No	No				
	November	0.0098	0.0105	0.0126	0.0135	0.35	1	0.0300	0.0135	No	No				
	December	0.0090	0.0090	0.0320	0.0320	0.35	1	0.0257	0.0320	No	No				
Operations 2 Phase (24-28)	January	0.0075	0.0075	0.0090	0.0090	0.35	1	0.0214	0.0090	No	No				
	February	0.0040	0.0040	0.0050	0.0050	0.35	1	0.0114	0.0050	No	No				
	March	0.0030	0.0030	0.0040	0.0040	0.35	1	0.0086	0.0040	No	No				
	April	0.0197	0.0197	0.0206	0.0206	0.35	1	0.0563	0.0206	No	No				
	May	0.0333	0.0333	0.103	0.103	0.35	1	0.0952	0.1025	No	No				
	June	0.0233	0.0233	0.189	0.189	0.35	1	0.0667	0.1890	No	No				
	July	0.0150	0.0150	0.0245	0.0245	0.35	1	0.0429	0.0245	No	No				
	August	0.0090	0.0090	0.0158	0.0158	0.35	1	0.0257	0.0158	No	No				
	September	0.0085	0.0085	0.0184	0.0184	0.35	1	0.0243	0.0184	No	No				
	October	0.0165	0.0165	0.0228	0.0228	0.35	1	0.0471	0.0228	No	No				
	November	0.0105	0.0105	0.0135	0.0135	0.35	1	0.0300	0.0135	No	No				
	December	0.0090	0.0090	0.0320	0.0320	0.35	1	0.0257	0.0320	No	No				
Closure Phase (29-35)	January	0.0069	0.0075	0.0121	0.0145	0.35	1	0.0214	0.0145	No	No				
	February	0.0054	0.0066	0.0103	0.0145	0.35	1	0.0188	0.0145	No	No				
	March	0.0049	0.0066	0.0099	0.0145	0.35	1	0.0187	0.0145	No	No				
	April	0.0131	0.0197	0.0175	0.0206	0.35	1	0.0563	0.0206	No	No				
	May	0.0224	0.0333	0.0668	0.103	0.35	1	0.0952	0.1025	No	No				
	June	0.0146	0.0233	0.0995	0.189	0.35	1	0.0667	0.1890	No	No				
	July	0.0110	0.0150	0.0199	0.0245	0.35	1	0.0429	0.0245	No	No				
	August	0.0076	0.0090	0.0151	0.0158	0.35	1	0.0257	0.0158	No	No				
	September	0.0070	0.0085	0.0157	0.0184	0.35	1	0.0243	0.0184	No	No				
	October	0.0093	0.0165	0.0168	0.0228	0.35	1	0.0471	0.0228	No	No				
	November	0.0075	0.0105	0.0142	0.0146	0.35	1	0.0300	0.0146	No	No				
	December	0.0071	0.0090	0.0194	0.0320	0.35	1	0.0257	0.0320	No	No				
Post-Closure Phase (36-99)	January	0.0077	0.0086	0.0183	0.0199	0.35	1	0.0247	0.0199	No	No				
	February	0.0077	0.0086	0.0183	0.0199	0.35	1	0.0247	0.0199	No	No				
	March	0.0077	0.0086	0.0183	0.0199	0.35	1	0.0247	0.0199	No	No				
	April	0.0087	0.0095	0.0180	0.0193	0.35	1	0.0271	0.0193	No	No				
	May	0.0146	0.0153	0.0411	0.0422	0.35	1	0.0436	0.0422	No	No				
	June	0.0117	0.0124	0.0637	0.0649	0.35	1	0.0354	0.0649	No	No				
	July	0.0098	0.0105	0.0202	0.0213	0.35	1	0.0300	0.0213	No	No				
	August	0.0079	0.0087	0.0180	0.0192	0.35	1	0.0249	0.0192	No	No				
	September	0.0074	0.0083	0.0177	0.0190	0.35	1	0.0236	0.0190	No	No				
	October	0.0074	0.0083	0.0177	0.0191	0.35	1	0.0237	0.0191	No	No				
	November	0.0077	0.0087	0.0184	0.0200	0.35	1	0.0248	0.0200	No	No				
	December	0.0077	0.0087	0.0184	0.0200	0.35	1	0.0247	0.0200	No	No				

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D6n. T Creek Hazard Quotients for Total Lithium Concentrations, Expected Case

		First Screening Step							Retained as COPC?
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			Aquatic Life
		Mean	Maximum	BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Construction (-2 to-1)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	June	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	July	0.0007	0.0007	0.096	0.87	0.0069	0.0069	0.0008	No
	August	0.0007	0.0007	0.096	0.87	0.0069	0.0069	0.0008	No
	September	0.0007	0.0007	0.096	0.87	0.0069	0.0069	0.0008	No
	October	0.0006	0.0009	0.096	0.87	0.0062	0.0091	0.0010	No
	November	0.0003	0.0005	0.096	0.87	0.0033	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	June	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	July	0.0007	0.0007	0.096	0.87	0.0069	0.0069	0.0008	No
	August	0.0007	0.0007	0.096	0.87	0.0069	0.0069	0.0008	No
	September	0.0007	0.0007	0.096	0.87	0.0069	0.0069	0.0008	No
	October	0.0008	0.0009	0.096	0.87	0.0087	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0050	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	June	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	July	0.0007	0.0007	0.096	0.87	0.0069	0.0069	0.0008	No
	August	0.0007	0.0007	0.096	0.87	0.0069	0.0069	0.0008	No
	September	0.0007	0.0007	0.096	0.87	0.0069	0.0069	0.0008	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Closure Phase (29-35)	January	0.0038	0.0066	0.096	0.87	0.0400	0.0689	0.0076	No
	February	0.0038	0.0066	0.096	0.87	0.0400	0.0688	0.0076	No
	March	0.0038	0.0066	0.096	0.87	0.0400	0.0688	0.0076	No
	April	0.0034	0.0058	0.096	0.87	0.0355	0.0609	0.0067	No
	May	0.0029	0.0049	0.096	0.87	0.0305	0.0506	0.0056	No
	June	0.0035	0.0049	0.096	0.87	0.0364	0.0508	0.0056	No
	July	0.0032	0.0046	0.096	0.87	0.0338	0.0481	0.0053	No
	August	0.0036	0.0052	0.096	0.87	0.0374	0.0543	0.0060	No
	September	0.0046	0.0065	0.096	0.87	0.0480	0.0680	0.0075	No
	October	0.0047	0.0066	0.096	0.87	0.0493	0.0689	0.0076	No
	November	0.0046	0.0066	0.096	0.87	0.0482	0.0689	0.0076	No
	December	0.0046	0.0066	0.096	0.87	0.0482	0.0689	0.0076	No
Post-Closure Phase (36-99)	January	0.0052	0.0061	0.096	0.87	0.0547	0.0634	0.0070	No
	February	0.0052	0.0061	0.096	0.87	0.0546	0.0634	0.0070	No
	March	0.0052	0.0061	0.096	0.87	0.0547	0.0635	0.0070	No
	April	0.0046	0.0056	0.096	0.87	0.0483	0.0579	0.0064	No
	May	0.0038	0.0046	0.096	0.87	0.0397	0.0478	0.0053	No
	June	0.0038	0.0046	0.096	0.87	0.0397	0.0476	0.0053	No
	July	0.0039	0.0045	0.096	0.87	0.0404	0.0471	0.0052	No
	August	0.0045	0.0052	0.096	0.87	0.0464	0.0546	0.0060	No
	September	0.0049	0.0060	0.096	0.87	0.0511	0.0622	0.0069	No
	October	0.0050	0.0061	0.096	0.87	0.0521	0.0633	0.0070	No
	November	0.0052	0.0061	0.096	0.87	0.0544	0.0635	0.0070	No
	December	0.0052	0.0061	0.096	0.87	0.0544	0.0635	0.0070	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D60. T Creek Hazard Quotients for Total Manganese Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
				BC MOE 30-Day	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline		Maximum Predicted vs. BC MOE Maximum Guideline
		Mean	Maximum	Mean	Maximum	Mean	Maximum		Mean
Construction (-2 to-1)	January	0.0003	0.0003	0.698	0.773	0.0005	0.0005	0.0004	No
	February	0.0002	0.0002	0.709	0.801	0.0002	0.0002	0.0002	No
	March	0.0001	0.0001	0.708	0.797	0.0002	0.0002	0.0002	No
	April	0.0005	0.0005	0.693	0.760	0.0007	0.0007	0.0006	No
	May	0.0056	0.0056	0.659	0.676	0.0084	0.0084	0.0082	No
	June	0.0109	0.0109	0.653	0.659	0.0167	0.0167	0.0165	No
	July	0.0014	0.0014	0.668	0.699	0.0020	0.0020	0.0020	No
	August	0.0016	0.0016	0.691	0.755	0.0023	0.0023	0.0021	No
	September	0.0021	0.0021	0.695	0.766	0.0030	0.0030	0.0027	No
	October	0.0005	0.0007	0.675	0.716	0.0008	0.0010	0.0010	No
	November	0.0006	0.0009	0.647	0.644	0.0010	0.0014	0.0014	No
	December	0.0006	0.0006	0.694	0.764	0.0009	0.0009	0.0008	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.698	0.773	0.0005	0.0005	0.0004	No
	February	0.0002	0.0002	0.709	0.801	0.0002	0.0002	0.0002	No
	March	0.0001	0.0001	0.708	0.797	0.0002	0.0002	0.0002	No
	April	0.0005	0.0005	0.693	0.760	0.0007	0.0007	0.0006	No
	May	0.0056	0.0056	0.659	0.676	0.0084	0.0084	0.0082	No
	June	0.0109	0.0109	0.653	0.659	0.0167	0.0167	0.0165	No
	July	0.0014	0.0014	0.668	0.699	0.0020	0.0020	0.0020	No
	August	0.0016	0.0016	0.691	0.755	0.0023	0.0023	0.0021	No
	September	0.0021	0.0021	0.695	0.766	0.0030	0.0030	0.0027	No
	October	0.0007	0.0008	0.675	0.716	0.0010	0.0011	0.0011	No
	November	0.0009	0.0009	0.647	0.644	0.0014	0.0014	0.0014	No
	December	0.0006	0.0006	0.694	0.764	0.0009	0.0009	0.0008	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.698	0.773	0.0005	0.0005	0.0004	No
	February	0.0002	0.0002	0.709	0.801	0.0002	0.0002	0.0002	No
	March	0.0001	0.0001	0.708	0.797	0.0002	0.0002	0.0002	No
	April	0.0005	0.0005	0.693	0.760	0.0007	0.0007	0.0006	No
	May	0.0056	0.0056	0.659	0.676	0.0084	0.0084	0.0082	No
	June	0.0109	0.0109	0.653	0.659	0.0167	0.0167	0.0165	No
	July	0.0014	0.0014	0.668	0.699	0.0021	0.0021	0.0020	No
	August	0.0016	0.0016	0.691	0.755	0.0023	0.0023	0.0021	No
	September	0.0021	0.0021	0.695	0.766	0.0030	0.0030	0.0027	No
	October	0.0007	0.0007	0.675	0.716	0.0010	0.0010	0.0010	No
	November	0.0009	0.0009	0.647	0.644	0.0014	0.0014	0.0014	No
	December	0.0006	0.0006	0.694	0.764	0.0009	0.0009	0.0008	No
Closure Phase (29-35)	January	0.0241	0.0436	0.698	0.773	0.0346	0.0624	0.0564	No
	February	0.0240	0.0436	0.709	0.801	0.0339	0.0614	0.0544	No
	March	0.0240	0.0435	0.708	0.797	0.0340	0.0615	0.0547	No
	April	0.0211	0.0382	0.693	0.760	0.0305	0.0551	0.0502	No
	May	0.0202	0.0325	0.659	0.676	0.0307	0.0493	0.0481	No
	June	0.0267	0.0343	0.653	0.659	0.0410	0.0526	0.0521	No
	July	0.0198	0.0294	0.668	0.699	0.0297	0.0440	0.0421	No
	August	0.0224	0.0337	0.691	0.755	0.0324	0.0487	0.0446	No
	September	0.0297	0.0430	0.695	0.766	0.0428	0.0618	0.0560	No
	October	0.0299	0.0436	0.675	0.716	0.0442	0.0646	0.0609	No
	November	0.0299	0.0436	0.647	0.644	0.0462	0.0674	0.0676	No
	December	0.0298	0.0436	0.694	0.764	0.0430	0.0628	0.0571	No
Post-Closure Phase (36-99)	January	0.0380	0.0457	0.698	0.773	0.0545	0.0655	0.0592	No
	February	0.0380	0.0457	0.709	0.801	0.0536	0.0645	0.0571	No
	March	0.0381	0.0458	0.708	0.797	0.0538	0.0647	0.0575	No
	April	0.0333	0.0401	0.693	0.760	0.0481	0.0578	0.0527	No
	May	0.0280	0.0334	0.659	0.676	0.0424	0.0506	0.0493	No
	June	0.0296	0.0351	0.653	0.659	0.0454	0.0537	0.0532	No
	July	0.0272	0.0328	0.668	0.699	0.0406	0.0490	0.0469	No
	August	0.0318	0.0385	0.691	0.755	0.0460	0.0557	0.0509	No
	September	0.0355	0.0428	0.695	0.766	0.0510	0.0616	0.0559	No
	October	0.0362	0.0437	0.675	0.716	0.0537	0.0647	0.0610	No
	November	0.0379	0.0458	0.647	0.644	0.0586	0.0708	0.0710	No
	December	0.0379	0.0458	0.694	0.764	0.0546	0.0659	0.0599	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D6p. T Creek Hazard Quotients for Total Mercury Concentrations, Expected Case

		First Screening Step											
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	BC MOE 30-Day Mean if MeHg is 0.5% of THg			Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs BC MOE Maximum Guideline
		Mean	Maximum	BC DWQG	THg	Maximum	0.5% of THg	0.5% of THg	vs. BC DWQG	0.5% of THg	0.5% of THg	MOE Maximum Guideline	
Construction (-2 to-1)	January	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	February	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	March	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	April	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.498	0.500	0.0100	0.498	0.500	0.00333
	May	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	June	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	July	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	August	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	September	0.000013	0.000013	0.00002	0.001	0.00002	0.003	0.667	0.667	0.0133	0.667	0.667	0.00444
	October	0.000008	0.000012	0.00002	0.001	0.00002	0.003	0.405	0.621	0.0124	0.405	0.621	0.00414
	November	0.000006	0.000010	0.00002	0.001	0.00002	0.003	0.289	0.499	0.0100	0.289	0.499	0.00333
	December	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
Operation 1 Phase (1-23)	January	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	February	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	March	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	April	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	May	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	August	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	September	0.000013	0.000013	0.00002	0.001	0.00002	0.003	0.667	0.667	0.0133	0.667	0.667	0.00444
	October	0.000012	0.000013	0.00002	0.001	0.00002	0.003	0.585	0.625	0.0125	0.585	0.625	0.00417
	November	0.000009	0.000010	0.00002	0.001	0.00002	0.003	0.462	0.500	0.0100	0.462	0.500	0.00333
	December	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
Operations 2 Phase (24-28)	January	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	February	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	March	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	April	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	May	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	August	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	September	0.000013	0.000013	0.00002	0.001	0.00002	0.003	0.667	0.667	0.0133	0.667	0.667	0.00444
	October	0.000013	0.000013	0.00002	0.001	0.00002	0.003	0.625	0.625	0.0125	0.625	0.625	0.00417
	November	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	December	0.000010	0.000010	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
Closure Phase (29-35)	January	0.000007	0.000010	0.00002	0.001	0.00002	0.003	0.339	0.500	0.0100	0.339	0.500	0.00333
	February	0.000007	0.000010	0.00002	0.001	0.00002	0.003	0.339	0.500	0.0100	0.339	0.500	0.00333
	March	0.000007	0.000010	0.00002	0.001	0.00002	0.003	0.339	0.500	0.0100	0.339	0.500	0.00333
	April	0.000007	0.000010	0.00002	0.001	0.00002	0.003	0.359	0.500	0.0100	0.359	0.500	0.00333
	May	0.000008	0.000010	0.00002	0.001	0.00002	0.003	0.386	0.500	0.0100	0.386	0.500	0.00333
	June	0.000007	0.000010	0.00002	0.001	0.00002	0.003	0.355	0.500	0.0100	0.355	0.500	0.00333
	July	0.000007	0.000010	0.00002	0.001	0.00002	0.003	0.369	0.500	0.0100	0.369	0.500	0.00333
	August	0.000007	0.000010	0.00002	0.001	0.00002	0.003	0.352	0.500	0.0100	0.352	0.500	0.00333
	September	0.000007	0.000013	0.00002	0.001	0.00002	0.003	0.351	0.667	0.0133	0.351	0.667	0.00444
	October	0.000007	0.000013	0.00002	0.001	0.00002	0.003	0.333	0.625	0.0125	0.333	0.625	0.00417
	November	0.000006	0.000010	0.00002	0.001	0.00002	0.003	0.297	0.500	0.0100	0.297	0.500	0.00333
	December	0.000006	0.000010	0.00002	0.001	0.00002	0.003	0.297	0.500	0.0100	0.297	0.500	0.00333
Post-Closure Phase (36-99)	January	0.000006	0.000007	0.00002	0.001	0.00002	0.003	0.289	0.332	0.00664	0.289	0.332	0.00221
	February	0.000006	0.000007	0.00002	0.001	0.00002	0.003	0.289	0.332	0.00664	0.289	0.332	0.00221
	March	0.000006	0.000007	0.00002	0.001	0.00002	0.003	0.290	0.333	0.00665	0.290	0.333	0.00222
	April	0.000006	0.000007	0.00002	0.001	0.00002	0.003	0.303	0.340	0.00680	0.303	0.340	0.00227
	May	0.000007	0.000007	0.00002	0.001	0.00002	0.003	0.341	0.370	0.00740	0.341	0.370	0.00247
	June	0.000007	0.000007	0.00002	0.001	0.00002	0.003	0.338	0.368	0.00736	0.338	0.368	0.00245
	July	0.000007	0.000008	0.00002	0.001	0.00002	0.003	0.349	0.379	0.00757	0.349	0.379	0.00252
	August	0.000006	0.000007	0.00002	0.001	0.00002	0.003	0.325	0.359	0.00718	0.325	0.359	0.00239
	September	0.000006	0.000007	0.00002	0.001	0.00002	0.003	0.286	0.326	0.00651	0.286	0.326	0.00217
	October	0.000006	0.000006	0.00002	0.001	0.00002	0.003	0.278	0.318	0.00636	0.278	0.318	0.00212
	November	0.000006	0.000007	0.00002	0.001	0.00002	0.003	0.290	0.332	0.00664	0.290	0.332	0.00221
	December	0.000006	0.000007	0.00002	0.001	0.00002	0.003	0.290	0.332	0.00664	0.290	0.332	0.00221

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

(continued)

Appendix 13-D6p. T Creek Hazard Quotients for Total Mercury Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D6r. T Creek Hazard Quotients for Total Nickel Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.00028	0.00028	0.025	1	0.0110	0.00028	No	No
	February	0.00004	0.00004	0.025	1	0.00160	0.00004	No	No
	March	0.00003	0.00003	0.025	1	0.00120	0.00003	No	No
	April	0.00006	0.00006	0.025	1	0.00228	0.00006	No	No
	May	0.00042	0.00042	0.025	1	0.0170	0.00042	No	No
	June	0.00050	0.00050	0.025	1	0.0200	0.00050	No	No
	July	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	August	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	September	0.00037	0.00037	0.025	1	0.0147	0.00037	No	No
	October	0.00022	0.00032	0.025	1	0.0128	0.00032	No	No
	November	0.00017	0.00027	0.025	1	0.0108	0.00027	No	No
	December	0.00027	0.00027	0.025	1	0.0109	0.00027	No	No
Operation 1 Phase (1-23)	January	0.00028	0.00028	0.025	1	0.0110	0.00028	No	No
	February	0.00004	0.00004	0.025	1	0.00160	0.00004	No	No
	March	0.00003	0.00003	0.025	1	0.00120	0.00003	No	No
	April	0.00006	0.00006	0.025	1	0.00231	0.00006	No	No
	May	0.00042	0.00043	0.025	1	0.0170	0.00043	No	No
	June	0.00050	0.00050	0.025	1	0.0200	0.00050	No	No
	July	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	August	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	September	0.00037	0.00037	0.025	1	0.0147	0.00037	No	No
	October	0.00031	0.00032	0.025	1	0.0129	0.00032	No	No
	November	0.00026	0.00027	0.025	1	0.0108	0.00027	No	No
	December	0.00027	0.00027	0.025	1	0.0109	0.00027	No	No
Operations 2 Phase (24-28)	January	0.00028	0.00028	0.025	1	0.0110	0.00028	No	No
	February	0.00004	0.00004	0.025	1	0.00160	0.00004	No	No
	March	0.00003	0.00003	0.025	1	0.00120	0.00003	No	No
	April	0.00006	0.00006	0.025	1	0.00228	0.00006	No	No
	May	0.00043	0.00043	0.025	1	0.0170	0.00043	No	No
	June	0.00050	0.00050	0.025	1	0.0200	0.00050	No	No
	July	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	August	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	September	0.00037	0.00037	0.025	1	0.0147	0.00037	No	No
	October	0.00032	0.00032	0.025	1	0.0129	0.00032	No	No
	November	0.00027	0.00027	0.025	1	0.0108	0.00027	No	No
	December	0.00027	0.00027	0.025	1	0.0109	0.00027	No	No
Closure Phase (29-35)	January	0.00138	0.00227	0.025	1	0.0906	0.00227	No	No
	February	0.00127	0.00226	0.025	1	0.0906	0.00226	No	No
	March	0.00127	0.00226	0.025	1	0.0906	0.00226	No	No
	April	0.00112	0.00199	0.025	1	0.0796	0.00199	No	No
	May	0.00114	0.00173	0.025	1	0.0691	0.00173	No	No
	June	0.00137	0.00176	0.025	1	0.0704	0.00176	No	No
	July	0.00124	0.00165	0.025	1	0.0660	0.00165	No	No
	August	0.00135	0.00184	0.025	1	0.0734	0.00184	No	No
	September	0.00164	0.00224	0.025	1	0.0896	0.00224	No	No
	October	0.00165	0.00227	0.025	1	0.0907	0.00227	No	No
	November	0.00164	0.00227	0.025	1	0.0907	0.00227	No	No
	December	0.00164	0.00227	0.025	1	0.0907	0.00227	No	No
Post-Closure Phase (36-99)	January	0.00213	0.00234	0.025	1	0.0937	0.00234	No	No
	February	0.00213	0.00234	0.025	1	0.0937	0.00234	No	No
	March	0.00213	0.00235	0.025	1	0.0938	0.00235	No	No
	April	0.00187	0.00205	0.025	1	0.0821	0.00205	No	No
	May	0.00160	0.00174	0.025	1	0.0697	0.00174	No	No
	June	0.00163	0.00178	0.025	1	0.0711	0.00178	No	No
	July	0.00163	0.00178	0.025	1	0.0713	0.00178	No	No
	August	0.00184	0.00203	0.025	1	0.0812	0.00203	No	No
	September	0.00200	0.00222	0.025	1	0.0886	0.00222	No	No
	October	0.00204	0.00225	0.025	1	0.0901	0.00225	No	No
	November	0.00213	0.00234	0.025	1	0.0938	0.00234	No	No
	December	0.00213	0.00234	0.025	1	0.0938	0.00234	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix 13-D6s. T Creek Hazard Quotients for Total Selenium Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	Yes	Yes	Yes	No
	February	Yes	Yes	Yes	No
	March	Yes	Yes	Yes	No
	April	Yes	Yes	Yes	No
	May	Yes	No	Yes	No
	June	Yes	No	Yes	No
	July	Yes	No	Yes	No
	August	Yes	No	Yes	No
	September	Yes	Yes	Yes	No
	October	Yes	Yes	Yes	No
	November	Yes	Yes	Yes	No
	December	Yes	Yes	Yes	No
Post-Closure Phase (36-99)	January	Yes	Yes	Yes	No
	February	Yes	Yes	Yes	No
	March	Yes	Yes	Yes	No
	April	Yes	No	Yes	No
	May	Yes	No	Yes	No
	June	Yes	No	Yes	No
	July	Yes	No	Yes	No
	August	Yes	No	Yes	No
	September	Yes	Yes	Yes	No
	October	Yes	Yes	Yes	No
	November	Yes	Yes	Yes	No
	December	Yes	Yes	Yes	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D6t. T Creek Hazard Quotients for Total Silver Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline		Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.00001	0.00001	0.00005	0.00010	0.230	0.230	0.115	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.050	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.050	No
	April	0.00000	0.00000	0.00005	0.00010	0.100	0.100	0.050	No
	May	0.00002	0.00002	0.00005	0.00010	0.499	0.500	0.250	No
	June	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	July	0.00002	0.00002	0.00005	0.00010	0.465	0.467	0.233	No
	August	0.00002	0.00002	0.00005	0.00010	0.467	0.467	0.233	No
	September	0.00002	0.00002	0.00005	0.00010	0.467	0.467	0.233	No
	October	0.00001	0.00002	0.00005	0.00010	0.248	0.373	0.186	No
	November	0.00000	0.00001	0.00005	0.00010	0.093	0.150	0.075	No
	December	0.00001	0.00001	0.00005	0.00010	0.190	0.190	0.095	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00005	0.00010	0.230	0.230	0.115	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.050	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.050	No
	April	0.00000	0.00001	0.00005	0.00010	0.100	0.100	0.050	No
	May	0.00002	0.00003	0.00005	0.00010	0.500	0.500	0.250	No
	June	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	July	0.00002	0.00002	0.00005	0.00010	0.466	0.467	0.233	No
	August	0.00002	0.00002	0.00005	0.00010	0.467	0.467	0.233	No
	September	0.00002	0.00002	0.00005	0.00010	0.467	0.467	0.233	No
	October	0.00002	0.00002	0.00005	0.00010	0.353	0.375	0.188	No
	November	0.00001	0.00001	0.00005	0.00010	0.141	0.150	0.075	No
	December	0.00001	0.00001	0.00005	0.00010	0.190	0.190	0.095	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00005	0.00010	0.230	0.230	0.115	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.050	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.050	No
	April	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.050	No
	May	0.00003	0.00003	0.00005	0.00010	0.500	0.500	0.250	No
	June	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	July	0.00002	0.00002	0.00005	0.00010	0.467	0.467	0.233	No
	August	0.00002	0.00002	0.00005	0.00010	0.467	0.467	0.233	No
	September	0.00002	0.00002	0.00005	0.00010	0.467	0.467	0.233	No
	October	0.00002	0.00002	0.00005	0.00010	0.375	0.375	0.188	No
	November	0.00001	0.00001	0.00005	0.00010	0.150	0.150	0.075	No
	December	0.00001	0.00001	0.00005	0.00010	0.190	0.190	0.095	No
Closure Phase (29-35)	January	0.00002	0.00002	0.00005	0.00010	0.353	0.461	0.230	No
	February	0.00001	0.00002	0.00005	0.00010	0.297	0.460	0.230	No
	March	0.00001	0.00002	0.00005	0.00010	0.297	0.460	0.230	No
	April	0.00001	0.00002	0.00005	0.00010	0.271	0.415	0.208	No
	May	0.00002	0.00003	0.00005	0.00010	0.477	0.500	0.250	No
	June	0.00002	0.00002	0.00005	0.00010	0.325	0.387	0.194	No
	July	0.00002	0.00002	0.00005	0.00010	0.454	0.467	0.233	No
	August	0.00002	0.00002	0.00005	0.00010	0.454	0.467	0.233	No
	September	0.00002	0.00002	0.00005	0.00010	0.449	0.467	0.233	No
	October	0.00002	0.00002	0.00005	0.00010	0.422	0.462	0.231	No
	November	0.00002	0.00002	0.00005	0.00010	0.357	0.461	0.230	No
	December	0.00002	0.00002	0.00005	0.00010	0.369	0.461	0.230	No
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.00005	0.00010	0.447	0.488	0.244	No
	February	0.00002	0.00002	0.00005	0.00010	0.447	0.488	0.244	No
	March	0.00002	0.00002	0.00005	0.00010	0.447	0.489	0.244	No
	April	0.00002	0.00002	0.00005	0.00010	0.401	0.437	0.218	No
	May	0.00002	0.00002	0.00005	0.00010	0.450	0.478	0.239	No
	June	0.00002	0.00002	0.00005	0.00010	0.368	0.397	0.198	No
	July	0.00002	0.00002	0.00005	0.00010	0.450	0.480	0.240	No
	August	0.00002	0.00002	0.00005	0.00010	0.450	0.484	0.242	No
	September	0.00002	0.00002	0.00005	0.00010	0.429	0.467	0.234	No
	October	0.00002	0.00002	0.00005	0.00010	0.428	0.467	0.233	No
	November	0.00002	0.00002	0.00005	0.00010	0.447	0.488	0.244	No
	December	0.00002	0.00002	0.00005	0.00010	0.447	0.488	0.244	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D6u. T Creek Hazard Quotients for Total Thallium Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
				Maximum Predicted vs. BC MOE Working Guideline					
Construction (-2 to-1)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00666	0.00100	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0417	0.00625	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000013	0.000013	0.0003	0.002	0.0444	0.00666	No	No
	August	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	September	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	October	0.000007	0.000010	0.0003	0.002	0.0348	0.00522	No	No
	November	0.000004	0.000006	0.0003	0.002	0.0200	0.00299	No	No
	December	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
Operation 1 Phase (1-23)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000012	0.000013	0.0003	0.002	0.0417	0.00625	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	August	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	September	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	October	0.000010	0.000011	0.0003	0.002	0.0350	0.00525	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
Operations 2 Phase (24-28)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000013	0.000013	0.0003	0.002	0.0417	0.00625	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	August	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	September	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	October	0.000011	0.000011	0.0003	0.002	0.0350	0.00525	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
Closure Phase (29-35)	January	0.000016	0.000023	0.0003	0.002	0.0783	0.01175	No	No
	February	0.000014	0.000023	0.0003	0.002	0.0783	0.0117	No	No
	March	0.000014	0.000023	0.0003	0.002	0.0782	0.0117	No	No
	April	0.000012	0.000021	0.0003	0.002	0.0693	0.0104	No	No
	May	0.000017	0.000020	0.0003	0.002	0.0675	0.0101	No	No
	June	0.000017	0.000020	0.0003	0.002	0.0655	0.00982	No	No
	July	0.000018	0.000020	0.0003	0.002	0.0669	0.0100	No	No
	August	0.000018	0.000021	0.0003	0.002	0.0705	0.0106	No	No
	September	0.000018	0.000023	0.0003	0.002	0.0776	0.0116	No	No
	October	0.000019	0.000024	0.0003	0.002	0.0785	0.0118	No	No
	November	0.000018	0.000024	0.0003	0.002	0.0784	0.0118	No	No
	December	0.000018	0.000024	0.0003	0.002	0.0784	0.0118	No	No
Post-Closure Phase (36-99)	January	0.000022	0.000023	0.0003	0.002	0.0780	0.0117	No	No
	February	0.000022	0.000023	0.0003	0.002	0.0780	0.0117	No	No
	March	0.000022	0.000023	0.0003	0.002	0.0781	0.0117	No	No
	April	0.000020	0.000021	0.0003	0.002	0.0691	0.0104	No	No
	May	0.000019	0.000020	0.0003	0.002	0.0664	0.0100	No	No
	June	0.000018	0.000019	0.0003	0.002	0.0641	0.00962	No	No
	July	0.000020	0.000020	0.0003	0.002	0.0680	0.0102	No	No
	August	0.000021	0.000022	0.0003	0.002	0.0725	0.0109	No	No
	September	0.000021	0.000023	0.0003	0.002	0.0750	0.0113	No	No
	October	0.000021	0.000023	0.0003	0.002	0.0760	0.0114	No	No
	November	0.000022	0.000023	0.0003	0.002	0.0781	0.0117	No	No
	December	0.000022	0.000023	0.0003	0.002	0.0781	0.0117	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D6v. T Creek Hazard Quotients for Total Uranium Concentrations, Expected Case

		First Screening Step							Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
		Construction (-2 to-1)	January	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0102	0.0010	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0010	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0100	0.0010	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0093	0.0009	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0120	0.0012	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0148	0.0015	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0139	0.0014	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	September	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0011	No	No	No
	October	0.0001	0.0002	0.3	0.02	0.2	0.0007	0.0102	0.0010	No	No	No
	November	0.0001	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	December	0.0010	0.0010	0.3	0.02	0.2	0.0035	0.0520	0.0052	No	No	No
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0102	0.0010	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0010	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0100	0.0010	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0120	0.0012	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0148	0.0015	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0140	0.0014	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	September	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0011	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	December	0.0010	0.0010	0.3	0.02	0.2	0.0035	0.0520	0.0052	No	No	No
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0102	0.0010	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0010	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0100	0.0010	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0120	0.0012	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0148	0.0015	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0140	0.0014	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	September	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0011	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	December	0.0010	0.0010	0.3	0.02	0.2	0.0035	0.0520	0.0052	No	No	No
Closure Phase (29-35)	January	0.0011	0.0017	0.3	0.02	0.2	0.0058	0.0869	0.0087	No	No	No
	February	0.0011	0.0017	0.3	0.02	0.2	0.0058	0.0869	0.0087	No	No	No
	March	0.0010	0.0017	0.3	0.02	0.2	0.0058	0.0868	0.0087	No	No	No
	April	0.0009	0.0015	0.3	0.02	0.2	0.0051	0.0772	0.0077	No	No	No
	May	0.0008	0.0013	0.3	0.02	0.2	0.0043	0.0651	0.0065	No	No	No
	June	0.0010	0.0013	0.3	0.02	0.2	0.0044	0.0662	0.0066	No	No	No
	July	0.0009	0.0012	0.3	0.02	0.2	0.0042	0.0624	0.0062	No	No	No
	August	0.0010	0.0014	0.3	0.02	0.2	0.0046	0.0689	0.0069	No	No	No
	September	0.0012	0.0017	0.3	0.02	0.2	0.0057	0.0858	0.0086	No	No	No
	October	0.0013	0.0017	0.3	0.02	0.2	0.0058	0.0870	0.0087	No	No	No
	November	0.0013	0.0017	0.3	0.02	0.2	0.0058	0.0870	0.0087	No	No	No
	December	0.0015	0.0017	0.3	0.02	0.2	0.0058	0.0870	0.0087	No	No	No
Post-Closure Phase (36-99)	January	0.0013	0.0016	0.3	0.02	0.2	0.0054	0.0806	0.0081	No	No	No
	February	0.0013	0.0016	0.3	0.02	0.2	0.0054	0.0806	0.0081	No	No	No
	March	0.0013	0.0016	0.3	0.02	0.2	0.0054	0.0806	0.0081	No	No	No
	April	0.0012	0.0015	0.3	0.02	0.2	0.0049	0.0737	0.0074	No	No	No
	May	0.0010	0.0012	0.3	0.02	0.2	0.0041	0.0615	0.0062	No	No	No
	June	0.0010	0.0012	0.3	0.02	0.2	0.0042	0.0623	0.0062	No	No	No
	July	0.0010	0.0012	0.3	0.02	0.2	0.0040	0.0606	0.0061	No	No	No
	August	0.0011	0.0014	0.3	0.02	0.2	0.0046	0.0688	0.0069	No	No	No
	September	0.0012	0.0016	0.3	0.02	0.2	0.0052	0.0783	0.0078	No	No	No
	October	0.0013	0.0016	0.3	0.02	0.2	0.0053	0.0796	0.0080	No	No	No
	November	0.0013	0.0016	0.3	0.02	0.2	0.0053	0.0796	0.0080	No	No	No
	December	0.0013	0.0016	0.3	0.02	0.2	0.0053	0.0796	0.0080	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D6w. T Creek Hazard Quotients for Total Vanadium Concentrations, Expected Case

Project Phase		Months		First Screening Step							Retained as COPC?			
				Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Livestock
				Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value		BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline				
								BC MOE Working			BC MOE Working	BC MOE Working	BC MOE Working	
Construction (-2 to-1)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No			
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No			
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No			
	May	0.0008	0.0008	0.006	0.02	0.1	0.135	0.0404	0.0081	No	No			
	June	0.0011	0.0011	0.006	0.02	0.1	0.178	0.0533	0.0107	No	No			
	July	0.0007	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No			
	August	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0366	0.0073	No	No			
	September	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No			
	October	0.0004	0.0006	0.006	0.02	0.1	0.0973	0.0292	0.0058	No	No			
	November	0.0004	0.0006	0.006	0.02	0.1	0.0998	0.0299	0.0060	No	No			
	December	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
Operation 1 Phase (1-23)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No			
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No			
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No			
	May	0.0008	0.0008	0.006	0.02	0.1	0.135	0.0404	0.0081	No	No			
	June	0.0011	0.0011	0.006	0.02	0.1	0.178	0.0533	0.0107	No	No			
	July	0.0007	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No			
	August	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0366	0.0073	No	No			
	September	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No			
	October	0.0006	0.0006	0.006	0.02	0.1	0.0979	0.0294	0.0059	No	No			
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
	December	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No			
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No			
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No			
	May	0.0008	0.0008	0.006	0.02	0.1	0.135	0.0404	0.0081	No	No			
	June	0.0011	0.0011	0.006	0.02	0.1	0.178	0.0533	0.0107	No	No			
	July	0.0007	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No			
	August	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0366	0.0073	No	No			
	September	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No			
	October	0.0006	0.0006	0.006	0.02	0.1	0.0979	0.0294	0.0059	No	No			
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
	December	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
Closure Phase (29-35)	January	0.0004	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
	February	0.0003	0.0003	0.006	0.02	0.1	0.0570	0.0171	0.0034	No	No			
	March	0.0003	0.0003	0.006	0.02	0.1	0.0569	0.0171	0.0034	No	No			
	April	0.0003	0.0003	0.006	0.02	0.1	0.0540	0.0162	0.0032	No	No			
	May	0.0006	0.0008	0.006	0.02	0.1	0.135	0.0404	0.0081	No	No			
	June	0.0007	0.0011	0.006	0.02	0.1	0.178	0.0533	0.0107	No	No			
	July	0.0005	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No			
	August	0.0005	0.0007	0.006	0.02	0.1	0.122	0.0366	0.0073	No	No			
	September	0.0005	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No			
	October	0.0004	0.0006	0.006	0.02	0.1	0.0979	0.0294	0.0059	No	No			
	November	0.0004	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
	December	0.0004	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No			
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.006	0.02	0.1	0.0800	0.0240	0.0048	No	No			
	February	0.0005	0.0005	0.006	0.02	0.1	0.0800	0.0240	0.0048	No	No			
	March	0.0005	0.0005	0.006	0.02	0.1	0.0802	0.0240	0.0048	No	No			
	April	0.0004	0.0004	0.006	0.02	0.1	0.0734	0.0220	0.0044	No	No			
	May	0.0005	0.0006	0.006	0.02	0.1	0.0930	0.0279	0.0056	No	No			
	June	0.0006	0.0006	0.006	0.02	0.1	0.104	0.0312	0.0062	No	No			
	July	0.0005	0.0005	0.006	0.02	0.1	0.0905	0.0271	0.0054	No	No			
	August	0.0005	0.0005	0.006	0.02	0.1	0.0869	0.0261	0.0052	No	No			
	September	0.0004	0.0005	0.006	0.02	0.1	0.0780	0.0234	0.0047	No	No			
	October	0.0004	0.0005	0.006	0.02	0.1	0.0767	0.0230	0.0046	No	No			
	November	0.0005	0.0005	0.006	0.02	0.1	0.0802	0.0241	0.0048	No	No			
	December	0.0005	0.0005	0.006	0.02	0.1	0.0801	0.0240	0.0048	No	No			

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D6x. T Creek Hazard Quotients for Total Zinc Concentrations, Expected Case

Project Phase	Months	First Screening Step							Second Screening Step				Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline		Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Mean	95%ile	Mean	95%ile
		Mean	Maximum	Day Mean	Maximum	Maximum	Mean Guideline	Mean Guideline	Maximum Guideline	Guideline	Mean	95%ile	Mean	95%ile	Life	Livestock
Construction (-2 to-1)	January	0.0017	0.0017	0.008	0.033	2	0.220	0.220	0.0500	0.0008				No	No	
	February	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002				No	No	
	March	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002				No	No	
	April	0.0016	0.0016	0.008	0.033	2	0.218	0.219	0.0497	0.0008				No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.406	0.407	0.0924	0.0015				No	No	
	June	0.0036	0.0036	0.008	0.033	2	0.483	0.484	0.110	0.0018				No	No	
	July	0.0040	0.0040	0.008	0.033	2	0.532	0.533	0.121	0.0020				No	No	
	August	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012				No	No	
	September	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012				No	No	
	October	0.0019	0.0029	0.008	0.033	2	0.254	0.381	0.0866	0.0014				No	No	
	November	0.0009	0.0015	0.008	0.033	2	0.126	0.206	0.0469	0.0008				No	No	
	December	0.0016	0.0016	0.008	0.033	2	0.213	0.213	0.0485	0.0008				No	No	
Operation 1 Phase (1-23)	January	0.0017	0.0017	0.008	0.033	2	0.220	0.220	0.0500	0.0008				No	No	
	February	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002				No	No	
	March	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002				No	No	
	April	0.0016	0.0016	0.008	0.033	2	0.218	0.219	0.0497	0.0008				No	No	
	May	0.0030	0.0031	0.008	0.033	2	0.407	0.407	0.0924	0.0015				No	No	
	June	0.0036	0.0036	0.008	0.033	2	0.484	0.484	0.110	0.0018				No	No	
	July	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020				No	No	
	August	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012				No	No	
	September	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012				No	No	
	October	0.0027	0.0029	0.008	0.033	2	0.361	0.383	0.0871	0.0014				No	No	
	November	0.0015	0.0016	0.008	0.033	2	0.194	0.207	0.0470	0.0008				No	No	
	December	0.0016	0.0016	0.008	0.033	2	0.213	0.213	0.0485	0.0008				No	No	
Operations 2 Phase (24-28)	January	0.0017	0.0017	0.008	0.033	2	0.220	0.220	0.0500	0.0008				No	No	
	February	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002				No	No	
	March	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002				No	No	
	April	0.0016	0.0016	0.008	0.033	2	0.219	0.219	0.0497	0.0008				No	No	
	May	0.0031	0.0031	0.008	0.033	2	0.407	0.407	0.0924	0.0015				No	No	
	June	0.0036	0.0036	0.008	0.033	2	0.484	0.484	0.110	0.0018				No	No	
	July	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020				No	No	
	August	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012				No	No	
	September	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012				No	No	
	October	0.0029	0.0029	0.008	0.033	2	0.383	0.383	0.0871	0.0014				No	No	
	November	0.0016	0.0016	0.008	0.033	2	0.207	0.207	0.0470	0.0008				No	No	
	December	0.0016	0.0016	0.008	0.033	2	0.213	0.213	0.0485	0.0008				No	No	
Closure Phase (29-35)	January	0.0037	0.0054	0.008	0.033	2	0.490	0.725	0.165	0.0027				No	No	
	February	0.0031	0.0054	0.008	0.033	2	0.413	0.725	0.165	0.0027				No	No	
	March	0.0031	0.0054	0.008	0.033	2	0.413	0.724	0.165	0.0027				No	No	
	April	0.0034	0.0050	0.008	0.033	2	0.454	0.661	0.150	0.0025				No	No	
	May	0.0039	0.0047	0.008	0.033	2	0.521	0.630	0.143	0.0024				No	No	
	June	0.0044	0.0050	0.008	0.033	2	0.591	0.662	0.151	0.0025				No	No	
	July	0.0045	0.0050	0.008	0.033	2	0.603	0.662	0.151	0.0025				No	No	
	August	0.0038	0.0047	0.008	0.033	2	0.506	0.629	0.143	0.0024				No	No	
	September	0.0043	0.0054	0.008	0.033	2	0.574	0.721	0.164	0.0027				No	No	
	October	0.0045	0.0055	0.008	0.033	2	0.599	0.727	0.165	0.0027				No	No	
	November	0.0041	0.0054	0.008	0.033	2	0.548	0.726	0.165	0.0027				No	No	
	December	0.0041	0.0054	0.008	0.033	2	0.549	0.726	0.165	0.0027				No	No	
Post-Closure Phase (36-99)	January	0.0091	0.0121	0.008	0.033	2	1.22	1.61	0.367	0.0061	0.0017	0.0029	5.53	4.22	Yes	No
	February	0.0091	0.0121	0.008	0.033	2	1.22	1.61	0.366	0.0060	0.0003	0.0003	30.4	40.3	Yes	No
	March	0.0091	0.0121	0.008	0.033	2	1.22	1.62	0.367	0.0061	0.0003	0.0003	30.5	40.4	Yes	No
	April	0.0082	0.0108	0.008	0.033	2	1.09	1.44	0.327	0.0054	0.0016	0.0016	5.0	6.6	Yes	No
	May	0.0072	0.0093	0.008	0.033	2	0.965	1.24	0.282	0.0047	0.0031	0.0053	2.37	1.77	Yes	No
	June	0.0074	0.0095	0.008	0.033	2	0.991	1.27	0.289	0.0048	0.0036	0.0045	2.04	2.11	Yes	No
	July	0.0076	0.0097	0.008	0.033	2	1.02	1.30	0.295	0.0049	0.0040	0.0082	1.90	1.19	Yes	No
	August	0.0080	0.0105	0.008	0.033	2	1.07	1.40	0.318	0.0053	0.0023	0.0036	3.42	2.96	Yes	No
	September	0.0086	0.0114	0.008	0.033	2	1.15	1.52	0.345	0.0057	0.0023	0.0030	3.69	3.80	Yes	No
	October	0.0088	0.0116	0.008	0.033	2	1.17	1.54	0.351	0.0058	0.0029	0.0047	3.05	2.46	Yes	No
	November	0.0091	0.0121	0.008	0.033	2	1.22	1.62	0.367	0.0061	0.0016	0.0029	5.90	4.24	Yes	No
	December	0.0091	0.0121	0.008	0.033	2	1.22	1.61	0.367	0.0061	0.0016	0.0029	5.71	4.23	Yes	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D6y. T Creek Hazard Quotients for Chloride Concentrations, Expected Case

Project Phase	Months	First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE			Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline					
						Maximum	Maximum				Maximum				
Construction (-2 to-1)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.498	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.499	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.499	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.532	0.533	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	August	0.400	0.400	150	600	600	600	0.0027	0.0027	0.0007	0.0007	0.0007	No	No	No
	September	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	October	0.392	0.559	150	600	600	600	0.0026	0.0037	0.0009	0.0009	0.0009	No	No	No
	November	0.322	0.499	150	600	600	600	0.0021	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Operation 1 Phase (1-23)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	August	0.400	0.400	150	600	600	600	0.0027	0.0027	0.0007	0.0007	0.0007	No	No	No
	September	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	October	0.539	0.563	150	600	600	600	0.0036	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.477	0.500	150	600	600	600	0.0032	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Operations 2 Phase (24-28)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	August	0.400	0.400	150	600	600	600	0.0027	0.0027	0.0007	0.0007	0.0007	No	No	No
	September	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	October	0.563	0.563	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Closure Phase (29-35)	January	2.31	3.78	150	600	600	600	0.0154	0.0252	0.0063	0.0063	0.0063	No	No	No
	February	2.36	3.78	150	600	600	600	0.0157	0.0252	0.0063	0.0063	0.0063	No	No	No
	March	2.31	3.78	150	600	600	600	0.0154	0.0252	0.0063	0.0063	0.0063	No	No	No
	April	2.08	3.37	150	600	600	600	0.0139	0.0225	0.0056	0.0056	0.0056	No	No	No
	May	1.78	2.82	150	600	600	600	0.0119	0.0188	0.0047	0.0047	0.0047	No	No	No
	June	2.12	2.84	150	600	600	600	0.0141	0.0189	0.0047	0.0047	0.0047	No	No	No
	July	1.96	2.69	150	600	600	600	0.0131	0.0179	0.0045	0.0045	0.0045	No	No	No
	August	2.09	2.98	150	600	600	600	0.0139	0.0199	0.0050	0.0050	0.0050	No	No	No
	September	2.74	3.74	150	600	600	600	0.0182	0.0249	0.0062	0.0062	0.0062	No	No	No
	October	2.77	3.78	150	600	600	600	0.0184	0.0252	0.0063	0.0063	0.0063	No	No	No
	November	2.75	3.78	150	600	600	600	0.0183	0.0252	0.0063	0.0063	0.0063	No	No	No
	December	2.75	3.78	150	600	600	600	0.0183	0.0252	0.0063	0.0063	0.0063	No	No	No
Post-Closure Phase (36-99)	January	3.21	3.54	150	600	600	600	0.0214	0.0236	0.0059	0.0059	0.0059	No	No	No
	February	3.21	3.54	150	600	600	600	0.0214	0.0236	0.0059	0.0059	0.0059	No	No	No
	March	3.21	3.54	150	600	600	600	0.0214	0.0236	0.0059	0.0059	0.0059	No	No	No
	April	2.85	3.25	150	600	600	600	0.0190	0.0217	0.0054	0.0054	0.0054	No	No	No
	May	2.36	2.71	150	600	600	600	0.0157	0.0180	0.0045	0.0045	0.0045	No	No	No
	June	2.38	2.71	150	600	600	600	0.0159	0.0181	0.0045	0.0045	0.0045	No	No	No
	July	2.41	2.66	150	600	600	600	0.0161	0.0178	0.0044	0.0044	0.0044	No	No	No
	August	2.72	3.05	150	600	600	600	0.0181	0.0203	0.0051	0.0051	0.0051	No	No	No
	September	3.00	3.48	150	600	600	600	0.0200	0.0232	0.0058	0.0058	0.0058	No	No	No
	October	3.06	3.54	150	600	600	600	0.0204	0.0236	0.0059	0.0059	0.0059	No	No	No
	November	3.19	3.54	150	600	600	600	0.0213	0.0236	0.0059	0.0059	0.0059	No	No	No
	December	3.20	3.54	150	600	600	600	0.0213	0.0236	0.0059	0.0059	0.0059	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D6z. T Creek Hazard Quotients for Fluoride Concentrations, Expected Case (completed)

		First Screening Step			Retained as COPC?			
		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline						
Project Phase	Months	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	0.0200	0.0200	0.0100	No	No	No	No
	February	0.0280	0.0280	0.0140	No	No	No	No
	March	0.0220	0.0220	0.0110	No	No	No	No
	April	0.0209	0.0210	0.0105	No	No	No	No
	May	0.0200	0.0200	0.0100	No	No	No	No
	June	0.0175	0.0175	0.0087	No	No	No	No
	July	0.0199	0.0200	0.0100	No	No	No	No
	August	0.0275	0.0275	0.0138	No	No	No	No
	September	0.0200	0.0200	0.0100	No	No	No	No
	October	0.0184	0.0273	0.0137	No	No	No	No
	November	0.0129	0.0210	0.0105	No	No	No	No
	December	0.0340	0.0340	0.0170	No	No	No	No
Operation 1 Phase (1-23)	January	0.0200	0.0200	0.0100	No	No	No	No
	February	0.0280	0.0280	0.0140	No	No	No	No
	March	0.0220	0.0220	0.0110	No	No	No	No
	April	0.0210	0.0210	0.0105	No	No	No	No
	May	0.0200	0.0200	0.0100	No	No	No	No
	June	0.0175	0.0175	0.0088	No	No	No	No
	July	0.0200	0.0200	0.0100	No	No	No	No
	August	0.0275	0.0275	0.0138	No	No	No	No
	September	0.0200	0.0200	0.0100	No	No	No	No
	October	0.0260	0.0275	0.0138	No	No	No	No
	November	0.0197	0.0210	0.0105	No	No	No	No
	December	0.0340	0.0340	0.0170	No	No	No	No
Operations 2 Phase (24-28)	January	0.0200	0.0200	0.0100	No	No	No	No
	February	0.0280	0.0280	0.0140	No	No	No	No
	March	0.0220	0.0220	0.0110	No	No	No	No
	April	0.0210	0.0210	0.0105	No	No	No	No
	May	0.0200	0.0200	0.0100	No	No	No	No
	June	0.0175	0.0175	0.0088	No	No	No	No
	July	0.0200	0.0200	0.0100	No	No	No	No
	August	0.0275	0.0275	0.0138	No	No	No	No
	September	0.0200	0.0200	0.0100	No	No	No	No
	October	0.0275	0.0275	0.0138	No	No	No	No
	November	0.0210	0.0210	0.0105	No	No	No	No
	December	0.0340	0.0340	0.0170	No	No	No	No
Closure Phase (29-35)	January	0.0778	0.1268	0.0634	No	No	No	No
	February	0.0812	0.1267	0.0634	No	No	No	No
	March	0.0786	0.1267	0.0633	No	No	No	No
	April	0.0708	0.1136	0.0568	No	No	No	No
	May	0.0607	0.0956	0.0478	No	No	No	No
	June	0.0705	0.0961	0.0480	No	No	No	No
	July	0.0658	0.0911	0.0455	No	No	No	No
	August	0.0754	0.1035	0.0517	No	No	No	No
	September	0.0898	0.1253	0.0626	No	No	No	No
	October	0.0932	0.1269	0.0635	No	No	No	No
	November	0.0913	0.1268	0.0634	No	No	No	No
	December	0.0950	0.1269	0.0634	No	No	No	No
Post-Closure Phase (36-99)	January	0.0967	0.1172	0.0586	No	No	No	No
	February	0.0967	0.1172	0.0586	No	No	No	No
	March	0.0968	0.1174	0.0587	No	No	No	No
	April	0.0866	0.1075	0.0538	No	No	No	No
	May	0.0727	0.0902	0.0451	No	No	No	No
	June	0.0725	0.0897	0.0449	No	No	No	No
	July	0.0737	0.0891	0.0445	No	No	No	No
	August	0.0845	0.1032	0.0516	No	No	No	No
	September	0.0904	0.1147	0.0573	No	No	No	No
	October	0.0920	0.1165	0.0582	No	No	No	No
	November	0.0961	0.1173	0.0586	No	No	No	No
	December	0.0961	0.1173	0.0586	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D6ac. T Creek Hazard Quotients for Ammonia Concentrations, Expected Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
				BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline		Maximum Predicted vs. BC MOE Working Maximum Guideline
		Mean	Maximum						
Construction (-2 to-1)	January	0.0270	0.0270	2.09	12.6	0.0129	0.0129	0.0021	No
	February	0.0200	0.0200	1.75	9.12	0.0114	0.0114	0.0022	No
	March	0.0140	0.0140	2.05	14.1	0.0068	0.0068	0.0010	No
	April	0.0119	0.0120	2.05	12.4	0.0058	0.0058	0.0010	No
	May	0.0166	0.0166	1.97	18.8	0.0084	0.0084	0.0009	No
	June	0.0105	0.0105	1.95	15.2	0.0054	0.0054	0.0007	No
	July	0.0143	0.0143	1.84	11.1	0.0078	0.0078	0.0013	No
	August	0.779	0.779	1.84	9.57	0.424	0.424	0.0814	No
	September	0.0280	0.0280	1.89	11.4	0.0148	0.0148	0.0025	No
	October	0.0066	0.0102	1.97	13.6	0.0034	0.0052	0.0007	No
	November	0.0477	0.0824	2.09	10.8	0.0228	0.0394	0.0076	No
	December	0.0825	0.0825	2.09	10.8	0.0395	0.0395	0.0076	No
Operation 1 Phase (1-23)	January	0.0270	0.0270	2.09	12.6	0.0129	0.0129	0.0021	No
	February	0.0200	0.0200	1.75	9.12	0.0114	0.0114	0.0022	No
	March	0.0140	0.0140	2.05	14.1	0.0068	0.0068	0.0010	No
	April	0.0120	0.0120	2.05	12.4	0.0058	0.0059	0.0010	No
	May	0.0166	0.0166	1.97	18.8	0.0084	0.0084	0.0009	No
	June	0.0105	0.0105	1.95	15.2	0.0054	0.0054	0.0007	No
	July	0.0143	0.0143	1.84	11.1	0.0078	0.0078	0.0013	No
	August	0.779	0.779	1.84	9.57	0.424	0.424	0.0814	No
	September	0.0280	0.0280	1.89	11.4	0.0148	0.0148	0.0025	No
	October	0.0096	0.0103	1.97	13.6	0.0049	0.0052	0.0008	No
	November	0.0762	0.0825	2.09	10.8	0.0365	0.0395	0.0076	No
	December	0.0825	0.0825	2.09	10.8	0.0395	0.0395	0.0076	No
Operations 2 Phase (24-28)	January	0.0270	0.0270	2.09	12.6	0.0129	0.0129	0.0021	No
	February	0.0200	0.0200	1.75	9.12	0.0114	0.0114	0.0022	No
	March	0.0140	0.0140	2.05	14.1	0.0068	0.0068	0.0010	No
	April	0.0120	0.0120	2.05	12.4	0.0059	0.0059	0.0010	No
	May	0.0166	0.0166	1.97	18.8	0.0084	0.0084	0.0009	No
	June	0.0105	0.0105	1.95	15.2	0.0054	0.0054	0.0007	No
	July	0.0143	0.0143	1.84	11.1	0.0078	0.0078	0.0013	No
	August	0.779	0.779	1.84	9.57	0.424	0.424	0.0814	No
	September	0.0280	0.0280	1.89	11.4	0.0148	0.0148	0.0025	No
	October	0.0103	0.0103	1.97	13.6	0.0052	0.0052	0.0008	No
	November	0.0825	0.0825	2.09	10.8	0.0395	0.0395	0.0076	No
	December	0.0825	0.0825	2.09	10.8	0.0395	0.0395	0.0076	No
Closure Phase (29-35)	January	0.0990	0.167	2.09	12.6	0.0474	0.0798	0.0132	No
	February	0.0959	0.167	1.75	9.12	0.0548	0.0952	0.0183	No
	March	0.0932	0.166	2.05	14.1	0.0455	0.0812	0.0118	No
	April	0.0820	0.147	2.05	12.4	0.0400	0.0718	0.0119	No
	May	0.0713	0.123	1.97	18.8	0.0362	0.0622	0.0065	No
	June	0.0838	0.125	1.95	15.2	0.0430	0.0641	0.0082	No
	July	0.0769	0.117	1.84	11.1	0.0418	0.0635	0.0105	No
	August	0.453	0.779	1.84	9.57	0.246	0.424	0.0814	No
	September	0.113	0.165	1.89	11.4	0.0599	0.0875	0.0145	No
	October	0.110	0.167	1.97	13.6	0.0556	0.0849	0.0123	No
	November	0.130	0.167	2.09	10.8	0.0623	0.0800	0.0155	No
	December	0.130	0.167	2.09	10.8	0.0622	0.0799	0.0155	No
Post-Closure Phase (36-99)	January	0.0376	0.132	2.09	12.6	0.0180	0.0633	0.0105	No
	February	0.0376	0.132	1.75	9.12	0.0215	0.0755	0.0145	No
	March	0.0375	0.132	2.05	14.1	0.0183	0.0643	0.0094	No
	April	0.0340	0.120	2.05	12.4	0.0166	0.0585	0.0097	No
	May	0.0306	0.0992	1.97	18.8	0.0155	0.0504	0.0053	No
	June	0.0288	0.0966	1.95	15.2	0.0148	0.0495	0.0064	No
	July	0.0297	0.0935	1.84	11.1	0.0161	0.0508	0.0084	No
	August	0.162	0.228	1.84	9.57	0.0881	0.124	0.0239	No
	September	0.0344	0.122	1.89	11.4	0.0182	0.0648	0.0107	No
	October	0.0345	0.124	1.97	13.6	0.0175	0.0630	0.0091	No
	November	0.0358	0.124	2.09	10.8	0.0171	0.0593	0.0115	No
	December	0.0357	0.124	2.09	10.8	0.0171	0.0593	0.0115	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Appendix 13-D6ad. T Creek Hazard Quotients for Sulphate Concentrations, Expected Case

Project Phase	Months	First Screening Step								Second Screening Step				Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				BC MOE 30-Day Mean Guideline	BC MOE Maximum			Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline			
		Mean	Maximum	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline	Mean	95%ile	Mean	95%ile	Aquatic Life	Drinking Water	Livestock	
Construction (-2 to-1)	January	2.07	2.07	128	500	1000	0.0162	0.0162	0.0041	0.0021				No	No	No	
	February	1.83	1.83	128	500	1000	0.0143	0.0143	0.0037	0.0018				No	No	No	
	March	3.84	3.84	128	500	1000	0.0300	0.0300	0.0077	0.0038				No	No	No	
	April	1.14	1.15	128	500	1000	0.0089	0.0090	0.0023	0.0011				No	No	No	
	May	0.988	0.990	128	500	1000	0.0077	0.0077	0.0020	0.0010				No	No	No	
	June	1.03	1.03	128	500	1000	0.0081	0.0081	0.0021	0.0010				No	No	No	
	July	1.13	1.14	128	500	1000	0.0088	0.0089	0.0023	0.0011				No	No	No	
	August	1.87	1.87	128	500	1000	0.0146	0.0146	0.0037	0.0019				No	No	No	
	September	2.02	2.02	128	500	1000	0.0158	0.0158	0.0040	0.0020				No	No	No	
	October	1.72	1.95	128	500	1000	0.0134	0.0152	0.0039	0.0020				No	No	No	
	November	1.86	2.07	128	500	1000	0.0146	0.0162	0.0041	0.0021				No	No	No	
	December	3.03	3.03	128	500	1000	0.0237	0.0237	0.0061	0.0030				No	No	No	
Operation 1 Phase (1-23)	January	2.07	2.07	128	500	1000	0.0162	0.0162	0.0041	0.0021				No	No	No	
	February	1.83	1.83	128	500	1000	0.0143	0.0143	0.0037	0.0018				No	No	No	
	March	3.84	3.84	128	500	1000	0.0300	0.0300	0.0077	0.0038				No	No	No	
	April	1.14	1.20	128	500	1000	0.0089	0.0094	0.0024	0.0012				No	No	No	
	May	0.988	1.01	128	500	1000	0.0077	0.0079	0.0020	0.0010				No	No	No	
	June	1.03	1.06	128	500	1000	0.0081	0.0083	0.0021	0.0011				No	No	No	
	July	1.13	1.18	128	500	1000	0.0089	0.0092	0.0024	0.0012				No	No	No	
	August	1.87	1.87	128	500	1000	0.0146	0.0146	0.0037	0.0019				No	No	No	
	September	2.02	2.02	128	500	1000	0.0158	0.0158	0.0040	0.0020				No	No	No	
	October	1.74	5.15	128	500	1000	0.0136	0.0402	0.0103	0.0051				No	No	No	
	November	1.94	5.86	128	500	1000	0.0152	0.0458	0.0117	0.0059				No	No	No	
	December	3.03	3.03	128	500	1000	0.0237	0.0237	0.0061	0.0030				No	No	No	
Operations 2 Phase (24-28)	January	2.07	2.07	128	500	1000	0.0162	0.0162	0.0041	0.0021				No	No	No	
	February	1.83	1.83	128	500	1000	0.0143	0.0143	0.0037	0.0018				No	No	No	
	March	3.84	3.84	128	500	1000	0.0300	0.0300	0.0077	0.0038				No	No	No	
	April	1.14	1.14	128	500	1000	0.0089	0.0089	0.0023	0.0011				No	No	No	
	May	0.986	0.986	128	500	1000	0.0077	0.0077	0.0020	0.0010				No	No	No	
	June	1.03	1.03	128	500	1000	0.0080	0.0080	0.0021	0.0010				No	No	No	
	July	1.13	1.13	128	500	1000	0.0088	0.0088	0.0023	0.0011				No	No	No	
	August	1.87	1.87	128	500	1000	0.0146	0.0146	0.0037	0.0019				No	No	No	
	September	2.02	2.02	128	500	1000	0.0158	0.0158	0.0040	0.0020				No	No	No	
	October	1.50	1.50	128	500	1000	0.0117	0.0117	0.0030	0.0015				No	No	No	
	November	1.66	1.66	128	500	1000	0.0130	0.0130	0.0033	0.0017				No	No	No	
	December	3.03	3.03	128	500	1000	0.0237	0.0237	0.0061	0.0030				No	No	No	
Closure Phase (29-35)	January	126	224	128	500	1000	0.985	1.75	0.448	0.224	2.07	2.27	60.9	98.8	Yes	No	No
	February	126	224	128	500	1000	0.983	1.75	0.448	0.224	1.83	1.83	68.8	122	Yes	No	No
	March	127	224	128	500	1000	0.990	1.75	0.448	0.224	3.84	3.84	33.0	58.3	Yes	No	No
	April	110	196	128	500	1000	0.856	1.53	0.392	0.196	1.14	1.14	96.1	172	Yes	No	No
	May	89	159	128	500	1000	0.694	1.24	0.318	0.159	0.986	1.19	90.0	134	Yes	No	No
	June	112	160	128	500	1000	0.876	1.25	0.321	0.160	1.03	1.15	109	139	Yes	No	No
	July	100	149	128	500	1000	0.784	1.16	0.298	0.149	1.13	1.44	88.8	104	Yes	No	No
	August	114	172	128	500	1000	0.892	1.34	0.343	0.172	1.87	2.43	61.1	70.7	Yes	No	No
	September	153	221	128	500	1000	1.20	1.72	0.441	0.221	2.02	2.42	75.9	91.2	Yes	No	No
	October	156	224	128	500	1000	1.22	1.75	0.448	0.224	1.50	2.29	104	98.0	Yes	No	No
	November	156	224	128	500	1000	1.22	1.75	0.448	0.224	1.66	1.94	93.9	116	Yes	No	No
	December	156	224	128	500	1000	1.22	1.75	0.448	0.224	3.03	3.03	51.6	74.0	Yes	No	No
Post-Closure Phase (36-99)	January	191	212	128	500	1000	1.49	1.66	0.424	0.212	2.07	2.27	92.4	93.4	Yes	No	No
	February	191	212	128	500	1000	1.49	1.66	0.424	0.212	1.83	1.83	105	116	Yes	No	No
	March	191	212	128	500	1000	1.49	1.66	0.424	0.212	3.84	3.84	49.8	55.2	Yes	No	No
	April	167	192	128	500	1000	1.30	1.50	0.384	0.192	1.14	1.14	146	168	Yes	No	No
	May	133	154	128	500	1000	1.04	1.20	0.307	0.154	0.986	1.19	134	129	Yes	No	No
	June	134	154	128	500	1000	1.05	1.20	0.308	0.154	1.03	1.15	130	134	Yes	No	No
	July	135	150	128	500	1000	1.05	1.17	0.300	0.150	1.13	1.44	119	104	Yes	No	No
	August	159	178	128	500	1000	1.24	1.39	0.356	0.178	1.87	2.43	85.0	73.4	Yes	No	No
	September	178	207	128	500	1000	1.39	1.62	0.414	0.207	2.02	2.42	88.3	85.5	Yes	No	No
	October	182	211	128	500	1000	1.42	1.65	0.422	0.211	1.50	2.29	122	92.3	Yes	No	No
	November	191	211	128	500	1000	1.49	1.65	0.422	0.211	1.66	1.94	115	109	Yes	No	No
	December	191	211	128	500	1000	1.49	1.65	0.422	0.211	3.03	3.03	63.0	69.6	Yes	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent
 Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix D-7b. Harper Creek downstream of T Creek (HI) Hazard Quotients for Total Antimony Concentrations, Expected Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00005	0.00005	0.020	0.014	0.0025	0.0036	No	No
	February	0.00002	0.00002	0.020	0.014	0.0010	0.0014	No	No
	March	0.00002	0.00002	0.020	0.014	0.0010	0.0014	No	No
	April	0.00002	0.00002	0.020	0.014	0.0012	0.0018	No	No
	May	0.00010	0.00010	0.020	0.014	0.0049	0.0070	No	No
	June	0.00009	0.00009	0.020	0.014	0.0046	0.0066	No	No
	July	0.00010	0.00011	0.020	0.014	0.0055	0.0079	No	No
	August	0.00011	0.00016	0.020	0.014	0.0079	0.0114	No	No
	September	0.00010	0.00018	0.020	0.014	0.0088	0.0125	No	No
	October	0.00008	0.00013	0.020	0.014	0.0065	0.0093	No	No
	November	0.00004	0.00006	0.020	0.014	0.0028	0.0040	No	No
	December	0.00004	0.00005	0.020	0.014	0.0026	0.0037	No	No
Operation 1 Phase (1-23)	January	0.00014	0.00027	0.020	0.014	0.0136	0.0195	No	No
	February	0.00016	0.00031	0.020	0.014	0.0154	0.0220	No	No
	March	0.00018	0.00037	0.020	0.014	0.0183	0.0261	No	No
	April	0.00007	0.00012	0.020	0.014	0.0060	0.0086	No	No
	May	0.00011	0.00012	0.020	0.014	0.0058	0.0083	No	No
	June	0.00010	0.00011	0.020	0.014	0.0057	0.0082	No	No
	July	0.00011	0.00015	0.020	0.014	0.0073	0.0105	No	No
	August	0.00013	0.00020	0.020	0.014	0.0100	0.0143	No	No
	September	0.00011	0.00019	0.020	0.014	0.0097	0.0139	No	No
	October	0.00011	0.00019	0.020	0.014	0.0096	0.0137	No	No
	November	0.00011	0.00020	0.020	0.014	0.0100	0.0143	No	No
	December	0.00013	0.00024	0.020	0.014	0.0121	0.0172	No	No
Operations 2 Phase (24-28)	January	0.00029	0.00030	0.020	0.014	0.0150	0.0214	No	No
	February	0.00033	0.00034	0.020	0.014	0.0169	0.0241	No	No
	March	0.00039	0.00040	0.020	0.014	0.0200	0.0285	No	No
	April	0.00013	0.00013	0.020	0.014	0.0065	0.0093	No	No
	May	0.00012	0.00012	0.020	0.014	0.0059	0.0084	No	No
	June	0.00012	0.00012	0.020	0.014	0.0058	0.0083	No	No
	July	0.00015	0.00015	0.020	0.014	0.0076	0.0108	No	No
	August	0.00021	0.00021	0.020	0.014	0.0104	0.0148	No	No
	September	0.00020	0.00021	0.020	0.014	0.0103	0.0148	No	No
	October	0.00020	0.00020	0.020	0.014	0.0101	0.0145	No	No
	November	0.00021	0.00021	0.020	0.014	0.0106	0.0151	No	No
	December	0.00025	0.00025	0.020	0.014	0.0127	0.0182	No	No
Closure Phase (29-35)	January	0.00044	0.00081	0.020	0.014	0.0407	0.0581	No	No
	February	0.00048	0.00089	0.020	0.014	0.0446	0.0637	No	No
	March	0.00053	0.00098	0.020	0.014	0.0490	0.0700	No	No
	April	0.00056	0.00099	0.020	0.014	0.0496	0.0708	No	No
	May	0.00049	0.00080	0.020	0.014	0.0402	0.0574	No	No
	June	0.00068	0.00094	0.020	0.014	0.0471	0.0673	No	No
	July	0.00043	0.00059	0.020	0.014	0.0293	0.0418	No	No
	August	0.00027	0.00037	0.020	0.014	0.0187	0.0267	No	No
	September	0.00051	0.00075	0.020	0.014	0.0376	0.0537	No	No
	October	0.00068	0.00098	0.020	0.014	0.0490	0.0700	No	No
	November	0.00043	0.00065	0.020	0.014	0.0324	0.0463	No	No
	December	0.00049	0.00073	0.020	0.014	0.0367	0.0524	No	No
Post-Closure Phase (36-99)	January	0.00059	0.00069	0.020	0.014	0.0346	0.0494	No	No
	February	0.00098	0.00110	0.020	0.014	0.0550	0.0786	No	No
	March	0.00126	0.00140	0.020	0.014	0.0699	0.0998	No	No
	April	0.00098	0.00112	0.020	0.014	0.0558	0.0798	No	No
	May	0.00071	0.00081	0.020	0.014	0.0403	0.0576	No	No
	June	0.00083	0.00094	0.020	0.014	0.0468	0.0669	No	No
	July	0.00062	0.00068	0.020	0.014	0.0341	0.0487	No	No
	August	0.00045	0.00050	0.020	0.014	0.0252	0.0360	No	No
	September	0.00055	0.00066	0.020	0.014	0.0328	0.0468	No	No
	October	0.00076	0.00088	0.020	0.014	0.0442	0.0632	No	No
	November	0.00047	0.00055	0.020	0.014	0.0274	0.0392	No	No
	December	0.00053	0.00062	0.020	0.014	0.0312	0.0446	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix D-7c. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Arsenic Concentrations, Expected Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Interim Guideline				
Construction (-2 to 1)	January	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0764	0.0153	0.0153	0.0153	No	No	No	No
	February	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0825	0.0165	0.0165	0.0165	No	No	No	No
	March	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0830	0.0166	0.0166	0.0166	No	No	No	No
	April	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0996	0.0199	0.0199	0.0199	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0807	0.0161	0.0161	0.0161	No	No	No	No
	June	0.0005	0.0008	0.005	0.025	0.025	0.025	0.159	0.0319	0.0319	0.0319	No	No	No	No
	July	0.0006	0.0006	0.005	0.025	0.025	0.025	0.122	0.0244	0.0244	0.0244	No	No	No	No
	August	0.0008	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No
	September	0.0005	0.0006	0.005	0.025	0.025	0.025	0.126	0.0251	0.0251	0.0251	No	No	No	No
	October	0.0007	0.0008	0.005	0.025	0.025	0.025	0.162	0.0323	0.0323	0.0323	No	No	No	No
	November	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0874	0.0175	0.0175	0.0175	No	No	No	No
	December	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0863	0.0173	0.0173	0.0173	No	No	No	No
Operation 1 Phase (1-23)	January	0.0005	0.0006	0.005	0.025	0.025	0.025	0.122	0.0244	0.0244	0.0244	No	No	No	No
	February	0.0005	0.0006	0.005	0.025	0.025	0.025	0.127	0.0254	0.0254	0.0254	No	No	No	No
	March	0.0006	0.0007	0.005	0.025	0.025	0.025	0.135	0.0270	0.0270	0.0270	No	No	No	No
	April	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0899	0.0180	0.0180	0.0180	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0837	0.0167	0.0167	0.0167	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.147	0.0295	0.0295	0.0295	No	No	No	No
	July	0.0005	0.0006	0.005	0.025	0.025	0.025	0.110	0.0220	0.0220	0.0220	No	No	No	No
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.149	0.0297	0.0297	0.0297	No	No	No	No
	September	0.0005	0.0006	0.005	0.025	0.025	0.025	0.113	0.0225	0.0225	0.0225	No	No	No	No
	October	0.0005	0.0006	0.005	0.025	0.025	0.025	0.120	0.0239	0.0239	0.0239	No	No	No	No
	November	0.0005	0.0006	0.005	0.025	0.025	0.025	0.112	0.0225	0.0225	0.0225	No	No	No	No
	December	0.0005	0.0006	0.005	0.025	0.025	0.025	0.118	0.0237	0.0237	0.0237	No	No	No	No
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.005	0.025	0.025	0.025	0.126	0.0251	0.0251	0.0251	No	No	No	No
	February	0.0007	0.0007	0.005	0.025	0.025	0.025	0.131	0.0262	0.0262	0.0262	No	No	No	No
	March	0.0007	0.0007	0.005	0.025	0.025	0.025	0.140	0.0279	0.0279	0.0279	No	No	No	No
	April	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0913	0.0183	0.0183	0.0183	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0839	0.0168	0.0168	0.0168	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.147	0.0294	0.0294	0.0294	No	No	No	No
	July	0.0006	0.0006	0.005	0.025	0.025	0.025	0.111	0.0222	0.0222	0.0222	No	No	No	No
	August	0.0007	0.0008	0.005	0.025	0.025	0.025	0.150	0.0300	0.0300	0.0300	No	No	No	No
	September	0.0006	0.0006	0.005	0.025	0.025	0.025	0.114	0.0228	0.0228	0.0228	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.121	0.0242	0.0242	0.0242	No	No	No	No
	November	0.0006	0.0006	0.005	0.025	0.025	0.025	0.114	0.0228	0.0228	0.0228	No	No	No	No
	December	0.0006	0.0006	0.005	0.025	0.025	0.025	0.120	0.0240	0.0240	0.0240	No	No	No	No
Closure Phase (29-35)	January	0.0008	0.0010	0.005	0.025	0.025	0.025	0.207	0.0413	0.0413	0.0413	No	No	No	No
	February	0.0008	0.0011	0.005	0.025	0.025	0.025	0.219	0.0437	0.0437	0.0437	No	No	No	No
	March	0.0008	0.0012	0.005	0.025	0.025	0.025	0.232	0.0464	0.0464	0.0464	No	No	No	No
	April	0.0008	0.0011	0.005	0.025	0.025	0.025	0.226	0.0452	0.0452	0.0452	No	No	No	No
	May	0.0007	0.0010	0.005	0.025	0.025	0.025	0.192	0.0384	0.0384	0.0384	No	No	No	No
	June	0.0011	0.0013	0.005	0.025	0.025	0.025	0.256	0.0511	0.0511	0.0511	No	No	No	No
	July	0.0008	0.0009	0.005	0.025	0.025	0.025	0.176	0.0353	0.0353	0.0353	No	No	No	No
	August	0.0008	0.0009	0.005	0.025	0.025	0.025	0.173	0.0346	0.0346	0.0346	No	No	No	No
	September	0.0008	0.0010	0.005	0.025	0.025	0.025	0.198	0.0397	0.0397	0.0397	No	No	No	No
	October	0.0010	0.0012	0.005	0.025	0.025	0.025	0.238	0.0475	0.0475	0.0475	No	No	No	No
	November	0.0007	0.0009	0.005	0.025	0.025	0.025	0.182	0.0364	0.0364	0.0364	No	No	No	No
	December	0.0008	0.0010	0.005	0.025	0.025	0.025	0.195	0.0391	0.0391	0.0391	No	No	No	No
Post-Closure Phase (36-99)	January	0.0009	0.0009	0.005	0.025	0.025	0.025	0.189	0.0379	0.0379	0.0379	No	No	No	No
	February	0.0011	0.0012	0.005	0.025	0.025	0.025	0.250	0.0499	0.0499	0.0499	No	No	No	No
	March	0.0013	0.0015	0.005	0.025	0.025	0.025	0.293	0.0585	0.0585	0.0585	No	No	No	No
	April	0.0011	0.0012	0.005	0.025	0.025	0.025	0.242	0.0485	0.0485	0.0485	No	No	No	No
	May	0.0009	0.0010	0.005	0.025	0.025	0.025	0.191	0.0381	0.0381	0.0381	No	No	No	No
	June	0.0012	0.0013	0.005	0.025	0.025	0.025	0.252	0.0504	0.0504	0.0504	No	No	No	No
	July	0.0009	0.0010	0.005	0.025	0.025	0.025	0.190	0.0380	0.0380	0.0380	No	No	No	No
	August	0.0009	0.0010	0.005	0.025	0.025	0.025	0.191	0.0381	0.0381	0.0381	No	No	No	No
	September	0.0008	0.0009	0.005	0.025	0.025	0.025	0.183	0.0366	0.0366	0.0366	No	No	No	No
	October	0.0010	0.0011	0.005	0.025	0.025	0.025	0.221	0.0442	0.0442	0.0442	No	No	No	No
	November	0.0008	0.0008	0.005	0.025	0.025	0.025	0.168	0.0336	0.0336	0.0336	No	No	No	No
	December	0.0008	0.0009	0.005	0.025	0.025	0.025	0.180	0.0360	0.0360	0.0360	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix D-7d. Harper Creek downstream of T Creek (HI) Hazard Quotients for Total Barium Concentrations, Expected Case

		First Screening Step								Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Maximum Predicted vs. Canadian DWQG	Aquatic Life	Drinking Water	
		Mean	Maximum	BC MOE Working Day	BC MOE Working Maximum		Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline					Maximum Predicted vs. BC MOE Working Maximum Guideline
Construction (-2 to-1)	January	0.0091	0.0098	1	5	1	0.0091	0.0098	0.0020	0.0098	No	No		
	February	0.0098	0.0102	1	5	1	0.0098	0.0102	0.0020	0.0102	No	No		
	March	0.0096	0.0102	1	5	1	0.0096	0.0102	0.0020	0.0102	No	No		
	April	0.0106	0.0120	1	5	1	0.0106	0.0120	0.0024	0.0120	No	No		
	May	0.0060	0.0063	1	5	1	0.0060	0.0063	0.0013	0.0063	No	No		
	June	0.0059	0.0064	1	5	1	0.0059	0.0064	0.0013	0.0064	No	No		
	July	0.0073	0.0079	1	5	1	0.0073	0.0079	0.0016	0.0079	No	No		
	August	0.0106	0.0111	1	5	1	0.0106	0.0111	0.0022	0.0111	No	No		
	September	0.0117	0.0129	1	5	1	0.0117	0.0129	0.0026	0.0129	No	No		
	October	0.0107	0.0110	1	5	1	0.0107	0.0110	0.0022	0.0110	No	No		
	November	0.0094	0.0103	1	5	1	0.0094	0.0103	0.0021	0.0103	No	No		
	December	0.0093	0.0103	1	5	1	0.0093	0.0103	0.0021	0.0103	No	No		
Operation 1 Phase (1-23)	January	0.0110	0.0112	1	5	1	0.0110	0.0112	0.0022	0.0112	No	No		
	February	0.0111	0.0113	1	5	1	0.0111	0.0113	0.0023	0.0113	No	No		
	March	0.0111	0.0114	1	5	1	0.0111	0.0114	0.0023	0.0114	No	No		
	April	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No		
	May	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No		
	June	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No		
	July	0.0082	0.0083	1	5	1	0.0082	0.0083	0.0017	0.0083	No	No		
	August	0.0105	0.0107	1	5	1	0.0105	0.0107	0.0021	0.0107	No	No		
	September	0.0110	0.0112	1	5	1	0.0110	0.0112	0.0022	0.0112	No	No		
	October	0.0109	0.0110	1	5	1	0.0109	0.0110	0.0022	0.0110	No	No		
	November	0.0108	0.0110	1	5	1	0.0108	0.0110	0.0022	0.0110	No	No		
	December	0.0110	0.0111	1	5	1	0.0110	0.0111	0.0022	0.0111	No	No		
Operations 2 Phase (24-28)	January	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022	0.0112	No	No		
	February	0.0114	0.0114	1	5	1	0.0114	0.0114	0.0023	0.0114	No	No		
	March	0.0115	0.0115	1	5	1	0.0115	0.0115	0.0023	0.0115	No	No		
	April	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No		
	May	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No		
	June	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No		
	July	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No		
	August	0.0106	0.0107	1	5	1	0.0106	0.0107	0.0021	0.0107	No	No		
	September	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022	0.0112	No	No		
	October	0.0110	0.0110	1	5	1	0.0110	0.0110	0.0022	0.0110	No	No		
	November	0.0110	0.0110	1	5	1	0.0110	0.0110	0.0022	0.0110	No	No		
	December	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022	0.0112	No	No		
Closure Phase (29-35)	January	0.0110	0.0114	1	5	1	0.0110	0.0114	0.0023	0.0114	No	No		
	February	0.0111	0.0115	1	5	1	0.0111	0.0115	0.0023	0.0115	No	No		
	March	0.0111	0.0115	1	5	1	0.0111	0.0115	0.0023	0.0115	No	No		
	April	0.0101	0.0107	1	5	1	0.0101	0.0107	0.0021	0.0107	No	No		
	May	0.0074	0.0082	1	5	1	0.0074	0.0082	0.0016	0.0082	No	No		
	June	0.0078	0.0085	1	5	1	0.0078	0.0085	0.0017	0.0085	No	No		
	July	0.0087	0.0090	1	5	1	0.0087	0.0090	0.0018	0.0090	No	No		
	August	0.0106	0.0107	1	5	1	0.0106	0.0107	0.0021	0.0107	No	No		
	September	0.0111	0.0114	1	5	1	0.0111	0.0114	0.0023	0.0114	No	No		
	October	0.0111	0.0115	1	5	1	0.0111	0.0115	0.0023	0.0115	No	No		
	November	0.0109	0.0112	1	5	1	0.0109	0.0112	0.0022	0.0112	No	No		
	December	0.0110	0.0113	1	5	1	0.0110	0.0113	0.0023	0.0113	No	No		
Post-Closure Phase (36-99)	January	0.0108	0.0111	1	5	1	0.0108	0.0111	0.0022	0.0111	No	No		
	February	0.0108	0.0113	1	5	1	0.0108	0.0113	0.0023	0.0113	No	No		
	March	0.0108	0.0115	1	5	1	0.0108	0.0115	0.0023	0.0115	No	No		
	April	0.0099	0.0105	1	5	1	0.0099	0.0105	0.0021	0.0105	No	No		
	May	0.0076	0.0080	1	5	1	0.0076	0.0080	0.0016	0.0080	No	No		
	June	0.0078	0.0083	1	5	1	0.0078	0.0083	0.0017	0.0083	No	No		
	July	0.0087	0.0091	1	5	1	0.0087	0.0091	0.0018	0.0091	No	No		
	August	0.0105	0.0107	1	5	1	0.0105	0.0107	0.0021	0.0107	No	No		
	September	0.0108	0.0111	1	5	1	0.0108	0.0111	0.0022	0.0111	No	No		
	October	0.0106	0.0112	1	5	1	0.0106	0.0112	0.0022	0.0112	No	No		
	November	0.0107	0.0110	1	5	1	0.0107	0.0110	0.0022	0.0110	No	No		
	December	0.0108	0.0111	1	5	1	0.0108	0.0111	0.0022	0.0111	No	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix D-7e. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Beryllium Concentrations, Expected Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				BC MOE Working (Chronic, 30-day mean)	BC DWQG					
									Maximum Predicted vs. BC DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.00004	0.00005	0.0053	0.004	0.1	0.00742	0.00877	0.0116	0.00046	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00174	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00175	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00211	0.00234	0.00310	0.00012	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0185	0.0245	0.00098	No	No	No
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0168	0.0174	0.0230	0.00092	No	No	No
	July	0.00010	0.00011	0.0053	0.004	0.1	0.0180	0.0208	0.0276	0.00110	No	No	No
	August	0.00011	0.00016	0.0053	0.004	0.1	0.0201	0.0300	0.0397	0.00159	No	No	No
	September	0.00007	0.00012	0.0053	0.004	0.1	0.01376	0.0227	0.0301	0.00120	No	No	No
	October	0.00005	0.00007	0.0053	0.004	0.1	0.00871	0.00871	0.0178	0.00071	No	No	No
	November	0.00004	0.00005	0.0053	0.004	0.1	0.00661	0.00971	0.0129	0.00051	No	No	No
	December	0.00003	0.00005	0.0053	0.004	0.1	0.00656	0.00889	0.0118	0.00047	No	No	No
Operation 1 Phase (1-23)	January	0.00002	0.00002	0.0053	0.004	0.1	0.00367	0.00369	0.00489	0.00020	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00194	0.00257	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00192	0.00195	0.00259	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00190	0.00191	0.00253	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0185	0.0185	0.0245	0.00098	No	No	No
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0173	0.0173	0.0229	0.00092	No	No	No
	July	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0149	0.0197	0.00079	No	No	No
	August	0.00005	0.00005	0.0053	0.004	0.1	0.00966	0.00968	0.0128	0.00051	No	No	No
	September	0.00002	0.00002	0.0053	0.004	0.1	0.00371	0.00372	0.00493	0.00020	No	No	No
	October	0.00002	0.00002	0.0053	0.004	0.1	0.00328	0.00330	0.00438	0.00018	No	No	No
	November	0.00002	0.00002	0.0053	0.004	0.1	0.00298	0.00300	0.00397	0.00016	No	No	No
	December	0.00002	0.00002	0.0053	0.004	0.1	0.00322	0.00324	0.00430	0.00017	No	No	No
Operations 2 Phase (24-28)	January	0.00002	0.00002	0.0053	0.004	0.1	0.00370	0.00370	0.00490	0.00020	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00195	0.00195	0.00258	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00196	0.00196	0.00260	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00191	0.00253	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0184	0.0184	0.0244	0.00098	No	No	No
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0173	0.0173	0.0229	0.00091	No	No	No
	July	0.00008	0.00008	0.0053	0.004	0.1	0.0145	0.0145	0.0192	0.00077	No	No	No
	August	0.00005	0.00005	0.0053	0.004	0.1	0.00970	0.00972	0.0129	0.00052	No	No	No
	September	0.00002	0.00002	0.0053	0.004	0.1	0.00373	0.00374	0.00496	0.00020	No	No	No
	October	0.00002	0.00002	0.0053	0.004	0.1	0.00329	0.00330	0.00437	0.00017	No	No	No
	November	0.00002	0.00002	0.0053	0.004	0.1	0.00300	0.00300	0.00397	0.00016	No	No	No
	December	0.00002	0.00002	0.0053	0.004	0.1	0.00324	0.00324	0.00430	0.00017	No	No	No
Closure Phase (29-35)	January	0.00002	0.00002	0.0053	0.004	0.1	0.00375	0.00389	0.00515	0.00021	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00230	0.00222	0.00360	0.00014	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00234	0.00280	0.00371	0.00015	No	No	No
	April	0.00001	0.00002	0.0053	0.004	0.1	0.00240	0.00284	0.00376	0.00015	No	No	No
	May	0.00009	0.00010	0.0053	0.004	0.1	0.0163	0.0184	0.0244	0.00098	No	No	No
	June	0.00008	0.00009	0.0053	0.004	0.1	0.0143	0.0173	0.0229	0.00091	No	No	No
	July	0.00007	0.00008	0.0053	0.004	0.1	0.0132	0.0145	0.0192	0.00077	No	No	No
	August	0.00005	0.00005	0.0053	0.004	0.1	0.00934	0.00969	0.0128	0.00051	No	No	No
	September	0.00002	0.00002	0.0053	0.004	0.1	0.00382	0.00391	0.00519	0.00021	No	No	No
	October	0.00002	0.00002	0.0053	0.004	0.1	0.00353	0.00370	0.00490	0.00020	No	No	No
	November	0.00002	0.00002	0.0053	0.004	0.1	0.00317	0.00331	0.00439	0.00018	No	No	No
	December	0.00002	0.00002	0.0053	0.004	0.1	0.00340	0.00354	0.00468	0.00019	No	No	No
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.0053	0.004	0.1	0.00390	0.00398	0.00528	0.00021	No	No	No
	February	0.00002	0.00002	0.0053	0.004	0.1	0.00305	0.00319	0.00422	0.00017	No	No	No
	March	0.00002	0.00002	0.0053	0.004	0.1	0.00339	0.00359	0.00475	0.00019	No	No	No
	April	0.00002	0.00002	0.0053	0.004	0.1	0.00305	0.00319	0.00423	0.00017	No	No	No
	May	0.00008	0.00008	0.0053	0.004	0.1	0.0145	0.0146	0.0193	0.00077	No	No	No
	June	0.00007	0.00007	0.0053	0.004	0.1	0.0129	0.0130	0.0173	0.00069	No	No	No
	July	0.00007	0.00007	0.0053	0.004	0.1	0.0123	0.0124	0.0164	0.00066	No	No	No
	August	0.00005	0.00005	0.0053	0.004	0.1	0.00892	0.00901	0.0119	0.00048	No	No	No
	September	0.00002	0.00002	0.0053	0.004	0.1	0.00396	0.00388	0.00524	0.00021	No	No	No
	October	0.00002	0.00002	0.0053	0.004	0.1	0.00367	0.00377	0.00500	0.00020	No	No	No
	November	0.00002	0.00002	0.0053	0.004	0.1	0.00329	0.00335	0.00443	0.00018	No	No	No
	December	0.00002	0.00002	0.0053	0.004	0.1	0.00353	0.00359	0.00476	0.00019	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-7f. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Boron Concentrations, Expected Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum												
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0327	0.0401	1.2	5	5	5	0.0334	0.0080	0.0080	0.0080	No	No	No	No
	February	0.0460	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0463	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0560	0.0620	1.2	5	5	5	0.0517	0.0124	0.0124	0.0124	No	No	No	No
	May	0.0107	0.0125	1.2	5	5	5	0.0104	0.0025	0.0025	0.0025	No	No	No	No
	June	0.0110	0.0135	1.2	5	5	5	0.0113	0.0027	0.0027	0.0027	No	No	No	No
	July	0.0153	0.0209	1.2	5	5	5	0.0174	0.0042	0.0042	0.0042	No	No	No	No
	August	0.0230	0.0340	1.2	5	5	5	0.0284	0.0068	0.0068	0.0068	No	No	No	No
	September	0.0281	0.0430	1.2	5	5	5	0.0358	0.0086	0.0086	0.0086	No	No	No	No
	October	0.0349	0.0450	1.2	5	5	5	0.0375	0.0090	0.0090	0.0090	No	No	No	No
	November	0.0371	0.0462	1.2	5	5	5	0.0385	0.0092	0.0092	0.0092	No	No	No	No
	December	0.0351	0.0445	1.2	5	5	5	0.0371	0.0089	0.0089	0.0089	No	No	No	No
Operation 1 Phase (1-23)	January	0.0466	0.0474	1.2	5	5	5	0.0395	0.0095	0.0095	0.0095	No	No	No	No
	February	0.0509	0.0518	1.2	5	5	5	0.0432	0.0104	0.0104	0.0104	No	No	No	No
	March	0.0510	0.0522	1.2	5	5	5	0.0435	0.0104	0.0104	0.0104	No	No	No	No
	April	0.0503	0.0506	1.2	5	5	5	0.0422	0.0101	0.0101	0.0101	No	No	No	No
	May	0.0128	0.0129	1.2	5	5	5	0.0107	0.0026	0.0026	0.0026	No	No	No	No
	June	0.0138	0.0140	1.2	5	5	5	0.0116	0.0028	0.0028	0.0028	No	No	No	No
	July	0.0220	0.0225	1.2	5	5	5	0.0187	0.0045	0.0045	0.0045	No	No	No	No
	August	0.0361	0.0366	1.2	5	5	5	0.0305	0.0073	0.0073	0.0073	No	No	No	No
	September	0.0462	0.0468	1.2	5	5	5	0.0390	0.0094	0.0094	0.0094	No	No	No	No
	October	0.0472	0.0477	1.2	5	5	5	0.0398	0.0095	0.0095	0.0095	No	No	No	No
	November	0.0480	0.0486	1.2	5	5	5	0.0405	0.0097	0.0097	0.0097	No	No	No	No
	December	0.0476	0.0483	1.2	5	5	5	0.0402	0.0097	0.0097	0.0097	No	No	No	No
Operations 2 Phase (24-28)	January	0.0476	0.0476	1.2	5	5	5	0.0397	0.0095	0.0095	0.0095	No	No	No	No
	February	0.0520	0.0520	1.2	5	5	5	0.0434	0.0104	0.0104	0.0104	No	No	No	No
	March	0.0524	0.0524	1.2	5	5	5	0.0437	0.0105	0.0105	0.0105	No	No	No	No
	April	0.0507	0.0507	1.2	5	5	5	0.0423	0.0101	0.0101	0.0101	No	No	No	No
	May	0.0129	0.0129	1.2	5	5	5	0.0107	0.0026	0.0026	0.0026	No	No	No	No
	June	0.0140	0.0140	1.2	5	5	5	0.0116	0.0028	0.0028	0.0028	No	No	No	No
	July	0.0225	0.0225	1.2	5	5	5	0.0188	0.0045	0.0045	0.0045	No	No	No	No
	August	0.0366	0.0366	1.2	5	5	5	0.0305	0.0073	0.0073	0.0073	No	No	No	No
	September	0.0468	0.0468	1.2	5	5	5	0.0390	0.0094	0.0094	0.0094	No	No	No	No
	October	0.0478	0.0479	1.2	5	5	5	0.0399	0.0096	0.0096	0.0096	No	No	No	No
	November	0.0487	0.0487	1.2	5	5	5	0.0406	0.0097	0.0097	0.0097	No	No	No	No
	December	0.0484	0.0484	1.2	5	5	5	0.0403	0.0097	0.0097	0.0097	No	No	No	No
Closure Phase (29-35)	January	0.0476	0.0503	1.2	5	5	5	0.0419	0.0101	0.0101	0.0101	No	No	No	No
	February	0.0513	0.0535	1.2	5	5	5	0.0446	0.0107	0.0107	0.0107	No	No	No	No
	March	0.0514	0.0539	1.2	5	5	5	0.0449	0.0108	0.0108	0.0108	No	No	No	No
	April	0.0517	0.0541	1.2	5	5	5	0.0451	0.0108	0.0108	0.0108	No	No	No	No
	May	0.0198	0.0261	1.2	5	5	5	0.0217	0.0052	0.0052	0.0052	No	No	No	No
	June	0.0242	0.0293	1.2	5	5	5	0.0244	0.0059	0.0059	0.0059	No	No	No	No
	July	0.0267	0.0296	1.2	5	5	5	0.0246	0.0059	0.0059	0.0059	No	No	No	No
	August	0.0372	0.0384	1.2	5	5	5	0.0320	0.0077	0.0077	0.0077	No	No	No	No
	September	0.0478	0.0499	1.2	5	5	5	0.0416	0.0100	0.0100	0.0100	No	No	No	No
	October	0.0494	0.0520	1.2	5	5	5	0.0433	0.0104	0.0104	0.0104	No	No	No	No
	November	0.0490	0.0506	1.2	5	5	5	0.0422	0.0101	0.0101	0.0101	No	No	No	No
	December	0.0487	0.0506	1.2	5	5	5	0.0422	0.0101	0.0101	0.0101	No	No	No	No
Post-Closure Phase (36-99)	January	0.0455	0.0478	1.2	5	5	5	0.0399	0.0096	0.0096	0.0096	No	No	No	No
	February	0.0476	0.0516	1.2	5	5	5	0.0430	0.0103	0.0103	0.0103	No	No	No	No
	March	0.0470	0.0522	1.2	5	5	5	0.0435	0.0104	0.0104	0.0104	No	No	No	No
	April	0.0469	0.0519	1.2	5	5	5	0.0432	0.0104	0.0104	0.0104	No	No	No	No
	May	0.0213	0.0248	1.2	5	5	5	0.0207	0.0050	0.0050	0.0050	No	No	No	No
	June	0.0236	0.0277	1.2	5	5	5	0.0231	0.0055	0.0055	0.0055	No	No	No	No
	July	0.0271	0.0296	1.2	5	5	5	0.0247	0.0059	0.0059	0.0059	No	No	No	No
	August	0.0371	0.0388	1.2	5	5	5	0.0323	0.0078	0.0078	0.0078	No	No	No	No
	September	0.0449	0.0477	1.2	5	5	5	0.0398	0.0095	0.0095	0.0095	No	No	No	No
	October	0.0453	0.0492	1.2	5	5	5	0.0410	0.0098	0.0098	0.0098	No	No	No	No
	November	0.0469	0.0487	1.2	5	5	5	0.0406	0.0097	0.0097	0.0097	No	No	No	No
	December	0.0463	0.0485	1.2	5	5	5	0.0404	0.0097	0.0097	0.0097	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix D-7g. Harper Creek downstream of T Creek (HT) Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

		First Screening Step			Retained as COPC?	
Project Phase	Months	Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Livestock
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	12.5	14.0	1000	0.0140	No
	February	13.1	15.3	1000	0.0153	No
	March	13.7	15.6	1000	0.0156	No
	April	15.2	15.6	1000	0.0156	No
	May	8.31	10.1	1000	0.0101	No
	June	7.03	8.79	1000	0.0088	No
	July	10.0	11.7	1000	0.0117	No
	August	13.7	14.1	1000	0.0141	No
	September	15.0	15.2	1000	0.0152	No
	October	14.0	14.9	1000	0.0149	No
	November	12.8	14.8	1000	0.0148	No
	December	12.7	14.8	1000	0.0148	No
Operation 1 Phase (1-23)	January	14.8	15.4	1000	0.0154	No
	February	15.0	15.7	1000	0.0157	No
	March	15.1	16.0	1000	0.0160	No
	April	15.2	15.5	1000	0.0155	No
	May	9.84	9.90	1000	0.0099	No
	June	8.60	8.67	1000	0.0087	No
	July	11.9	12.1	1000	0.0121	No
	August	14.0	14.4	1000	0.0144	No
	September	14.6	15.0	1000	0.0150	No
	October	14.7	15.1	1000	0.0151	No
	November	14.7	15.1	1000	0.0151	No
	December	14.7	15.2	1000	0.0152	No
Operations 2 Phase (24-28)	January	15.5	15.5	1000	0.0155	No
	February	15.8	15.8	1000	0.0158	No
	March	16.2	16.2	1000	0.0162	No
	April	15.5	15.6	1000	0.0156	No
	May	9.89	9.91	1000	0.0099	No
	June	8.70	8.72	1000	0.0087	No
	July	12.1	12.1	1000	0.0121	No
	August	14.5	14.5	1000	0.0145	No
	September	15.1	15.1	1000	0.0151	No
	October	15.2	15.2	1000	0.0152	No
	November	15.2	15.2	1000	0.0152	No
	December	15.3	15.3	1000	0.0153	No
Closure Phase (29-35)	January	16.3	18.5	1000	0.0185	No
	February	16.6	19.0	1000	0.0190	No
	March	16.9	19.5	1000	0.0195	No
	April	17.6	20.1	1000	0.0201	No
	May	12.6	15.1	1000	0.0151	No
	June	13.1	15.2	1000	0.0152	No
	July	13.9	15.1	1000	0.0151	No
	August	14.8	15.5	1000	0.0155	No
	September	16.7	18.2	1000	0.0182	No
	October	17.6	19.6	1000	0.0196	No
	November	16.3	17.7	1000	0.0177	No
	December	16.5	18.1	1000	0.0181	No
Post-Closure Phase (36-99)	January	17.2	17.8	1000	0.0178	No
	February	19.4	20.2	1000	0.0202	No
	March	20.9	21.9	1000	0.0219	No
	April	19.7	20.4	1000	0.0204	No
	May	14.4	14.9	1000	0.0149	No
	June	14.4	15.1	1000	0.0151	No
	July	15.2	15.7	1000	0.0157	No
	August	15.9	16.3	1000	0.0163	No
	September	16.9	17.5	1000	0.0175	No
	October	18.0	18.8	1000	0.0188	No
	November	16.6	17.2	1000	0.0172	No
	December	16.9	17.5	1000	0.0175	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix D-7h. Harper Creek downstream of T Creek (HI) Hazard Quotients for Dissolved and Total Cadmium Concentrations, Expected Case (completed)

Project Phase		Second Screening Step								Retained as COPC?		
		Baseline Concentrations				Hazard Quotient relative to Baseline				Aquatic Life	Drinking Water	Livestock
		Dissolved Cadmium		Total Cadmium		Cd Dissolved		Cd Total				
		Mean	95%ile	Mean	95%ile	Mean	95%ile	Mean	95%ile	Dissolved Cadmium	Total Cadmium	Total Cadmium
Construction (-2 to-1)	January									No	No	No
	February									No	No	No
	March									No	No	No
	April									No	No	No
	May									No	No	No
	June									No	No	No
	July									No	No	No
	August									No	No	No
	September									No	No	No
	October									No	No	No
	November									No	No	No
	December									No	No	No
Operation 1 Phase (1-23)	January									No	No	No
	February									No	No	No
	March									No	No	No
	April									No	No	No
	May									No	No	No
	June									No	No	No
	July									No	No	No
	August									No	No	No
	September									No	No	No
	October									No	No	No
	November									No	No	No
	December									No	No	No
Operations 2 Phase (24-28)	January									No	No	No
	February									No	No	No
	March									No	No	No
	April									No	No	No
	May									No	No	No
	June									No	No	No
	July									No	No	No
	August									No	No	No
	September									No	No	No
	October									No	No	No
	November									No	No	No
	December									No	No	No
Closure Phase (29-35)	January									No	No	No
	February									No	No	No
	March									No	No	No
	April									No	No	No
	May									No	No	No
	June	0.000012	0.000013	0.000013	0.000015	1.72	1.86	1.88	1.87	Yes	No	No
	July									No	No	No
	August									No	No	No
	September									No	No	No
	October									No	No	No
	November									No	No	No
	December									No	No	No
Post-Closure Phase (36-99)	January									No	No	No
	February	0.000005	0.000005	0.000007	0.000007	7.62	9.99	5.51	7.12	Yes	No	No
	March	0.000004	0.000004	0.000007	0.000007	11.17	14.70	7.44	9.70	Yes	No	No
	April	0.000009	0.000009	0.000014	0.000014	4.55	5.89	3.01	3.85	Yes	No	No
	May	0.000011	0.000011	0.000022	0.000050	2.89	3.52	1.69	0.890	Yes	No	No
	June	0.000012	0.000013	0.000013	0.000015	3.08	3.53	3.03	3.27	Yes	No	No
	July	0.000010	0.000012	0.000017	0.000019	2.65	2.76	1.88	2.025	Yes	No	No
	August									No	No	No
	September									No	No	No
	October	0.000012	0.000012	0.000012	0.000013	2.66	3.27	2.72	3.32	Yes	No	No
	November									No	No	No
	December									No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 * Guideline is hardness

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix D-7i. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Chromium Concentrations, Expected Case

		First Screening Step										Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline			Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline					
						Canadian DWQG	BC MOE Working			Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.00009224	0.0001000	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0000920	0.0001000	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0000926	0.0001000	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.124	0.0139	0.0025	0.0025	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.207	0.0232	0.0041	0.0041	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.120	0.0135	0.0024	0.0024	No	No	No
	August	0.0001	0.0002	0.001	0.0089	0.05	0.05	0.162	0.0182	0.0032	0.0032	No	No	No
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.235	0.0264	0.0047	0.0047	No	No	No
	October	0.0001	0.0002	0.001	0.0089	0.05	0.05	0.156	0.0176	0.0031	0.0031	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0113	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.189	0.0212	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.204	0.0229	0.0041	0.0041	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.112	0.0126	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.111	0.0125	0.0022	0.0022	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0115	0.0021	0.0021	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.107	0.0120	0.0021	0.0021	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0114	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0115	0.0021	0.0021	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0117	0.0021	0.0021	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.189	0.0212	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.203	0.0228	0.0041	0.0041	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.112	0.0125	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.111	0.0125	0.0022	0.0022	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0115	0.0021	0.0021	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.107	0.0120	0.0021	0.0021	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.121	0.0136	0.0024	0.0024	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.123	0.0139	0.0025	0.0025	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.125	0.0141	0.0025	0.0025	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.127	0.0142	0.0025	0.0025	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0212	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.203	0.0228	0.0041	0.0041	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.123	0.0138	0.0025	0.0025	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.117	0.0131	0.0023	0.0023	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.120	0.0135	0.0024	0.0024	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.129	0.0145	0.0026	0.0026	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.117	0.0131	0.0023	0.0023	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.119	0.0134	0.0024	0.0024	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.119	0.0134	0.0024	0.0024	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.134	0.0151	0.0027	0.0027	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.145	0.0163	0.0029	0.0029	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.134	0.0151	0.0027	0.0027	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.186	0.0209	0.0037	0.0037	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.195	0.0219	0.0039	0.0039	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.128	0.0144	0.0026	0.0026	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.121	0.0136	0.0024	0.0024	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.118	0.0132	0.0024	0.0024	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.128	0.0144	0.0026	0.0026	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.115	0.0130	0.0023	0.0023	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.117	0.0132	0.0023	0.0023	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline of Ministers of the

Appendix D-7j. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Cobalt Concentrations, Expected Case

		First Screening Step										Retained as COPC?	
Project Phase	Months	Predicted Concentrations				BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
		Mean		Maximum			BC MOE Working	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Day Mean Guideline				Maximum Predicted vs. BC MOE Maximum Guideline
		Day	Mean	Day	Maximum								
Construction (-2 to-1)	January	0.00004	0.00005	0.004	0.110	1	0.0104	0.0118	0.00043	0.00005	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00352	0.00353	0.00013	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00287	0.00339	0.00012	0.00001	No	No	
	April	0.00002	0.00003	0.004	0.110	1	0.00519	0.00636	0.00023	0.00003	No	No	
	May	0.00010	0.00010	0.004	0.110	1	0.0247	0.0250	0.00091	0.00010	No	No	
	June	0.00013	0.00014	0.004	0.110	1	0.0320	0.0356	0.00129	0.00014	No	No	
	July	0.00010	0.00011	0.004	0.110	1	0.0240	0.0276	0.00100	0.00011	No	No	
	August	0.00011	0.00016	0.004	0.110	1	0.0270	0.0397	0.00145	0.00016	No	No	
	September	0.00007	0.00011	0.004	0.110	1	0.0165	0.0265	0.00096	0.00011	No	No	
	October	0.00009	0.00014	0.004	0.110	1	0.0214	0.0362	0.00132	0.00014	No	No	
	November	0.00004	0.00005	0.004	0.110	1	0.00963	0.0130	0.00047	0.00005	No	No	
	December	0.00004	0.00005	0.004	0.110	1	0.00959	0.0119	0.00043	0.00005	No	No	
Operation 1 Phase (1-23)	January	0.00035	0.00067	0.004	0.110	1	0.0872	0.167	0.00608	0.00067	No	No	
	February	0.00040	0.00078	0.004	0.110	1	0.0995	0.194	0.00705	0.00078	No	No	
	March	0.00047	0.00091	0.004	0.110	1	0.116	0.227	0.00826	0.00091	No	No	
	April	0.00015	0.00028	0.004	0.110	1	0.0375	0.0702	0.00255	0.00028	No	No	
	May	0.00012	0.00014	0.004	0.110	1	0.0306	0.0361	0.00131	0.00014	No	No	
	June	0.00016	0.00018	0.004	0.110	1	0.0402	0.0461	0.00168	0.00018	No	No	
	July	0.00015	0.00022	0.004	0.110	1	0.0375	0.0543	0.00198	0.00022	No	No	
	August	0.00021	0.00036	0.004	0.110	1	0.0524	0.0888	0.00323	0.00036	No	No	
	September	0.00025	0.00046	0.004	0.110	1	0.0619	0.114	0.00416	0.00046	No	No	
	October	0.00025	0.00045	0.004	0.110	1	0.0617	0.113	0.00411	0.00045	No	No	
	November	0.00026	0.00048	0.004	0.110	1	0.0649	0.119	0.00433	0.00048	No	No	
	December	0.00032	0.00058	0.004	0.110	1	0.0793	0.146	0.00529	0.00058	No	No	
Operations 2 Phase (24-28)	January	0.00072	0.00073	0.004	0.110	1	0.179	0.182	0.00660	0.00073	No	No	
	February	0.00083	0.00084	0.004	0.110	1	0.207	0.210	0.00764	0.00084	No	No	
	March	0.00097	0.00098	0.004	0.110	1	0.243	0.246	0.00895	0.00098	No	No	
	April	0.00030	0.00030	0.004	0.110	1	0.0747	0.0757	0.00275	0.00030	No	No	
	May	0.00015	0.00015	0.004	0.110	1	0.0368	0.0370	0.00134	0.00015	No	No	
	June	0.00019	0.00019	0.004	0.110	1	0.0469	0.0471	0.00171	0.00019	No	No	
	July	0.00023	0.00023	0.004	0.110	1	0.0563	0.0567	0.00206	0.00023	No	No	
	August	0.00037	0.00037	0.004	0.110	1	0.0925	0.0932	0.00339	0.00037	No	No	
	September	0.00048	0.00048	0.004	0.110	1	0.120	0.121	0.00440	0.00048	No	No	
	October	0.00047	0.00048	0.004	0.110	1	0.118	0.119	0.00434	0.00048	No	No	
	November	0.00050	0.00050	0.004	0.110	1	0.124	0.125	0.00455	0.00050	No	No	
	December	0.00060	0.00061	0.004	0.110	1	0.151	0.153	0.00555	0.00061	No	No	
Closure Phase (29-35)	January	0.00056	0.00113	0.004	0.110	1	0.140	0.283	0.0103	0.00113	No	No	
	February	0.00061	0.00125	0.004	0.110	1	0.153	0.312	0.0113	0.00125	No	No	
	March	0.00067	0.00136	0.004	0.110	1	0.168	0.341	0.0124	0.00136	No	No	
	April	0.00074	0.00141	0.004	0.110	1	0.184	0.353	0.0128	0.00141	No	No	
	May	0.00064	0.00113	0.004	0.110	1	0.159	0.281	0.0102	0.00113	No	No	
	June	0.00094	0.00134	0.004	0.110	1	0.235	0.336	0.0122	0.00134	No	No	
	July	0.00053	0.00080	0.004	0.110	1	0.132	0.201	0.00729	0.00080	No	No	
	August	0.00029	0.00047	0.004	0.110	1	0.0723	0.116	0.00424	0.00047	No	No	
	September	0.00065	0.00106	0.004	0.110	1	0.163	0.264	0.00960	0.00106	No	No	
	October	0.00088	0.00139	0.004	0.110	1	0.219	0.348	0.0127	0.00139	No	No	
	November	0.00055	0.00090	0.004	0.110	1	0.137	0.226	0.00820	0.00090	No	No	
	December	0.00062	0.00102	0.004	0.110	1	0.156	0.256	0.00930	0.00102	No	No	
Post-Closure Phase (36-99)	January	0.00041	0.00082	0.004	0.110	1	0.102	0.205	0.00744	0.00082	No	No	
	February	0.00067	0.00133	0.004	0.110	1	0.168	0.332	0.0121	0.00133	No	No	
	March	0.00086	0.00169	0.004	0.110	1	0.216	0.423	0.0154	0.00169	No	No	
	April	0.00068	0.00137	0.004	0.110	1	0.170	0.341	0.0124	0.00137	No	No	
	May	0.00052	0.00098	0.004	0.110	1	0.129	0.245	0.00890	0.00098	No	No	
	June	0.00062	0.00116	0.004	0.110	1	0.155	0.290	0.0106	0.00116	No	No	
	July	0.00044	0.00080	0.004	0.110	1	0.109	0.199	0.00724	0.00080	No	No	
	August	0.00030	0.00056	0.004	0.110	1	0.0756	0.140	0.00510	0.00056	No	No	
	September	0.00037	0.00077	0.004	0.110	1	0.192	0.0935	0.00700	0.00077	No	No	
	October	0.00052	0.00105	0.004	0.110	1	0.129	0.263	0.00955	0.00105	No	No	
	November	0.00032	0.00064	0.004	0.110	1	0.0799	0.160	0.00580	0.00064	No	No	
	December	0.00036	0.00073	0.004	0.110	1	0.0905	0.181	0.00660	0.00073	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix D-71. Harper Creek downstream of T Creek (HT) Hazard Quotients for Dissolved and Total Iron Concentrations, Expected Case

		First Screening Step								Retained as COPC?	
		Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life	
Project Phase	Months	Dissolved Iron		Total Iron		BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0065	0.0075	0.0079	0.0080	0.35	1	0.0215	0.0080	No	No
	February	0.0041	0.0049	0.0065	0.0072	0.35	1	0.0140	0.0072	No	No
	March	0.0033	0.0034	0.0054	0.0058	0.35	1	0.0096	0.0058	No	No
	April	0.0147	0.0203	0.0418	0.0589	0.35	1	0.0580	0.0589	No	No
	May	0.0205	0.0212	0.124	0.127	0.35	1	0.0606	0.127	No	No
	June	0.0139	0.0145	0.140	0.145	0.35	1	0.0415	0.145	No	No
	July	0.0116	0.0130	0.0284	0.0323	0.35	1	0.0372	0.0323	No	No
	August	0.0115	0.0157	0.0162	0.0220	0.35	1	0.0449	0.0220	No	No
	September	0.0083	0.0119	0.0199	0.0321	0.35	1	0.0340	0.0321	No	No
	October	0.0102	0.0158	0.0166	0.0258	0.35	1	0.0450	0.0258	No	No
	November	0.0061	0.0078	0.0102	0.0135	0.35	1	0.0222	0.0135	No	No
	December	0.0060	0.0073	0.0094	0.0116	0.35	1	0.0209	0.0116	No	No
Operation 1 Phase (1-23)	January	0.0046	0.0046	0.0073	0.0073	0.35	1	0.0132	0.0073	No	No
	February	0.0044	0.0044	0.0071	0.0071	0.35	1	0.0126	0.0071	No	No
	March	0.0037	0.0037	0.0065	0.0065	0.35	1	0.0106	0.0065	No	No
	April	0.0097	0.0097	0.0263	0.0264	0.35	1	0.0277	0.0264	No	No
	May	0.0199	0.0200	0.124	0.124	0.35	1	0.0570	0.124	No	No
	June	0.0134	0.0134	0.142	0.143	0.35	1	0.0384	0.143	No	No
	July	0.0099	0.0100	0.0250	0.0250	0.35	1	0.0286	0.0250	No	No
	August	0.0072	0.0072	0.0105	0.0105	0.35	1	0.0206	0.0105	No	No
	September	0.0044	0.0044	0.0076	0.0076	0.35	1	0.0126	0.0076	No	No
	October	0.0045	0.0045	0.0073	0.0073	0.35	1	0.0130	0.0073	No	No
	November	0.0043	0.0043	0.0070	0.0070	0.35	1	0.0122	0.0070	No	No
	December	0.0044	0.0044	0.0071	0.0072	0.35	1	0.0126	0.0072	No	No
Operations 2 Phase (24-28)	January	0.0046	0.0046	0.0073	0.0073	0.35	1	0.0132	0.0073	No	No
	February	0.0044	0.0044	0.0071	0.0071	0.35	1	0.0126	0.0071	No	No
	March	0.0037	0.0037	0.0065	0.0065	0.35	1	0.0106	0.0065	No	No
	April	0.0097	0.0097	0.0264	0.0264	0.35	1	0.0276	0.0264	No	No
	May	0.0199	0.0199	0.124	0.124	0.35	1	0.0568	0.124	No	No
	June	0.0133	0.0133	0.142	0.142	0.35	1	0.0381	0.142	No	No
	July	0.0098	0.0099	0.0250	0.0250	0.35	1	0.0281	0.0250	No	No
	August	0.0072	0.0072	0.0104	0.0105	0.35	1	0.0206	0.0105	No	No
	September	0.0044	0.0044	0.0075	0.0076	0.35	1	0.0126	0.0076	No	No
	October	0.0045	0.0045	0.0073	0.0073	0.35	1	0.0130	0.0073	No	No
	November	0.0043	0.0043	0.0070	0.0070	0.35	1	0.0122	0.0070	No	No
	December	0.0044	0.0044	0.0071	0.0071	0.35	1	0.0126	0.0071	No	No
Closure Phase (29-35)	January	0.0049	0.0052	0.0083	0.0093	0.35	1	0.0148	0.0093	No	No
	February	0.0047	0.0051	0.0083	0.0093	0.35	1	0.0145	0.0093	No	No
	March	0.0042	0.0047	0.0079	0.0091	0.35	1	0.0134	0.0091	No	No
	April	0.0090	0.0096	0.0239	0.0264	0.35	1	0.0276	0.0264	No	No
	May	0.0178	0.0199	0.107	0.124	0.35	1	0.0567	0.124	No	No
	June	0.0117	0.0133	0.112	0.142	0.35	1	0.0380	0.142	No	No
	July	0.0094	0.0099	0.0235	0.0249	0.35	1	0.0281	0.0249	No	No
	August	0.0071	0.0072	0.0107	0.0108	0.35	1	0.0206	0.0108	No	No
	September	0.0047	0.0050	0.0088	0.0093	0.35	1	0.0142	0.0093	No	No
	October	0.0049	0.0052	0.0090	0.0098	0.35	1	0.0149	0.0098	No	No
	November	0.0046	0.0048	0.0081	0.0086	0.35	1	0.0136	0.0086	No	No
	December	0.0047	0.0050	0.0084	0.0090	0.35	1	0.0142	0.0090	No	No
Post-Closure Phase (36-99)	January	0.0053	0.0055	0.0099	0.0101	0.35	1	0.0158	0.0101	No	No
	February	0.0057	0.0061	0.0116	0.0122	0.35	1	0.0174	0.0122	No	No
	March	0.0058	0.0063	0.0127	0.0135	0.35	1	0.0179	0.0135	No	No
	April	0.0087	0.0091	0.0227	0.0234	0.35	1	0.0260	0.0234	No	No
	May	0.0163	0.0166	0.0931	0.0937	0.35	1	0.0473	0.0937	No	No
	June	0.0113	0.0116	0.0994	0.100	0.35	1	0.0332	0.100	No	No
	July	0.0094	0.0096	0.0233	0.0237	0.35	1	0.0274	0.0237	No	No
	August	0.0073	0.0074	0.0117	0.0119	0.35	1	0.0212	0.0119	No	No
	September	0.0051	0.0053	0.0098	0.0101	0.35	1	0.0150	0.0101	No	No
	October	0.0054	0.0057	0.0106	0.0110	0.35	1	0.0163	0.0110	No	No
	November	0.0049	0.0050	0.0091	0.0093	0.35	1	0.0144	0.0093	No	No
	December	0.0051	0.0053	0.0095	0.0097	0.35	1	0.0151	0.0097	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix D-7n. Harper Creek downstream of T Creek (HI) Hazard Quotients for Total Lithium Concentrations, Expected Case

		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value	Maximum Predicted vs. BC MOE Working Final Chronic Value	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
						Guideline	Guideline	Guideline	
Construction (-2 to-1)	January	0.0007	0.0008	0.096	0.87	0.0072	0.0081	0.0009	No
	February	0.0008	0.0008	0.096	0.87	0.0080	0.0084	0.0009	No
	March	0.0007	0.0008	0.096	0.87	0.0072	0.0084	0.0009	No
	April	0.0006	0.0006	0.096	0.87	0.0064	0.0065	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0057	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0057	0.0006	No
	July	0.0006	0.0007	0.096	0.87	0.0064	0.0068	0.0007	No
	August	0.0008	0.0009	0.096	0.87	0.0087	0.0092	0.0010	No
	September	0.0009	0.0009	0.096	0.87	0.0090	0.0093	0.0010	No
	October	0.0009	0.0009	0.096	0.87	0.0096	0.0098	0.0011	No
	November	0.0007	0.0008	0.096	0.87	0.0069	0.0086	0.0009	No
	December	0.0007	0.0008	0.096	0.87	0.0071	0.0086	0.0010	No
Operation 1 Phase (1-23)	January	0.0011	0.0013	0.096	0.87	0.0109	0.0130	0.0014	No
	February	0.0011	0.0013	0.096	0.87	0.0113	0.0138	0.0015	No
	March	0.0011	0.0014	0.096	0.87	0.0118	0.0148	0.0016	No
	April	0.0007	0.0008	0.096	0.87	0.0072	0.0081	0.0009	No
	May	0.0006	0.0006	0.096	0.87	0.0058	0.0060	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0059	0.0061	0.0007	No
	July	0.0007	0.0008	0.096	0.87	0.0075	0.0080	0.0009	No
	August	0.0009	0.0011	0.096	0.87	0.0098	0.0110	0.0012	No
	September	0.0010	0.0011	0.096	0.87	0.0103	0.0117	0.0013	No
	October	0.0010	0.0012	0.096	0.87	0.0107	0.0121	0.0013	No
	November	0.0010	0.0011	0.096	0.87	0.0103	0.0118	0.0013	No
	December	0.0010	0.0012	0.096	0.87	0.0108	0.0126	0.0014	No
Operations 2 Phase (24-28)	January	0.0013	0.0013	0.096	0.87	0.0134	0.0135	0.0015	No
	February	0.0014	0.0014	0.096	0.87	0.0142	0.0143	0.0016	No
	March	0.0015	0.0015	0.096	0.87	0.0152	0.0153	0.0017	No
	April	0.0008	0.0008	0.096	0.87	0.0082	0.0083	0.0009	No
	May	0.0006	0.0006	0.096	0.87	0.0060	0.0060	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0061	0.0061	0.0007	No
	July	0.0008	0.0008	0.096	0.87	0.0081	0.0081	0.0009	No
	August	0.0011	0.0011	0.096	0.87	0.0111	0.0111	0.0012	No
	September	0.0011	0.0011	0.096	0.87	0.0119	0.0119	0.0013	No
	October	0.0012	0.0012	0.096	0.87	0.0123	0.0123	0.0014	No
	November	0.0011	0.0012	0.096	0.87	0.0120	0.0120	0.0013	No
	December	0.0012	0.0012	0.096	0.87	0.0127	0.0128	0.0014	No
Closure Phase (29-35)	January	0.0017	0.0026	0.096	0.87	0.0179	0.0266	0.0029	No
	February	0.0018	0.0027	0.096	0.87	0.0189	0.0285	0.0031	No
	March	0.0019	0.0029	0.096	0.87	0.0200	0.0304	0.0034	No
	April	0.0018	0.0028	0.096	0.87	0.0187	0.0292	0.0032	No
	May	0.0014	0.0022	0.096	0.87	0.0151	0.0230	0.0025	No
	June	0.0019	0.0025	0.096	0.87	0.0199	0.0264	0.0029	No
	July	0.0014	0.0018	0.096	0.87	0.0148	0.0189	0.0021	No
	August	0.0012	0.0015	0.096	0.87	0.0130	0.0156	0.0017	No
	September	0.0019	0.0024	0.096	0.87	0.0194	0.0253	0.0028	No
	October	0.0022	0.0030	0.096	0.87	0.0233	0.0307	0.0034	No
	November	0.0017	0.0022	0.096	0.87	0.0177	0.0229	0.0025	No
	December	0.0018	0.0024	0.096	0.87	0.0190	0.0248	0.0027	No
Post-Closure Phase (36-99)	January	0.0019	0.0023	0.096	0.87	0.0201	0.0234	0.0026	No
	February	0.0027	0.0031	0.096	0.87	0.0279	0.0323	0.0036	No
	March	0.0032	0.0037	0.096	0.87	0.0334	0.0387	0.0043	No
	April	0.0025	0.0030	0.096	0.87	0.0264	0.0311	0.0034	No
	May	0.0018	0.0022	0.096	0.87	0.0192	0.0224	0.0025	No
	June	0.0021	0.0025	0.096	0.87	0.0218	0.0256	0.0028	No
	July	0.0018	0.0020	0.096	0.87	0.0183	0.0207	0.0023	No
	August	0.0016	0.0018	0.096	0.87	0.0163	0.0184	0.0020	No
	September	0.0018	0.0022	0.096	0.87	0.0192	0.0225	0.0025	No
	October	0.0023	0.0027	0.096	0.87	0.0235	0.0278	0.0031	No
	November	0.0017	0.0020	0.096	0.87	0.0176	0.0203	0.0022	No
	December	0.0018	0.0021	0.096	0.87	0.0189	0.0220	0.0024	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix D-7o. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Manganese Concentrations, Expected Case

		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
Construction (-2 to-1)	January	0.0006	0.0006	0.759	0.926	0.0008	0.0009	0.0007	No
	February	0.0007	0.0007	0.760	0.929	0.0009	0.0009	0.0007	No
	March	0.0005	0.0007	0.770	0.953	0.0007	0.0009	0.0007	No
	April	0.0020	0.0027	0.810	1.05	0.0025	0.0033	0.0026	No
	May	0.0059	0.0061	0.693	0.761	0.0085	0.0089	0.0081	No
	June	0.0068	0.0068	0.676	0.719	0.0100	0.0101	0.0095	No
	July	0.0014	0.0016	0.713	0.811	0.0020	0.0022	0.0020	No
	August	0.0014	0.0018	0.788	0.998	0.0017	0.0023	0.0018	No
	September	0.0018	0.0028	0.814	1.06	0.0022	0.0034	0.0026	No
	October	0.0017	0.0026	0.783	0.986	0.0021	0.0021	0.0026	No
	November	0.0009	0.0011	0.753	0.910	0.0012	0.0014	0.0012	No
	December	0.0008	0.0008	0.754	0.913	0.0010	0.0010	0.0009	No
Operation 1 Phase (1-23)	January	0.0021	0.0035	0.759	0.926	0.0028	0.0046	0.0038	No
	February	0.0023	0.0040	0.760	0.929	0.0031	0.0053	0.0043	No
	March	0.0026	0.0047	0.770	0.953	0.0034	0.0061	0.0049	No
	April	0.0020	0.0026	0.810	1.05	0.0024	0.0032	0.0024	No
	May	0.0059	0.0061	0.693	0.761	0.0086	0.0087	0.0080	No
	June	0.0068	0.0069	0.676	0.719	0.0101	0.0102	0.0096	No
	July	0.0017	0.0021	0.713	0.811	0.0024	0.0029	0.0026	No
	August	0.0018	0.0026	0.788	0.998	0.0023	0.0033	0.0026	No
	September	0.0017	0.0027	0.814	1.06	0.0021	0.0033	0.0025	No
	October	0.0017	0.0026	0.783	0.986	0.0022	0.0034	0.0027	No
	November	0.0018	0.0028	0.753	0.910	0.0024	0.0037	0.0030	No
	December	0.0020	0.0032	0.754	0.913	0.0026	0.0043	0.0035	No
Operations 2 Phase (24-28)	January	0.0038	0.0038	0.759	0.926	0.0050	0.0051	0.0041	No
	February	0.0043	0.0043	0.760	0.929	0.0056	0.0057	0.0047	No
	March	0.0050	0.0051	0.770	0.953	0.0065	0.0066	0.0053	No
	April	0.0027	0.0027	0.810	1.05	0.0033	0.0033	0.0025	No
	May	0.0061	0.0061	0.693	0.761	0.0088	0.0088	0.0080	No
	June	0.0069	0.0069	0.676	0.719	0.0102	0.0102	0.0096	No
	July	0.0021	0.0021	0.713	0.811	0.0030	0.0030	0.0026	No
	August	0.0027	0.0027	0.788	0.998	0.0034	0.0034	0.0027	No
	September	0.0028	0.0028	0.814	1.06	0.0034	0.0035	0.0026	No
	October	0.0028	0.0028	0.783	0.986	0.0035	0.0035	0.0028	No
	November	0.0029	0.0029	0.753	0.910	0.0038	0.0038	0.0032	No
	December	0.0033	0.0034	0.754	0.913	0.0044	0.0044	0.0037	No
Closure Phase (29-35)	January	0.0072	0.0133	0.759	0.926	0.0095	0.0176	0.0144	No
	February	0.0079	0.0147	0.760	0.929	0.0104	0.0193	0.0158	No
	March	0.0087	0.0161	0.770	0.953	0.0113	0.0209	0.0169	No
	April	0.0097	0.0168	0.810	1.05	0.0120	0.0208	0.0160	No
	May	0.0115	0.0162	0.693	0.761	0.0165	0.0234	0.0213	No
	June	0.0149	0.0188	0.676	0.719	0.0221	0.0277	0.0261	No
	July	0.0067	0.0095	0.713	0.811	0.0094	0.0133	0.0117	No
	August	0.0041	0.0059	0.788	0.998	0.0051	0.0075	0.0059	No
	September	0.0083	0.0124	0.814	1.06	0.0102	0.0153	0.0117	No
	October	0.0109	0.0161	0.783	0.986	0.0140	0.0206	0.0164	No
	November	0.0071	0.0107	0.753	0.910	0.0095	0.0143	0.0118	No
	December	0.0080	0.0121	0.754	0.913	0.0106	0.0160	0.0132	No
Post-Closure Phase (36-99)	January	0.0098	0.0124	0.759	0.926	0.0129	0.0164	0.0134	No
	February	0.0161	0.0196	0.760	0.929	0.0212	0.0258	0.0211	No
	March	0.0206	0.0249	0.770	0.953	0.0268	0.0323	0.0261	No
	April	0.0166	0.0199	0.810	1.05	0.0205	0.0246	0.0189	No
	May	0.0147	0.0168	0.693	0.761	0.0212	0.0243	0.0221	No
	June	0.0170	0.0195	0.676	0.719	0.0251	0.0289	0.0272	No
	July	0.0101	0.0119	0.713	0.811	0.0141	0.0167	0.0147	No
	August	0.0071	0.0088	0.788	0.998	0.0090	0.0111	0.0088	No
	September	0.0092	0.0115	0.814	1.06	0.0112	0.0141	0.0108	No
	October	0.0125	0.0154	0.783	0.986	0.0160	0.0196	0.0156	No
	November	0.0079	0.0101	0.753	0.910	0.0105	0.0134	0.0111	No
	December	0.0089	0.0114	0.754	0.913	0.0118	0.0151	0.0125	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix D-7p. Harper Creek downstream of T Creek (HI) Hazard Quotients for Total Mercury Concentrations, Expected Case

		First Screening Step											Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	BC DWQG	BC MOE 30-Day Mean if MeHg is 0.5% of THg	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs BC MOE Livestock Watering Water Quality Guideline				
Construction (-2 to 1-)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.461	0.500	0.0100	0.461	0.500	0.00333	No	No	No	No
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.460	0.500	0.0100	0.460	0.500	0.00333	No	No	No	No
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.463	0.500	0.0100	0.463	0.500	0.00333	No	No	No	No
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.560	0.620	0.0124	0.560	0.620	0.00413	No	No	No	No
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.471	0.500	0.0100	0.471	0.500	0.00333	No	No	No	No
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.464	0.499	0.0100	0.464	0.499	0.00333	No	No	No	No
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.492	0.498	0.0100	0.492	0.498	0.00332	No	No	No	No
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.547	0.596	0.0119	0.547	0.596	0.00397	No	No	No	No
	September	0.00001	0.00002	0.00002	0.001	0.00002	0.003	0.688	0.876	0.0175	0.688	0.876	0.00584	No	No	No	No
	October	0.00001	0.00002	0.00002	0.001	0.00002	0.003	0.637	0.776	0.0155	0.637	0.776	0.00517	No	No	No	No
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.484	0.499	0.0100	0.484	0.499	0.00333	No	No	No	No
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.464	0.500	0.0100	0.464	0.500	0.00333	No	No	No	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.500	0.0100	0.498	0.500	0.00333	No	No	No	No
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.500	0.0100	0.497	0.500	0.00333	No	No	No	No
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.500	0.0100	0.497	0.500	0.00333	No	No	No	No
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333	No	No	No	No
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333	No	No	No	No
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333	No	No	No	No
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.502	0.0100	0.500	0.502	0.00335	No	No	No	No
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00334	No	No	No	No
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.500	0.0100	0.498	0.500	0.00333	No	No	No	No
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.499	0.0100	0.498	0.499	0.00333	No	No	No	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496	0.00991	0.496	0.496	0.00330	No	No	No	No
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495	0.00990	0.495	0.495	0.00330	No	No	No	No
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.494	0.494	0.00988	0.494	0.494	0.00329	No	No	No	No
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332	No	No	No	No
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333	No	No	No	No
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332	No	No	No	No
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333	No	No	No	No
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332	No	No	No	No
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.497	0.00994	0.497	0.497	0.00331	No	No	No	No
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496	0.00993	0.496	0.496	0.00331	No	No	No	No
Closure Phase (29-35)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.454	0.496	0.00991	0.454	0.496	0.00330	No	No	No	No
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.449	0.495	0.00990	0.449	0.495	0.00330	No	No	No	No
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.444	0.494	0.00988	0.444	0.494	0.00329	No	No	No	No
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.441	0.498	0.0100	0.441	0.498	0.00332	No	No	No	No
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.456	0.500	0.0100	0.456	0.500	0.00333	No	No	No	No
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.434	0.500	0.0100	0.434	0.500	0.00333	No	No	No	No
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.462	0.499	0.0100	0.462	0.499	0.00333	No	No	No	No
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.480	0.498	0.0100	0.480	0.498	0.00332	No	No	No	No
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.448	0.499	0.0100	0.448	0.499	0.00333	No	No	No	No
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.429	0.498	0.0100	0.429	0.498	0.00332	No	No	No	No
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.455	0.497	0.00994	0.455	0.497	0.00331	No	No	No	No
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.448	0.496	0.00993	0.448	0.496	0.00331	No	No	No	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.449	0.457	0.00914	0.449	0.457	0.00305	No	No	No	No
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.413	0.429	0.00858	0.413	0.429	0.00286	No	No	No	No
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.388	0.410	0.00820	0.388	0.410	0.00273	No	No	No	No
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.406	0.423	0.00847	0.406	0.423	0.00282	No	No	No	No
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.437	0.448	0.00896	0.437	0.448	0.00299	No	No	No	No
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.424	0.438	0.00876	0.424	0.438	0.00292	No	No	No	No
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.450	0.459	0.00918	0.450	0.459	0.00306	No	No	No	No
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.467	0.472	0.00944	0.467	0.472	0.00315	No	No	No	No
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.449	0.457	0.00914	0.449	0.457	0.00305	No	No	No	No
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.427	0.439	0.00878	0.427	0.439	0.00293	No	No	No	No
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.460	0.466	0.00933	0.460	0.466	0.00311	No	No	No	No
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.454	0.461	0.00923	0.454	0.461	0.00308	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-7r. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Nickel Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
		Construction (-2 to-1)	January	0.0002	0.0002	0.025	1		
	February	0.0001	0.0001	0.025	1	0.0033	0.0001	No	No
	March	0.0001	0.0001	0.025	1	0.0034	0.0001	No	No
	April	0.0001	0.0001	0.025	1	0.0056	0.0001	No	No
	May	0.0004	0.0005	0.025	1	0.0185	0.0005	No	No
	June	0.0005	0.0006	0.025	1	0.0222	0.0006	No	No
	July	0.0004	0.0005	0.025	1	0.0184	0.0005	No	No
	August	0.0004	0.0006	0.025	1	0.0230	0.0006	No	No
	September	0.0003	0.0005	0.025	1	0.0195	0.0005	No	No
	October	0.0003	0.0004	0.025	1	0.0165	0.0004	No	No
	November	0.0002	0.0003	0.025	1	0.0109	0.0003	No	No
	December	0.0002	0.0002	0.025	1	0.0100	0.0002	No	No
Operation 1 Phase (1-23)	January	0.0002	0.0003	0.025	1	0.0121	0.0003	No	No
	February	0.0002	0.0003	0.025	1	0.0115	0.0003	No	No
	March	0.0002	0.0003	0.025	1	0.0131	0.0003	No	No
	April	0.0001	0.0002	0.025	1	0.0068	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0189	0.0005	No	No
	June	0.0005	0.0005	0.025	1	0.0219	0.0005	No	No
	July	0.0004	0.0004	0.025	1	0.0167	0.0004	No	No
	August	0.0003	0.0003	0.025	1	0.0135	0.0003	No	No
	September	0.0002	0.0002	0.025	1	0.0094	0.0002	No	No
	October	0.0002	0.0002	0.025	1	0.0096	0.0002	No	No
	November	0.0002	0.0002	0.025	1	0.0098	0.0002	No	No
	December	0.0002	0.0003	0.025	1	0.0110	0.0003	No	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.025	1	0.0129	0.0003	No	No
	February	0.0003	0.0003	0.025	1	0.0123	0.0003	No	No
	March	0.0003	0.0004	0.025	1	0.0141	0.0004	No	No
	April	0.0002	0.0002	0.025	1	0.0071	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0189	0.0005	No	No
	June	0.0005	0.0006	0.025	1	0.0220	0.0006	No	No
	July	0.0004	0.0004	0.025	1	0.0168	0.0004	No	No
	August	0.0003	0.0003	0.025	1	0.0138	0.0003	No	No
	September	0.0002	0.0002	0.025	1	0.0098	0.0002	No	No
	October	0.0002	0.0002	0.025	1	0.0099	0.0002	No	No
	November	0.0003	0.0003	0.025	1	0.0101	0.0003	No	No
	December	0.0003	0.0003	0.025	1	0.0113	0.0003	No	No
Closure Phase (29-35)	January	0.0005	0.0008	0.025	1	0.0305	0.0008	No	No
	February	0.0005	0.0008	0.025	1	0.0320	0.0008	No	No
	March	0.0005	0.0009	0.025	1	0.0349	0.0009	No	No
	April	0.0005	0.0009	0.025	1	0.0357	0.0009	No	No
	May	0.0007	0.0010	0.025	1	0.0382	0.0010	No	No
	June	0.0009	0.0011	0.025	1	0.0441	0.0011	No	No
	July	0.0006	0.0007	0.025	1	0.0296	0.0007	No	No
	August	0.0004	0.0005	0.025	1	0.0192	0.0005	No	No
	September	0.0005	0.0007	0.025	1	0.0283	0.0007	No	No
	October	0.0006	0.0009	0.025	1	0.0358	0.0009	No	No
	November	0.0004	0.0006	0.025	1	0.0250	0.0006	No	No
	December	0.0005	0.0007	0.025	1	0.0278	0.0007	No	No
Post-Closure Phase (36-99)	January	0.0006	0.0007	0.025	1	0.0284	0.0007	No	No
	February	0.0009	0.0010	0.025	1	0.0415	0.0010	No	No
	March	0.0012	0.0013	0.025	1	0.0521	0.0013	No	No
	April	0.0009	0.0010	0.025	1	0.0414	0.0010	No	No
	May	0.0009	0.0010	0.025	1	0.0390	0.0010	No	No
	June	0.0011	0.0011	0.025	1	0.0451	0.0011	No	No
	July	0.0008	0.0008	0.025	1	0.0338	0.0008	No	No
	August	0.0006	0.0006	0.025	1	0.0244	0.0006	No	No
	September	0.0006	0.0007	0.025	1	0.0261	0.0007	No	No
	October	0.0008	0.0009	0.025	1	0.0340	0.0009	No	No
	November	0.0005	0.0006	0.025	1	0.0234	0.0006	No	No
	December	0.0006	0.0007	0.025	1	0.0260	0.0007	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix D-7s. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Selenium Concentrations, Expected Case (completed)

		Retained as COPC?			
Project Phase	Months	Drinking			
		Aquatic Life	Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	Yes	No	Yes	No
	March	Yes	No	Yes	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	Yes	No	Yes	No
	February	Yes	No	Yes	No
	March	Yes	No	Yes	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	Yes	No	Yes	No
	February	Yes	No	Yes	No
	March	Yes	No	Yes	No
	April	Yes	No	Yes	No
	May	Yes	No	Yes	No
	June	Yes	No	Yes	No
	July	Yes	No	Yes	No
	August	No	No	No	No
	September	Yes	No	Yes	No
	October	Yes	No	Yes	No
	November	Yes	No	Yes	No
	December	Yes	No	Yes	No
Post-Closure Phase (36-99)	January	Yes	No	Yes	No
	February	Yes	No	Yes	No
	March	Yes	No	Yes	No
	April	Yes	No	Yes	No
	May	Yes	No	Yes	No
	June	Yes	No	Yes	No
	July	Yes	No	Yes	No
	August	No	No	No	No
	September	Yes	No	Yes	No
	October	Yes	No	Yes	No
	November	Yes	No	Yes	No
	December	Yes	No	Yes	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix D-7t. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Silver Concentrations, Expected Case

		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
Construction (-2 to-1)	January	0.000009	0.000009	0.00005	0.0001	0.174	0.187	0.0933	No
	February	0.000005	0.000005	0.00005	0.0001	0.0920	0.100	0.0500	No
	March	0.000005	0.000005	0.00005	0.0001	0.0926	0.100	0.0500	No
	April	0.000006	0.000006	0.00005	0.0001	0.112	0.124	0.0620	No
	May	0.000013	0.000013	0.00005	0.0001	0.251	0.264	0.132	No
	June	0.000009	0.000010	0.00005	0.0001	0.185	0.198	0.0992	No
	July	0.000019	0.000023	0.00005	0.0001	0.390	0.454	0.227	No
	August	0.000019	0.000028	0.00005	0.0001	0.381	0.556	0.278	No
	September	0.000018	0.000031	0.00005	0.0001	0.367	0.613	0.307	No
	October	0.000015	0.000024	0.00005	0.0001	0.300	0.470	0.235	No
	November	0.000006	0.000007	0.00005	0.0001	0.125	0.140	0.0702	No
	December	0.000007	0.000008	0.00005	0.0001	0.143	0.159	0.0794	No
Operation 1 Phase (1-23)	January	0.000007	0.000007	0.00005	0.0001	0.136	0.148	0.0742	No
	February	0.000006	0.000006	0.00005	0.0001	0.114	0.128	0.0639	No
	March	0.000006	0.000007	0.00005	0.0001	0.116	0.133	0.0667	No
	April	0.000005	0.000005	0.00005	0.0001	0.105	0.110	0.0549	No
	May	0.000012	0.000012	0.00005	0.0001	0.241	0.242	0.121	No
	June	0.000010	0.000010	0.00005	0.0001	0.197	0.198	0.0992	No
	July	0.000016	0.000017	0.00005	0.0001	0.329	0.331	0.165	No
	August	0.000011	0.000011	0.00005	0.0001	0.214	0.221	0.110	No
	September	0.000006	0.000007	0.00005	0.0001	0.122	0.130	0.0651	No
	October	0.000006	0.000007	0.00005	0.0001	0.128	0.136	0.0682	No
	November	0.000006	0.000006	0.00005	0.0001	0.115	0.123	0.0617	No
	December	0.000006	0.000007	0.00005	0.0001	0.125	0.136	0.0679	No
Operations 2 Phase (24-28)	January	0.000008	0.000008	0.00005	0.0001	0.151	0.151	0.0756	No
	February	0.000007	0.000007	0.00005	0.0001	0.130	0.131	0.0653	No
	March	0.000007	0.000007	0.00005	0.0001	0.136	0.137	0.0684	No
	April	0.000006	0.000006	0.00005	0.0001	0.111	0.111	0.0554	No
	May	0.000012	0.000012	0.00005	0.0001	0.241	0.241	0.121	No
	June	0.000010	0.000010	0.00005	0.0001	0.199	0.199	0.0994	No
	July	0.000017	0.000017	0.00005	0.0001	0.331	0.331	0.166	No
	August	0.000011	0.000011	0.00005	0.0001	0.221	0.221	0.111	No
	September	0.000007	0.000007	0.00005	0.0001	0.131	0.131	0.0657	No
	October	0.000007	0.000007	0.00005	0.0001	0.137	0.137	0.0686	No
	November	0.000006	0.000006	0.00005	0.0001	0.124	0.125	0.0623	No
	December	0.000007	0.000007	0.00005	0.0001	0.137	0.137	0.0685	No
Closure Phase (29-35)	January	0.000009	0.000011	0.00005	0.0001	0.175	0.223	0.112	No
	February	0.000008	0.000011	0.00005	0.0001	0.160	0.217	0.109	No
	March	0.000008	0.000011	0.00005	0.0001	0.166	0.229	0.114	No
	April	0.000009	0.000012	0.00005	0.0001	0.171	0.232	0.116	No
	May	0.000014	0.000015	0.00005	0.0001	0.271	0.300	0.150	No
	June	0.000013	0.000014	0.00005	0.0001	0.254	0.282	0.141	No
	July	0.000017	0.000018	0.00005	0.0001	0.341	0.351	0.176	No
	August	0.000011	0.000012	0.00005	0.0001	0.225	0.237	0.118	No
	September	0.000009	0.000010	0.00005	0.0001	0.174	0.208	0.104	No
	October	0.000010	0.000012	0.00005	0.0001	0.200	0.242	0.121	No
	November	0.000008	0.000009	0.00005	0.0001	0.158	0.189	0.094	No
	December	0.000009	0.000010	0.00005	0.0001	0.173	0.206	0.103	No
Post-Closure Phase (36-99)	January	0.000010	0.000011	0.00005	0.0001	0.203	0.217	0.108	No
	February	0.000012	0.000013	0.00005	0.0001	0.243	0.262	0.131	No
	March	0.000014	0.000015	0.00005	0.0001	0.285	0.308	0.154	No
	April	0.000012	0.000013	0.00005	0.0001	0.243	0.260	0.130	No
	May	0.000015	0.000015	0.00005	0.0001	0.295	0.306	0.153	No
	June	0.000014	0.000015	0.00005	0.0001	0.277	0.291	0.145	No
	July	0.000018	0.000018	0.00005	0.0001	0.354	0.364	0.182	No
	August	0.000012	0.000013	0.00005	0.0001	0.247	0.255	0.127	No
	September	0.000009	0.000010	0.00005	0.0001	0.187	0.200	0.100	No
	October	0.000011	0.000012	0.00005	0.0001	0.221	0.235	0.118	No
	November	0.000009	0.000009	0.00005	0.0001	0.171	0.184	0.092	No
	December	0.000009	0.000010	0.00005	0.0001	0.187	0.201	0.101	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix D-7u. Harper Creek downstream of T Creek (HI) Hazard Quotients for Total Thallium Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000005	0.000005	0.0003	0.002	0.0169	0.00254	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00826	0.00124	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0329	0.00493	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0310	0.00464	No	No
	July	0.000010	0.000011	0.0003	0.002	0.0367	0.00551	No	No
	August	0.000011	0.000016	0.0003	0.002	0.0530	0.00795	No	No
	September	0.000010	0.000016	0.0003	0.002	0.0524	0.00786	No	No
	October	0.000008	0.000013	0.0003	0.002	0.0443	0.00664	No	No
	November	0.000004	0.000006	0.0003	0.002	0.0187	0.00281	No	No
	December	0.000004	0.000005	0.0003	0.002	0.0171	0.00257	No	No
Operation 1 Phase (1-23)	January	0.000004	0.000005	0.0003	0.002	0.0151	0.00226	No	No
	February	0.000003	0.000004	0.0003	0.002	0.0133	0.00200	No	No
	March	0.000003	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	April	0.000002	0.000003	0.0003	0.002	0.00899	0.00135	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0332	0.00498	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0313	0.00470	No	No
	July	0.000008	0.000008	0.0003	0.002	0.0281	0.00422	No	No
	August	0.000006	0.000007	0.0003	0.002	0.0225	0.00337	No	No
	September	0.000003	0.000004	0.0003	0.002	0.0134	0.00200	No	No
	October	0.000003	0.000004	0.0003	0.002	0.0127	0.00191	No	No
	November	0.000003	0.000004	0.0003	0.002	0.0124	0.00186	No	No
	December	0.000003	0.000004	0.0003	0.002	0.0137	0.00205	No	No
Operations 2 Phase (24-28)	January	0.000005	0.000005	0.0003	0.002	0.0157	0.00235	No	No
	February	0.000004	0.000004	0.0003	0.002	0.0140	0.00210	No	No
	March	0.000005	0.000005	0.0003	0.002	0.0154	0.00231	No	No
	April	0.000003	0.000003	0.0003	0.002	0.00921	0.00138	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0332	0.00499	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0314	0.00470	No	No
	July	0.000008	0.000008	0.0003	0.002	0.0282	0.00424	No	No
	August	0.000007	0.000007	0.0003	0.002	0.0227	0.00341	No	No
	September	0.000004	0.000004	0.0003	0.002	0.0136	0.00205	No	No
	October	0.000004	0.000004	0.0003	0.002	0.0129	0.00194	No	No
	November	0.000004	0.000004	0.0003	0.002	0.0127	0.00190	No	No
	December	0.000004	0.000004	0.0003	0.002	0.0140	0.00210	No	No
Closure Phase (29-35)	January	0.000006	0.000009	0.0003	0.002	0.0298	0.00447	No	No
	February	0.000006	0.000009	0.0003	0.002	0.0301	0.00452	No	No
	March	0.000006	0.000010	0.0003	0.002	0.0324	0.00487	No	No
	April	0.000006	0.000010	0.0003	0.002	0.0329	0.00493	No	No
	May	0.000012	0.000014	0.0003	0.002	0.0452	0.00679	No	No
	June	0.000012	0.000014	0.0003	0.002	0.0463	0.00695	No	No
	July	0.000010	0.000011	0.0003	0.002	0.0368	0.00552	No	No
	August	0.000007	0.000008	0.0003	0.002	0.0264	0.00396	No	No
	September	0.000007	0.000008	0.0003	0.002	0.0283	0.00425	No	No
	October	0.000008	0.000010	0.0003	0.002	0.0339	0.00508	No	No
	November	0.000006	0.000007	0.0003	0.002	0.0248	0.00371	No	No
	December	0.000006	0.000008	0.0003	0.002	0.0273	0.00409	No	No
Post-Closure Phase (36-99)	January	0.000008	0.000008	0.0003	0.002	0.0274	0.00412	No	No
	February	0.000010	0.000011	0.0003	0.002	0.0369	0.00553	No	No
	March	0.000013	0.000014	0.0003	0.002	0.0451	0.00676	No	No
	April	0.000010	0.000011	0.0003	0.002	0.0366	0.00549	No	No
	May	0.000013	0.000014	0.0003	0.002	0.0453	0.00679	No	No
	June	0.000013	0.000014	0.0003	0.002	0.0463	0.00694	No	No
	July	0.000011	0.000012	0.0003	0.002	0.0392	0.00588	No	No
	August	0.000009	0.000009	0.0003	0.002	0.0298	0.00446	No	No
	September	0.000007	0.000008	0.0003	0.002	0.0261	0.00392	No	No
	October	0.000009	0.000010	0.0003	0.002	0.0317	0.00476	No	No
	November	0.000006	0.000007	0.0003	0.002	0.0229	0.00343	No	No
	December	0.000007	0.000008	0.0003	0.002	0.0252	0.00378	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix D-7v. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Uranium Concentrations, Expected Case

		First Screening Step							Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0163	0.0016	No	No	No
	February	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0176	0.0018	No	No	No
	March	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0174	0.0017	No	No	No
	April	0.0003	0.0004	0.3	0.02	0.2	0.0013	0.0194	0.0019	No	No	No
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0159	0.0016	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0133	0.0013	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0156	0.0016	No	No	No
	August	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0202	0.0020	No	No	No
	September	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0214	0.0021	No	No	No
	October	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0195	0.0019	No	No	No
	November	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0174	0.0017	No	No	No
	December	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0175	0.0018	No	No	No
Operation 1 Phase (1-23)	January	0.0004	0.0005	0.3	0.02	0.2	0.0018	0.0268	0.0027	No	No	No
	February	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0286	0.0029	No	No	No
	March	0.0005	0.0006	0.3	0.02	0.2	0.0020	0.0305	0.0031	No	No	No
	April	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0187	0.0019	No	No	No
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0159	0.0016	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0147	0.0015	No	No	No
	July	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0185	0.0019	No	No	No
	August	0.0004	0.0005	0.3	0.02	0.2	0.0015	0.0231	0.0023	No	No	No
	September	0.0004	0.0005	0.3	0.02	0.2	0.0016	0.0243	0.0024	No	No	No
	October	0.0004	0.0005	0.3	0.02	0.2	0.0016	0.0239	0.0024	No	No	No
	November	0.0004	0.0005	0.3	0.02	0.2	0.0016	0.0242	0.0024	No	No	No
	December	0.0004	0.0005	0.3	0.02	0.2	0.0017	0.0259	0.0026	No	No	No
Operations 2 Phase (24-28)	January	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0279	0.0028	No	No	No
	February	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0298	0.0030	No	No	No
	March	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0319	0.0032	No	No	No
	April	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0192	0.0019	No	No	No
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0160	0.0016	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0147	0.0015	No	No	No
	July	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0187	0.0019	No	No	No
	August	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0233	0.0023	No	No	No
	September	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0247	0.0025	No	No	No
	October	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0244	0.0024	No	No	No
	November	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0247	0.0025	No	No	No
	December	0.0005	0.0005	0.3	0.02	0.2	0.0018	0.0265	0.0026	No	No	No
Closure Phase (29-35)	January	0.0006	0.0008	0.3	0.02	0.2	0.0026	0.0388	0.0039	No	No	No
	February	0.0006	0.0008	0.3	0.02	0.2	0.0027	0.0412	0.0041	No	No	No
	March	0.0006	0.0009	0.3	0.02	0.2	0.0029	0.0434	0.0043	No	No	No
	April	0.0006	0.0008	0.3	0.02	0.2	0.0028	0.0416	0.0042	No	No	No
	May	0.0005	0.0007	0.3	0.02	0.2	0.0023	0.0349	0.0035	No	No	No
	June	0.0006	0.0008	0.3	0.02	0.2	0.0025	0.0378	0.0038	No	No	No
	July	0.0005	0.0006	0.3	0.02	0.2	0.0020	0.0300	0.0030	No	No	No
	August	0.0005	0.0005	0.3	0.02	0.2	0.0018	0.0264	0.0026	No	No	No
	September	0.0006	0.0007	0.3	0.02	0.2	0.0025	0.0373	0.0037	No	No	No
	October	0.0007	0.0009	0.3	0.02	0.2	0.0029	0.0431	0.0043	No	No	No
	November	0.0006	0.0007	0.3	0.02	0.2	0.0023	0.0344	0.0034	No	No	No
	December	0.0006	0.0007	0.3	0.02	0.2	0.0025	0.0368	0.0037	No	No	No
Post-Closure Phase (36-99)	January	0.0006	0.0007	0.3	0.02	0.2	0.0023	0.0349	0.0035	No	No	No
	February	0.0008	0.0009	0.3	0.02	0.2	0.0030	0.0452	0.0045	No	No	No
	March	0.0009	0.0010	0.3	0.02	0.2	0.0035	0.0525	0.0052	No	No	No
	April	0.0007	0.0009	0.3	0.02	0.2	0.0029	0.0436	0.0044	No	No	No
	May	0.0006	0.0007	0.3	0.02	0.2	0.0023	0.0341	0.0034	No	No	No
	June	0.0006	0.0007	0.3	0.02	0.2	0.0024	0.0366	0.0037	No	No	No
	July	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0317	0.0032	No	No	No
	August	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0292	0.0029	No	No	No
	September	0.0006	0.0007	0.3	0.02	0.2	0.0023	0.0338	0.0034	No	No	No
	October	0.0007	0.0008	0.3	0.02	0.2	0.0026	0.0393	0.0039	No	No	No
	November	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0311	0.0031	No	No	No
	December	0.0006	0.0007	0.3	0.02	0.2	0.0022	0.0331	0.0033	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix D-7w. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Vanadium Concentrations, Expected Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline			
						BC MOE Working					
Construction (-2 to-1)	January	0.0005	0.0005	0.006	0.02	0.1	0.0845	0.0254	0.0051	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0413	0.0124	0.0025	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.153	0.0460	0.0092	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.157	0.0471	0.0094	No	No
	July	0.0008	0.0009	0.006	0.02	0.1	0.143	0.0428	0.0086	No	No
	August	0.0007	0.0009	0.006	0.02	0.1	0.151	0.0452	0.0090	No	No
	September	0.0007	0.0010	0.006	0.02	0.1	0.170	0.0509	0.0102	No	No
	October	0.0005	0.0007	0.006	0.02	0.1	0.122	0.0365	0.0073	No	No
	November	0.0004	0.0006	0.006	0.02	0.1	0.0936	0.0281	0.0056	No	No
	December	0.0004	0.0005	0.006	0.02	0.1	0.0856	0.0257	0.0051	No	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.006	0.02	0.1	0.0480	0.0144	0.0029	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0343	0.0103	0.0021	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0345	0.0103	0.0021	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0337	0.0101	0.0020	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.153	0.0458	0.0092	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0469	0.0094	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.121	0.0364	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0711	0.0213	0.0043	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0477	0.0143	0.0029	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0447	0.0134	0.0027	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0424	0.0127	0.0025	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0444	0.0133	0.0027	No	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.006	0.02	0.1	0.0481	0.0144	0.0029	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0344	0.0103	0.0021	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0346	0.0104	0.0021	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0337	0.0101	0.0020	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.153	0.0458	0.0092	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0469	0.0094	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.121	0.0364	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0718	0.0215	0.0043	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0479	0.0144	0.0029	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0447	0.0134	0.0027	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0424	0.0127	0.0025	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0444	0.0133	0.0027	No	No
Closure Phase (29-35)	January	0.0003	0.0003	0.006	0.02	0.1	0.0499	0.0150	0.0030	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0408	0.0122	0.0024	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0415	0.0124	0.0025	No	No
	April	0.0002	0.0003	0.006	0.02	0.1	0.0419	0.0126	0.0025	No	No
	May	0.0008	0.0009	0.006	0.02	0.1	0.153	0.0458	0.0092	No	No
	June	0.0008	0.0009	0.006	0.02	0.1	0.156	0.0468	0.0094	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.121	0.0363	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0713	0.0214	0.0043	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0498	0.0149	0.0030	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0486	0.0146	0.0029	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0452	0.0135	0.0027	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0470	0.0141	0.0028	No	No
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.006	0.02	0.1	0.0552	0.0166	0.0033	No	No
	February	0.0003	0.0003	0.006	0.02	0.1	0.0527	0.0158	0.0032	No	No
	March	0.0003	0.0003	0.006	0.02	0.1	0.0583	0.0175	0.0035	No	No
	April	0.0003	0.0003	0.006	0.02	0.1	0.0524	0.0157	0.0031	No	No
	May	0.0008	0.0008	0.006	0.02	0.1	0.131	0.0393	0.0079	No	No
	June	0.0008	0.0008	0.006	0.02	0.1	0.129	0.0387	0.0077	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.111	0.0333	0.0067	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0727	0.0218	0.0044	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0541	0.0162	0.0032	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0547	0.0164	0.0033	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0491	0.0147	0.0029	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0517	0.0155	0.0031	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix D-7z. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Zinc Concentrations, Expected Case

		First Screening Step								Second Screening Step				Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline		Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Mean	95%ile		
		Mean	Maximum	Day Mean	Maximum	Maximum	Mean	Mean	Maximum	Maximum	Mean	95%ile	Mean	95%ile		
Construction (-2 to-1)	January	0.0013	0.0015	0.008	0.033	2	0.167	0.196	0.0446	0.0007					No	No
	February	0.0004	0.0004	0.008	0.033	2	0.0487	0.0533	0.0121	0.0002					No	No
	March	0.0004	0.0005	0.008	0.033	2	0.0586	0.0725	0.0165	0.0003					No	No
	April	0.0025	0.0034	0.008	0.033	2	0.339	0.458	0.104	0.0017					No	No
	May	0.0028	0.0029	0.008	0.033	2	0.373	0.385	0.0874	0.0014					No	No
	June	0.0031	0.0033	0.008	0.033	2	0.419	0.439	0.0998	0.0016					No	No
	July	0.0029	0.0033	0.008	0.033	2	0.383	0.441	0.1002	0.0017					No	No
	August	0.0022	0.0031	0.008	0.033	2	0.294	0.409	0.0930	0.0015					No	No
	September	0.0021	0.0034	0.008	0.033	2	0.277	0.459	0.104	0.0017					No	No
	October	0.0044	0.0080	0.008	0.033	2	0.585	1.07	0.243	0.0040	0.0080	0.0085	0.548	0.946	No	No
	November	0.0011	0.0015	0.008	0.033	2	0.148	0.204	0.0465	0.0008					No	No
	December	0.0011	0.0014	0.008	0.033	2	0.148	0.193	0.0439	0.0007					No	No
Operation 1 Phase (1-23)	January	0.0008	0.0009	0.008	0.033	2	0.106	0.123	0.0279	0.0005					No	No
	February	0.0005	0.0007	0.008	0.033	2	0.0725	0.0927	0.0211	0.0003					No	No
	March	0.0006	0.0008	0.008	0.033	2	0.0842	0.109	0.0247	0.0004					No	No
	April	0.0017	0.0018	0.008	0.033	2	0.233	0.240	0.0546	0.0009					No	No
	May	0.0029	0.0029	0.008	0.033	2	0.385	0.386	0.0876	0.0014					No	No
	June	0.0033	0.0033	0.008	0.033	2	0.435	0.435	0.0989	0.0016					No	No
	July	0.0024	0.0024	0.008	0.033	2	0.319	0.320	0.0727	0.0012					No	No
	August	0.0013	0.0014	0.008	0.033	2	0.174	0.183	0.0417	0.0007					No	No
	September	0.0007	0.0008	0.008	0.033	2	0.0905	0.102	0.0231	0.0004					No	No
	October	0.0007	0.0008	0.008	0.033	2	0.0988	0.110	0.0251	0.0004					No	No
	November	0.0007	0.0008	0.008	0.033	2	0.0899	0.102	0.0232	0.0004					No	No
	December	0.0007	0.0008	0.008	0.033	2	0.0960	0.111	0.0251	0.0004					No	No
Operations 2 Phase (24-28)	January	0.0009	0.0009	0.008	0.033	2	0.126	0.126	0.0287	0.0005					No	No
	February	0.0007	0.0007	0.008	0.033	2	0.0959	0.0967	0.0220	0.0004					No	No
	March	0.0008	0.0008	0.008	0.033	2	0.112	0.113	0.0257	0.0004					No	No
	April	0.0018	0.0018	0.008	0.033	2	0.241	0.242	0.0549	0.0009					No	No
	May	0.0029	0.0029	0.008	0.033	2	0.386	0.386	0.0877	0.0014					No	No
	June	0.0033	0.0033	0.008	0.033	2	0.436	0.436	0.0992	0.0016					No	No
	July	0.0024	0.0024	0.008	0.033	2	0.321	0.321	0.0730	0.0012					No	No
	August	0.0014	0.0014	0.008	0.033	2	0.185	0.186	0.0423	0.0007					No	No
	September	0.0008	0.0008	0.008	0.033	2	0.103	0.104	0.0235	0.0004					No	No
	October	0.0008	0.0008	0.008	0.033	2	0.111	0.111	0.0253	0.0004					No	No
	November	0.0008	0.0008	0.008	0.033	2	0.103	0.103	0.0235	0.0004					No	No
	December	0.0008	0.0008	0.008	0.033	2	0.112	0.112	0.0255	0.0004					No	No
Closure Phase (29-35)	January	0.0014	0.0021	0.008	0.033	2	0.183	0.275	0.0626	0.0010					No	No
	February	0.0012	0.0020	0.008	0.033	2	0.163	0.271	0.0616	0.0010					No	No
	March	0.0014	0.0022	0.008	0.033	2	0.182	0.297	0.0676	0.0011					No	No
	April	0.0024	0.0031	0.008	0.033	2	0.322	0.408	0.0928	0.0015					No	No
	May	0.0032	0.0036	0.008	0.033	2	0.431	0.476	0.108	0.0018					No	No
	June	0.0037	0.0040	0.008	0.033	2	0.494	0.529	0.120	0.0020					No	No
	July	0.0027	0.0029	0.008	0.033	2	0.363	0.392	0.0892	0.0015					No	No
	August	0.0015	0.0017	0.008	0.033	2	0.205	0.230	0.0522	0.0009					No	No
	September	0.0014	0.0019	0.008	0.033	2	0.191	0.255	0.0579	0.0010					No	No
	October	0.0018	0.0024	0.008	0.033	2	0.235	0.315	0.0717	0.0012					No	No
	November	0.0013	0.0017	0.008	0.033	2	0.172	0.228	0.0518	0.0009					No	No
	December	0.0014	0.0019	0.008	0.033	2	0.188	0.251	0.0570	0.0009					No	No
Post-Closure Phase (36-99)	January	0.0027	0.0035	0.008	0.033	2	0.359	0.465	0.106	0.0017					No	No
	February	0.0040	0.0053	0.008	0.033	2	0.530	0.700	0.159	0.0026					No	No
	March	0.0051	0.0067	0.008	0.033	2	0.673	0.891	0.203	0.0033					No	No
	April	0.0048	0.0060	0.008	0.033	2	0.637	0.803	0.183	0.0030					No	No
	May	0.0046	0.0054	0.008	0.033	2	0.612	0.723	0.164	0.0027					No	No
	June	0.0052	0.0062	0.008	0.033	2	0.689	0.821	0.187	0.0031					No	No
	July	0.0040	0.0047	0.008	0.033	2	0.527	0.622	0.141	0.0023					No	No
	August	0.0025	0.0030	0.008	0.033	2	0.334	0.401	0.0911	0.0015					No	No
	September	0.0025	0.0032	0.008	0.033	2	0.333	0.428	0.0973	0.0016					No	No
	October	0.0033	0.0043	0.008	0.033	2	0.441	0.570	0.129	0.0021					No	No
	November	0.0022	0.0028	0.008	0.033	2	0.293	0.377	0.0857	0.0014					No	No
	December	0.0024	0.0032	0.008	0.033	2	0.326	0.422	0.0959	0.0016					No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix D-7y. Harper Creek downstream of T Creek (HT) Hazard Quotients for Chloride Concentrations, Expected Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Maximum	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline					
		Mean	Maximum	Day Mean	Maximum	Maximum	Mean	Mean	Maximum						
Construction (-2 to-1)	January	0.599	0.775	150	600	600	600	0.0040	0.0052	0.0013	0.0013	0.0013	No	No	No
	February	0.775	0.810	150	600	600	600	0.0052	0.0054	0.0014	0.0014	0.0014	No	No	No
	March	0.615	0.804	150	600	600	600	0.0041	0.0054	0.0013	0.0013	0.0013	No	No	No
	April	0.614	0.620	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	May	0.484	0.525	150	600	600	600	0.0032	0.0035	0.0009	0.0009	0.0009	No	No	No
	June	0.742	0.792	150	600	600	600	0.0049	0.0053	0.0013	0.0013	0.0013	No	No	No
	July	0.556	0.613	150	600	600	600	0.0037	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.596	0.715	150	600	600	600	0.0040	0.0048	0.0012	0.0012	0.0012	No	No	No
	September	0.812	0.836	150	600	600	600	0.0054	0.0056	0.0014	0.0014	0.0014	No	No	No
	October	0.773	0.837	150	600	600	600	0.0052	0.0056	0.0014	0.0014	0.0014	No	No	No
	November	0.646	0.825	150	600	600	600	0.0043	0.0055	0.0014	0.0014	0.0014	No	No	No
	December	0.627	0.827	150	600	600	600	0.0042	0.0055	0.0014	0.0014	0.0014	No	No	No
Operation 1 Phase (1-23)	January	0.988	1.12	150	600	600	600	0.0066	0.0075	0.0019	0.0019	0.0019	No	No	No
	February	1.01	1.17	150	600	600	600	0.0067	0.0078	0.0020	0.0020	0.0020	No	No	No
	March	1.04	1.24	150	600	600	600	0.0069	0.0082	0.0021	0.0021	0.0021	No	No	No
	April	0.670	0.726	150	600	600	600	0.0045	0.0048	0.0012	0.0012	0.0012	No	No	No
	May	0.537	0.547	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	June	0.827	0.844	150	600	600	600	0.0055	0.0056	0.0014	0.0014	0.0014	No	No	No
	July	0.661	0.698	150	600	600	600	0.0044	0.0047	0.0012	0.0012	0.0012	No	No	No
	August	0.811	0.886	150	600	600	600	0.0054	0.0059	0.0015	0.0015	0.0015	No	No	No
	September	0.952	1.04	150	600	600	600	0.0063	0.0070	0.0017	0.0017	0.0017	No	No	No
	October	0.949	1.04	150	600	600	600	0.0063	0.0069	0.0017	0.0017	0.0017	No	No	No
	November	0.946	1.04	150	600	600	600	0.0063	0.0069	0.0017	0.0017	0.0017	No	No	No
	December	0.978	1.09	150	600	600	600	0.0065	0.0073	0.0018	0.0018	0.0018	No	No	No
Operations 2 Phase (24-28)	January	1.15	1.15	150	600	600	600	0.0077	0.0077	0.0019	0.0019	0.0019	No	No	No
	February	1.20	1.20	150	600	600	600	0.0080	0.0080	0.0020	0.0020	0.0020	No	No	No
	March	1.27	1.27	150	600	600	600	0.0084	0.0085	0.0021	0.0021	0.0021	No	No	No
	April	0.735	0.737	150	600	600	600	0.0049	0.0049	0.0012	0.0012	0.0012	No	No	No
	May	0.548	0.548	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.843	0.844	150	600	600	600	0.0056	0.0056	0.0014	0.0014	0.0014	No	No	No
	July	0.701	0.702	150	600	600	600	0.0047	0.0047	0.0012	0.0012	0.0012	No	No	No
	August	0.892	0.893	150	600	600	600	0.0059	0.0060	0.0015	0.0015	0.0015	No	No	No
	September	1.05	1.06	150	600	600	600	0.0070	0.0070	0.0018	0.0018	0.0018	No	No	No
	October	1.05	1.05	150	600	600	600	0.0070	0.0070	0.0018	0.0018	0.0018	No	No	No
	November	1.05	1.05	150	600	600	600	0.0070	0.0070	0.0018	0.0018	0.0018	No	No	No
	December	1.11	1.11	150	600	600	600	0.0074	0.0074	0.0018	0.0018	0.0018	No	No	No
Closure Phase (29-35)	January	1.31	1.72	150	600	600	600	0.0087	0.0115	0.0029	0.0029	0.0029	No	No	No
	February	1.35	1.82	150	600	600	600	0.0090	0.0121	0.0030	0.0030	0.0030	No	No	No
	March	1.41	1.91	150	600	600	600	0.0094	0.0127	0.0032	0.0032	0.0032	No	No	No
	April	1.25	1.78	150	600	600	600	0.0083	0.0118	0.0030	0.0030	0.0030	No	No	No
	May	1.02	1.42	150	600	600	600	0.0068	0.0095	0.0024	0.0024	0.0024	No	No	No
	June	1.48	1.79	150	600	600	600	0.0099	0.0119	0.0030	0.0030	0.0030	No	No	No
	July	1.04	1.24	150	600	600	600	0.0069	0.0083	0.0021	0.0021	0.0021	No	No	No
	August	0.964	1.09	150	600	600	600	0.0064	0.0073	0.0018	0.0018	0.0018	No	No	No
	September	1.38	1.66	150	600	600	600	0.0092	0.0111	0.0028	0.0028	0.0028	No	No	No
	October	1.56	1.91	150	600	600	600	0.0104	0.0128	0.0032	0.0032	0.0032	No	No	No
	November	1.29	1.54	150	600	600	600	0.0086	0.0102	0.0026	0.0026	0.0026	No	No	No
	December	1.36	1.64	150	600	600	600	0.0091	0.0109	0.0027	0.0027	0.0027	No	No	No
Post-Closure Phase (36-99)	January	1.44	1.57	150	600	600	600	0.0096	0.0105	0.0026	0.0026	0.0026	No	No	No
	February	1.83	2.01	150	600	600	600	0.0122	0.0134	0.0034	0.0034	0.0034	No	No	No
	March	2.12	2.32	150	600	600	600	0.0141	0.0155	0.0039	0.0039	0.0039	No	No	No
	April	1.68	1.89	150	600	600	600	0.0112	0.0126	0.0031	0.0031	0.0031	No	No	No
	May	1.26	1.40	150	600	600	600	0.0084	0.0093	0.0023	0.0023	0.0023	No	No	No
	June	1.59	1.75	150	600	600	600	0.0106	0.0117	0.0029	0.0029	0.0029	No	No	No
	July	1.24	1.34	150	600	600	600	0.0083	0.0089	0.0022	0.0022	0.0022	No	No	No
	August	1.15	1.24	150	600	600	600	0.0077	0.0082	0.0021	0.0021	0.0021	No	No	No
	September	1.38	1.53	150	600	600	600	0.0092	0.0102	0.0026	0.0026	0.0026	No	No	No
	October	1.59	1.78	150	600	600	600	0.0106	0.0118	0.0030	0.0030	0.0030	No	No	No
	November	1.31	1.42	150	600	600	600	0.0087	0.0094	0.0024	0.0024	0.0024	No	No	No
	December	1.38	1.50	150	600	600	600	0.0092	0.0100	0.0025	0.0025	0.0025	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix D-7z. Harper Creek downstream of T Creek (HT) Hazard Quotients for Fluoride Concentrations, Expected Case (completed)

		Retained as COPC?			
Project Phase	Months	Drinking			
		Aquatic Life	Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

¹ Guidelines are hardness

Appendix D-7aa. Harper Creek downstream of T Creek (HT) Hazard Quotients for Nitrate Concentrations, Expected Case

		First Screening Step											Retained as COPC?					
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean Predicted vs BC MOE 30-Day	Maximum Predicted vs BC MOE 30-Day	Maximum Predicted vs BC MOE Maximum	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to 1)	January	0.184	0.208	3	32.8	10	100	100	0.0615	0.0694	0.0063	0.0208	0.0021	0.0021	No	No	No	No
	February	0.196	0.227	3	32.8	10	100	100	0.0655	0.0755	0.0069	0.0227	0.0023	0.0023	No	No	No	No
	March	0.195	0.227	3	32.8	10	100	100	0.0650	0.0757	0.0069	0.0227	0.0023	0.0023	No	No	No	No
	April	0.256	0.264	3	32.8	10	100	100	0.0854	0.0879	0.0080	0.0264	0.0026	0.0026	No	No	No	No
	May	0.247	0.317	3	32.8	10	100	100	0.0824	0.106	0.0097	0.0317	0.0032	0.0032	No	No	No	No
	June	0.114	0.137	3	32.8	10	100	100	0.0379	0.0456	0.0042	0.0137	0.0014	0.0014	No	No	No	No
	July	0.0706	0.100	3	32.8	10	100	100	0.0235	0.0334	0.0031	0.0100	0.0010	0.0010	No	No	No	No
	August	0.124	0.162	3	32.8	10	100	100	0.0413	0.0540	0.0049	0.0162	0.0016	0.0016	No	No	No	No
	September	0.163	0.198	3	32.8	10	100	100	0.0544	0.0661	0.0061	0.0198	0.0020	0.0020	No	No	No	No
	October	0.161	0.199	3	32.8	10	100	100	0.0538	0.0664	0.0061	0.0199	0.0020	0.0020	No	No	No	No
	November	0.176	0.213	3	32.8	10	100	100	0.0588	0.0711	0.0065	0.0213	0.0021	0.0021	No	No	No	No
	December	0.181	0.218	3	32.8	10	100	100	0.0605	0.0725	0.0066	0.0218	0.0022	0.0022	No	No	No	No
Operation 1 Phase (1-23)	January	0.245	0.381	3	32.8	10	100	100	0.0818	0.127	0.0116	0.0381	0.0038	0.0038	No	No	No	No
	February	0.249	0.401	3	32.8	10	100	100	0.0831	0.134	0.0122	0.0401	0.0040	0.0040	No	No	No	No
	March	0.256	0.434	3	32.8	10	100	100	0.0853	0.145	0.0132	0.0434	0.0043	0.0043	No	No	No	No
	April	0.265	0.318	3	32.8	10	100	100	0.0883	0.106	0.0097	0.0318	0.0032	0.0032	No	No	No	No
	May	0.303	0.311	3	32.8	10	100	100	0.101	0.104	0.0095	0.0311	0.0031	0.0031	No	No	No	No
	June	0.142	0.152	3	32.8	10	100	100	0.0473	0.0508	0.0046	0.0152	0.0015	0.0015	No	No	No	No
	July	0.117	0.147	3	32.8	10	100	100	0.0389	0.0491	0.0045	0.0147	0.0015	0.0015	No	No	No	No
	August	0.190	0.255	3	32.8	10	100	100	0.0634	0.0850	0.0078	0.0255	0.0025	0.0025	No	No	No	No
	September	0.221	0.309	3	32.8	10	100	100	0.0738	0.103	0.0094	0.0309	0.0031	0.0031	No	No	No	No
	October	0.222	0.309	3	32.8	10	100	100	0.0739	0.103	0.0094	0.0309	0.0031	0.0031	No	No	No	No
	November	0.230	0.323	3	32.8	10	100	100	0.0768	0.108	0.0098	0.0323	0.0032	0.0032	No	No	No	No
	December	0.239	0.353	3	32.8	10	100	100	0.0798	0.118	0.0108	0.0353	0.0035	0.0035	No	No	No	No
Operations 2 Phase (24-28)	January	0.214	0.214	3	32.8	10	100	100	0.0713	0.0714	0.0065	0.0214	0.0021	0.0021	No	No	No	No
	February	0.213	0.213	3	32.8	10	100	100	0.0709	0.0710	0.0065	0.0213	0.0021	0.0021	No	No	No	No
	March	0.212	0.212	3	32.8	10	100	100	0.0706	0.0707	0.0065	0.0212	0.0021	0.0021	No	No	No	No
	April	0.253	0.253	3	32.8	10	100	100	0.0842	0.0842	0.0077	0.0253	0.0025	0.0025	No	No	No	No
	May	0.301	0.302	3	32.8	10	100	100	0.100	0.101	0.0092	0.0302	0.0030	0.0030	No	No	No	No
	June	0.139	0.139	3	32.8	10	100	100	0.0463	0.0464	0.0042	0.0139	0.0014	0.0014	No	No	No	No
	July	0.105	0.105	3	32.8	10	100	100	0.0349	0.0349	0.0032	0.0105	0.0010	0.0010	No	No	No	No
	August	0.163	0.163	3	32.8	10	100	100	0.0544	0.0545	0.0050	0.0163	0.0016	0.0016	No	No	No	No
	September	0.199	0.199	3	32.8	10	100	100	0.0664	0.0664	0.0061	0.0199	0.0020	0.0020	No	No	No	No
	October	0.199	0.200	3	32.8	10	100	100	0.0665	0.0665	0.0061	0.0200	0.0020	0.0020	No	No	No	No
	November	0.206	0.206	3	32.8	10	100	100	0.0687	0.0687	0.0063	0.0206	0.0021	0.0021	No	No	No	No
	December	0.210	0.210	3	32.8	10	100	100	0.0699	0.0699	0.0064	0.0210	0.0021	0.0021	No	No	No	No
Closure Phase (29-35)	January	0.355	0.516	3	32.8	10	100	100	0.118	0.172	0.0157	0.0516	0.0052	0.0052	No	No	No	No
	February	0.370	0.548	3	32.8	10	100	100	0.123	0.183	0.0167	0.0548	0.0055	0.0055	No	No	No	No
	March	0.383	0.579	3	32.8	10	100	100	0.128	0.193	0.0177	0.0579	0.0058	0.0058	No	No	No	No
	April	0.435	0.619	3	32.8	10	100	100	0.145	0.206	0.0189	0.0619	0.0062	0.0062	No	No	No	No
	May	0.433	0.564	3	32.8	10	100	100	0.144	0.188	0.0172	0.0564	0.0056	0.0056	No	No	No	No
	June	0.377	0.506	3	32.8	10	100	100	0.126	0.169	0.0154	0.0506	0.0051	0.0051	No	No	No	No
	July	0.238	0.326	3	32.8	10	100	100	0.0794	0.109	0.0099	0.0326	0.0033	0.0033	No	No	No	No
	August	0.227	0.280	3	32.8	10	100	100	0.0755	0.0933	0.0085	0.0280	0.0028	0.0028	No	No	No	No
	September	0.368	0.486	3	32.8	10	100	100	0.123	0.162	0.0148	0.0486	0.0049	0.0049	No	No	No	No
	October	0.428	0.580	3	32.8	10	100	100	0.143	0.193	0.0177	0.0580	0.0058	0.0058	No	No	No	No
	November	0.346	0.448	3	32.8	10	100	100	0.115	0.149	0.0137	0.0448	0.0045	0.0045	No	No	No	No
	December	0.368	0.484	3	32.8	10	100	100	0.123	0.161	0.0147	0.0484	0.0048	0.0048	No	No	No	No
Post-Closure Phase (36-99)	January	0.225	0.412	3	32.8	10	100	100	0.0751	0.137	0.0126	0.0412	0.0041	0.0041	No	No	No	No
	February	0.230	0.540	3	32.8	10	100	100	0.0767	0.180	0.0165	0.0540	0.0054	0.0054	No	No	No	No
	March	0.233	0.630	3	32.8	10	100	100	0.0778	0.210	0.0192	0.0630	0.0063	0.0063	No	No	No	No
	April	0.249	0.570	3	32.8	10	100	100	0.0829	0.190	0.0174	0.0570	0.0057	0.0057	No	No	No	No
	May	0.284	0.498	3	32.8	10	100	100	0.0946	0.166	0.0152	0.0498	0.0050	0.0050	No	No	No	No
	June	0.172	0.422	3	32.8	10	100	100	0.0573	0.141	0.0129	0.0422	0.0042	0.0042	No	No	No	No
	July	0.136	0.303	3	32.8	10	100	100	0.0452	0.101	0.0093	0.0303	0.0030	0.0030	No	No	No	No
	August	0.176	0.290	3	32.8	10	100	100	0.0587	0.0968	0.0089	0.0290	0.0029	0.0029	No	No	No	No
	September	0.208	0.378	3	32.8	10	100	100	0.0693	0.126	0.0115	0.0378	0.0038	0.0038	No	No	No	No
	October	0.210	0.445	3	32.8	10	100	100	0.0701	0.148	0.0136	0.0445	0.0045	0.0045	No	No	No	No
	November	0.214	0.352	3	32.8	10	100	100	0.0713	0.117	0.0107	0.0352	0.0035	0.0035	No	No	No	No
	December	0.218	0.375	3	32.8	10	100	100	0.0727	0.125	0.0114	0.0375	0.0037	0.0037	No	No	No	No

Notes:

All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix D-7ab. Harper Creek downstream of T Creek (HT) Hazard Quotients for Nitrite Concentrations, Expected Case

Project Phase	Months	First Screening Step												Retained as COPC?				
		Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Retained as COPC?			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				Maximum Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE Maximum Guideline				Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life
		Mean	Maximum	Mean	Maximum	BC DWQG	Maximum	BC MOE Maximum	Maximum	Maximum	Maximum	Maximum	Maximum					
Construction (-2 to-1)	January	0.0033	0.0040	0.02	0.06	1	10	10	0.164	0.201	0.0669	0.0040	0.0004	0.0004	No	No	No	No
	February	0.0046	0.0050	0.02	0.06	1	10	10	0.230	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0046	0.0050	0.02	0.06	1	10	10	0.231	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0056	0.0062	0.02	0.06	1	10	10	0.280	0.310	0.1033	0.0062	0.0006	0.0006	No	No	No	No
	May	0.0011	0.0013	0.02	0.06	1	10	10	0.0534	0.0626	0.0209	0.0013	0.0001	0.0001	No	No	No	No
	June	0.0017	0.0019	0.02	0.06	1	10	10	0.0846	0.0966	0.0322	0.0019	0.0002	0.0002	No	No	No	No
	July	0.0015	0.0021	0.02	0.06	1	10	10	0.077	0.105	0.0349	0.0021	0.0002	0.0002	No	No	No	No
	August	0.0025	0.0035	0.02	0.06	1	10	10	0.127	0.174	0.0582	0.0035	0.0003	0.0003	No	No	No	No
	September	0.0028	0.0043	0.02	0.06	1	10	10	0.141	0.215	0.0718	0.0043	0.0004	0.0004	No	No	No	No
	October	0.0037	0.0045	0.02	0.06	1	10	10	0.183	0.226	0.0752	0.0045	0.0005	0.0005	No	No	No	No
	November	0.0038	0.0047	0.02	0.06	1	10	10	0.188	0.236	0.0787	0.0047	0.0005	0.0005	No	No	No	No
	December	0.0035	0.0045	0.02	0.06	1	10	10	0.176	0.224	0.0747	0.0045	0.0004	0.0004	No	No	No	No
Operation 1 Phase (1-23)	January	0.0053	0.0084	0.02	0.06	1	10	10	0.264	0.420	0.140	0.0084	0.0008	0.0008	No	No	No	No
	February	0.0058	0.0093	0.02	0.06	1	10	10	0.289	0.463	0.154	0.0093	0.0009	0.0009	No	No	No	No
	March	0.0060	0.0101	0.02	0.06	1	10	10	0.298	0.503	0.168	0.0101	0.0010	0.0010	No	No	No	No
	April	0.0053	0.0065	0.02	0.06	1	10	10	0.264	0.324	0.108	0.0065	0.0006	0.0006	No	No	No	No
	May	0.0013	0.0015	0.02	0.06	1	10	10	0.0662	0.0765	0.0255	0.0015	0.0002	0.0002	No	No	No	No
	June	0.0021	0.0023	0.02	0.06	1	10	10	0.104	0.117	0.0389	0.0023	0.0002	0.0002	No	No	No	No
	July	0.0025	0.0032	0.02	0.06	1	10	10	0.124	0.159	0.0530	0.0032	0.0003	0.0003	No	No	No	No
	August	0.0042	0.0057	0.02	0.06	1	10	10	0.212	0.287	0.0956	0.0057	0.0006	0.0006	No	No	No	No
	September	0.0051	0.0071	0.02	0.06	1	10	10	0.253	0.354	0.118	0.0071	0.0007	0.0007	No	No	No	No
	October	0.0052	0.0072	0.02	0.06	1	10	10	0.258	0.358	0.119	0.0072	0.0007	0.0007	No	No	No	No
	November	0.0053	0.0074	0.02	0.06	1	10	10	0.264	0.370	0.123	0.0074	0.0007	0.0007	No	No	No	No
	December	0.0053	0.0080	0.02	0.06	1	10	10	0.267	0.398	0.133	0.0080	0.0008	0.0008	No	No	No	No
Operations 2 Phase (24-28)	January	0.0045	0.0046	0.02	0.06	1	10	10	0.227	0.228	0.0759	0.0046	0.0005	0.0005	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.248	0.248	0.0826	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0049	0.0049	0.02	0.06	1	10	10	0.247	0.247	0.0825	0.0049	0.0005	0.0005	No	No	No	No
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.249	0.249	0.0831	0.0050	0.0005	0.0005	No	No	No	No
	May	0.0013	0.0013	0.02	0.06	1	10	10	0.0635	0.0636	0.0212	0.0013	0.0001	0.0001	No	No	No	No
	June	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.101	0.0335	0.0020	0.0002	0.0002	No	No	No	No
	July	0.0022	0.0022	0.02	0.06	1	10	10	0.110	0.110	0.0366	0.0022	0.0002	0.0002	No	No	No	No
	August	0.0036	0.0036	0.02	0.06	1	10	10	0.181	0.182	0.0606	0.0036	0.0004	0.0004	No	No	No	No
	September	0.0045	0.0045	0.02	0.06	1	10	10	0.227	0.227	0.0758	0.0045	0.0005	0.0005	No	No	No	No
	October	0.0046	0.0046	0.02	0.06	1	10	10	0.232	0.232	0.0775	0.0046	0.0005	0.0005	No	No	No	No
	November	0.0047	0.0047	0.02	0.06	1	10	10	0.236	0.236	0.0787	0.0047	0.0005	0.0005	No	No	No	No
	December	0.0047	0.0047	0.02	0.06	1	10	10	0.233	0.233	0.0777	0.0047	0.0005	0.0005	No	No	No	No
Closure Phase (29-35)	January	0.0079	0.0117	0.02	0.06	1	10	10	0.394	0.584	0.195	0.0117	0.0012	0.0012	No	No	No	No
	February	0.0086	0.0127	0.02	0.06	1	10	10	0.429	0.636	0.212	0.0127	0.0013	0.0013	No	No	No	No
	March	0.0089	0.0134	0.02	0.06	1	10	10	0.446	0.672	0.224	0.0134	0.0013	0.0013	No	No	No	No
	April	0.0094	0.0138	0.02	0.06	1	10	10	0.469	0.690	0.230	0.0138	0.0014	0.0014	No	No	No	No
	May	0.0052	0.0089	0.02	0.06	1	10	10	0.261	0.446	0.149	0.0089	0.0009	0.0009	No	No	No	No
	June	0.0078	0.0109	0.02	0.06	1	10	10	0.391	0.544	0.181	0.0109	0.0011	0.0011	No	No	No	No
	July	0.0053	0.0074	0.02	0.06	1	10	10	0.266	0.368	0.123	0.0074	0.0007	0.0007	No	No	No	No
	August	0.0051	0.0063	0.02	0.06	1	10	10	0.255	0.317	0.106	0.0063	0.0006	0.0006	No	No	No	No
	September	0.0085	0.0112	0.02	0.06	1	10	10	0.423	0.561	0.187	0.0112	0.0011	0.0011	No	No	No	No
	October	0.0099	0.0135	0.02	0.06	1	10	10	0.497	0.673	0.224	0.0135	0.0013	0.0013	No	No	No	No
	November	0.0080	0.0103	0.02	0.06	1	10	10	0.398	0.517	0.172	0.0103	0.0010	0.0010	No	No	No	No
	December	0.0084	0.0111	0.02	0.06	1	10	10	0.418	0.553	0.184	0.0111	0.0011	0.0011	No	No	No	No
Post-Closure Phase (36-99)	January	0.0049	0.0092	0.02	0.06	1	10	10	0.247	0.462	0.154	0.0092	0.0009	0.0009	No	No	No	No
	February	0.0054	0.0125	0.02	0.06	1	10	10	0.270	0.627	0.209	0.0125	0.0013	0.0013	No	No	No	No
	March	0.0055	0.0146	0.04	0.12	1	10	10	0.137	0.365	0.122	0.0146	0.0015	0.0015	No	No	No	No
	April	0.0053	0.0127	0.02	0.06	1	10	10	0.266	0.636	0.212	0.0127	0.0013	0.0013	No	No	No	No
	May	0.0025	0.0075	0.02	0.06	1	10	10	0.127	0.374	0.125	0.0075	0.0007	0.0007	No	No	No	No
	June	0.0032	0.0090	0.02	0.06	1	10	10	0.162	0.450	0.150	0.0090	0.0009	0.0009	No	No	No	No
	July	0.0030	0.0069	0.02	0.06	1	10	10	0.150	0.344	0.115	0.0069	0.0007	0.0007	No	No	No	No
	August	0.0040	0.0066	0.02	0.06	1	10	10	0.198	0.330	0.110	0.0066	0.0007	0.0007	No	No	No	No
	September	0.0048	0.0087	0.02	0.06	1	10	10	0.240	0.436	0.145	0.0087	0.0009	0.0009	No	No	No	No
	October	0.0049	0.0103	0.02	0.06	1	10	10	0.247	0.517	0.172	0.0103	0.0010	0.0010	No	No	No	No
	November	0.0049	0.0081	0.02	0.06	1	10	10	0.247	0.406	0.135	0.0081	0.0008	0.0008	No	No	No	No
	December	0.0049	0.0085	0.02	0.06	1	10	10	0.246	0.427	0.142	0.0085	0.0009	0.0009	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are chloride

Appendix D-7ac. Harper Creek downstream of T Creek (HT) Hazard Quotients for Ammonia Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Maximum Predicted			Aquatic Life
						BC MOE Working 30-Day Mean	BC MOE Working 30-Day Mean	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Construction (-2 to-1)	January	0.0177	0.0189	1.75	9.12	0.0101	0.0108	0.0021	No
	February	0.0227	0.0277	1.48	7.71	0.0153	0.0187	0.0036	No
	March	0.0142	0.0181	2.05	10.7	0.0069	0.0088	0.0017	No
	April	0.0159	0.0178	1.73	8.98	0.0092	0.0103	0.0020	No
	May	0.0107	0.0110	2.00	15.5	0.0054	0.0055	0.0007	No
	June	0.0094	0.0102	1.95	10.1	0.0048	0.0052	0.0010	No
	July	0.0258	0.0268	1.89	9.83	0.0136	0.0142	0.0027	No
	August	0.693	0.975	1.87	11.3	0.371	0.521	0.0863	No
	September	0.0259	0.0268	1.63	8.48	0.0159	0.0165	0.0032	No
	October	0.0163	0.0188	1.97	11.9	0.0083	0.0096	0.0016	No
	November	0.0196	0.0201	1.78	9.26	0.0110	0.0113	0.0022	No
	December	0.0184	0.0185	1.78	9.26	0.0103	0.0104	0.0020	No
Operation 1 Phase (1-23)	January	0.0232	0.0404	1.75	9.12	0.0133	0.0231	0.0044	No
	February	0.0285	0.0476	1.48	7.71	0.0192	0.0322	0.0062	No
	March	0.0251	0.0477	2.05	10.7	0.0122	0.0233	0.0045	No
	April	0.0162	0.0228	1.73	8.98	0.0094	0.0132	0.0025	No
	May	0.0111	0.0123	2.00	15.5	0.0056	0.0062	0.0008	No
	June	0.0109	0.0122	1.95	10.1	0.0056	0.0063	0.0012	No
	July	0.0275	0.0315	1.89	9.83	0.0146	0.0167	0.0032	No
	August	0.357	0.364	1.87	11.3	0.191	0.195	0.0322	No
	September	0.0271	0.0382	1.63	8.48	0.0166	0.0234	0.0045	No
	October	0.0222	0.0332	1.97	11.9	0.0113	0.0169	0.0028	No
	November	0.0223	0.0340	1.78	9.26	0.0126	0.0191	0.0037	No
	December	0.0231	0.0375	1.78	9.26	0.0130	0.0211	0.0040	No
Operations 2 Phase (24-28)	January	0.0192	0.0193	1.75	9.12	0.0110	0.0110	0.0021	No
	February	0.0239	0.0240	1.48	7.71	0.0162	0.0162	0.0031	No
	March	0.0196	0.0196	2.05	10.7	0.0095	0.0096	0.0018	No
	April	0.0146	0.0146	1.73	8.98	0.0084	0.0084	0.0016	No
	May	0.0108	0.0109	2.00	15.5	0.0054	0.0054	0.0007	No
	June	0.0104	0.0104	1.95	10.1	0.0053	0.0053	0.0010	No
	July	0.0260	0.0261	1.89	9.83	0.0138	0.0138	0.0027	No
	August	0.357	0.359	1.87	11.3	0.191	0.192	0.0318	No
	September	0.0243	0.0243	1.63	8.48	0.0149	0.0149	0.0029	No
	October	0.0194	0.0195	1.97	11.9	0.0099	0.0099	0.0016	No
	November	0.0193	0.0193	1.78	9.26	0.0108	0.0108	0.0021	No
	December	0.0194	0.0194	1.78	9.26	0.0109	0.0109	0.0021	No
Closure Phase (29-35)	January	0.0392	0.0617	1.75	9.12	0.0224	0.0353	0.0068	No
	February	0.0454	0.0695	1.48	7.71	0.0306	0.0470	0.0090	No
	March	0.0438	0.0709	2.05	10.7	0.0214	0.0346	0.0066	No
	April	0.0425	0.0698	1.73	8.98	0.0246	0.0403	0.0078	No
	May	0.0328	0.0533	2.00	15.5	0.0164	0.0267	0.0034	No
	June	0.0437	0.0611	1.95	10.1	0.0224	0.0314	0.0061	No
	July	0.0420	0.0528	1.89	9.83	0.0222	0.0279	0.0054	No
	August	0.345	0.359	1.87	11.3	0.185	0.192	0.0318	No
	September	0.0470	0.0627	1.63	8.48	0.0288	0.0385	0.0074	No
	October	0.0514	0.0720	1.97	11.9	0.0261	0.0366	0.0061	No
	November	0.0389	0.0530	1.78	9.26	0.0219	0.0298	0.0057	No
	December	0.0417	0.0577	1.78	9.26	0.0234	0.0324	0.0062	No
Post-Closure Phase (36-99)	January	0.0239	0.0479	1.75	9.12	0.0137	0.0274	0.0053	No
	February	0.0298	0.0693	1.48	7.71	0.0201	0.0469	0.0090	No
	March	0.0292	0.0798	2.05	10.7	0.0143	0.0389	0.0075	No
	April	0.0240	0.0649	1.73	8.98	0.0139	0.0375	0.0072	No
	May	0.0181	0.0454	2.00	15.5	0.0090	0.0227	0.0029	No
	June	0.0190	0.0510	1.95	10.1	0.0098	0.0261	0.0050	No
	July	0.0282	0.0495	1.89	9.83	0.0149	0.0262	0.0050	No
	August	0.309	0.319	1.87	11.3	0.165	0.171	0.0283	No
	September	0.0269	0.0487	1.63	8.48	0.0165	0.0299	0.0057	No
	October	0.0246	0.0547	1.97	11.9	0.0125	0.0278	0.0046	No
	November	0.0226	0.0403	1.78	9.26	0.0127	0.0226	0.0044	No
	December	0.0232	0.0434	1.78	9.26	0.0130	0.0244	0.0047	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Appendix D-7ad. Harper Creek downstream of T Creek (HT) Hazard Quotients for Sulphate Concentrations, Expected Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	8.18	8.91	218	500	1000	0.0375	0.0409	0.0178	0.0089	No	No	No
	February	8.93	10.4	218	500	1000	0.0410	0.0475	0.0207	0.0104	No	No	No
	March	10.9	11.0	218	500	1000	0.0501	0.0503	0.0219	0.0110	No	No	No
	April	8.67	8.99	218	500	1000	0.0398	0.0412	0.0180	0.0090	No	No	No
	May	3.83	4.66	128	500	1000	0.0299	0.0364	0.0093	0.0047	No	No	No
	June	3.85	4.72	128	500	1000	0.0301	0.0369	0.0094	0.0047	No	No	No
	July	5.39	6.63	128	500	1000	0.0421	0.0518	0.0133	0.0066	No	No	No
	August	8.46	9.04	218	500	1000	0.0388	0.0415	0.0181	0.0090	No	No	No
	September	9.83	9.97	218	500	1000	0.0451	0.0457	0.0199	0.0100	No	No	No
	October	8.71	9.90	218	500	1000	0.0400	0.0454	0.0198	0.0099	No	No	No
	November	8.47	9.89	218	500	1000	0.0389	0.0454	0.0198	0.0099	No	No	No
	December	8.52	9.88	218	500	1000	0.0391	0.0453	0.0198	0.0099	No	No	No
Operation 1 Phase (1-23)	January	19.2	29.3	218	500	1000	0.0883	0.134	0.0585	0.0293	No	No	No
	February	21.1	33.0	218	500	1000	0.0968	0.151	0.0660	0.0330	No	No	No
	March	23.5	37.8	218	500	1000	0.108	0.173	0.0756	0.0378	No	No	No
	April	12.7	16.9	218	500	1000	0.0584	0.0774	0.0338	0.0169	No	No	No
	May	5.28	6.01	128	500	1000	0.0413	0.0469	0.0120	0.0060	No	No	No
	June	5.65	6.57	128	500	1000	0.0442	0.0514	0.0131	0.0066	No	No	No
	July	9.63	12.31	128	500	1000	0.0753	0.0962	0.0246	0.0123	No	No	No
	August	14.9	20.4	218	500	1000	0.0683	0.0938	0.0409	0.0204	No	No	No
	September	16.4	23.0	218	500	1000	0.0751	0.106	0.0461	0.0230	No	No	No
	October	16.4	22.9	218	500	1000	0.0750	0.105	0.0458	0.0229	No	No	No
	November	16.8	23.8	218	500	1000	0.0771	0.109	0.0476	0.0238	No	No	No
	December	18.4	26.9	218	500	1000	0.0845	0.124	0.0539	0.0269	No	No	No
Operations 2 Phase (24-28)	January	31.1	31.5	218	500	1000	0.143	0.144	0.0630	0.0315	No	No	No
	February	34.8	35.3	218	500	1000	0.160	0.162	0.0706	0.0353	No	No	No
	March	40.0	40.5	218	500	1000	0.184	0.186	0.0811	0.0405	No	No	No
	April	17.5	17.7	218	500	1000	0.0804	0.0811	0.0354	0.0177	No	No	No
	May	6.12	6.14	128	500	1000	0.0478	0.0480	0.0123	0.0061	No	No	No
	June	6.67	6.69	128	500	1000	0.0521	0.0523	0.0134	0.0067	No	No	No
	July	12.56	12.61	128	500	1000	0.0981	0.0985	0.0252	0.0126	No	No	No
	August	21.0	21.1	218	500	1000	0.0961	0.0966	0.0421	0.0211	No	No	No
	September	23.8	24.0	218	500	1000	0.109	0.110	0.0480	0.0240	No	No	No
	October	23.7	23.9	218	500	1000	0.109	0.109	0.0477	0.0239	No	No	No
	November	24.5	24.7	218	500	1000	0.113	0.113	0.0494	0.0247	No	No	No
	December	27.8	28.0	218	500	1000	0.128	0.128	0.0560	0.0280	No	No	No
Closure Phase (29-35)	January	43.2	73.3	218	500	1000	0.198	0.336	0.147	0.0733	No	No	No
	February	47.0	80.3	218	500	1000	0.216	0.368	0.161	0.0803	No	No	No
	March	51.4	87.5	218	500	1000	0.236	0.401	0.175	0.0875	No	No	No
	April	52.2	87.7	218	500	1000	0.239	0.402	0.175	0.0877	No	No	No
	May	38.0	64.8	128	500	1000	0.297	0.506	0.130	0.0648	No	No	No
	June	54.8	77.1	128	500	1000	0.428	0.602	0.154	0.0771	No	No	No
	July	35.7	49.2	128	500	1000	0.279	0.385	0.0985	0.0492	No	No	No
	August	26.0	34.9	218	500	1000	0.119	0.160	0.0699	0.0349	No	No	No
	September	48.6	68.4	218	500	1000	0.223	0.314	0.137	0.0684	No	No	No
	October	62.1	87	218	500	1000	0.285	0.399	0.174	0.087	No	No	No
	November	42.7	60.1	218	500	1000	0.196	0.276	0.120	0.0601	No	No	No
	December	47.3	67.0	218	500	1000	0.217	0.307	0.134	0.0670	No	No	No
Post-Closure Phase (36-99)	January	54.2	62.9	218	500	1000	0.249	0.289	0.126	0.0629	No	No	No
	February	85.2	96.3	218	500	1000	0.391	0.442	0.193	0.0963	No	No	No
	March	107.1	120.1	218	500	1000	0.491	0.551	0.240	0.120	No	No	No
	April	84.5	97.0	218	500	1000	0.388	0.445	0.194	0.0970	No	No	No
	May	56.0	64.5	128	500	1000	0.437	0.504	0.129	0.0645	No	No	No
	June	66.3	75.9	128	500	1000	0.518	0.593	0.152	0.0759	No	No	No
	July	51.2	56.7	128	500	1000	0.400	0.443	0.113	0.0567	No	No	No
	August	40.0	45.3	218	500	1000	0.184	0.208	0.0906	0.0453	No	No	No
	September	50.7	60.0	218	500	1000	0.233	0.275	0.120	0.0600	No	No	No
	October	67.2	78.4	218	500	1000	0.308	0.360	0.157	0.0784	No	No	No
	November	44.8	51.6	218	500	1000	0.205	0.237	0.103	0.0516	No	No	No
	December	49.6	57.5	218	500	1000	0.227	0.264	0.115	0.0575	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness

Appendix 13-D8a. Lower Harper Creek (HB) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case (completed)

Project Phase		Second Screening Step								Retained as COPC?			
		Baseline Concentrations				Hazard Quotient relative to Baseline				Aquatic Life for Dissolved Aluminum	Drinking Water for Dissolved Aluminum	Wildlife for Total Aluminum	Livestock for Total Aluminum
		Dissolved Aluminum		Total Aluminum		Dissolved Aluminum		Total Aluminum					
		Mean	95%ile	Mean	95%ile	Mean	95%ile	Mean	95%ile				
Months													
Construction (-2 to-1)	January									No	No	No	No
	February									No	No	No	No
	March									No	No	No	No
	April									No	No	No	No
	May	0.0733	0.0851	0.162	0.215	0.919	0.862	0.939	0.754	No	No	No	No
	June	0.0585	0.0716	0.147	0.243	0.930	0.817	0.972	0.607	No	No	No	No
	July									No	No	No	No
	August									No	No	No	No
	September									No	No	No	No
	October									No	No	No	No
	November									No	No	No	No
	December									No	No	No	No
Operation 1 Phase (1-23)	January									No	No	No	No
	February									No	No	No	No
	March									No	No	No	No
	April									No	No	No	No
	May	0.0733	0.0851	0.162	0.215	0.853	0.737	0.886	0.669	No	No	No	No
	June	0.0585	0.0716	0.147	0.243	0.870	0.711	0.945	0.574	No	No	No	No
	July									No	No	No	No
	August									No	No	No	No
	September									No	No	No	No
	October									No	No	No	No
	November									No	No	No	No
	December									No	No	No	No
Operations 2 Phase (24-28)	January									No	No	No	No
	February									No	No	No	No
	March									No	No	No	No
	April									No	No	No	No
	May	0.0733	0.0851	0.162	0.215	0.854	0.736	0.886	0.669	No	No	No	No
	June	0.0585	0.0716	0.147	0.243	0.869	0.711	0.944	0.573	No	No	No	No
	July									No	No	No	No
	August									No	No	No	No
	September									No	No	No	No
	October									No	No	No	No
	November									No	No	No	No
	December									No	No	No	No
Closure Phase (29-35)	January									No	No	No	No
	February									No	No	No	No
	March									No	No	No	No
	April									No	No	No	No
	May	0.0733	0.0851	0.162	0.215	0.818	0.736	0.844	0.668	No	No	No	No
	June	0.0585	0.0716	0.147	0.243	0.816	0.710	0.873	0.573	No	No	No	No
	July									No	No	No	No
	August									No	No	No	No
	September									No	No	No	No
	October									No	No	No	No
	November									No	No	No	No
	December									No	No	No	No
Post-Closure Phase (36-99)	January									No	No	No	No
	February									No	No	No	No
	March									No	No	No	No
	April									No	No	No	No
	May	0.0733	0.0851	0.162	0.215	0.799	0.693	0.813	0.615	No	No	No	No
	June									No	No	No	No
	July									No	No	No	No
	August									No	No	No	No
	September									No	No	No	No
	October									No	No	No	No
	November									No	No	No	No
	December									No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D8b. Lower Harper Creek (HB) Hazard Quotients for Total Antimony Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
		Construction (-2 to-1)	January	0.00006	0.00006	0.020	0.014		
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00012	0.00013	0.020	0.014	0.00625	0.00893	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	August	0.00012	0.00013	0.020	0.014	0.00667	0.00952	No	No
	September	0.00012	0.00013	0.020	0.014	0.00667	0.00952	No	No
	October	0.00010	0.00011	0.020	0.014	0.00525	0.00750	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
Operation 1 Phase (1-23)	January	0.00009	0.00013	0.020	0.014	0.00663	0.00948	No	No
	February	0.00007	0.00012	0.020	0.014	0.00609	0.00870	No	No
	March	0.00008	0.00014	0.020	0.014	0.00709	0.0101	No	No
	April	0.00003	0.00004	0.020	0.014	0.00177	0.00254	No	No
	May	0.00012	0.00012	0.020	0.014	0.00611	0.00873	No	No
	June	0.00010	0.00010	0.020	0.014	0.00523	0.00748	No	No
	July	0.00013	0.00014	0.020	0.014	0.00686	0.0098	No	No
	August	0.00013	0.00016	0.020	0.014	0.00782	0.0112	No	No
	September	0.00013	0.00015	0.020	0.014	0.00763	0.0109	No	No
	October	0.00011	0.00013	0.020	0.014	0.00632	0.00903	No	No
	November	0.00007	0.00010	0.020	0.014	0.00493	0.00704	No	No
	December	0.00008	0.00012	0.020	0.014	0.00594	0.00848	No	No
Operations 2 Phase (24-28)	January	0.00014	0.00014	0.020	0.014	0.00711	0.0102	No	No
	February	0.00013	0.00013	0.020	0.014	0.00660	0.00943	No	No
	March	0.00015	0.00015	0.020	0.014	0.00770	0.0110	No	No
	April	0.00004	0.00004	0.020	0.014	0.00185	0.00264	No	No
	May	0.00012	0.00012	0.020	0.014	0.00613	0.00876	No	No
	June	0.00011	0.00011	0.020	0.014	0.00526	0.00751	No	No
	July	0.00014	0.00014	0.020	0.014	0.00692	0.00989	No	No
	August	0.00016	0.00016	0.020	0.014	0.00795	0.0114	No	No
	September	0.00016	0.00016	0.020	0.014	0.00782	0.0112	No	No
	October	0.00013	0.00013	0.020	0.014	0.00646	0.00923	No	No
	November	0.00010	0.00010	0.020	0.014	0.00508	0.00726	No	No
	December	0.00012	0.00012	0.020	0.014	0.00615	0.00878	No	No
Closure Phase (29-35)	January	0.00022	0.00038	0.020	0.014	0.0189	0.0270	No	No
	February	0.00022	0.00041	0.020	0.014	0.0204	0.0291	No	No
	March	0.00025	0.00046	0.020	0.014	0.0229	0.0327	No	No
	April	0.00014	0.00024	0.020	0.014	0.01179	0.0168	No	No
	May	0.00026	0.00038	0.020	0.014	0.0191	0.0274	No	No
	June	0.00034	0.00044	0.020	0.014	0.0222	0.0317	No	No
	July	0.00023	0.00028	0.020	0.014	0.0142	0.0203	No	No
	August	0.00018	0.00022	0.020	0.014	0.0111	0.0159	No	No
	September	0.00028	0.00037	0.020	0.014	0.0186	0.0265	No	No
	October	0.00030	0.00040	0.020	0.014	0.0200	0.0286	No	No
	November	0.00018	0.00025	0.020	0.014	0.0126	0.0180	No	No
	December	0.00023	0.00032	0.020	0.014	0.0162	0.0232	No	No
Post-Closure Phase (36-99)	January	0.00028	0.00032	0.020	0.014	0.0160	0.0229	No	No
	February	0.00048	0.00054	0.020	0.014	0.0272	0.0388	No	No
	March	0.00068	0.00076	0.020	0.014	0.0382	0.0545	No	No
	April	0.00025	0.00029	0.020	0.014	0.0143	0.0204	No	No
	May	0.00035	0.00039	0.020	0.014	0.0193	0.0276	No	No
	June	0.00040	0.00045	0.020	0.014	0.0223	0.0318	No	No
	July	0.00030	0.00032	0.020	0.014	0.0162	0.0232	No	No
	August	0.00025	0.00028	0.020	0.014	0.0138	0.0198	No	No
	September	0.00029	0.00033	0.020	0.014	0.0165	0.0236	No	No
	October	0.00032	0.00036	0.020	0.014	0.0181	0.0259	No	No
	November	0.00019	0.00022	0.020	0.014	0.0108	0.0155	No	No
	December	0.00024	0.00028	0.020	0.014	0.0138	0.0197	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D8c. Lower Harper Creek (HB) Hazard Quotients for Total Arsenic Concentrations, Expected Case

Project Phase	Months	First Screening Step									Retained as COPC?				
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Interim Guideline				
Construction (-2 to-1)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0487	0.0097	0.0097	0.0097	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0480	0.0096	0.0096	0.0096	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0482	0.0096	0.0096	0.0096	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0422	0.0084	0.0084	0.0084	No	No	No	No
	May	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0928	0.0186	0.0186	0.0186	No	No	No	No
	June	0.0003	0.0004	0.005	0.025	0.025	0.025	0.0848	0.0170	0.0170	0.0170	No	No	No	No
	July	0.0007	0.0007	0.005	0.025	0.025	0.025	0.146	0.0292	0.0292	0.0292	No	No	No	No
	August	0.0006	0.0006	0.005	0.025	0.025	0.025	0.118	0.0237	0.0237	0.0237	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0492	0.0098	0.0098	0.0098	No	No	No	No
	October	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0751	0.0150	0.0150	0.0150	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0441	0.0088	0.0088	0.0088	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0482	0.0096	0.0096	0.0096	No	No	No	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0615	0.0123	0.0123	0.0123	No	No	No	No
	February	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0617	0.0123	0.0123	0.0123	No	No	No	No
	March	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0645	0.0129	0.0129	0.0129	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0442	0.0088	0.0088	0.0088	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0900	0.0180	0.0180	0.0180	No	No	No	No
	June	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0799	0.0160	0.0160	0.0160	No	No	No	No
	July	0.0007	0.0007	0.005	0.025	0.025	0.025	0.136	0.0271	0.0271	0.0271	No	No	No	No
	August	0.0006	0.0006	0.005	0.025	0.025	0.025	0.123	0.0246	0.0246	0.0246	No	No	No	No
	September	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0562	0.0112	0.0112	0.0112	No	No	No	No
	October	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0797	0.0159	0.0159	0.0159	No	No	No	No
	November	0.0002	0.0003	0.005	0.025	0.025	0.025	0.0503	0.0101	0.0101	0.0101	No	No	No	No
	December	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0576	0.0115	0.0115	0.0115	No	No	No	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0627	0.0125	0.0125	0.0125	No	No	No	No
	February	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0630	0.0126	0.0126	0.0126	No	No	No	No
	March	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0661	0.0132	0.0132	0.0132	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0444	0.0089	0.0089	0.0089	No	No	No	No
	May	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0900	0.0180	0.0180	0.0180	No	No	No	No
	June	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0790	0.0158	0.0158	0.0158	No	No	No	No
	July	0.0007	0.0007	0.005	0.025	0.025	0.025	0.136	0.0272	0.0272	0.0272	No	No	No	No
	August	0.0006	0.0006	0.005	0.025	0.025	0.025	0.124	0.0247	0.0247	0.0247	No	No	No	No
	September	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0567	0.0113	0.0113	0.0113	No	No	No	No
	October	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0800	0.0160	0.0160	0.0160	No	No	No	No
	November	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0507	0.0101	0.0101	0.0101	No	No	No	No
	December	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0582	0.0116	0.0116	0.0116	No	No	No	No
Closure Phase (29-35)	January	0.0004	0.0005	0.005	0.025	0.025	0.025	0.105	0.0209	0.0209	0.0209	No	No	No	No
	February	0.0004	0.0006	0.005	0.025	0.025	0.025	0.112	0.0224	0.0224	0.0224	No	No	No	No
	March	0.0004	0.0006	0.005	0.025	0.025	0.025	0.120	0.0240	0.0240	0.0240	No	No	No	No
	April	0.0003	0.0004	0.005	0.025	0.025	0.025	0.0782	0.0156	0.0156	0.0156	No	No	No	No
	May	0.0006	0.0007	0.005	0.025	0.025	0.025	0.130	0.0261	0.0261	0.0261	No	No	No	No
	June	0.0006	0.0007	0.005	0.025	0.025	0.025	0.133	0.0265	0.0265	0.0265	No	No	No	No
	July	0.0007	0.0008	0.005	0.025	0.025	0.025	0.156	0.0312	0.0312	0.0312	No	No	No	No
	August	0.0006	0.0007	0.005	0.025	0.025	0.025	0.133	0.0266	0.0266	0.0266	No	No	No	No
	September	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0950	0.0190	0.0190	0.0190	No	No	No	No
	October	0.0005	0.0006	0.005	0.025	0.025	0.025	0.124	0.0248	0.0248	0.0248	No	No	No	No
	November	0.0003	0.0004	0.005	0.025	0.025	0.025	0.0778	0.0156	0.0156	0.0156	No	No	No	No
	December	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0939	0.0188	0.0188	0.0188	No	No	No	No
Post-Closure Phase (36-99)	January	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0957	0.0191	0.0191	0.0191	No	No	No	No
	February	0.0006	0.0007	0.005	0.025	0.025	0.025	0.135	0.0270	0.0270	0.0270	No	No	No	No
	March	0.0008	0.0009	0.005	0.025	0.025	0.025	0.170	0.0340	0.0340	0.0340	No	No	No	No
	April	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0858	0.0172	0.0172	0.0172	No	No	No	No
	May	0.0006	0.0007	0.005	0.025	0.025	0.025	0.130	0.0261	0.0261	0.0261	No	No	No	No
	June	0.0006	0.0007	0.005	0.025	0.025	0.025	0.132	0.0264	0.0264	0.0264	No	No	No	No
	July	0.0008	0.0008	0.005	0.025	0.025	0.025	0.161	0.0323	0.0323	0.0323	No	No	No	No
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.141	0.0282	0.0282	0.0282	No	No	No	No
	September	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0879	0.0176	0.0176	0.0176	No	No	No	No
	October	0.0005	0.0006	0.005	0.025	0.025	0.025	0.118	0.0235	0.0235	0.0235	No	No	No	No
	November	0.0003	0.0004	0.005	0.025	0.025	0.025	0.0723	0.0145	0.0145	0.0145	No	No	No	No
	December	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0867	0.0173	0.0173	0.0173	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D8d. Lower Harper Creek (HB) Hazard Quotients for Total Barium Concentrations, Expected Case

Project Phase	Months	First Screening Step										Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Maximum Predicted vs. Canadian DWQG	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day	BC MOE Working Maximum		Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline				
						Canadian DWQG							
Construction (-2 to-1)	January	0.0071	0.0078	1	5	1	0.0071	0.0078	0.0016	0.0078	No	No	
	February	0.0078	0.0084	1	5	1	0.0078	0.0084	0.0017	0.0084	No	No	
	March	0.0075	0.0081	1	5	1	0.0075	0.0081	0.0016	0.0081	No	No	
	April	0.0069	0.0071	1	5	1	0.0069	0.0071	0.0014	0.0071	No	No	
	May	0.0053	0.0055	1	5	1	0.0053	0.0055	0.0011	0.0055	No	No	
	June	0.0050	0.0053	1	5	1	0.0050	0.0053	0.0011	0.0053	No	No	
	July	0.0053	0.0058	1	5	1	0.0053	0.0058	0.0012	0.0058	No	No	
	August	0.0072	0.0079	1	5	1	0.0072	0.0079	0.0016	0.0079	No	No	
	September	0.0078	0.0083	1	5	1	0.0078	0.0083	0.0017	0.0083	No	No	
	October	0.0061	0.0068	1	5	1	0.0061	0.0068	0.0014	0.0068	No	No	
	November	0.0066	0.0073	1	5	1	0.0066	0.0073	0.0015	0.0073	No	No	
	December	0.0069	0.0076	1	5	1	0.0069	0.0076	0.0015	0.0076	No	No	
Operation 1 Phase (1-23)	January	0.0080	0.0081	1	5	1	0.0080	0.0081	0.0016	0.0081	No	No	
	February	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	March	0.0084	0.0085	1	5	1	0.0084	0.0085	0.0017	0.0085	No	No	
	April	0.0071	0.0071	1	5	1	0.0071	0.0071	0.0014	0.0071	No	No	
	May	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	June	0.0053	0.0053	1	5	1	0.0053	0.0053	0.0011	0.0053	No	No	
	July	0.0058	0.0058	1	5	1	0.0058	0.0058	0.0012	0.0058	No	No	
	August	0.0080	0.0080	1	5	1	0.0080	0.0080	0.0016	0.0080	No	No	
	September	0.0084	0.0085	1	5	1	0.0084	0.0085	0.0017	0.0085	No	No	
	October	0.0068	0.0069	1	5	1	0.0068	0.0069	0.0014	0.0069	No	No	
	November	0.0073	0.0074	1	5	1	0.0073	0.0074	0.0015	0.0074	No	No	
	December	0.0078	0.0078	1	5	1	0.0078	0.0078	0.0016	0.0078	No	No	
Operations 2 Phase (24-28)	January	0.0081	0.0081	1	5	1	0.0081	0.0081	0.0016	0.0081	No	No	
	February	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No	
	March	0.0085	0.0085	1	5	1	0.0085	0.0085	0.0017	0.0085	No	No	
	April	0.0071	0.0071	1	5	1	0.0071	0.0071	0.0014	0.0071	No	No	
	May	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	June	0.0053	0.0053	1	5	1	0.0053	0.0053	0.0011	0.0053	No	No	
	July	0.0058	0.0058	1	5	1	0.0058	0.0058	0.0012	0.0058	No	No	
	August	0.0080	0.0080	1	5	1	0.0080	0.0080	0.0016	0.0080	No	No	
	September	0.0085	0.0085	1	5	1	0.0085	0.0085	0.0017	0.0085	No	No	
	October	0.0069	0.0069	1	5	1	0.0069	0.0069	0.0014	0.0069	No	No	
	November	0.0074	0.0074	1	5	1	0.0074	0.0074	0.0015	0.0074	No	No	
	December	0.0078	0.0078	1	5	1	0.0078	0.0078	0.0016	0.0078	No	No	
Closure Phase (29-35)	January	0.0082	0.0085	1	5	1	0.0082	0.0085	0.0017	0.0085	No	No	
	February	0.0088	0.0091	1	5	1	0.0088	0.0091	0.0018	0.0091	No	No	
	March	0.0086	0.0090	1	5	1	0.0086	0.0090	0.0018	0.0090	No	No	
	April	0.0073	0.0076	1	5	1	0.0073	0.0076	0.0015	0.0076	No	No	
	May	0.0059	0.0062	1	5	1	0.0059	0.0062	0.0012	0.0062	No	No	
	June	0.0059	0.0063	1	5	1	0.0059	0.0063	0.0013	0.0063	No	No	
	July	0.0061	0.0062	1	5	1	0.0061	0.0062	0.0012	0.0062	No	No	
	August	0.0080	0.0081	1	5	1	0.0080	0.0081	0.0016	0.0081	No	No	
	September	0.0086	0.0088	1	5	1	0.0086	0.0088	0.0018	0.0088	No	No	
	October	0.0072	0.0075	1	5	1	0.0072	0.0075	0.0015	0.0075	No	No	
	November	0.0075	0.0077	1	5	1	0.0075	0.0077	0.0015	0.0077	No	No	
	December	0.0080	0.0082	1	5	1	0.0080	0.0082	0.0016	0.0082	No	No	
Post-Closure Phase (36-99)	January	0.0082	0.0084	1	5	1	0.0082	0.0084	0.0017	0.0084	No	No	
	February	0.0089	0.0092	1	5	1	0.0089	0.0092	0.0018	0.0092	No	No	
	March	0.0090	0.0093	1	5	1	0.0090	0.0093	0.0019	0.0093	No	No	
	April	0.0075	0.0076	1	5	1	0.0075	0.0076	0.0015	0.0076	No	No	
	May	0.0060	0.0062	1	5	1	0.0060	0.0062	0.0012	0.0062	No	No	
	June	0.0060	0.0062	1	5	1	0.0060	0.0062	0.0012	0.0062	No	No	
	July	0.0062	0.0063	1	5	1	0.0062	0.0063	0.0013	0.0063	No	No	
	August	0.0081	0.0082	1	5	1	0.0081	0.0082	0.0016	0.0082	No	No	
	September	0.0086	0.0087	1	5	1	0.0086	0.0087	0.0017	0.0087	No	No	
	October	0.0072	0.0074	1	5	1	0.0072	0.0074	0.0015	0.0074	No	No	
	November	0.0075	0.0076	1	5	1	0.0075	0.0076	0.0015	0.0076	No	No	
	December	0.0080	0.0081	1	5	1	0.0080	0.0081	0.0016	0.0081	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D8e. Lower Harper Creek (HB) Hazard Quotients for Total Beryllium Concentrations, Expected Case

		First Screening Step							Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working (Chronic, 30-day mean)	BC DWQG	BC MOE Working	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline					
							Maximum Predicted vs. BC DWQG	Maximum Predicted vs BC MOE Working Guideline					
Construction (-2 to-1)	January	0.00005	0.00006	0.0053	0.004	0.1	0.00950	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00223	0.00226	0.00300	0.00012	No	No	No
	May	0.00012	0.00013	0.0053	0.004	0.1	0.0228	0.0236	0.0313	0.00125	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0189	0.0250	0.00100	No	No	No
	July	0.00013	0.00013	0.0053	0.004	0.1	0.0236	0.0252	0.0333	0.00133	No	No	No
	August	0.00012	0.00013	0.0053	0.004	0.1	0.0225	0.0252	0.0333	0.00133	No	No	No
	September	0.00008	0.00009	0.0053	0.004	0.1	0.0145	0.0164	0.0217	0.00087	No	No	No
	October	0.00005	0.00006	0.0053	0.004	0.1	0.00995	0.0108	0.0144	0.00058	No	No	No
	November	0.00005	0.00006	0.0053	0.004	0.1	0.00939	0.0104	0.0138	0.00055	No	No	No
	December	0.00005	0.00006	0.0053	0.004	0.1	0.00933	0.0104	0.0138	0.00055	No	No	No
Operation 1 Phase (1-23)	January	0.00004	0.00004	0.0053	0.004	0.1	0.00808	0.00812	0.0108	0.00043	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00190	0.00191	0.00253	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00190	0.00191	0.00253	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00221	0.00221	0.00293	0.00012	No	No	No
	May	0.00012	0.00012	0.0053	0.004	0.1	0.0220	0.0220	0.0292	0.00117	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0184	0.0184	0.0243	0.00097	No	No	No
	July	0.00012	0.00012	0.0053	0.004	0.1	0.0221	0.0221	0.0293	0.00117	No	No	No
	August	0.00011	0.00011	0.0053	0.004	0.1	0.0198	0.0198	0.0263	0.00105	No	No	No
	September	0.00007	0.00007	0.0053	0.004	0.1	0.0124	0.0124	0.0164	0.00066	No	No	No
	October	0.00005	0.00005	0.0053	0.004	0.1	0.00897	0.00898	0.0119	0.00048	No	No	No
	November	0.00004	0.00004	0.0053	0.004	0.1	0.00835	0.00836	0.0111	0.00044	No	No	No
	December	0.00004	0.00004	0.0053	0.004	0.1	0.00806	0.00807	0.0107	0.00043	No	No	No
Operations 2 Phase (24-28)	January	0.00004	0.00004	0.0053	0.004	0.1	0.00809	0.00809	0.0107	0.00043	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00191	0.00253	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00191	0.00253	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00221	0.00221	0.00293	0.00012	No	No	No
	May	0.00012	0.00012	0.0053	0.004	0.1	0.0220	0.0220	0.0292	0.00117	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0184	0.0184	0.0243	0.00097	No	No	No
	July	0.00012	0.00012	0.0053	0.004	0.1	0.0221	0.0221	0.0293	0.00117	No	No	No
	August	0.00011	0.00011	0.0053	0.004	0.1	0.0198	0.0198	0.0263	0.00105	No	No	No
	September	0.00007	0.00007	0.0053	0.004	0.1	0.0124	0.0124	0.0164	0.00066	No	No	No
	October	0.00005	0.00005	0.0053	0.004	0.1	0.00898	0.00898	0.0119	0.00048	No	No	No
	November	0.00004	0.00004	0.0053	0.004	0.1	0.00836	0.00836	0.0111	0.00044	No	No	No
	December	0.00004	0.00004	0.0053	0.004	0.1	0.00807	0.00807	0.0107	0.00043	No	No	No
Closure Phase (29-35)	January	0.00004	0.00004	0.0053	0.004	0.1	0.00785	0.00807	0.0107	0.00043	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00207	0.00226	0.00299	0.00012	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00209	0.00230	0.00305	0.00012	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00230	0.00239	0.00317	0.00013	No	No	No
	May	0.00011	0.00012	0.0053	0.004	0.1	0.0210	0.0220	0.0291	0.00117	No	No	No
	June	0.00009	0.00010	0.0053	0.004	0.1	0.0170	0.0184	0.0243	0.00097	No	No	No
	July	0.00011	0.00012	0.0053	0.004	0.1	0.0213	0.0221	0.0293	0.00117	No	No	No
	August	0.00010	0.00011	0.0053	0.004	0.1	0.0194	0.0198	0.0263	0.00105	No	No	No
	September	0.00006	0.00007	0.0053	0.004	0.1	0.0118	0.0124	0.0164	0.00066	No	No	No
	October	0.00005	0.00005	0.0053	0.004	0.1	0.00859	0.00897	0.0119	0.00048	No	No	No
	November	0.00004	0.00004	0.0053	0.004	0.1	0.00816	0.00835	0.0111	0.00044	No	No	No
	December	0.00004	0.00004	0.0053	0.004	0.1	0.00781	0.00805	0.0107	0.00043	No	No	No
Post-Closure Phase (36-99)	January	0.00004	0.00004	0.0053	0.004	0.1	0.00776	0.00782	0.0104	0.00041	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00244	0.00250	0.00332	0.00013	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00269	0.00279	0.00369	0.00015	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00245	0.00249	0.00329	0.00013	No	No	No
	May	0.00011	0.00011	0.0053	0.004	0.1	0.0201	0.0201	0.0267	0.00107	No	No	No
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0164	0.0165	0.0218	0.00087	No	No	No
	July	0.00011	0.00011	0.0053	0.004	0.1	0.0207	0.0207	0.0275	0.00110	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0190	0.0252	0.00101	No	No	No
	September	0.00006	0.00006	0.0053	0.004	0.1	0.0117	0.0118	0.0156	0.00062	No	No	No
	October	0.00005	0.00005	0.0053	0.004	0.1	0.00850	0.00855	0.0113	0.00045	No	No	No
	November	0.00004	0.00004	0.0053	0.004	0.1	0.00814	0.00817	0.0108	0.00043	No	No	No
	December	0.00004	0.00004	0.0053	0.004	0.1	0.00780	0.00790	0.0105	0.00042	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D8f. Lower Harper Creek (HB) Hazard Quotients for Total Boron Concentrations, Expected Case

Project Phase	Months	First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0321	0.0341	1.2	5	5	5	0.0284	0.0068	0.0068	0.0068	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0104	0.0108	1.2	5	5	5	0.0090	0.0022	0.0022	0.0022	No	No	No	No
	June	0.0106	0.0112	1.2	5	5	5	0.0093	0.0022	0.0022	0.0022	No	No	No	No
	July	0.0117	0.0134	1.2	5	5	5	0.0111	0.0027	0.0027	0.0027	No	No	No	No
	August	0.0143	0.0186	1.2	5	5	5	0.0155	0.0037	0.0037	0.0037	No	No	No	No
	September	0.0154	0.0208	1.2	5	5	5	0.0174	0.0042	0.0042	0.0042	No	No	No	No
	October	0.0233	0.0265	1.2	5	5	5	0.0221	0.0053	0.0053	0.0053	No	No	No	No
	November	0.0323	0.0346	1.2	5	5	5	0.0289	0.0069	0.0069	0.0069	No	No	No	No
	December	0.0325	0.0349	1.2	5	5	5	0.0291	0.0070	0.0070	0.0070	No	No	No	No
Operation 1 Phase (1-23)	January	0.0357	0.0360	1.2	5	5	5	0.0300	0.0072	0.0072	0.0072	No	No	No	No
	February	0.0503	0.0506	1.2	5	5	5	0.0422	0.0101	0.0101	0.0101	No	No	No	No
	March	0.0504	0.0508	1.2	5	5	5	0.0423	0.0102	0.0102	0.0102	No	No	No	No
	April	0.0500	0.0501	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0109	0.0109	1.2	5	5	5	0.0091	0.0022	0.0022	0.0022	No	No	No	No
	June	0.0112	0.0112	1.2	5	5	5	0.0094	0.0022	0.0022	0.0022	No	No	No	No
	July	0.0135	0.0136	1.2	5	5	5	0.0113	0.0027	0.0027	0.0027	No	No	No	No
	August	0.0190	0.0192	1.2	5	5	5	0.0160	0.0038	0.0038	0.0038	No	No	No	No
	September	0.0214	0.0216	1.2	5	5	5	0.0180	0.0043	0.0043	0.0043	No	No	No	No
	October	0.0268	0.0269	1.2	5	5	5	0.0224	0.0054	0.0054	0.0054	No	No	No	No
	November	0.0349	0.0351	1.2	5	5	5	0.0292	0.0070	0.0070	0.0070	No	No	No	No
	December	0.0357	0.0359	1.2	5	5	5	0.0299	0.0072	0.0072	0.0072	No	No	No	No
Operations 2 Phase (24-28)	January	0.0360	0.0360	1.2	5	5	5	0.0300	0.0072	0.0072	0.0072	No	No	No	No
	February	0.0507	0.0507	1.2	5	5	5	0.0423	0.0101	0.0101	0.0101	No	No	No	No
	March	0.0508	0.0509	1.2	5	5	5	0.0424	0.0102	0.0102	0.0102	No	No	No	No
	April	0.0501	0.0501	1.2	5	5	5	0.0418	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0109	0.0109	1.2	5	5	5	0.0091	0.0022	0.0022	0.0022	No	No	No	No
	June	0.0113	0.0113	1.2	5	5	5	0.0094	0.0023	0.0023	0.0023	No	No	No	No
	July	0.0136	0.0136	1.2	5	5	5	0.0113	0.0027	0.0027	0.0027	No	No	No	No
	August	0.0192	0.0192	1.2	5	5	5	0.0160	0.0038	0.0038	0.0038	No	No	No	No
	September	0.0216	0.0216	1.2	5	5	5	0.0180	0.0043	0.0043	0.0043	No	No	No	No
	October	0.0269	0.0269	1.2	5	5	5	0.0224	0.0054	0.0054	0.0054	No	No	No	No
	November	0.0351	0.0351	1.2	5	5	5	0.0293	0.0070	0.0070	0.0070	No	No	No	No
	December	0.0359	0.0360	1.2	5	5	5	0.0300	0.0072	0.0072	0.0072	No	No	No	No
Closure Phase (29-35)	January	0.0368	0.0386	1.2	5	5	5	0.0321	0.0077	0.0077	0.0077	No	No	No	No
	February	0.0506	0.0516	1.2	5	5	5	0.0430	0.0103	0.0103	0.0103	No	No	No	No
	March	0.0506	0.0518	1.2	5	5	5	0.0432	0.0104	0.0104	0.0104	No	No	No	No
	April	0.0504	0.0509	1.2	5	5	5	0.0424	0.0102	0.0102	0.0102	No	No	No	No
	May	0.0136	0.0161	1.2	5	5	5	0.0134	0.0032	0.0032	0.0032	No	No	No	No
	June	0.0157	0.0179	1.2	5	5	5	0.0149	0.0036	0.0036	0.0036	No	No	No	No
	July	0.0154	0.0165	1.2	5	5	5	0.0138	0.0033	0.0033	0.0033	No	No	No	No
	August	0.0198	0.0205	1.2	5	5	5	0.0171	0.0041	0.0041	0.0041	No	No	No	No
	September	0.0237	0.0254	1.2	5	5	5	0.0211	0.0051	0.0051	0.0051	No	No	No	No
	October	0.0292	0.0308	1.2	5	5	5	0.0257	0.0062	0.0062	0.0062	No	No	No	No
	November	0.0359	0.0368	1.2	5	5	5	0.0306	0.0074	0.0074	0.0074	No	No	No	No
	December	0.0369	0.0381	1.2	5	5	5	0.0317	0.0076	0.0076	0.0076	No	No	No	No
Post-Closure Phase (36-99)	January	0.0363	0.0373	1.2	5	5	5	0.0311	0.0075	0.0075	0.0075	No	No	No	No
	February	0.0489	0.0508	1.2	5	5	5	0.0423	0.0102	0.0102	0.0102	No	No	No	No
	March	0.0484	0.0512	1.2	5	5	5	0.0426	0.0102	0.0102	0.0102	No	No	No	No
	April	0.0493	0.0505	1.2	5	5	5	0.0420	0.0101	0.0101	0.0101	No	No	No	No
	May	0.0143	0.0157	1.2	5	5	5	0.0131	0.0031	0.0031	0.0031	No	No	No	No
	June	0.0156	0.0173	1.2	5	5	5	0.0144	0.0035	0.0035	0.0035	No	No	No	No
	July	0.0159	0.0168	1.2	5	5	5	0.0140	0.0034	0.0034	0.0034	No	No	No	No
	August	0.0204	0.0211	1.2	5	5	5	0.0176	0.0042	0.0042	0.0042	No	No	No	No
	September	0.0230	0.0242	1.2	5	5	5	0.0202	0.0048	0.0048	0.0048	No	No	No	No
	October	0.0283	0.0297	1.2	5	5	5	0.0247	0.0059	0.0059	0.0059	No	No	No	No
	November	0.0353	0.0360	1.2	5	5	5	0.0300	0.0072	0.0072	0.0072	No	No	No	No
	December	0.0362	0.0371	1.2	5	5	5	0.0309	0.0074	0.0074	0.0074	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D8g. Lower Harper Creek (HB) Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

Project Phase	Months	First Screening Step			Retained as COFC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum			
Construction (-2 to-1)	January	9.24	10.5	1000	0.0105	No
	February	9.86	11.2	1000	0.0112	No
	March	9.60	11.1	1000	0.0111	No
	April	7.78	8.48	1000	0.0085	No
	May	5.17	6.14	1000	0.0061	No
	June	4.48	5.34	1000	0.0053	No
	July	6.24	7.24	1000	0.0072	No
	August	8.54	9.74	1000	0.0097	No
	September	8.91	10.07	1000	0.0101	No
	October	7.22	8.37	1000	0.0084	No
	November	7.98	9.12	1000	0.0091	No
	December	6.57	8.25	1000	0.0083	No
Operation 1 Phase (1-23)	January	10.3	10.5	1000	0.0105	No
	February	10.8	11.1	1000	0.0111	No
	March	10.6	10.9	1000	0.0109	No
	April	8.33	8.37	1000	0.0084	No
	May	5.95	6.00	1000	0.0060	No
	June	5.20	5.23	1000	0.0052	No
	July	7.18	7.22	1000	0.0072	No
	August	9.65	9.76	1000	0.0098	No
	September	9.90	10.0	1000	0.0100	No
	October	8.23	8.32	1000	0.0083	No
	November	9.00	9.12	1000	0.0091	No
	December	8.06	8.23	1000	0.0082	No
Operations 2 Phase (24-28)	January	10.6	10.6	1000	0.0106	No
	February	11.1	11.1	1000	0.0111	No
	March	11.0	11.0	1000	0.0110	No
	April	8.38	8.38	1000	0.0084	No
	May	5.96	5.96	1000	0.0060	No
	June	5.22	5.23	1000	0.0052	No
	July	7.23	7.23	1000	0.0072	No
	August	9.79	9.80	1000	0.0098	No
	September	10.0	10.1	1000	0.0101	No
	October	8.34	8.34	1000	0.0083	No
	November	9.13	9.13	1000	0.0091	No
	December	8.25	8.25	1000	0.0083	No
Closure Phase (29-35)	January	11.2	12.5	1000	0.0125	No
	February	11.8	13.2	1000	0.0132	No
	March	11.8	13.3	1000	0.0133	No
	April	9.16	9.97	1000	0.0100	No
	May	7.21	8.33	1000	0.0083	No
	June	7.33	8.37	1000	0.0084	No
	July	8.02	8.53	1000	0.0085	No
	August	10.0	10.4	1000	0.0104	No
	September	11.0	11.8	1000	0.0118	No
	October	9.71	10.6	1000	0.0106	No
	November	9.80	10.4	1000	0.0104	No
	December	9.21	10.1	1000	0.0101	No
Post-Closure Phase (36-99)	January	11.7	12.1	1000	0.0121	No
	February	13.7	14.2	1000	0.0142	No
	March	14.9	15.5	1000	0.0155	No
	April	10.1	10.3	1000	0.0103	No
	May	8.11	8.32	1000	0.0083	No
	June	8.09	8.34	1000	0.0083	No
	July	8.71	8.88	1000	0.0089	No
	August	10.6	10.8	1000	0.0108	No
	September	11.1	11.4	1000	0.0114	No
	October	10.0	10.3	1000	0.0103	No
	November	9.94	10.2	1000	0.0102	No
	December	9.40	9.72	1000	0.0097	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D8h. Lower Harper Creek (HB) Hazard Quotients for Dissolved and Total Cadmium Concentrations, Expected Case

		First Screening Step												
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Dissolved Cadmium		Total Cadmium		BC MOE Draft Guideline for Mean Dissolved Cadmium	BC MOE Draft Guideline for Maximum Dissolved Cadmium			Mean Predicted vs. BC MOE Draft Guideline for Mean Dissolved Cadmium	Maximum Predicted vs. BC MOE Draft Guideline for Mean Dissolved Cadmium	Maximum Predicted vs. BC MOE Draft Guideline for Maximum Dissolved Cadmium		
		Mean	Maximum	Mean	Maximum									
Construction (-2 to-1)	January	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.326	0.344	0.115	0.00213	0.00013
	February	0.00001	0.00001	0.00001	0.00001	0.00003	0.00009	0.005	0.08	0.268	0.283	0.0931	0.00170	0.00011
	March	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.365	0.398	0.132	0.00240	0.00015
	April	0.00001	0.00001	0.00001	0.00001	0.00003	0.00007	0.005	0.08	0.402	0.412	0.141	0.00286	0.00018
	May	0.00001	0.00001	0.00002	0.00002	0.00002	0.00005	0.005	0.08	0.729	0.748	0.287	0.00361	0.00023
	June	0.00001	0.00001	0.00001	0.00001	0.00002	0.00004	0.005	0.08	0.798	0.799	0.326	0.00295	0.00018
	July	0.00002	0.00002	0.00002	0.00002	0.00002	0.00006	0.005	0.08	0.796	0.863	0.315	0.00365	0.00023
	August	0.00002	0.00002	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.682	0.746	0.250	0.00400	0.00025
	September	0.00001	0.00001	0.00001	0.00001	0.00003	0.00009	0.005	0.08	0.374	0.402	0.131	0.00230	0.00014
	October	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.313	0.321	0.109	0.00180	0.00011
	November	0.00001	0.00001	0.00001	0.00001	0.00002	0.00007	0.005	0.08	0.298	0.304	0.105	0.00160	0.00010
	December	0.00001	0.00001	0.00001	0.00001	0.00002	0.00005	0.005	0.08	0.441	0.458	0.176	0.00183	0.00011
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.326	0.345	0.115	0.00223	0.00014
	February	0.00001	0.00001	0.00001	0.00001	0.00003	0.00009	0.005	0.08	0.279	0.301	0.0991	0.00193	0.00012
	March	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.362	0.390	0.129	0.00248	0.00015
	April	0.00001	0.00001	0.00001	0.00001	0.00003	0.00007	0.005	0.08	0.396	0.400	0.137	0.00279	0.00017
	May	0.00001	0.00001	0.00002	0.00002	0.00002	0.00005	0.005	0.08	0.716	0.718	0.275	0.00364	0.00023
	June	0.00001	0.00001	0.00001	0.00001	0.00002	0.00004	0.005	0.08	0.803	0.806	0.329	0.00290	0.00018
	July	0.00002	0.00002	0.00002	0.00002	0.00002	0.00006	0.005	0.08	0.741	0.748	0.273	0.00361	0.00023
	August	0.00002	0.00002	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.635	0.646	0.216	0.00360	0.00022
	September	0.00001	0.00001	0.00001	0.00001	0.00003	0.00009	0.005	0.08	0.357	0.368	0.120	0.00228	0.00014
	October	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.313	0.323	0.110	0.00190	0.00012
	November	0.00001	0.00001	0.00001	0.00001	0.00002	0.00007	0.005	0.08	0.303	0.315	0.109	0.00171	0.00011
	December	0.00001	0.00001	0.00001	0.00001	0.00002	0.00005	0.005	0.08	0.445	0.468	0.180	0.00199	0.00012
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.348	0.349	0.116	0.00225	0.00014
	February	0.00001	0.00001	0.00001	0.00001	0.00003	0.00009	0.005	0.08	0.305	0.306	0.101	0.00195	0.00012
	March	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.394	0.395	0.131	0.00251	0.00016
	April	0.00001	0.00001	0.00001	0.00001	0.00003	0.00007	0.005	0.08	0.400	0.400	0.137	0.00280	0.00017
	May	0.00001	0.00001	0.00002	0.00002	0.00002	0.00005	0.005	0.08	0.719	0.719	0.276	0.00364	0.00023
	June	0.00001	0.00001	0.00001	0.00001	0.00002	0.00004	0.005	0.08	0.806	0.807	0.329	0.00290	0.00018
	July	0.00002	0.00002	0.00002	0.00002	0.00002	0.00006	0.005	0.08	0.749	0.749	0.273	0.00361	0.00023
	August	0.00002	0.00002	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.646	0.646	0.216	0.00360	0.00022
	September	0.00001	0.00001	0.00001	0.00001	0.00003	0.00009	0.005	0.08	0.370	0.370	0.121	0.00229	0.00014
	October	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.324	0.324	0.110	0.00191	0.00012
	November	0.00001	0.00001	0.00001	0.00001	0.00002	0.00007	0.005	0.08	0.316	0.316	0.109	0.00172	0.00011
	December	0.00001	0.00001	0.00001	0.00001	0.00002	0.00005	0.005	0.08	0.470	0.471	0.181	0.00200	0.00013
Closure Phase (29-35)	January	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.396	0.485	0.162	0.00299	0.00019
	February	0.00001	0.00001	0.00001	0.00001	0.00003	0.00009	0.005	0.08	0.360	0.462	0.152	0.00285	0.00018
	March	0.00001	0.00002	0.00001	0.00002	0.00003	0.00008	0.005	0.08	0.448	0.560	0.185	0.00342	0.00021
	April	0.00001	0.00001	0.00002	0.00002	0.00003	0.00007	0.005	0.08	0.456	0.512	0.175	0.00332	0.00021
	May	0.00002	0.00002	0.00002	0.00002	0.00002	0.00005	0.005	0.08	0.817	0.905	0.347	0.00426	0.00027
	June	0.00002	0.00002	0.00002	0.00002	0.00002	0.00004	0.005	0.08	1.00	1.10	0.447	0.00380	0.00024
	July	0.00002	0.00002	0.00002	0.00002	0.00002	0.00006	0.005	0.08	0.800	0.834	0.304	0.00396	0.00025
	August	0.00002	0.00002	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.655	0.674	0.226	0.00375	0.00023
	September	0.00001	0.00001	0.00001	0.00001	0.00003	0.00009	0.005	0.08	0.433	0.483	0.158	0.00295	0.00018
	October	0.00001	0.00001	0.00001	0.00001	0.00003	0.00008	0.005	0.08	0.424	0.489	0.166	0.00277	0.00017
	November	0.00001	0.00001	0.00001	0.00001	0.00002	0.00007	0.005	0.08	0.368	0.415	0.143	0.00222	0.00014
	December	0.00001	0.00001	0.00001	0.00001	0.00002	0.00005	0.005	0.08	0.561	0.645	0.248	0.00265	0.00017
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.578	0.690	0.230	0.00410	0.00026
	February	0.00002	0.00003	0.00002	0.00003	0.00003	0.00009	0.005	0.08	0.792	0.996	0.327	0.00587	0.00037
	March	0.00003	0.00004	0.00003	0.00004	0.00003	0.00008	0.005	0.08	1.10	1.40	0.464	0.00806	0.00050
	April	0.00002	0.00002	0.00002	0.00002	0.00003	0.00007	0.005	0.08	0.686	0.796	0.273	0.00475	0.00030
	May	0.00002	0.00002	0.00003	0.00003	0.00002	0.00005	0.005	0.08	1.12	1.28	0.491	0.00565	0.00035
	June	0.00002	0.00003	0.00002	0.00003	0.00002	0.00004	0.005	0.08	1.43	1.67	0.679	0.00558	0.00035
	July	0.00002	0.00002	0.00002	0.00003	0.00002	0.00006	0.005	0.08	1.00	1.11	0.406	0.00512	0.00032
	August	0.00002	0.00002	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.779	0.846	0.283	0.00468	0.00029
	September	0.00002	0.00002	0.00002	0.00002	0.00003	0.00009	0.005	0.08	0.562	0.649	0.212	0.00390	0.00024
	October	0.00002	0.00002	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.609	0.724	0.246	0.00397	0.00025
	November	0.00001	0.00001	0.00001	0.00001	0.00002	0.00007	0.005	0.08	0.478	0.553	0.191	0.00290	0.00018
	December	0.00001	0.00002	0.00002	0.00002	0.00002	0.00005	0.005	0.08	0.762	0.900	0.346	0.00358	0.00022

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guideline is hardness dependent
 Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

(continued)

Appendix 13-D8h. Lower Harper Creek (HB) Hazard Quotients for Dissolved and Total Cadmium Concentrations, Expected Case (completed)

Project Phase		Second Screening Step								Retained as COPC?		
		Baseline Concentrations				Hazard Quotient relative to Baseline				Aquatic Life	Drinking Water	Livestock
		Dissolved Cadmium		Total Cadmium		Cd Dissolved		Cd Total				
		Mean	95%ile	Mean	95%ile	Mean	95%ile	Mean	95%ile	Dissolved Cadmium	Total Cadmium	Total Cadmium
Construction (-2 to-1)	January									No	No	No
	February									No	No	No
	March									No	No	No
	April									No	No	No
	May									No	No	No
	June									No	No	No
	July									No	No	No
	August									No	No	No
	September									No	No	No
	October									No	No	No
	November									No	No	No
	December									No	No	No
Operation 1 Phase (1-23)	January									No	No	No
	February									No	No	No
	March									No	No	No
	April									No	No	No
	May									No	No	No
	June									No	No	No
	July									No	No	No
	August									No	No	No
	September									No	No	No
	October									No	No	No
	November									No	No	No
	December									No	No	No
Operations 2 Phase (24-28)	January									No	No	No
	February									No	No	No
	March									No	No	No
	April									No	No	No
	May									No	No	No
	June									No	No	No
	July									No	No	No
	August									No	No	No
	September									No	No	No
	October									No	No	No
	November									No	No	No
	December									No	No	No
Closure Phase (29-35)	January									No	No	No
	February									No	No	No
	March									No	No	No
	April									No	No	No
	May									No	No	No
	June	0.00001	0.00002	0.00001	0.00002	1.25	0.980	1.40	1.09	Yes	No	No
	July									No	No	No
	August									No	No	No
	September									No	No	No
	October									No	No	No
	November									No	No	No
	December									No	No	No
Post-Closure Phase (36-99)	January									No	No	No
	February									No	No	No
	March	0.00001	0.00002	0.00001	0.00002	2.77	2.36	2.67	2.20	Yes	No	No
	April									No	No	No
	May	0.00001	0.00002	0.00002	0.00004	1.50	1.19	1.41	0.642	Yes	No	No
	June	0.00001	0.00002	0.00001	0.00002	1.79	1.49	1.93	1.60	Yes	No	No
	July	0.00002	0.00003	0.00002	0.00003	1.16	0.687	1.28	0.748	Yes	No	No
	August									No	No	No
	September									No	No	No
	October									No	No	No
	November									No	No	No
	December									No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

¹ Guideline is hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D8i. Lower Harper Creek (HB) Hazard Quotients for Total Chromium Concentrations, Expected Case

Project Phase	Months	First Screening Step								Retained as COPC?				
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME CR III Guideline			Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline					
						Canadian DWQG	BC MOE Working			Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.191	0.0215	0.0038	0.0038	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.170	0.0191	0.0034	0.0034	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.143	0.0161	0.0029	0.0029	No	No	No
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.180	0.0202	0.0036	0.0036	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.135	0.0152	0.0027	0.0027	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0113	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.190	0.0213	0.0038	0.0038	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.153	0.0172	0.0031	0.0031	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.132	0.0149	0.0026	0.0026	No	No	No
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.156	0.0175	0.0031	0.0031	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.128	0.0144	0.0026	0.0026	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0113	0.0020	0.0020	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0113	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.190	0.0213	0.0038	0.0038	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.153	0.0172	0.0031	0.0031	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.132	0.0149	0.0026	0.0026	No	No	No
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.156	0.0175	0.0031	0.0031	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.128	0.0144	0.0026	0.0026	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0113	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0113	0.0020	0.0020	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.109	0.0122	0.0022	0.0022	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.112	0.0125	0.0022	0.0022	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.106	0.0119	0.0021	0.0021	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.190	0.0213	0.0038	0.0038	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.154	0.0173	0.0031	0.0031	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.133	0.0150	0.0027	0.0027	No	No	No
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.157	0.0176	0.0031	0.0031	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.133	0.0150	0.0027	0.0027	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.105	0.0119	0.0021	0.0021	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.107	0.0121	0.0021	0.0021	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.108	0.0121	0.0022	0.0022	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.116	0.0131	0.0023	0.0023	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.124	0.0139	0.0025	0.0025	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.108	0.0121	0.0022	0.0022	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.187	0.0210	0.0037	0.0037	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.156	0.0175	0.0031	0.0031	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.135	0.0152	0.0027	0.0027	No	No	No
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.157	0.0176	0.0031	0.0031	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.133	0.0149	0.0027	0.0027	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.105	0.0118	0.0021	0.0021	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.107	0.0120	0.0021	0.0021	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 CCME = Canadian Council of Ministers of the Environment

Appendix 13-D8j. Lower Harper Creek (HB) Hazard Quotients for Total Cobalt Concentrations, Expected Case

		First Screening Step									Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Livestock	
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Working	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline					Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.00005	0.00005	0.004	0.110	1	0.0126	0.0135	0.00049	0.00005	No	No		
	February	0.00001	0.00001	0.004	0.110	1	0.00250	0.00275	0.00010	0.00001	No	No		
	March	0.00001	0.00001	0.004	0.110	1	0.00287	0.00300	0.00011	0.00001	No	No		
	April	0.00002	0.00002	0.004	0.110	1	0.00590	0.00608	0.00022	0.00002	No	No		
	May	0.00012	0.00013	0.004	0.110	1	0.0302	0.0313	0.00114	0.00013	No	No		
	June	0.00011	0.00011	0.004	0.110	1	0.0268	0.0285	0.00104	0.00011	No	No		
	July	0.00013	0.00013	0.004	0.110	1	0.0313	0.0333	0.00121	0.00013	No	No		
	August	0.00012	0.00013	0.004	0.110	1	0.0299	0.0333	0.00121	0.00013	No	No		
	September	0.00006	0.00007	0.004	0.110	1	0.0159	0.0178	0.00065	0.00007	No	No		
	October	0.00009	0.00010	0.004	0.110	1	0.0235	0.0260	0.00095	0.00010	No	No		
	November	0.00005	0.00006	0.004	0.110	1	0.0128	0.0139	0.00050	0.00006	No	No		
	December	0.00005	0.00005	0.004	0.110	1	0.0126	0.0137	0.00050	0.00005	No	No		
Operation 1 Phase (1-23)	January	0.00015	0.00026	0.004	0.110	1	0.0387	0.0661	0.00240	0.00026	No	No		
	February	0.00015	0.00028	0.004	0.110	1	0.0366	0.0699	0.00254	0.00028	No	No		
	March	0.00017	0.00033	0.004	0.110	1	0.0429	0.0819	0.00298	0.00033	No	No		
	April	0.00004	0.00006	0.004	0.110	1	0.0109	0.0159	0.00058	0.00006	No	No		
	May	0.00012	0.00013	0.004	0.110	1	0.0311	0.0328	0.00119	0.00013	No	No		
	June	0.00012	0.00013	0.004	0.110	1	0.0298	0.0316	0.00115	0.00013	No	No		
	July	0.00014	0.00016	0.004	0.110	1	0.0345	0.0394	0.00143	0.00016	No	No		
	August	0.00016	0.00021	0.004	0.110	1	0.0399	0.0524	0.00191	0.00021	No	No		
	September	0.00013	0.00019	0.004	0.110	1	0.0316	0.0481	0.00175	0.00019	No	No		
	October	0.00014	0.00019	0.004	0.110	1	0.0349	0.0476	0.00173	0.00019	No	No		
	November	0.00011	0.00017	0.004	0.110	1	0.0279	0.0427	0.00155	0.00017	No	No		
	December	0.00014	0.00023	0.004	0.110	1	0.0349	0.0564	0.00205	0.00023	No	No		
Operations 2 Phase (24-28)	January	0.00028	0.00028	0.004	0.110	1	0.0710	0.0710	0.00258	0.00028	No	No		
	February	0.00030	0.00030	0.004	0.110	1	0.0746	0.0757	0.00275	0.00030	No	No		
	March	0.00035	0.00035	0.004	0.110	1	0.0874	0.0886	0.00322	0.00035	No	No		
	April	0.00007	0.00007	0.004	0.110	1	0.0166	0.0168	0.00061	0.00007	No	No		
	May	0.00013	0.00013	0.004	0.110	1	0.0330	0.0330	0.00120	0.00013	No	No		
	June	0.00013	0.00013	0.004	0.110	1	0.0319	0.0320	0.00116	0.00013	No	No		
	July	0.00016	0.00016	0.004	0.110	1	0.0399	0.0401	0.00146	0.00016	No	No		
	August	0.00022	0.00022	0.004	0.110	1	0.0538	0.0540	0.00196	0.00022	No	No		
	September	0.00020	0.00020	0.004	0.110	1	0.0499	0.0503	0.00183	0.00020	No	No		
	October	0.00020	0.00020	0.004	0.110	1	0.0489	0.0492	0.00179	0.00020	No	No		
	November	0.00018	0.00018	0.004	0.110	1	0.0440	0.0443	0.00161	0.00018	No	No		
	December	0.00023	0.00023	0.004	0.110	1	0.0582	0.0587	0.00213	0.00023	No	No		
Closure Phase (29-35)	January	0.00026	0.00051	0.004	0.110	1	0.0661	0.127	0.00463	0.00051	No	No		
	February	0.00027	0.00056	0.004	0.110	1	0.0677	0.140	0.00509	0.00056	No	No		
	March	0.00030	0.00063	0.004	0.110	1	0.0758	0.157	0.00570	0.00063	No	No		
	April	0.00018	0.00033	0.004	0.110	1	0.0452	0.0831	0.00302	0.00033	No	No		
	May	0.00032	0.00051	0.004	0.110	1	0.0798	0.126	0.00459	0.00051	No	No		
	June	0.00044	0.00061	0.004	0.110	1	0.110	0.152	0.00553	0.00061	No	No		
	July	0.00026	0.00036	0.004	0.110	1	0.0662	0.0890	0.00324	0.00036	No	No		
	August	0.00019	0.00026	0.004	0.110	1	0.0478	0.0642	0.00233	0.00026	No	No		
	September	0.00029	0.00045	0.004	0.110	1	0.0733	0.113	0.00409	0.00045	No	No		
	October	0.00036	0.00054	0.004	0.110	1	0.0910	0.135	0.00490	0.00054	No	No		
	November	0.00022	0.00033	0.004	0.110	1	0.0539	0.0833	0.00303	0.00033	No	No		
	December	0.00028	0.00043	0.004	0.110	1	0.0688	0.109	0.00395	0.00043	No	No		
Post-Closure Phase (36-99)	January	0.00020	0.00037	0.004	0.110	1	0.0496	0.0920	0.00334	0.00037	No	No		
	February	0.00033	0.00065	0.004	0.110	1	0.0820	0.162	0.00588	0.00065	No	No		
	March	0.00047	0.00092	0.004	0.110	1	0.117	0.230	0.00835	0.00092	No	No		
	April	0.00018	0.00035	0.004	0.110	1	0.0455	0.0871	0.00317	0.00035	No	No		
	May	0.00028	0.00045	0.004	0.110	1	0.0689	0.113	0.00412	0.00045	No	No		
	June	0.00031	0.00054	0.004	0.110	1	0.0787	0.135	0.00490	0.00054	No	No		
	July	0.00024	0.00036	0.004	0.110	1	0.0596	0.0911	0.00331	0.00036	No	No		
	August	0.00020	0.00030	0.004	0.110	1	0.0496	0.0747	0.00272	0.00030	No	No		
	September	0.00018	0.00033	0.004	0.110	1	0.0461	0.0835	0.00304	0.00033	No	No		
	October	0.00024	0.00042	0.004	0.110	1	0.0598	0.104	0.00379	0.00042	No	No		
	November	0.00014	0.00024	0.004	0.110	1	0.0348	0.0605	0.00220	0.00024	No	No		
	December	0.00017	0.00031	0.004	0.110	1	0.0428	0.0779	0.00283	0.00031	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D8k. Lower Harper Creek (HB) Hazard Quotients for Total Copper Concentrations, Expected Case

Project Phase	Months	First Screening Step										Second Screening Step				Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines ¹		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations	Hazard Quotient relative to Baseline	Aquatic Life	Wildlife	Livestock		
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline							
		Mean	95%ile	Mean	95%ile	Mean	95%ile	Mean	95%ile	Mean	95%ile	Mean	95%ile						
Construction (-2 to-1)	January	0.0004	0.0004	0.002	0.0043	0.3	0.3	0.207	0.212	0.0976	0.0014	0.0014	0.0028	0.0028	0.859	1.00	No	No	No
	February	0.0005	0.0005	0.002	0.0045	0.3	0.3	0.255	0.265	0.118	0.0018	0.0018					No	No	No
	March	0.0004	0.0004	0.002	0.0044	0.3	0.3	0.191	0.197	0.0897	0.0013	0.0013					No	No	No
	April	0.0006	0.0006	0.002	0.0041	0.3	0.3	0.286	0.286	0.141	0.0019	0.0019					No	No	No
	May	0.0015	0.0016	0.002	0.0032	0.3	0.3	0.729	0.796	0.491	0.0053	0.0053					No	No	No
	June	0.0015	0.0017	0.002	0.0030	0.3	0.3	0.761	0.847	0.556	0.0056	0.0056					No	No	No
	July	0.0008	0.0008	0.002	0.0035	0.3	0.3	0.412	0.422	0.243	0.0028	0.0028					No	No	No
	August	0.0005	0.0005	0.002	0.0042	0.3	0.3	0.268	0.271	0.131	0.0018	0.0018					No	No	No
	September	0.0005	0.0005	0.002	0.0042	0.3	0.3	0.231	0.233	0.110	0.0016	0.0016					No	No	No
	October	0.0007	0.0007	0.002	0.0038	0.3	0.3	0.339	0.351	0.186	0.0023	0.0023					No	No	No
	November	0.0004	0.0005	0.002	0.0041	0.3	0.3	0.221	0.227	0.111	0.0015	0.0015					No	No	No
	December	0.0024	0.0028	0.002	0.0034	0.3	0.3	1.20	1.40	0.817	0.0093	0.0093					No	No	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.002	0.0043	0.3	0.3	0.238	0.266	0.122	0.0018	0.0018	0.0028	0.0028	0.747	0.763	No	No	No
	February	0.0006	0.0006	0.002	0.0045	0.3	0.3	0.282	0.316	0.140	0.0021	0.0021					No	No	No
	March	0.0005	0.0006	0.002	0.0044	0.3	0.3	0.237	0.278	0.126	0.0019	0.0019					No	No	No
	April	0.0006	0.0006	0.002	0.0041	0.3	0.3	0.292	0.297	0.146	0.0020	0.0020					No	No	No
	May	0.0016	0.0016	0.002	0.0032	0.3	0.3	0.798	0.800	0.494	0.0053	0.0053					No	No	No
	June	0.0017	0.0017	0.002	0.0030	0.3	0.3	0.833	0.835	0.548	0.0056	0.0056					No	No	No
	July	0.0009	0.0009	0.002	0.0035	0.3	0.3	0.428	0.434	0.250	0.0029	0.0029					No	No	No
	August	0.0006	0.0006	0.002	0.0042	0.3	0.3	0.286	0.302	0.145	0.0020	0.0020					No	No	No
	September	0.0005	0.0005	0.002	0.0042	0.3	0.3	0.248	0.265	0.125	0.0018	0.0018					No	No	No
	October	0.0007	0.0007	0.002	0.0038	0.3	0.3	0.339	0.352	0.187	0.0023	0.0023					No	No	No
	November	0.0005	0.0005	0.002	0.0041	0.3	0.3	0.239	0.255	0.124	0.0017	0.0017					No	No	No
	December	0.0021	0.0021	0.002	0.0034	0.3	0.3	1.05	1.07	0.623	0.0071	0.0071					No	No	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.002	0.0043	0.3	0.3	0.271	0.272	0.125	0.0018	0.0018	0.0028	0.0028	0.764	0.765	No	No	No
	February	0.0006	0.0006	0.002	0.0045	0.3	0.3	0.321	0.323	0.143	0.0022	0.0022					No	No	No
	March	0.0006	0.0006	0.002	0.0044	0.3	0.3	0.284	0.286	0.130	0.0019	0.0019					No	No	No
	April	0.0006	0.0006	0.002	0.0041	0.3	0.3	0.298	0.298	0.147	0.0020	0.0020					No	No	No
	May	0.0016	0.0016	0.002	0.0032	0.3	0.3	0.800	0.800	0.494	0.0053	0.0053					No	No	No
	June	0.0017	0.0017	0.002	0.0030	0.3	0.3	0.836	0.837	0.549	0.0056	0.0056					No	No	No
	July	0.0009	0.0009	0.002	0.0035	0.3	0.3	0.435	0.435	0.251	0.0029	0.0029					No	No	No
	August	0.0006	0.0006	0.002	0.0042	0.3	0.3	0.303	0.304	0.146	0.0020	0.0020					No	No	No
	September	0.0005	0.0005	0.002	0.0042	0.3	0.3	0.267	0.267	0.127	0.0018	0.0018					No	No	No
	October	0.0007	0.0007	0.002	0.0038	0.3	0.3	0.354	0.354	0.188	0.0024	0.0024					No	No	No
	November	0.0005	0.0005	0.002	0.0041	0.3	0.3	0.256	0.257	0.125	0.0017	0.0017					No	No	No
	December	0.0021	0.0021	0.002	0.0034	0.3	0.3	1.07	1.07	0.624	0.0071	0.0071					No	No	No
Closure Phase (29-35)	January	0.0007	0.0010	0.002	0.0043	0.3	0.3	0.359	0.507	0.233	0.0034	0.0034	0.0014	0.0020	1.47	1.06	No	No	No
	February	0.0008	0.0012	0.002	0.0045	0.3	0.3	0.419	0.589	0.261	0.0039	0.0039					No	No	No
	March	0.0008	0.0012	0.002	0.0044	0.3	0.3	0.394	0.588	0.268	0.0039	0.0039					No	No	No
	April	0.0008	0.0009	0.002	0.0041	0.3	0.3	0.387	0.474	0.233	0.0032	0.0032					No	No	No
	May	0.0018	0.0020	0.002	0.0032	0.3	0.3	0.896	0.98	0.607	0.0066	0.0066					No	No	No
	June	0.0020	0.0021	0.002	0.0030	0.3	0.3	0.990	1.07	0.700	0.0071	0.0071					Yes	No	No
	July	0.0010	0.0011	0.002	0.0035	0.3	0.3	0.513	0.561	0.324	0.0037	0.0037					No	No	No
	August	0.0007	0.0007	0.002	0.0042	0.3	0.3	0.332	0.370	0.178	0.0025	0.0025					No	No	No
	September	0.0008	0.0010	0.002	0.0042	0.3	0.3	0.388	0.478	0.227	0.0032	0.0032					No	No	No
	October	0.0010	0.0012	0.002	0.0038	0.3	0.3	0.504	0.600	0.319	0.0040	0.0040					No	No	No
	November	0.0007	0.0008	0.002	0.0041	0.3	0.3	0.337	0.404	0.197	0.0027	0.0027					No	No	No
	December	0.0022	0.0024	0.002	0.0034	0.3	0.3	1.12	1.19	0.693	0.0079	0.0079					No	No	No
Post-Closure Phase (36-99)	January	0.0008	0.0009	0.002	0.0043	0.3	0.3	0.405	0.462	0.213	0.0031	0.0031	0.0014	0.0020	1.50	1.06	No	No	No
	February	0.0013	0.0014	0.002	0.0045	0.3	0.3	0.632	0.720	0.319	0.0048	0.0048					No	No	No
	March	0.0015	0.0017	0.002	0.0044	0.3	0.3	0.762	0.875	0.398	0.0058	0.0058					No	No	No
	April	0.0010	0.0010	0.002	0.0041	0.3	0.3	0.475	0.516	0.254	0.0034	0.0034					No	No	No
	May	0.0019	0.0020	0.002	0.0032	0.3	0.3	0.940	0.983	0.607	0.0066	0.0066					No	No	No
	June	0.0020	0.0021	0.002	0.0030	0.3	0.3	1.01	1.06	0.699	0.0071	0.0071					Yes	No	No
	July	0.0011	0.0012	0.002	0.0035	0.3	0.3	0.567	0.598	0.345	0.0040	0.0040					No	No	No
	August	0.0008	0.0008	0.002	0.0042	0.3	0.3	0.392	0.424	0.204	0.0028	0.0028					No	No	No
	September	0.0008	0.0009	0.002	0.0042	0.3	0.3	0.393	0.442	0.209	0.0029	0.0029					No	No	No
	October	0.0010	0.0011	0.002	0.0038	0.3	0.3	0.516	0.568	0.302	0.0038	0.0038					No	No	No
	November	0.0007	0.0008	0.002	0.0041	0.3	0.3	0.342	0.377	0.184	0.0025	0.0025					No	No	No
	December	0.0022	0.0023	0.002	0.0034	0.3	0.3	1.12	1.16	0.677	0.0077	0.0077					No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent
 Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D81 Lower Harper Creek (HB) Hazard Quotients for Dissolved and Total Iron Concentrations, Expected Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life	
		Dissolved Iron		Total Iron						Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum	BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron		
Construction (-2 to-1)	January	0.0079	0.0085	0.0100	0.0105	0.35	1	0.0243	0.0105	No	No
	February	0.0058	0.0060	0.0087	0.0090	0.35	1	0.0171	0.0090	No	No
	March	0.0047	0.0050	0.0076	0.0080	0.35	1	0.0143	0.0080	No	No
	April	0.0198	0.0208	0.0483	0.0505	0.35	1	0.0594	0.0505	No	No
	May	0.0257	0.0269	0.130	0.132	0.35	1	0.0768	0.132	No	No
	June	0.0153	0.0158	0.173	0.179	0.35	1	0.0450	0.179	No	No
	July	0.0115	0.0118	0.0300	0.0310	0.35	1	0.0336	0.0310	No	No
	August	0.0106	0.0113	0.0154	0.0165	0.35	1	0.0321	0.0165	No	No
	September	0.0078	0.0084	0.0136	0.0148	0.35	1	0.0240	0.0148	No	No
	October	0.0137	0.0150	0.0175	0.0190	0.35	1	0.0429	0.0190	No	No
	November	0.0079	0.0085	0.0151	0.0165	0.35	1	0.0243	0.0165	No	No
	December	0.0079	0.0085	0.0286	0.0330	0.35	1	0.0243	0.0330	No	No
Operation 1 Phase (1-23)	January	0.0072	0.0072	0.0094	0.0094	0.35	1	0.0206	0.0094	No	No
	February	0.0054	0.0055	0.0083	0.0083	0.35	1	0.0156	0.0083	No	No
	March	0.0045	0.0045	0.0075	0.0075	0.35	1	0.0130	0.0075	No	No
	April	0.0191	0.0191	0.0467	0.0468	0.35	1	0.0545	0.0468	No	No
	May	0.0247	0.0247	0.130	0.130	0.35	1	0.0707	0.130	No	No
	June	0.0150	0.0150	0.167	0.167	0.35	1	0.0429	0.167	No	No
	July	0.0112	0.0112	0.0292	0.0293	0.35	1	0.0321	0.0293	No	No
	August	0.0099	0.0099	0.0144	0.0144	0.35	1	0.0282	0.0144	No	No
	September	0.0071	0.0071	0.0125	0.0125	0.35	1	0.0204	0.0125	No	No
	October	0.0124	0.0124	0.0161	0.0161	0.35	1	0.0354	0.0161	No	No
	November	0.0073	0.0073	0.0139	0.0139	0.35	1	0.0210	0.0139	No	No
	December	0.0072	0.0072	0.0246	0.0247	0.35	1	0.0205	0.0247	No	No
Operations 2 Phase (24-28)	January	0.0072	0.0072	0.0094	0.0094	0.35	1	0.0205	0.0094	No	No
	February	0.0054	0.0054	0.0083	0.0083	0.35	1	0.0155	0.0083	No	No
	March	0.0045	0.0045	0.0075	0.0075	0.35	1	0.0130	0.0075	No	No
	April	0.0191	0.0191	0.0468	0.0468	0.35	1	0.0545	0.0468	No	No
	May	0.0247	0.0247	0.130	0.130	0.35	1	0.0707	0.130	No	No
	June	0.0150	0.0150	0.167	0.167	0.35	1	0.0428	0.167	No	No
	July	0.0112	0.0112	0.0293	0.0293	0.35	1	0.0320	0.0293	No	No
	August	0.0099	0.0099	0.0144	0.0144	0.35	1	0.0282	0.0144	No	No
	September	0.0071	0.0071	0.0125	0.0125	0.35	1	0.0204	0.0125	No	No
	October	0.0124	0.0124	0.0161	0.0161	0.35	1	0.0354	0.0161	No	No
	November	0.0073	0.0073	0.0139	0.0139	0.35	1	0.0210	0.0139	No	No
	December	0.0072	0.0072	0.0246	0.0246	0.35	1	0.0205	0.0246	No	No
Closure Phase (29-35)	January	0.0071	0.0072	0.0097	0.0100	0.35	1	0.0205	0.0100	No	No
	February	0.0055	0.0056	0.0087	0.0091	0.35	1	0.0160	0.0091	No	No
	March	0.0047	0.0049	0.0080	0.0085	0.35	1	0.0139	0.0085	No	No
	April	0.0185	0.0191	0.0453	0.0468	0.35	1	0.0545	0.0468	No	No
	May	0.0236	0.0247	0.123	0.130	0.35	1	0.0706	0.130	No	No
	June	0.0142	0.0150	0.153	0.167	0.35	1	0.0428	0.167	No	No
	July	0.0110	0.0112	0.0286	0.0292	0.35	1	0.0320	0.0292	No	No
	August	0.0098	0.0099	0.0144	0.0144	0.35	1	0.0281	0.0144	No	No
	September	0.0071	0.0071	0.0126	0.0127	0.35	1	0.0204	0.0127	No	No
	October	0.0119	0.0124	0.0160	0.0161	0.35	1	0.0354	0.0161	No	No
	November	0.0073	0.0073	0.0139	0.0139	0.35	1	0.0210	0.0139	No	No
	December	0.0071	0.0072	0.0240	0.0246	0.35	1	0.0205	0.0246	No	No
Post-Closure Phase (36-99)	January	0.0072	0.0073	0.0102	0.0104	0.35	1	0.0209	0.0104	No	No
	February	0.0059	0.0060	0.0103	0.0105	0.35	1	0.0173	0.0105	No	No
	March	0.0054	0.0057	0.0105	0.0109	0.35	1	0.0162	0.0109	No	No
	April	0.0179	0.0180	0.0438	0.0440	0.35	1	0.0514	0.0440	No	No
	May	0.0228	0.0229	0.117	0.118	0.35	1	0.0655	0.118	No	No
	June	0.0139	0.0140	0.146	0.146	0.35	1	0.0401	0.146	No	No
	July	0.0109	0.0110	0.0283	0.0285	0.35	1	0.0314	0.0285	No	No
	August	0.0097	0.0098	0.0146	0.0147	0.35	1	0.0280	0.0147	No	No
	September	0.0072	0.0072	0.0130	0.0131	0.35	1	0.0207	0.0131	No	No
	October	0.0119	0.0120	0.0163	0.0164	0.35	1	0.0342	0.0164	No	No
	November	0.0074	0.0074	0.0142	0.0142	0.35	1	0.0212	0.0142	No	No
	December	0.0072	0.0073	0.0241	0.0244	0.35	1	0.0208	0.0244	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D8n. Lower Harper Creek (HB) Hazard Quotients for Total Lithium Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
		Aquatic Life							
Construction (-2 to-1)	January	0.0014	0.0016	0.096	0.87	0.0148	0.0166	0.0018	No
	February	0.0016	0.0018	0.096	0.87	0.0167	0.0188	0.0021	No
	March	0.0014	0.0016	0.096	0.87	0.0151	0.0167	0.0018	No
	April	0.0013	0.0014	0.096	0.87	0.0135	0.0142	0.0016	No
	May	0.0007	0.0007	0.096	0.87	0.0073	0.0077	0.0008	No
	June	0.0007	0.0007	0.096	0.87	0.0071	0.0074	0.0008	No
	July	0.0009	0.0009	0.096	0.87	0.0091	0.0095	0.0010	No
	August	0.0013	0.0014	0.096	0.87	0.0136	0.0147	0.0016	No
	September	0.0014	0.0015	0.096	0.87	0.0149	0.0161	0.0018	No
	October	0.0012	0.0012	0.096	0.87	0.0123	0.0128	0.0014	No
	November	0.0014	0.0015	0.096	0.87	0.0147	0.0158	0.0017	No
	December	0.0014	0.0015	0.096	0.87	0.0147	0.0160	0.0018	No
Operation 1 Phase (1-23)	January	0.0014	0.0015	0.096	0.87	0.0146	0.0154	0.0017	No
	February	0.0015	0.0016	0.096	0.87	0.0161	0.0170	0.0019	No
	March	0.0014	0.0015	0.096	0.87	0.0149	0.0160	0.0018	No
	April	0.0013	0.0013	0.096	0.87	0.0131	0.0132	0.0015	No
	May	0.0007	0.0007	0.096	0.87	0.0071	0.0071	0.0008	No
	June	0.0007	0.0007	0.096	0.87	0.0069	0.0070	0.0008	No
	July	0.0009	0.0009	0.096	0.87	0.0089	0.0091	0.0010	No
	August	0.0013	0.0013	0.096	0.87	0.0130	0.0134	0.0015	No
	September	0.0014	0.0014	0.096	0.87	0.0143	0.0147	0.0016	No
	October	0.0012	0.0012	0.096	0.87	0.0123	0.0126	0.0014	No
	November	0.0014	0.0014	0.096	0.87	0.0143	0.0147	0.0016	No
	December	0.0014	0.0014	0.096	0.87	0.0143	0.0149	0.0016	No
Operations 2 Phase (24-28)	January	0.0015	0.0015	0.096	0.87	0.0155	0.0155	0.0017	No
	February	0.0016	0.0016	0.096	0.87	0.0171	0.0172	0.0019	No
	March	0.0016	0.0016	0.096	0.87	0.0162	0.0162	0.0018	No
	April	0.0013	0.0013	0.096	0.87	0.0133	0.0133	0.0015	No
	May	0.0007	0.0007	0.096	0.87	0.0071	0.0072	0.0008	No
	June	0.0007	0.0007	0.096	0.87	0.0070	0.0070	0.0008	No
	July	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	August	0.0013	0.0013	0.096	0.87	0.0135	0.0135	0.0015	No
	September	0.0014	0.0014	0.096	0.87	0.0148	0.0148	0.0016	No
	October	0.0012	0.0012	0.096	0.87	0.0126	0.0126	0.0014	No
	November	0.0014	0.0014	0.096	0.87	0.0147	0.0147	0.0016	No
	December	0.0014	0.0014	0.096	0.87	0.0149	0.0149	0.0016	No
Closure Phase (29-35)	January	0.0017	0.0020	0.096	0.87	0.0173	0.0208	0.0023	No
	February	0.0018	0.0022	0.096	0.87	0.0191	0.0231	0.0025	No
	March	0.0018	0.0022	0.096	0.87	0.0184	0.0229	0.0025	No
	April	0.0015	0.0017	0.096	0.87	0.0154	0.0175	0.0019	No
	May	0.0010	0.0013	0.096	0.87	0.0105	0.0135	0.0015	No
	June	0.0012	0.0015	0.096	0.87	0.0125	0.0152	0.0017	No
	July	0.0011	0.0012	0.096	0.87	0.0113	0.0126	0.0014	No
	August	0.0014	0.0014	0.096	0.87	0.0141	0.0150	0.0017	No
	September	0.0017	0.0019	0.096	0.87	0.0175	0.0196	0.0022	No
	October	0.0016	0.0018	0.096	0.87	0.0164	0.0188	0.0021	No
	November	0.0016	0.0017	0.096	0.87	0.0165	0.0181	0.0020	No
	December	0.0017	0.0019	0.096	0.87	0.0173	0.0194	0.0021	No
Post-Closure Phase (36-99)	January	0.0017	0.0019	0.096	0.87	0.0180	0.0194	0.0021	No
	February	0.0022	0.0024	0.096	0.87	0.0231	0.0254	0.0028	No
	March	0.0025	0.0027	0.096	0.87	0.0256	0.0286	0.0032	No
	April	0.0016	0.0018	0.096	0.87	0.0171	0.0183	0.0020	No
	May	0.0012	0.0013	0.096	0.87	0.0121	0.0133	0.0015	No
	June	0.0013	0.0014	0.096	0.87	0.0134	0.0149	0.0016	No
	July	0.0012	0.0013	0.096	0.87	0.0126	0.0134	0.0015	No
	August	0.0015	0.0015	0.096	0.87	0.0153	0.0161	0.0018	No
	September	0.0017	0.0018	0.096	0.87	0.0173	0.0185	0.0020	No
	October	0.0016	0.0017	0.096	0.87	0.0163	0.0177	0.0020	No
	November	0.0016	0.0017	0.096	0.87	0.0164	0.0172	0.0019	No
	December	0.0016	0.0018	0.096	0.87	0.0171	0.0183	0.0020	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D8o. Lower Harper Creek (HB) Hazard Quotients for Total Manganese Concentrations, Expected Case

		First Screening Step						Retained as COFC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
Construction (-2 to 1)	January	0.0005	0.0005	0.717	0.819	0.0006	0.0007	0.0006	No
	February	0.0005	0.0005	0.722	0.834	0.0007	0.0007	0.0006	No
	March	0.0005	0.0005	0.719	0.826	0.0007	0.0007	0.0006	No
	April	0.0019	0.0019	0.706	0.794	0.0027	0.0027	0.0024	No
	May	0.0059	0.0059	0.672	0.709	0.0087	0.0088	0.0083	No
	June	0.0058	0.0060	0.659	0.676	0.0088	0.0091	0.0089	No
	July	0.0013	0.0013	0.685	0.741	0.0019	0.0019	0.0017	No
	August	0.0010	0.0010	0.715	0.815	0.0014	0.0014	0.0013	No
	September	0.0008	0.0009	0.724	0.839	0.0012	0.0012	0.0010	No
	October	0.0008	0.0008	0.709	0.800	0.0011	0.0011	0.0010	No
	November	0.0007	0.0007	0.704	0.787	0.0009	0.0010	0.0009	No
	December	0.0007	0.0007	0.672	0.708	0.0010	0.0011	0.0010	No
Operation 1 Phase (1-23)	January	0.0010	0.0015	0.717	0.819	0.0014	0.0021	0.0018	No
	February	0.0011	0.0017	0.722	0.834	0.0015	0.0023	0.0020	No
	March	0.0012	0.0019	0.719	0.826	0.0017	0.0027	0.0023	No
	April	0.0019	0.0020	0.706	0.794	0.0027	0.0029	0.0026	No
	May	0.0059	0.0059	0.672	0.709	0.0088	0.0088	0.0084	No
	June	0.0060	0.0060	0.659	0.676	0.0091	0.0091	0.0089	No
	July	0.0014	0.0015	0.685	0.741	0.0021	0.0022	0.0020	No
	August	0.0013	0.0016	0.715	0.815	0.0018	0.0022	0.0019	No
	September	0.0011	0.0014	0.724	0.839	0.0016	0.0020	0.0017	No
	October	0.0010	0.0013	0.709	0.800	0.0015	0.0018	0.0016	No
	November	0.0010	0.0012	0.704	0.787	0.0014	0.0017	0.0016	No
	December	0.0011	0.0015	0.672	0.708	0.0017	0.0022	0.0021	No
Operations 2 Phase (24-28)	January	0.0016	0.0016	0.717	0.819	0.0022	0.0022	0.0019	No
	February	0.0018	0.0018	0.722	0.834	0.0025	0.0025	0.0022	No
	March	0.0020	0.0021	0.719	0.826	0.0028	0.0029	0.0025	No
	April	0.0020	0.0020	0.706	0.794	0.0029	0.0029	0.0026	No
	May	0.0059	0.0059	0.672	0.709	0.0088	0.0088	0.0084	No
	June	0.0060	0.0060	0.659	0.676	0.0091	0.0092	0.0089	No
	July	0.0015	0.0015	0.685	0.741	0.0022	0.0022	0.0021	No
	August	0.0016	0.0016	0.715	0.815	0.0022	0.0022	0.0020	No
	September	0.0015	0.0015	0.724	0.839	0.0020	0.0020	0.0017	No
	October	0.0013	0.0013	0.709	0.800	0.0018	0.0018	0.0016	No
	November	0.0013	0.0013	0.704	0.787	0.0018	0.0018	0.0016	No
	December	0.0015	0.0016	0.672	0.708	0.0023	0.0023	0.0022	No
Closure Phase (29-35)	January	0.0032	0.0059	0.717	0.819	0.0045	0.0082	0.0072	No
	February	0.0037	0.0068	0.722	0.834	0.0051	0.0094	0.0081	No
	March	0.0041	0.0076	0.719	0.826	0.0057	0.0105	0.0092	No
	April	0.0037	0.0052	0.706	0.794	0.0052	0.0074	0.0066	No
	May	0.0080	0.0098	0.672	0.709	0.0119	0.0146	0.0138	No
	June	0.0094	0.0110	0.659	0.676	0.0142	0.0167	0.0163	No
	July	0.0031	0.0040	0.685	0.741	0.0045	0.0059	0.0054	No
	August	0.0021	0.0028	0.715	0.815	0.0030	0.0040	0.0035	No
	September	0.0037	0.0053	0.724	0.839	0.0051	0.0073	0.0063	No
	October	0.0042	0.0060	0.709	0.800	0.0059	0.0084	0.0075	No
	November	0.0027	0.0040	0.704	0.787	0.0039	0.0056	0.0050	No
	December	0.0035	0.0052	0.672	0.708	0.0052	0.0077	0.0073	No
Post-Closure Phase (36-99)	January	0.0042	0.0054	0.717	0.819	0.0059	0.0075	0.0065	No
	February	0.0080	0.0098	0.722	0.834	0.0110	0.0135	0.0117	No
	March	0.0112	0.0136	0.719	0.826	0.0156	0.0189	0.0164	No
	April	0.0055	0.0063	0.706	0.794	0.0077	0.0089	0.0079	No
	May	0.0093	0.0101	0.672	0.709	0.0138	0.0150	0.0143	No
	June	0.0103	0.0114	0.659	0.676	0.0156	0.0173	0.0168	No
	July	0.0043	0.0050	0.685	0.741	0.0063	0.0073	0.0067	No
	August	0.0034	0.0040	0.715	0.815	0.0047	0.0056	0.0049	No
	September	0.0039	0.0049	0.724	0.839	0.0054	0.0067	0.0058	No
	October	0.0046	0.0056	0.709	0.800	0.0065	0.0079	0.0070	No
	November	0.0029	0.0037	0.704	0.787	0.0042	0.0052	0.0047	No
	December	0.0038	0.0048	0.672	0.708	0.0056	0.0071	0.0068	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D8p. Lower Harper Creek (HB) Hazard Quotients for Total Mercury Concentrations, Expected Case

		First Screening Step											
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Drinking Water Quality Guidelines BC DWQG	BC MOE Working Water Quality Guidelines for Wildlife Water Supply BC MOE 30-Day Mean if MeHg is 0.5% of THg	BC MOE Livestock Watering Water Quality Guideline Maximum	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Maximum Guideline
		Mean	Maximum					Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg		Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	
Construction (-2 to-1)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.639	0.667	0.0133	0.639	0.667	0.00444
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.608	0.625	0.0125	0.608	0.625	0.00417
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.614	0.615	0.0123	0.614	0.615	0.00410
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.594	0.594	0.0119	0.594	0.594	0.00396
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.499	0.0100	0.498	0.499	0.00332
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498	0.0100	0.498	0.498	0.00332
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.614	0.614	0.0123	0.614	0.614	0.00409
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.593	0.593	0.0119	0.593	0.593	0.00396
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499	0.0100	0.499	0.499	0.00333
Closure Phase (29-35)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.481	0.499	0.0100	0.481	0.499	0.00332
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.478	0.498	0.0100	0.478	0.498	0.00332
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.475	0.498	0.0100	0.475	0.498	0.00332
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.487	0.500	0.0100	0.487	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.483	0.500	0.0100	0.483	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.473	0.500	0.0100	0.473	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.488	0.500	0.0100	0.488	0.500	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.493	0.499	0.0100	0.493	0.499	0.00333
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.587	0.614	0.0123	0.587	0.614	0.00409
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.563	0.593	0.0119	0.563	0.593	0.00396
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.485	0.499	0.0100	0.485	0.499	0.00333
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.480	0.499	0.0100	0.480	0.499	0.00333
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.479	0.483	0.00965	0.479	0.483	0.00322
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.458	0.00952	0.458	0.466	0.00311	
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.440	0.00904	0.440	0.452	0.00301	
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.478	0.00963	0.478	0.482	0.00321	
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.476	0.00960	0.476	0.480	0.00320	
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.469	0.00949	0.469	0.474	0.00316	
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.483	0.00972	0.483	0.486	0.00324	
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.487	0.00979	0.487	0.489	0.00326	
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.586	0.0118	0.586	0.588	0.00392	
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.560	0.0113	0.560	0.564	0.00376	
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.487	0.00979	0.487	0.489	0.00326	
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.483	0.00972	0.483	0.486	0.00324	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

(continued)

Appendix 13-D8p. Lower Harper Creek (HB) Hazard Quotients for Total Mercury Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

Appendix 13-D8q. Lower Harper Creek (HB) Hazard Quotients for Total Molybdenum Concentrations, Expected Case

		First Screening Step												
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				BC MOE 30-Day Mean	BC MOE Maximum	BC MOE 30-Day Mean			
		Mean	Maximum	Mean	Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0018	0.0021	1	2	0.25	0.05	0.05	0.0018	0.0021	0.0010	0.0084	0.0419	0.0419
	February	0.0020	0.0024	1	2	0.25	0.05	0.05	0.0020	0.0024	0.0012	0.0094	0.0472	0.0472
	March	0.0020	0.0023	1	2	0.25	0.05	0.05	0.0020	0.0023	0.0011	0.0090	0.0452	0.0452
	April	0.0019	0.0020	1	2	0.25	0.05	0.05	0.0019	0.0020	0.0010	0.0080	0.0399	0.0399
	May	0.0010	0.0012	1	2	0.25	0.05	0.05	0.0010	0.0012	0.0006	0.0047	0.0234	0.0234
	June	0.0012	0.0013	1	2	0.25	0.05	0.05	0.0012	0.0013	0.0006	0.0052	0.0258	0.0258
	July	0.0019	0.0021	1	2	0.25	0.05	0.05	0.0019	0.0021	0.0010	0.0084	0.0418	0.0418
	August	0.0019	0.0022	1	2	0.25	0.05	0.05	0.0019	0.0022	0.0011	0.0087	0.0433	0.0433
	September	0.0019	0.0022	1	2	0.25	0.05	0.05	0.0019	0.0022	0.0011	0.0087	0.0436	0.0436
	October	0.0017	0.0018	1	2	0.25	0.05	0.05	0.0017	0.0018	0.0009	0.0073	0.0363	0.0363
	November	0.0021	0.0023	1	2	0.25	0.05	0.05	0.0021	0.0023	0.0011	0.0091	0.0455	0.0455
	December	0.0013	0.0014	1	2	0.25	0.05	0.05	0.0013	0.0014	0.0007	0.0056	0.0280	0.0280
Operation 1 Phase (1-23)	January	0.0018	0.0019	1	2	0.25	0.05	0.05	0.0018	0.0019	0.0010	0.0077	0.0384	0.0384
	February	0.0020	0.0021	1	2	0.25	0.05	0.05	0.0020	0.0021	0.0011	0.0085	0.0427	0.0427
	March	0.0019	0.0021	1	2	0.25	0.05	0.05	0.0019	0.0021	0.0011	0.0085	0.0427	0.0427
	April	0.0018	0.0018	1	2	0.25	0.05	0.05	0.0018	0.0018	0.0009	0.0073	0.0364	0.0364
	May	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0005	0.0038	0.0189	0.0189
	June	0.0010	0.0011	1	2	0.25	0.05	0.05	0.0010	0.0011	0.0005	0.0042	0.0211	0.0211
	July	0.0018	0.0018	1	2	0.25	0.05	0.05	0.0018	0.0018	0.0009	0.0073	0.0366	0.0366
	August	0.0018	0.0019	1	2	0.25	0.05	0.05	0.0018	0.0019	0.0009	0.0075	0.0376	0.0376
	September	0.0018	0.0019	1	2	0.25	0.05	0.05	0.0018	0.0019	0.0010	0.0077	0.0383	0.0383
	October	0.0016	0.0017	1	2	0.25	0.05	0.05	0.0016	0.0017	0.0008	0.0068	0.0339	0.0339
	November	0.0019	0.0020	1	2	0.25	0.05	0.05	0.0019	0.0020	0.0010	0.0081	0.0404	0.0404
	December	0.0013	0.0014	1	2	0.25	0.05	0.05	0.0013	0.0014	0.0007	0.0057	0.0286	0.0286
Operations 2 Phase (24-28)	January	0.0019	0.0019	1	2	0.25	0.05	0.05	0.0019	0.0019	0.0010	0.0078	0.0390	0.0390
	February	0.0022	0.0022	1	2	0.25	0.05	0.05	0.0022	0.0022	0.0011	0.0087	0.0434	0.0434
	March	0.0022	0.0022	1	2	0.25	0.05	0.05	0.0022	0.0022	0.0011	0.0087	0.0435	0.0435
	April	0.0018	0.0018	1	2	0.25	0.05	0.05	0.0018	0.0018	0.0009	0.0073	0.0365	0.0365
	May	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0005	0.0038	0.0189	0.0189
	June	0.0011	0.0011	1	2	0.25	0.05	0.05	0.0011	0.0011	0.0005	0.0042	0.0211	0.0211
	July	0.0018	0.0018	1	2	0.25	0.05	0.05	0.0018	0.0018	0.0009	0.0073	0.0367	0.0367
	August	0.0019	0.0019	1	2	0.25	0.05	0.05	0.0019	0.0019	0.0009	0.0075	0.0377	0.0377
	September	0.0019	0.0019	1	2	0.25	0.05	0.05	0.0019	0.0019	0.0010	0.0077	0.0385	0.0385
	October	0.0017	0.0017	1	2	0.25	0.05	0.05	0.0017	0.0017	0.0009	0.0068	0.0340	0.0340
	November	0.0020	0.0020	1	2	0.25	0.05	0.05	0.0020	0.0020	0.0010	0.0081	0.0406	0.0406
	December	0.0014	0.0014	1	2	0.25	0.05	0.05	0.0014	0.0014	0.0007	0.0058	0.0289	0.0289
Closure Phase (29-35)	January	0.0023	0.0029	1	2	0.25	0.05	0.05	0.0023	0.0029	0.0015	0.0116	0.0582	0.0582
	February	0.0025	0.0033	1	2	0.25	0.05	0.05	0.0025	0.0033	0.0016	0.0130	0.0651	0.0651
	March	0.0026	0.0034	1	2	0.25	0.05	0.05	0.0026	0.0034	0.0017	0.0135	0.0677	0.0677
	April	0.0022	0.0026	1	2	0.25	0.05	0.05	0.0022	0.0026	0.0013	0.0103	0.0517	0.0517
	May	0.0015	0.0021	1	2	0.25	0.05	0.05	0.0015	0.0021	0.0010	0.0082	0.0411	0.0411
	June	0.0020	0.0025	1	2	0.25	0.05	0.05	0.0020	0.0025	0.0012	0.0099	0.0494	0.0494
	July	0.0022	0.0024	1	2	0.25	0.05	0.05	0.0022	0.0024	0.0012	0.0097	0.0483	0.0483
	August	0.0020	0.0022	1	2	0.25	0.05	0.05	0.0020	0.0022	0.0011	0.0086	0.0432	0.0432
	September	0.0024	0.0028	1	2	0.25	0.05	0.05	0.0024	0.0028	0.0014	0.0112	0.0560	0.0560
	October	0.0024	0.0028	1	2	0.25	0.05	0.05	0.0024	0.0028	0.0014	0.0112	0.0560	0.0560
	November	0.0023	0.0026	1	2	0.25	0.05	0.05	0.0023	0.0026	0.0013	0.0105	0.0525	0.0525
	December	0.0019	0.0023	1	2	0.25	0.05	0.05	0.0019	0.0023	0.0012	0.0092	0.0461	0.0461
Post-Closure Phase (36-99)	January	0.0026	0.0029	1	2	0.25	0.05	0.05	0.0026	0.0029	0.0014	0.0114	0.0571	0.0571
	February	0.0037	0.0041	1	2	0.25	0.05	0.05	0.0037	0.0041	0.0020	0.0163	0.0817	0.0817
	March	0.0045	0.0050	1	2	0.25	0.05	0.05	0.0045	0.0050	0.0025	0.0201	0.101	0.101
	April	0.0027	0.0029	1	2	0.25	0.05	0.05	0.0027	0.0029	0.0015	0.0116	0.0581	0.0581
	May	0.0020	0.0022	1	2	0.25	0.05	0.05	0.0020	0.0022	0.0011	0.0089	0.0444	0.0444
	June	0.0024	0.0027	1	2	0.25	0.05	0.05	0.0024	0.0027	0.0013	0.0107	0.0536	0.0536
	July	0.0026	0.0027	1	2	0.25	0.05	0.05	0.0026	0.0027	0.0014	0.0109	0.0543	0.0543
	August	0.0023	0.0025	1	2	0.25	0.05	0.05	0.0023	0.0025	0.0012	0.0099	0.0496	0.0496
	September	0.0025	0.0027	1	2	0.25	0.05	0.05	0.0025	0.0027	0.0014	0.0110	0.0549	0.0549
	October	0.0026	0.0028	1	2	0.25	0.05	0.05	0.0026	0.0028	0.0014	0.0111	0.0555	0.0555
	November	0.0024	0.0026	1	2	0.25	0.05	0.05	0.0024	0.0026	0.0013	0.0104	0.0521	0.0521
	December	0.0020	0.0023	1	2	0.25	0.05	0.05	0.0020	0.0023	0.0011	0.0091	0.0454	0.0454

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

(continued)

Appendix 13-D8q. Lower Harper Creek (HB) Hazard Quotients for Total Molybdenum Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

Appendix 13-D8r. Lower Harper Creek (HB) Hazard Quotients for Total Nickel Concentrations, Expected Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.00026	0.00028	0.025	1	0.0110	0.00028	No	No
	February	0.00034	0.00040	0.025	1	0.0160	0.00040	No	No
	March	0.00005	0.00006	0.025	1	0.00230	0.00006	No	No
	April	0.00008	0.00008	0.025	1	0.00326	0.00008	No	No
	May	0.00063	0.00067	0.025	1	0.0267	0.00067	No	No
	June	0.00051	0.00052	0.025	1	0.0207	0.00052	No	No
	July	0.00042	0.00043	0.025	1	0.0173	0.00043	No	No
	August	0.00037	0.00040	0.025	1	0.0160	0.00040	No	No
	September	0.00032	0.00035	0.025	1	0.0141	0.00035	No	No
	October	0.00029	0.00032	0.025	1	0.0127	0.00032	No	No
	November	0.00026	0.00028	0.025	1	0.0112	0.00028	No	No
	December	0.00026	0.00028	0.025	1	0.0111	0.00028	No	No
Operation 1 Phase (1-23)	January	0.00025	0.00028	0.025	1	0.0114	0.00028	No	No
	February	0.00032	0.00036	0.025	1	0.0144	0.00036	No	No
	March	0.00010	0.00014	0.025	1	0.00566	0.00014	No	No
	April	0.00009	0.00009	0.025	1	0.00369	0.00009	No	No
	May	0.00061	0.00061	0.025	1	0.0243	0.00061	No	No
	June	0.00051	0.00051	0.025	1	0.0206	0.00051	No	No
	July	0.00042	0.00043	0.025	1	0.0171	0.00043	No	No
	August	0.00036	0.00038	0.025	1	0.0151	0.00038	No	No
	September	0.00030	0.00032	0.025	1	0.0127	0.00032	No	No
	October	0.00028	0.00030	0.025	1	0.0119	0.00030	No	No
	November	0.00025	0.00027	0.025	1	0.0108	0.00027	No	No
	December	0.00025	0.00028	0.025	1	0.0111	0.00028	No	No
Operations 2 Phase (24-28)	January	0.00029	0.00029	0.025	1	0.0116	0.00029	No	No
	February	0.00037	0.00037	0.025	1	0.0147	0.00037	No	No
	March	0.00015	0.00015	0.025	1	0.00600	0.00015	No	No
	April	0.00009	0.00009	0.025	1	0.00373	0.00009	No	No
	May	0.00061	0.00061	0.025	1	0.0243	0.00061	No	No
	June	0.00052	0.00052	0.025	1	0.0206	0.00052	No	No
	July	0.00043	0.00043	0.025	1	0.0172	0.00043	No	No
	August	0.00038	0.00038	0.025	1	0.0152	0.00038	No	No
	September	0.00032	0.00032	0.025	1	0.0128	0.00032	No	No
	October	0.00030	0.00030	0.025	1	0.0120	0.00030	No	No
	November	0.00027	0.00027	0.025	1	0.0109	0.00027	No	No
	December	0.00028	0.00028	0.025	1	0.0112	0.00028	No	No
Closure Phase (29-35)	January	0.00036	0.00048	0.025	1	0.0192	0.00048	No	No
	February	0.00044	0.00058	0.025	1	0.0231	0.00058	No	No
	March	0.00024	0.00042	0.025	1	0.0168	0.00042	No	No
	April	0.00018	0.00026	0.025	1	0.0104	0.00026	No	No
	May	0.00070	0.00078	0.025	1	0.0311	0.00078	No	No
	June	0.00067	0.00075	0.025	1	0.0298	0.00075	No	No
	July	0.00049	0.00054	0.025	1	0.0214	0.00054	No	No
	August	0.00040	0.00043	0.025	1	0.0172	0.00043	No	No
	September	0.00041	0.00049	0.025	1	0.0196	0.00049	No	No
	October	0.00043	0.00051	0.025	1	0.0205	0.00051	No	No
	November	0.00034	0.00039	0.025	1	0.0157	0.00039	No	No
	December	0.00036	0.00044	0.025	1	0.0177	0.00044	No	No
Post-Closure Phase (36-99)	January	0.00041	0.00045	0.025	1	0.0182	0.00045	No	No
	February	0.00065	0.00071	0.025	1	0.0284	0.00071	No	No
	March	0.00065	0.00072	0.025	1	0.0287	0.00072	No	No
	April	0.00029	0.00031	0.025	1	0.0123	0.00031	No	No
	May	0.00076	0.00079	0.025	1	0.0314	0.00079	No	No
	June	0.00073	0.00076	0.025	1	0.0304	0.00076	No	No
	July	0.00056	0.00058	0.025	1	0.0231	0.00058	No	No
	August	0.00046	0.00048	0.025	1	0.0193	0.00048	No	No
	September	0.00044	0.00047	0.025	1	0.0187	0.00047	No	No
	October	0.00046	0.00049	0.025	1	0.0198	0.00049	No	No
	November	0.00035	0.00038	0.025	1	0.0151	0.00038	No	No
	December	0.00039	0.00042	0.025	1	0.0168	0.00042	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guideline is hardness dependent

Appendix 13-D8s. Lower Harper Creek (HB) Hazard Quotients for Total Selenium Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	Yes	No	Yes	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	Yes	No	Yes	No
	March	Yes	No	Yes	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D8t. Lower Harper Creek (HB) Hazard Quotients for Total Silver Concentrations, Expected Case

		First Screening Step						Retained as COFC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
Construction (-2 to-1)	January	0.00001	0.00001	0.00005	0.0001	0.264	0.290	0.145	No
	February	0.00000	0.00001	0.00005	0.0001	0.100	0.100	0.050	No
	March	0.00000	0.00001	0.00005	0.0001	0.100	0.100	0.050	No
	April	0.00000	0.00001	0.00005	0.0001	0.100	0.100	0.050	No
	May	0.00002	0.00002	0.00005	0.0001	0.415	0.450	0.225	No
	June	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	July	0.00002	0.00002	0.00005	0.0001	0.445	0.467	0.233	No
	August	0.00002	0.00002	0.00005	0.0001	0.420	0.467	0.233	No
	September	0.00002	0.00002	0.00005	0.0001	0.410	0.467	0.233	No
	October	0.00002	0.00002	0.00005	0.0001	0.343	0.375	0.188	No
	November	0.00001	0.00001	0.00005	0.0001	0.144	0.150	0.075	No
	December	0.00001	0.00001	0.00005	0.0001	0.204	0.220	0.110	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00005	0.0001	0.237	0.242	0.121	No
	February	0.00001	0.00001	0.00005	0.0001	0.105	0.110	0.055	No
	March	0.00001	0.00001	0.00005	0.0001	0.106	0.112	0.056	No
	April	0.00001	0.00001	0.00005	0.0001	0.101	0.101	0.051	No
	May	0.00002	0.00002	0.00005	0.0001	0.385	0.386	0.193	No
	June	0.00001	0.00001	0.00005	0.0001	0.199	0.199	0.100	No
	July	0.00002	0.00002	0.00005	0.0001	0.427	0.428	0.214	No
	August	0.00002	0.00002	0.00005	0.0001	0.380	0.382	0.191	No
	September	0.00002	0.00002	0.00005	0.0001	0.358	0.361	0.180	No
	October	0.00002	0.00002	0.00005	0.0001	0.314	0.316	0.158	No
	November	0.00001	0.00001	0.00005	0.0001	0.140	0.143	0.071	No
	December	0.00001	0.00001	0.00005	0.0001	0.189	0.193	0.096	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00005	0.0001	0.242	0.242	0.121	No
	February	0.00001	0.00001	0.00005	0.0001	0.111	0.111	0.055	No
	March	0.00001	0.00001	0.00005	0.0001	0.113	0.113	0.056	No
	April	0.00001	0.00001	0.00005	0.0001	0.102	0.102	0.051	No
	May	0.00002	0.00002	0.00005	0.0001	0.386	0.386	0.193	No
	June	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	July	0.00002	0.00002	0.00005	0.0001	0.428	0.428	0.214	No
	August	0.00002	0.00002	0.00005	0.0001	0.382	0.382	0.191	No
	September	0.00002	0.00002	0.00005	0.0001	0.361	0.361	0.181	No
	October	0.00002	0.00002	0.00005	0.0001	0.316	0.316	0.158	No
	November	0.00001	0.00001	0.00005	0.0001	0.143	0.143	0.072	No
	December	0.00001	0.00001	0.00005	0.0001	0.193	0.193	0.097	No
Closure Phase (29-35)	January	0.00001	0.00001	0.00005	0.0001	0.247	0.262	0.131	No
	February	0.00001	0.00001	0.00005	0.0001	0.126	0.152	0.076	No
	March	0.00001	0.00001	0.00005	0.0001	0.129	0.159	0.079	No
	April	0.00001	0.00001	0.00005	0.0001	0.115	0.129	0.065	No
	May	0.00002	0.00002	0.00005	0.0001	0.389	0.393	0.196	No
	June	0.00001	0.00001	0.00005	0.0001	0.222	0.234	0.117	No
	July	0.00002	0.00002	0.00005	0.0001	0.427	0.428	0.214	No
	August	0.00002	0.00002	0.00005	0.0001	0.380	0.381	0.191	No
	September	0.00002	0.00002	0.00005	0.0001	0.362	0.367	0.184	No
	October	0.00002	0.00002	0.00005	0.0001	0.323	0.330	0.165	No
	November	0.00001	0.00001	0.00005	0.0001	0.153	0.163	0.081	No
	December	0.00001	0.00001	0.00005	0.0001	0.204	0.215	0.107	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00005	0.0001	0.255	0.260	0.130	No
	February	0.00001	0.00001	0.00005	0.0001	0.168	0.178	0.089	No
	March	0.00001	0.00001	0.00005	0.0001	0.199	0.212	0.106	No
	April	0.00001	0.00001	0.00005	0.0001	0.134	0.139	0.069	No
	May	0.00002	0.00002	0.00005	0.0001	0.390	0.395	0.197	No
	June	0.00001	0.00001	0.00005	0.0001	0.232	0.237	0.119	No
	July	0.00002	0.00002	0.00005	0.0001	0.428	0.431	0.216	No
	August	0.00002	0.00002	0.00005	0.0001	0.382	0.385	0.192	No
	September	0.00002	0.00002	0.00005	0.0001	0.363	0.366	0.183	No
	October	0.00002	0.00002	0.00005	0.0001	0.325	0.329	0.165	No
	November	0.00001	0.00001	0.00005	0.0001	0.157	0.161	0.080	No
	December	0.00001	0.00001	0.00005	0.0001	0.208	0.213	0.106	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D8u. Lower Harper Creek (HB) Hazard Quotients for Total Thallium Concentrations, Expected Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000012	0.000013	0.0003	0.002	0.0417	0.00625	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	August	0.000012	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	September	0.000012	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	October	0.000010	0.000011	0.0003	0.002	0.0350	0.00525	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
Operation 1 Phase (1-23)	January	0.000005	0.000005	0.0003	0.002	0.0183	0.00275	No	No
	February	0.000002	0.000003	0.0003	0.002	0.00901	0.00135	No	No
	March	0.000002	0.000003	0.0003	0.002	0.00947	0.00142	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00702	0.00105	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0391	0.00586	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0327	0.00490	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0397	0.00596	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0369	0.00553	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0347	0.00520	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0295	0.00442	No	No
	November	0.000005	0.000005	0.0003	0.002	0.0179	0.00269	No	No
	December	0.000005	0.000005	0.0003	0.002	0.0180	0.00269	No	No
Operations 2 Phase (24-28)	January	0.000006	0.000006	0.0003	0.002	0.0185	0.00278	No	No
	February	0.000003	0.000003	0.0003	0.002	0.00925	0.00139	No	No
	March	0.000003	0.000003	0.0003	0.002	0.00975	0.00146	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00706	0.00106	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0391	0.00586	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0327	0.00491	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0398	0.00597	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0369	0.00554	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0348	0.00521	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0295	0.00443	No	No
	November	0.000005	0.000005	0.0003	0.002	0.0180	0.00270	No	No
	December	0.000005	0.000005	0.0003	0.002	0.0181	0.00271	No	No
Closure Phase (29-35)	January	0.000006	0.000007	0.0003	0.002	0.0241	0.00362	No	No
	February	0.000004	0.000005	0.0003	0.002	0.0171	0.00256	No	No
	March	0.000004	0.000006	0.0003	0.002	0.0184	0.00276	No	No
	April	0.000003	0.000004	0.0003	0.002	0.0125	0.00187	No	No
	May	0.000012	0.000013	0.0003	0.002	0.0430	0.00645	No	No
	June	0.000011	0.000012	0.0003	0.002	0.0386	0.00580	No	No
	July	0.000012	0.000013	0.0003	0.002	0.0419	0.00628	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0378	0.00566	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0382	0.00574	No	No
	October	0.000010	0.000010	0.0003	0.002	0.0346	0.00519	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0216	0.00323	No	No
	December	0.000006	0.000007	0.0003	0.002	0.0228	0.00343	No	No
Post-Closure Phase (36-99)	January	0.000007	0.000007	0.0003	0.002	0.0231	0.00346	No	No
	February	0.000006	0.000006	0.0003	0.002	0.0214	0.00320	No	No
	March	0.000008	0.000008	0.0003	0.002	0.0273	0.00409	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0139	0.00209	No	No
	May	0.000013	0.000013	0.0003	0.002	0.0430	0.00646	No	No
	June	0.000011	0.000012	0.0003	0.002	0.0387	0.00580	No	No
	July	0.000013	0.000013	0.0003	0.002	0.0426	0.00639	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0388	0.00581	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0375	0.00563	No	No
	October	0.000010	0.000010	0.0003	0.002	0.0339	0.00509	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0209	0.00314	No	No
	December	0.000006	0.000007	0.0003	0.002	0.0220	0.00330	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D8v. Lower Harper Creek (HB) Hazard Quotients for Total Uranium Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0012	0.0014	0.3	0.02	0.2	0.0046	0.0683	0.0068	No	No	No
	February	0.0016	0.0019	0.3	0.02	0.2	0.0065	0.0970	0.0097	No	No	No
	March	0.0014	0.0017	0.3	0.02	0.2	0.0056	0.0835	0.0084	No	No	No
	April	0.0015	0.0016	0.3	0.02	0.2	0.0055	0.0822	0.0082	No	No	No
	May	0.0013	0.0015	0.3	0.02	0.2	0.0048	0.0727	0.0073	No	No	No
	June	0.0009	0.0010	0.3	0.02	0.2	0.0035	0.0520	0.0052	No	No	No
	July	0.0008	0.0009	0.3	0.02	0.2	0.0032	0.0473	0.0047	No	No	No
	August	0.0010	0.0011	0.3	0.02	0.2	0.0038	0.0574	0.0057	No	No	No
	September	0.0010	0.0011	0.3	0.02	0.2	0.0038	0.0563	0.0056	No	No	No
	October	0.0010	0.0011	0.3	0.02	0.2	0.0037	0.0548	0.0055	No	No	No
	November	0.0012	0.0013	0.3	0.02	0.2	0.0043	0.0643	0.0064	No	No	No
	December	0.0009	0.0011	0.3	0.02	0.2	0.0036	0.0535	0.0054	No	No	No
Operation 1 Phase (1-23)	January	0.0011	0.0011	0.3	0.02	0.2	0.0036	0.0541	0.0054	No	No	No
	February	0.0014	0.0015	0.3	0.02	0.2	0.0049	0.0729	0.0073	No	No	No
	March	0.0012	0.0013	0.3	0.02	0.2	0.0043	0.0648	0.0065	No	No	No
	April	0.0014	0.0014	0.3	0.02	0.2	0.0048	0.0724	0.0072	No	No	No
	May	0.0011	0.0011	0.3	0.02	0.2	0.0037	0.0552	0.0055	No	No	No
	June	0.0008	0.0008	0.3	0.02	0.2	0.0027	0.0403	0.0040	No	No	No
	July	0.0008	0.0008	0.3	0.02	0.2	0.0026	0.0390	0.0039	No	No	No
	August	0.0009	0.0009	0.3	0.02	0.2	0.0030	0.0456	0.0046	No	No	No
	September	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0463	0.0046	No	No	No
	October	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0471	0.0047	No	No	No
	November	0.0010	0.0011	0.3	0.02	0.2	0.0036	0.0533	0.0053	No	No	No
	December	0.0009	0.0009	0.3	0.02	0.2	0.0030	0.0446	0.0045	No	No	No
Operations 2 Phase (24-28)	January	0.0011	0.0011	0.3	0.02	0.2	0.0036	0.0545	0.0055	No	No	No
	February	0.0015	0.0015	0.3	0.02	0.2	0.0049	0.0733	0.0073	No	No	No
	March	0.0013	0.0013	0.3	0.02	0.2	0.0044	0.0653	0.0065	No	No	No
	April	0.0014	0.0014	0.3	0.02	0.2	0.0048	0.0725	0.0072	No	No	No
	May	0.0011	0.0011	0.3	0.02	0.2	0.0037	0.0552	0.0055	No	No	No
	June	0.0008	0.0008	0.3	0.02	0.2	0.0027	0.0403	0.0040	No	No	No
	July	0.0008	0.0008	0.3	0.02	0.2	0.0026	0.0390	0.0039	No	No	No
	August	0.0009	0.0009	0.3	0.02	0.2	0.0030	0.0456	0.0046	No	No	No
	September	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0464	0.0046	No	No	No
	October	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0472	0.0047	No	No	No
	November	0.0011	0.0011	0.3	0.02	0.2	0.0036	0.0534	0.0053	No	No	No
	December	0.0009	0.0009	0.3	0.02	0.2	0.0030	0.0447	0.0045	No	No	No
Closure Phase (29-35)	January	0.0011	0.0011	0.3	0.02	0.2	0.0037	0.0559	0.0056	No	No	No
	February	0.0014	0.0014	0.3	0.02	0.2	0.0048	0.0722	0.0072	No	No	No
	March	0.0013	0.0013	0.3	0.02	0.2	0.0043	0.0652	0.0065	No	No	No
	April	0.0014	0.0015	0.3	0.02	0.2	0.0049	0.0732	0.0073	No	No	No
	May	0.0011	0.0012	0.3	0.02	0.2	0.0039	0.0583	0.0058	No	No	No
	June	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0462	0.0046	No	No	No
	July	0.0008	0.0008	0.3	0.02	0.2	0.0028	0.0415	0.0042	No	No	No
	August	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0459	0.0046	No	No	No
	September	0.0009	0.0010	0.3	0.02	0.2	0.0033	0.0490	0.0049	No	No	No
	October	0.0010	0.0010	0.3	0.02	0.2	0.0034	0.0508	0.0051	No	No	No
	November	0.0011	0.0011	0.3	0.02	0.2	0.0036	0.0545	0.0054	No	No	No
	December	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0470	0.0047	No	No	No
Post-Closure Phase (36-99)	January	0.0011	0.0011	0.3	0.02	0.2	0.0036	0.0546	0.0055	No	No	No
	February	0.0014	0.0014	0.3	0.02	0.2	0.0048	0.0719	0.0072	No	No	No
	March	0.0013	0.0013	0.3	0.02	0.2	0.0044	0.0667	0.0067	No	No	No
	April	0.0014	0.0015	0.3	0.02	0.2	0.0049	0.0729	0.0073	No	No	No
	May	0.0011	0.0012	0.3	0.02	0.2	0.0039	0.0578	0.0058	No	No	No
	June	0.0009	0.0009	0.3	0.02	0.2	0.0030	0.0457	0.0046	No	No	No
	July	0.0008	0.0008	0.3	0.02	0.2	0.0028	0.0418	0.0042	No	No	No
	August	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0465	0.0046	No	No	No
	September	0.0009	0.0010	0.3	0.02	0.2	0.0032	0.0479	0.0048	No	No	No
	October	0.0010	0.0010	0.3	0.02	0.2	0.0033	0.0496	0.0050	No	No	No
	November	0.0011	0.0011	0.3	0.02	0.2	0.0036	0.0536	0.0054	No	No	No
	December	0.0009	0.0009	0.3	0.02	0.2	0.0030	0.0457	0.0046	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D8w. Lower Harper Creek (HB) Hazard Quotients for Total Vanadium Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline			
						BC MOE Working			BC MOE Working		
Construction (-2 to-1)	January	0.00056	0.00060	0.006	0.02	0.1	0.100	0.0300	0.00600	No	No
	February	0.00020	0.00020	0.006	0.02	0.1	0.0333	0.0100	0.00200	No	No
	March	0.00020	0.00020	0.006	0.02	0.1	0.0333	0.0100	0.00200	No	No
	April	0.00020	0.00020	0.006	0.02	0.1	0.0333	0.0100	0.00200	No	No
	May	0.00083	0.00085	0.006	0.02	0.1	0.142	0.0425	0.00849	No	No
	June	0.00099	0.00100	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.00082	0.00083	0.006	0.02	0.1	0.139	0.0417	0.00833	No	No
	August	0.00068	0.00073	0.006	0.02	0.1	0.121	0.0364	0.00727	No	No
	September	0.00067	0.00073	0.006	0.02	0.1	0.122	0.0367	0.00733	No	No
	October	0.00057	0.00061	0.006	0.02	0.1	0.102	0.0306	0.00613	No	No
	November	0.00060	0.00065	0.006	0.02	0.1	0.108	0.0325	0.00650	No	No
	December	0.00057	0.00063	0.006	0.02	0.1	0.104	0.0313	0.00625	No	No
Operation 1 Phase (1-23)	January	0.00049	0.00049	0.006	0.02	0.1	0.082	0.0247	0.00494	No	No
	February	0.00020	0.00020	0.006	0.02	0.1	0.0337	0.0101	0.00202	No	No
	March	0.00020	0.00020	0.006	0.02	0.1	0.0337	0.0101	0.00202	No	No
	April	0.00020	0.00020	0.006	0.02	0.1	0.0334	0.0100	0.00200	No	No
	May	0.00085	0.00085	0.006	0.02	0.1	0.141	0.0423	0.00847	No	No
	June	0.00098	0.00098	0.006	0.02	0.1	0.163	0.0490	0.00980	No	No
	July	0.00080	0.00080	0.006	0.02	0.1	0.134	0.0402	0.00803	No	No
	August	0.00062	0.00062	0.006	0.02	0.1	0.104	0.0312	0.00624	No	No
	September	0.00059	0.00059	0.006	0.02	0.1	0.0988	0.0296	0.00593	No	No
	October	0.00053	0.00053	0.006	0.02	0.1	0.0878	0.0264	0.00527	No	No
	November	0.00054	0.00054	0.006	0.02	0.1	0.0903	0.0271	0.00542	No	No
	December	0.00051	0.00051	0.006	0.02	0.1	0.0848	0.0254	0.00509	No	No
Operations 2 Phase (24-28)	January	0.00049	0.00049	0.006	0.02	0.1	0.082	0.0247	0.00493	No	No
	February	0.00020	0.00020	0.006	0.02	0.1	0.0337	0.0101	0.00202	No	No
	March	0.00020	0.00020	0.006	0.02	0.1	0.0338	0.0101	0.00203	No	No
	April	0.00020	0.00020	0.006	0.02	0.1	0.0334	0.0100	0.00200	No	No
	May	0.00085	0.00085	0.006	0.02	0.1	0.141	0.0423	0.00846	No	No
	June	0.00098	0.00098	0.006	0.02	0.1	0.163	0.0490	0.00980	No	No
	July	0.00080	0.00080	0.006	0.02	0.1	0.134	0.0401	0.00803	No	No
	August	0.00062	0.00062	0.006	0.02	0.1	0.104	0.0312	0.00625	No	No
	September	0.00059	0.00059	0.006	0.02	0.1	0.0988	0.0297	0.00593	No	No
	October	0.00053	0.00053	0.006	0.02	0.1	0.0878	0.0264	0.00527	No	No
	November	0.00054	0.00054	0.006	0.02	0.1	0.0903	0.0271	0.00542	No	No
	December	0.00051	0.00051	0.006	0.02	0.1	0.0848	0.0254	0.00509	No	No
Closure Phase (29-35)	January	0.00048	0.00049	0.006	0.02	0.1	0.0819	0.0246	0.00491	No	No
	February	0.00021	0.00022	0.006	0.02	0.1	0.0366	0.0110	0.00220	No	No
	March	0.00021	0.00022	0.006	0.02	0.1	0.0370	0.0111	0.00222	No	No
	April	0.00021	0.00021	0.006	0.02	0.1	0.0352	0.0106	0.00211	No	No
	May	0.00082	0.00085	0.006	0.02	0.1	0.141	0.0423	0.00846	No	No
	June	0.00092	0.00098	0.006	0.02	0.1	0.163	0.0490	0.00980	No	No
	July	0.00078	0.00080	0.006	0.02	0.1	0.134	0.0401	0.00802	No	No
	August	0.00062	0.00062	0.006	0.02	0.1	0.104	0.0312	0.00624	No	No
	September	0.00057	0.00059	0.006	0.02	0.1	0.0986	0.0296	0.00592	No	No
	October	0.00051	0.00053	0.006	0.02	0.1	0.0877	0.0263	0.00526	No	No
	November	0.00053	0.00054	0.006	0.02	0.1	0.0901	0.0270	0.00541	No	No
	December	0.00050	0.00051	0.006	0.02	0.1	0.0845	0.0254	0.00507	No	No
Post-Closure Phase (36-99)	January	0.00049	0.00049	0.006	0.02	0.1	0.082	0.0245	0.00491	No	No
	February	0.00025	0.00026	0.006	0.02	0.1	0.0426	0.0128	0.00256	No	No
	March	0.00027	0.00028	0.006	0.02	0.1	0.0467	0.0140	0.00280	No	No
	April	0.00022	0.00023	0.006	0.02	0.1	0.0379	0.0114	0.00228	No	No
	May	0.00080	0.00080	0.006	0.02	0.1	0.134	0.0402	0.00804	No	No
	June	0.00090	0.00091	0.006	0.02	0.1	0.151	0.0453	0.00907	No	No
	July	0.00077	0.00078	0.006	0.02	0.1	0.129	0.0388	0.00775	No	No
	August	0.00061	0.00062	0.006	0.02	0.1	0.103	0.0308	0.00615	No	No
	September	0.00058	0.00058	0.006	0.02	0.1	0.0968	0.0290	0.00581	No	No
	October	0.00052	0.00052	0.006	0.02	0.1	0.0865	0.0260	0.00519	No	No
	November	0.00054	0.00054	0.006	0.02	0.1	0.0896	0.0269	0.00537	No	No
	December	0.00050	0.00051	0.006	0.02	0.1	0.0842	0.0253	0.00505	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D8x. Lower Harper Creek (HB) Hazard Quotients for Total Zinc Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline			
						Mean				Maximum	Mean	Maximum
Construction (-2 to-1)	January	0.0016	0.0018	0.008	0.033	2	0.214	0.233	0.0530	0.0009	No	No
	February	0.0005	0.0005	0.008	0.033	2	0.0641	0.0667	0.0152	0.0003	No	No
	March	0.0005	0.0005	0.008	0.033	2	0.0678	0.0689	0.0157	0.0003	No	No
	April	0.0024	0.0025	0.008	0.033	2	0.320	0.329	0.0748	0.0012	No	No
	May	0.0035	0.0036	0.008	0.033	2	0.464	0.480	0.109	0.0018	No	No
	June	0.0030	0.0031	0.008	0.033	2	0.407	0.413	0.0939	0.0015	No	No
	July	0.0049	0.0053	0.008	0.033	2	0.652	0.711	0.162	0.0027	No	No
	August	0.0024	0.0027	0.008	0.033	2	0.324	0.356	0.0808	0.0013	No	No
	September	0.0031	0.0036	0.008	0.033	2	0.417	0.480	0.109	0.0018	No	No
	October	0.0030	0.0033	0.008	0.033	2	0.399	0.443	0.101	0.0017	No	No
	November	0.0016	0.0018	0.008	0.033	2	0.219	0.240	0.0545	0.0009	No	No
	December	0.0016	0.0018	0.008	0.033	2	0.214	0.237	0.0538	0.0009	No	No
Operation 1 Phase (1-23)	January	0.0014	0.0015	0.008	0.033	2	0.190	0.195	0.0444	0.0007	No	No
	February	0.0005	0.0006	0.008	0.033	2	0.0687	0.0759	0.0172	0.0003	No	No
	March	0.0005	0.0006	0.008	0.033	2	0.0729	0.0815	0.0185	0.0003	No	No
	April	0.0024	0.0024	0.008	0.033	2	0.314	0.316	0.0717	0.0012	No	No
	May	0.0034	0.0034	0.008	0.033	2	0.450	0.451	0.102	0.0017	No	No
	June	0.0031	0.0031	0.008	0.033	2	0.411	0.411	0.0935	0.0015	No	No
	July	0.0045	0.0045	0.008	0.033	2	0.597	0.598	0.136	0.0022	No	No
	August	0.0022	0.0022	0.008	0.033	2	0.293	0.296	0.0673	0.0011	No	No
	September	0.0027	0.0027	0.008	0.033	2	0.357	0.361	0.0821	0.0014	No	No
	October	0.0027	0.0027	0.008	0.033	2	0.358	0.361	0.0820	0.0014	No	No
	November	0.0015	0.0015	0.008	0.033	2	0.199	0.202	0.0460	0.0008	No	No
	December	0.0014	0.0015	0.008	0.033	2	0.191	0.196	0.0445	0.0007	No	No
Operations 2 Phase (24-28)	January	0.0015	0.0015	0.008	0.033	2	0.196	0.197	0.0447	0.0007	No	No
	February	0.0006	0.0006	0.008	0.033	2	0.0770	0.0773	0.0176	0.0003	No	No
	March	0.0006	0.0006	0.008	0.033	2	0.0828	0.0831	0.0189	0.0003	No	No
	April	0.0024	0.0024	0.008	0.033	2	0.316	0.316	0.0718	0.0012	No	No
	May	0.0034	0.0034	0.008	0.033	2	0.451	0.451	0.103	0.0017	No	No
	June	0.0031	0.0031	0.008	0.033	2	0.411	0.411	0.0935	0.0015	No	No
	July	0.0045	0.0045	0.008	0.033	2	0.599	0.599	0.136	0.0022	No	No
	August	0.0022	0.0022	0.008	0.033	2	0.297	0.297	0.0675	0.0011	No	No
	September	0.0027	0.0027	0.008	0.033	2	0.362	0.362	0.0822	0.0014	No	No
	October	0.0027	0.0027	0.008	0.033	2	0.361	0.361	0.0820	0.0014	No	No
	November	0.0015	0.0015	0.008	0.033	2	0.203	0.203	0.0460	0.0008	No	No
	December	0.0015	0.0015	0.008	0.033	2	0.196	0.196	0.0446	0.0007	No	No
Closure Phase (29-35)	January	0.0016	0.0019	0.008	0.033	2	0.217	0.251	0.0571	0.0009	No	No
	February	0.0008	0.0012	0.008	0.033	2	0.109	0.158	0.0358	0.0006	No	No
	March	0.0009	0.0013	0.008	0.033	2	0.118	0.172	0.0391	0.0006	No	No
	April	0.0025	0.0026	0.008	0.033	2	0.331	0.347	0.0788	0.0013	No	No
	May	0.0035	0.0036	0.008	0.033	2	0.464	0.479	0.109	0.0018	No	No
	June	0.0033	0.0034	0.008	0.033	2	0.437	0.452	0.103	0.0017	No	No
	July	0.0045	0.0045	0.008	0.033	2	0.601	0.605	0.138	0.0023	No	No
	August	0.0023	0.0023	0.008	0.033	2	0.301	0.309	0.0702	0.0012	No	No
	September	0.0028	0.0029	0.008	0.033	2	0.378	0.393	0.0894	0.0015	No	No
	October	0.0029	0.0030	0.008	0.033	2	0.383	0.400	0.0909	0.0015	No	No
	November	0.0017	0.0018	0.008	0.033	2	0.220	0.236	0.0537	0.0009	No	No
	December	0.0017	0.0018	0.008	0.033	2	0.221	0.242	0.0551	0.0009	No	No
Post-Closure Phase (36-99)	January	0.0021	0.0025	0.008	0.033	2	0.284	0.328	0.0745	0.0012	No	No
	February	0.0022	0.0028	0.008	0.033	2	0.288	0.372	0.0845	0.0014	No	No
	March	0.0029	0.0038	0.008	0.033	2	0.391	0.509	0.116	0.0019	No	No
	April	0.0030	0.0033	0.008	0.033	2	0.403	0.443	0.101	0.0017	No	No
	May	0.0040	0.0043	0.008	0.033	2	0.531	0.573	0.130	0.0021	No	No
	June	0.0039	0.0043	0.008	0.033	2	0.520	0.574	0.130	0.0022	No	No
	July	0.0049	0.0051	0.008	0.033	2	0.647	0.680	0.155	0.0025	No	No
	August	0.0026	0.0028	0.008	0.033	2	0.347	0.373	0.0848	0.0014	No	No
	September	0.0032	0.0035	0.008	0.033	2	0.425	0.461	0.105	0.0017	No	No
	October	0.0033	0.0036	0.008	0.033	2	0.443	0.485	0.110	0.0018	No	No
	November	0.0019	0.0021	0.008	0.033	2	0.257	0.283	0.0644	0.0011	No	No
	December	0.0020	0.0023	0.008	0.033	2	0.271	0.307	0.0698	0.0012	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D8y. Lower Harper Creek (HB) Hazard Quotients for Chloride Concentrations, Expected Case

		First Screening Step										Retained as COFC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE			Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline					
		Mean	Maximum	Mean	Maximum	Maximum	Maximum	Mean	Mean	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline			
Construction (-2 to 1)	January	0.556	0.612	150	600	600	600	0.0037	0.0041	0.0010	0.0010	0.0010	No	No	No
	February	0.641	0.682	150	600	600	600	0.0043	0.0045	0.0011	0.0011	0.0011	No	No	No
	March	0.559	0.618	150	600	600	600	0.0037	0.0041	0.0010	0.0010	0.0010	No	No	No
	April	0.509	0.518	150	600	600	600	0.0034	0.0035	0.0009	0.0009	0.0009	No	No	No
	May	0.546	0.550	150	600	600	600	0.0036	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.549	0.597	150	600	600	600	0.0037	0.0040	0.0010	0.0010	0.0010	No	No	No
	July	0.517	0.535	150	600	600	600	0.0034	0.0036	0.0009	0.0009	0.0009	No	No	No
	August	0.456	0.512	150	600	600	600	0.0030	0.0034	0.0009	0.0009	0.0009	No	No	No
	September	0.750	0.767	150	600	600	600	0.0050	0.0051	0.0013	0.0013	0.0013	No	No	No
	October	0.605	0.640	150	600	600	600	0.0040	0.0043	0.0011	0.0011	0.0011	No	No	No
	November	0.547	0.593	150	600	600	600	0.0036	0.0040	0.0010	0.0010	0.0010	No	No	No
	December	0.556	0.611	150	600	600	600	0.0037	0.0041	0.0010	0.0010	0.0010	No	No	No
Operation 1 Phase (1-23)	January	0.667	0.714	150	600	600	600	0.0044	0.0048	0.0012	0.0012	0.0012	No	No	No
	February	0.745	0.802	150	600	600	600	0.0050	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.691	0.759	150	600	600	600	0.0046	0.0051	0.0013	0.0013	0.0013	No	No	No
	April	0.526	0.535	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	May	0.546	0.549	150	600	600	600	0.0036	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.604	0.608	150	600	600	600	0.0040	0.0041	0.0010	0.0010	0.0010	No	No	No
	July	0.547	0.557	150	600	600	600	0.0036	0.0037	0.0009	0.0009	0.0009	No	No	No
	August	0.542	0.567	150	600	600	600	0.0036	0.0038	0.0009	0.0009	0.0009	No	No	No
	September	0.802	0.831	150	600	600	600	0.0053	0.0055	0.0014	0.0014	0.0014	No	No	No
	October	0.664	0.686	150	600	600	600	0.0044	0.0046	0.0011	0.0011	0.0011	No	No	No
	November	0.622	0.648	150	600	600	600	0.0041	0.0043	0.0011	0.0011	0.0011	No	No	No
	December	0.655	0.692	150	600	600	600	0.0044	0.0046	0.0012	0.0012	0.0012	No	No	No
Operations 2 Phase (24-28)	January	0.722	0.724	150	600	600	600	0.0048	0.0048	0.0012	0.0012	0.0012	No	No	No
	February	0.811	0.814	150	600	600	600	0.0054	0.0054	0.0014	0.0014	0.0014	No	No	No
	March	0.770	0.773	150	600	600	600	0.0051	0.0052	0.0013	0.0013	0.0013	No	No	No
	April	0.536	0.537	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	May	0.549	0.549	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.608	0.608	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	July	0.558	0.558	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	August	0.570	0.570	150	600	600	600	0.0038	0.0038	0.0010	0.0010	0.0010	No	No	No
	September	0.834	0.835	150	600	600	600	0.0056	0.0056	0.0014	0.0014	0.0014	No	No	No
	October	0.689	0.689	150	600	600	600	0.0046	0.0046	0.0011	0.0011	0.0011	No	No	No
	November	0.651	0.652	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	December	0.696	0.697	150	600	600	600	0.0046	0.0046	0.0012	0.0012	0.0012	No	No	No
Closure Phase (29-35)	January	0.821	1.016	150	600	600	600	0.0055	0.0068	0.0017	0.0017	0.0017	No	No	No
	February	0.918	1.14	150	600	600	600	0.0061	0.0076	0.0019	0.0019	0.0019	No	No	No
	March	0.889	1.14	150	600	600	600	0.0059	0.0076	0.0019	0.0019	0.0019	No	No	No
	April	0.660	0.783	150	600	600	600	0.0044	0.0052	0.0013	0.0013	0.0013	No	No	No
	May	0.728	0.880	150	600	600	600	0.0049	0.0059	0.0015	0.0015	0.0015	No	No	No
	June	0.892	1.027	150	600	600	600	0.0059	0.0068	0.0017	0.0017	0.0017	No	No	No
	July	0.676	0.746	150	600	600	600	0.0045	0.0050	0.0012	0.0012	0.0012	No	No	No
	August	0.605	0.657	150	600	600	600	0.0040	0.0044	0.0011	0.0011	0.0011	No	No	No
	September	0.976	1.090	150	600	600	600	0.0065	0.0073	0.0018	0.0018	0.0018	No	No	No
	October	0.89	1.02	150	600	600	600	0.0059	0.0068	0.0017	0.0017	0.0017	No	No	No
	November	0.750	0.840	150	600	600	600	0.0050	0.0056	0.0014	0.0014	0.0014	No	No	No
	December	0.825	0.946	150	600	600	600	0.0055	0.0063	0.0016	0.0016	0.0016	No	No	No
Post-Closure Phase (36-99)	January	0.878	0.943	150	600	600	600	0.0059	0.0063	0.0016	0.0016	0.0016	No	No	No
	February	1.19	1.29	150	600	600	600	0.0079	0.0086	0.0021	0.0021	0.0021	No	No	No
	March	1.36	1.49	150	600	600	600	0.0091	0.0099	0.0025	0.0025	0.0025	No	No	No
	April	0.785	0.836	150	600	600	600	0.0052	0.0056	0.0014	0.0014	0.0014	No	No	No
	May	0.823	0.877	150	600	600	600	0.0055	0.0058	0.0015	0.0015	0.0015	No	No	No
	June	0.952	1.018	150	600	600	600	0.0063	0.0068	0.0017	0.0017	0.0017	No	No	No
	July	0.758	0.791	150	600	600	600	0.0051	0.0053	0.0013	0.0013	0.0013	No	No	No
	August	0.688	0.725	150	600	600	600	0.0046	0.0048	0.0012	0.0012	0.0012	No	No	No
	September	0.976	1.035	150	600	600	600	0.0065	0.0069	0.0017	0.0017	0.0017	No	No	No
	October	0.905	0.97	150	600	600	600	0.0060	0.0065	0.0016	0.0016	0.0016	No	No	No
	November	0.754	0.794	150	600	600	600	0.0050	0.0053	0.0013	0.0013	0.0013	No	No	No
	December	0.830	0.886	150	600	600	600	0.0055	0.0059	0.0015	0.0015	0.0015	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D8z. Lower Harper Creek (HB) Hazard Quotients for Fluoride Concentrations, Expected Case (completed)

Project Phase	Months	First Screening Step			Retained as COPC?			
		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE				
		Mean Guideline	Mean Guideline	Maximum Guideline				
Construction (-2 to-1)	January	0.0423	0.0427	0.0213	No	No	No	No
	February	0.0534	0.0550	0.0275	No	No	No	No
	March	0.0486	0.0510	0.0255	No	No	No	No
	April	0.0445	0.0450	0.0225	No	No	No	No
	May	0.0298	0.0305	0.0153	No	No	No	No
	June	0.0234	0.0238	0.0119	No	No	No	No
	July	0.0300	0.0306	0.0153	No	No	No	No
	August	0.0452	0.0456	0.0228	No	No	No	No
	September	0.0462	0.0464	0.0232	No	No	No	No
	October	0.0402	0.0410	0.0205	No	No	No	No
	November	0.0442	0.0444	0.0222	No	No	No	No
	December	0.0367	0.0384	0.0192	No	No	No	No
Operation 1 Phase (1-23)	January	0.0447	0.0457	0.0228	No	No	No	No
	February	0.0534	0.0545	0.0273	No	No	No	No
	March	0.0499	0.0512	0.0256	No	No	No	No
	April	0.0443	0.0445	0.0223	No	No	No	No
	May	0.0294	0.0295	0.0147	No	No	No	No
	June	0.0240	0.0241	0.0120	No	No	No	No
	July	0.0310	0.0313	0.0156	No	No	No	No
	August	0.0456	0.0462	0.0231	No	No	No	No
	September	0.0470	0.0475	0.0238	No	No	No	No
	October	0.0416	0.0420	0.0210	No	No	No	No
	November	0.0451	0.0456	0.0228	No	No	No	No
	December	0.0394	0.0402	0.0201	No	No	No	No
Operations 2 Phase (24-28)	January	0.0458	0.0459	0.0229	No	No	No	No
	February	0.0547	0.0547	0.0274	No	No	No	No
	March	0.0514	0.0515	0.0257	No	No	No	No
	April	0.0445	0.0446	0.0223	No	No	No	No
	May	0.0295	0.0295	0.0147	No	No	No	No
	June	0.0241	0.0241	0.0120	No	No	No	No
	July	0.0313	0.0313	0.0156	No	No	No	No
	August	0.0462	0.0462	0.0231	No	No	No	No
	September	0.0476	0.0476	0.0238	No	No	No	No
	October	0.0421	0.0421	0.0210	No	No	No	No
	November	0.0457	0.0457	0.0229	No	No	No	No
	December	0.0403	0.0403	0.0201	No	No	No	No
Closure Phase (29-35)	January	0.0488	0.0541	0.0270	No	No	No	No
	February	0.0574	0.0630	0.0315	No	No	No	No
	March	0.0547	0.0612	0.0306	No	No	No	No
	April	0.0476	0.0509	0.0254	No	No	No	No
	May	0.0347	0.0395	0.0197	No	No	No	No
	June	0.0331	0.0376	0.0188	No	No	No	No
	July	0.0348	0.0370	0.0185	No	No	No	No
	August	0.0472	0.0486	0.0243	No	No	No	No
	September	0.0515	0.0548	0.0274	No	No	No	No
	October	0.0476	0.0515	0.0258	No	No	No	No
	November	0.0483	0.0508	0.0254	No	No	No	No
	December	0.0441	0.0477	0.0239	No	No	No	No
Post-Closure Phase (36-99)	January	0.0491	0.0518	0.0259	No	No	No	No
	February	0.0612	0.0658	0.0329	No	No	No	No
	March	0.0624	0.0687	0.0344	No	No	No	No
	April	0.0493	0.0518	0.0259	No	No	No	No
	May	0.0364	0.0391	0.0195	No	No	No	No
	June	0.0337	0.0371	0.0185	No	No	No	No
	July	0.0362	0.0381	0.0190	No	No	No	No
	August	0.0484	0.0500	0.0250	No	No	No	No
	September	0.0505	0.0530	0.0265	No	No	No	No
	October	0.0467	0.0496	0.0248	No	No	No	No
	November	0.0478	0.0495	0.0247	No	No	No	No
	December	0.0434	0.0458	0.0229	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D8aa. Lower Harper Creek (HB) Hazard Quotients for Nitrate Concentrations, Expected Case

		First Screening Step												
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				BC DWQG	Maximum	BC MOE Maximum			
						Mean	Maximum	Maximum predicted vs. BC DWQG				Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.137	0.155	3	32.8	10	100	100	0.0457	0.0518	0.0047	0.0155	0.0016	0.0016
	February	0.137	0.158	3	32.8	10	100	100	0.0456	0.0528	0.0048	0.0158	0.0016	0.0016
	March	0.130	0.154	3	32.8	10	100	100	0.0435	0.0512	0.0047	0.0154	0.0015	0.0015
	April	0.138	0.150	3	32.8	10	100	100	0.0461	0.0499	0.0046	0.0150	0.0015	0.0015
	May	0.170	0.198	3	32.8	10	100	100	0.0566	0.0661	0.0060	0.0198	0.0020	0.0020
	June	0.0495	0.0669	3	32.8	10	100	100	0.0165	0.0223	0.0020	0.0067	0.0007	0.0007
	July	0.0278	0.0410	3	32.8	10	100	100	0.0093	0.0137	0.0012	0.0041	0.0004	0.0004
	August	0.0529	0.0766	3	32.8	10	100	100	0.0176	0.0255	0.0023	0.0077	0.0008	0.0008
	September	0.0591	0.0865	3	32.8	10	100	100	0.0197	0.0288	0.0026	0.0086	0.0009	0.0009
	October	0.0574	0.0787	3	32.8	10	100	100	0.0191	0.0262	0.0024	0.0079	0.0008	0.0008
	November	0.101	0.120	3	32.8	10	100	100	0.0338	0.0400	0.0037	0.0120	0.0012	0.0012
	December	0.102	0.126	3	32.8	10	100	100	0.0342	0.0420	0.0038	0.0126	0.0013	0.0013
Operation 1 Phase (1-23)	January	0.162	0.209	3	32.8	10	100	100	0.0541	0.0696	0.0064	0.0209	0.0021	0.0021
	February	0.162	0.216	3	32.8	10	100	100	0.0541	0.0720	0.0066	0.0216	0.0022	0.0022
	March	0.160	0.223	3	32.8	10	100	100	0.0532	0.0742	0.0068	0.0223	0.0022	0.0022
	April	0.148	0.156	3	32.8	10	100	100	0.0494	0.0521	0.0048	0.0156	0.0016	0.0016
	May	0.191	0.193	3	32.8	10	100	100	0.0637	0.0644	0.0059	0.0193	0.0019	0.0019
	June	0.0670	0.0701	3	32.8	10	100	100	0.0223	0.0234	0.0021	0.0070	0.0007	0.0007
	July	0.0444	0.0531	3	32.8	10	100	100	0.0148	0.0177	0.0016	0.0053	0.0005	0.0005
	August	0.0847	0.107	3	32.8	10	100	100	0.0282	0.0356	0.0033	0.0107	0.0011	0.0011
	September	0.0913	0.119	3	32.8	10	100	100	0.0304	0.0396	0.0036	0.0119	0.0012	0.0012
	October	0.0822	0.104	3	32.8	10	100	100	0.0274	0.0346	0.0032	0.0104	0.0010	0.0010
	November	0.123	0.148	3	32.8	10	100	100	0.0410	0.0494	0.0045	0.0148	0.0015	0.0015
	December	0.131	0.168	3	32.8	10	100	100	0.0436	0.0559	0.0051	0.0168	0.0017	0.0017
Operations 2 Phase (24-28)	January	0.151	0.152	3	32.8	10	100	100	0.0505	0.0505	0.0046	0.0152	0.0015	0.0015
	February	0.150	0.150	3	32.8	10	100	100	0.0499	0.0499	0.0046	0.0150	0.0015	0.0015
	March	0.144	0.144	3	32.8	10	100	100	0.0480	0.0480	0.0044	0.0144	0.0014	0.0014
	April	0.146	0.146	3	32.8	10	100	100	0.0488	0.0488	0.0045	0.0146	0.0015	0.0015
	May	0.190	0.190	3	32.8	10	100	100	0.0634	0.0635	0.0058	0.0190	0.0019	0.0019
	June	0.0658	0.0659	3	32.8	10	100	100	0.0219	0.0220	0.0020	0.0066	0.0007	0.0007
	July	0.0406	0.0406	3	32.8	10	100	100	0.0135	0.0135	0.0012	0.0041	0.0004	0.0004
	August	0.0755	0.0755	3	32.8	10	100	100	0.0252	0.0252	0.0023	0.0076	0.0008	0.0008
	September	0.0843	0.0844	3	32.8	10	100	100	0.0281	0.0281	0.0026	0.0084	0.0008	0.0008
	October	0.0767	0.0767	3	32.8	10	100	100	0.0256	0.0256	0.0023	0.0077	0.0008	0.0008
	November	0.116	0.116	3	32.8	10	100	100	0.0388	0.0388	0.0035	0.0116	0.0012	0.0012
	December	0.121	0.121	3	32.8	10	100	100	0.0404	0.0404	0.0037	0.0121	0.0012	0.0012
Closure Phase (29-35)	January	0.214	0.287	3	32.8	10	100	100	0.0712	0.096	0.0087	0.0287	0.0029	0.0029
	February	0.222	0.308	3	32.8	10	100	100	0.074	0.103	0.0094	0.0308	0.0031	0.0031
	March	0.226	0.322	3	32.8	10	100	100	0.075	0.107	0.0098	0.0322	0.0032	0.0032
	April	0.191	0.236	3	32.8	10	100	100	0.0637	0.0788	0.0072	0.0236	0.0024	0.0024
	May	0.247	0.302	3	32.8	10	100	100	0.0823	0.101	0.0092	0.0302	0.0030	0.0030
	June	0.170	0.224	3	32.8	10	100	100	0.0565	0.0747	0.0068	0.0224	0.0022	0.0022
	July	0.0876	0.118	3	32.8	10	100	100	0.0292	0.0394	0.0036	0.0118	0.0012	0.0012
	August	0.101	0.122	3	32.8	10	100	100	0.0336	0.0407	0.0037	0.0122	0.0012	0.0012
	September	0.156	0.207	3	32.8	10	100	100	0.0521	0.0689	0.0063	0.0207	0.0021	0.0021
	October	0.163	0.220	3	32.8	10	100	100	0.0543	0.0732	0.0067	0.0220	0.0022	0.0022
	November	0.166	0.202	3	32.8	10	100	100	0.0553	0.0675	0.0062	0.0202	0.0020	0.0020
	December	0.188	0.238	3	32.8	10	100	100	0.0627	0.0792	0.0072	0.0238	0.0024	0.0024
Post-Closure Phase (36-99)	January	0.162	0.239	3	32.8	10	100	100	0.0541	0.0797	0.0073	0.0239	0.0024	0.0024
	February	0.170	0.321	3	32.8	10	100	100	0.0568	0.107	0.0098	0.0321	0.0032	0.0032
	March	0.175	0.389	3	32.8	10	100	100	0.0583	0.130	0.0119	0.0389	0.0039	0.0039
	April	0.156	0.234	3	32.8	10	100	100	0.0521	0.0780	0.0071	0.0234	0.0023	0.0023
	May	0.196	0.278	3	32.8	10	100	100	0.0653	0.0927	0.0085	0.0278	0.0028	0.0028
	June	0.0898	0.193	3	32.8	10	100	100	0.0299	0.0645	0.0059	0.0193	0.0019	0.0019
	July	0.0567	0.115	3	32.8	10	100	100	0.0189	0.0384	0.0035	0.0115	0.0012	0.0012
	August	0.0856	0.130	3	32.8	10	100	100	0.0285	0.0434	0.0040	0.0130	0.0013	0.0013
	September	0.0974	0.162	3	32.8	10	100	100	0.0325	0.0540	0.0049	0.0162	0.0016	0.0016
	October	0.0933	0.171	3	32.8	10	100	100	0.0311	0.0572	0.0052	0.0171	0.0017	0.0017
	November	0.124	0.169	3	32.8	10	100	100	0.0414	0.0562	0.0051	0.0169	0.0017	0.0017
	December	0.131	0.192	3	32.8	10	100	100	0.0438	0.0640	0.0059	0.0192	0.0019	0.0019

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

(continued)

Appendix 13-D8aa. Lower Harper Creek (HB) Hazard Quotients for Nitrate Concentrations, Expected Case (completed)

		Retained as COPC?			
Project Phase	Months	Drinking Water			
		Aquatic Life	Wildlife	Livestock	
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

Appendix 13-D8ac. Lower Harper Creek (HB) Hazard Quotients for Ammonia Concentrations, Expected Case

		First Screening Step							Retained as COFC?
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Aquatic Life
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Maximum Predicted			
						Mean Predicted vs. BC MOE Working Day Mean Guideline	vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Construction (-2 to-1)	January	0.0190	0.0190	2.05	17.8	0.0093	0.0093	0.0011	No
	February	0.0247	0.0255	1.75	9.12	0.0141	0.0145	0.0028	No
	March	0.0221	0.0230	2.05	10.7	0.0108	0.0112	0.0021	No
	April	0.0081	0.0087	1.98	10.3	0.0041	0.0044	0.0008	No
	May	0.0132	0.0137	1.92	18.3	0.0069	0.0071	0.0007	No
	June	0.0114	0.0116	1.90	14.8	0.0060	0.0061	0.0008	No
	July	0.0159	0.0176	1.82	12.5	0.0088	0.0096	0.0014	No
	August	0.162	0.216	1.82	11.0	0.0890	0.119	0.0196	No
	September	0.0174	0.0192	1.86	9.65	0.0093	0.0103	0.0020	No
	October	0.0096	0.0110	1.95	13.4	0.0049	0.0056	0.0008	No
	November	0.0405	0.0441	2.09	10.8	0.0194	0.0211	0.0041	No
	December	0.0293	0.0316	2.09	10.8	0.0140	0.0151	0.0029	No
Operation 1 Phase (1-23)	January	0.0204	0.0263	2.05	17.8	0.0100	0.0128	0.0015	No
	February	0.0256	0.0324	1.75	9.12	0.0146	0.0185	0.0035	No
	March	0.0237	0.0317	2.05	10.7	0.0116	0.0155	0.0030	No
	April	0.0089	0.0099	1.98	10.3	0.0045	0.0050	0.0010	No
	May	0.0129	0.0133	1.92	18.3	0.0067	0.0069	0.0007	No
	June	0.0114	0.0118	1.90	14.8	0.0060	0.0062	0.0008	No
	July	0.0182	0.0193	1.82	12.5	0.0100	0.0106	0.0015	No
	August	0.194	0.196	1.82	11.0	0.107	0.108	0.0178	No
	September	0.0191	0.0226	1.86	9.65	0.0103	0.0122	0.0023	No
	October	0.0117	0.0145	1.95	13.4	0.0060	0.0074	0.0011	No
	November	0.0381	0.0413	2.09	10.8	0.0182	0.0198	0.0038	No
	December	0.0288	0.0335	2.09	10.8	0.0138	0.0160	0.0031	No
Operations 2 Phase (24-28)	January	0.0191	0.0191	2.05	17.8	0.0093	0.0093	0.0011	No
	February	0.0240	0.0240	1.75	9.12	0.0137	0.0137	0.0026	No
	March	0.0218	0.0218	2.05	10.7	0.0106	0.0106	0.0020	No
	April	0.0087	0.0087	1.98	10.3	0.0044	0.0044	0.0008	No
	May	0.0128	0.0128	1.92	18.3	0.0067	0.0067	0.0007	No
	June	0.0112	0.0112	1.90	14.8	0.0059	0.0059	0.0008	No
	July	0.0177	0.0177	1.82	12.5	0.0097	0.0097	0.0014	No
	August	0.194	0.195	1.82	11.0	0.107	0.107	0.0177	No
	September	0.0183	0.0183	1.86	9.65	0.0098	0.0098	0.0019	No
	October	0.0110	0.0110	1.95	13.4	0.0057	0.0057	0.0008	No
	November	0.0373	0.0373	2.09	10.8	0.0178	0.0179	0.0035	No
	December	0.0276	0.0276	2.09	10.8	0.0132	0.0132	0.0026	No
Closure Phase (29-35)	January	0.0274	0.0370	2.05	17.8	0.0133	0.0181	0.0021	No
	February	0.0333	0.0443	1.75	9.12	0.0190	0.0253	0.0049	No
	March	0.0324	0.0448	2.05	10.7	0.0158	0.0219	0.0042	No
	April	0.0151	0.0214	1.98	10.3	0.0076	0.0108	0.0021	No
	May	0.0210	0.0288	1.92	18.3	0.0110	0.0150	0.0016	No
	June	0.0247	0.0318	1.90	14.8	0.0130	0.0167	0.0021	No
	July	0.0234	0.0271	1.82	12.5	0.0128	0.0149	0.0022	No
	August	0.193	0.195	1.82	11.0	0.106	0.107	0.0177	No
	September	0.0273	0.0337	1.86	9.65	0.0147	0.0181	0.0035	No
	October	0.0224	0.0298	1.95	13.4	0.0115	0.0153	0.0022	No
	November	0.0428	0.0470	2.09	10.8	0.0205	0.0225	0.0044	No
	December	0.0357	0.0418	2.09	10.8	0.0171	0.0200	0.0039	No
Post-Closure Phase (36-99)	January	0.0210	0.0309	2.05	17.8	0.0103	0.0151	0.0017	No
	February	0.0268	0.0460	1.75	9.12	0.0153	0.0263	0.0050	No
	March	0.0264	0.0537	2.05	10.7	0.0129	0.0262	0.0050	No
	April	0.0115	0.0215	1.98	10.3	0.0058	0.0108	0.0021	No
	May	0.0154	0.0259	1.92	18.3	0.0080	0.0135	0.0014	No
	June	0.0147	0.0279	1.90	14.8	0.0077	0.0147	0.0019	No
	July	0.0192	0.0266	1.82	12.5	0.0105	0.0146	0.0021	No
	August	0.185	0.190	1.82	11.0	0.102	0.104	0.0173	No
	September	0.0198	0.0280	1.86	9.65	0.0106	0.0151	0.0029	No
	October	0.0136	0.0236	1.95	13.4	0.0070	0.0121	0.0018	No
	November	0.0373	0.0429	2.09	10.8	0.0179	0.0205	0.0040	No
	December	0.0284	0.0361	2.09	10.8	0.0136	0.0173	0.0033	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Appendix 13-D8ad. Lower Harper Creek (HB) Hazard Quotients for Sulphate Concentrations, Expected Case

		First Screening Step							Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline					
		Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline					
Construction (-2 to-1)	January	4.60	5.70	128	500	1000	0.0360	0.0446	0.0114	0.0057	No	No	No
	February	4.80	6.14	128	500	1000	0.0375	0.0480	0.0123	0.0061	No	No	No
	March	5.85	7.08	128	500	1000	0.0457	0.0553	0.0142	0.0071	No	No	No
	April	3.41	3.92	128	500	1000	0.0267	0.0306	0.0078	0.0039	No	No	No
	May	1.96	2.49	128	500	1000	0.0153	0.0194	0.0050	0.0025	No	No	No
	June	2.18	2.69	128	500	1000	0.0170	0.0210	0.0054	0.0027	No	No	No
	July	2.75	3.46	128	500	1000	0.0215	0.0270	0.0069	0.0035	No	No	No
	August	4.24	5.28	128	500	1000	0.0331	0.0413	0.0106	0.0053	No	No	No
	September	4.77	5.79	128	500	1000	0.0373	0.0453	0.0116	0.0058	No	No	No
	October	3.28	4.27	128	500	1000	0.0256	0.0334	0.0085	0.0043	No	No	No
	November	3.89	4.90	128	500	1000	0.0304	0.0383	0.0098	0.0049	No	No	No
	December	4.18	5.35	128	500	1000	0.0326	0.0418	0.0107	0.0053	No	No	No
Operation 1 Phase (1-23)	January	8.89	12.3	128	500	1000	0.0695	0.0962	0.0246	0.0123	No	No	No
	February	9.70	13.9	128	500	1000	0.0757	0.109	0.0278	0.0139	No	No	No
	March	11.3	16.3	128	500	1000	0.0881	0.127	0.0326	0.0163	No	No	No
	April	4.42	5.06	128	500	1000	0.0346	0.0395	0.0101	0.0051	No	No	No
	May	2.63	2.84	128	500	1000	0.0205	0.0222	0.0057	0.0028	No	No	No
	June	2.93	3.21	128	500	1000	0.0229	0.0251	0.0064	0.0032	No	No	No
	July	4.26	5.00	128	500	1000	0.0333	0.0391	0.0100	0.0050	No	No	No
	August	7.23	9.13	128	500	1000	0.0565	0.0713	0.0183	0.0091	No	No	No
	September	7.72	9.8	128	500	1000	0.0603	0.0766	0.0196	0.0098	No	No	No
	October	5.78	7.40	128	500	1000	0.0451	0.0578	0.0148	0.0074	No	No	No
	November	6.70	8.6	128	500	1000	0.0523	0.0672	0.0172	0.0086	No	No	No
	December	8.00	10.8	128	500	1000	0.0625	0.0840	0.0215	0.0108	No	No	No
Operations 2 Phase (24-28)	January	12.9	13.1	128	500	1000	0.101	0.102	0.0262	0.0131	No	No	No
	February	14.5	14.7	128	500	1000	0.114	0.115	0.0294	0.0147	No	No	No
	March	17.1	17.3	128	500	1000	0.134	0.135	0.0346	0.0173	No	No	No
	April	5.16	5.18	128	500	1000	0.0403	0.0405	0.0104	0.0052	No	No	No
	May	2.88	2.89	128	500	1000	0.0225	0.0225	0.0058	0.0029	No	No	No
	June	3.25	3.25	128	500	1000	0.0254	0.0254	0.0065	0.0033	No	No	No
	July	5.08	5.09	128	500	1000	0.0397	0.0398	0.0102	0.0051	No	No	No
	August	9.33	9.37	128	500	1000	0.0729	0.0732	0.0187	0.0094	No	No	No
	September	10.1	10.1	128	500	1000	0.0786	0.0790	0.0202	0.0101	No	No	No
	October	7.59	7.63	128	500	1000	0.0593	0.0596	0.0153	0.0076	No	No	No
	November	8.81	8.85	128	500	1000	0.0688	0.0691	0.0177	0.0089	No	No	No
	December	11.0	11.1	128	500	1000	0.0862	0.0867	0.0222	0.0111	No	No	No
Closure Phase (29-35)	January	19.6	33.0	128	500	1000	0.153	0.258	0.0659	0.0330	No	No	No
	February	22.1	37.6	128	500	1000	0.172	0.294	0.0753	0.0376	No	No	No
	March	25.0	42.4	128	500	1000	0.195	0.331	0.0848	0.0424	No	No	No
	April	13.5	21.7	128	500	1000	0.106	0.170	0.0435	0.0217	No	No	No
	May	15.2	25.5	128	500	1000	0.119	0.199	0.0510	0.0255	No	No	No
	June	23.2	32.5	128	500	1000	0.181	0.254	0.0650	0.0325	No	No	No
	July	13.1	17.8	128	500	1000	0.102	0.139	0.0355	0.0178	No	No	No
	August	11.5	15.0	128	500	1000	0.0898	0.117	0.0299	0.0150	No	No	No
	September	20.7	28.6	128	500	1000	0.161	0.224	0.0572	0.0286	No	No	No
	October	22.0	30.9	128	500	1000	0.172	0.241	0.0618	0.0309	No	No	No
	November	15.6	21.7	128	500	1000	0.122	0.169	0.0433	0.0217	No	No	No
	December	20.0	28.1	128	500	1000	0.156	0.220	0.0562	0.0281	No	No	No
Post-Closure Phase (36-99)	January	24.0	27.9	128	500	1000	0.188	0.218	0.0558	0.0279	No	No	No
	February	42.6	48.4	128	500	1000	0.333	0.378	0.0968	0.0484	No	No	No
	March	59.3	66.9	128	500	1000	0.463	0.523	0.134	0.0669	No	No	No
	April	22.5	25.6	128	500	1000	0.176	0.200	0.0513	0.0256	No	No	No
	May	22.4	25.7	128	500	1000	0.175	0.201	0.0514	0.0257	No	No	No
	June	28.4	32.4	128	500	1000	0.222	0.253	0.0648	0.0324	No	No	No
	July	19.1	21.1	128	500	1000	0.149	0.165	0.0422	0.0211	No	No	No
	August	17.3	19.5	128	500	1000	0.135	0.152	0.0390	0.0195	No	No	No
	September	21.3	24.9	128	500	1000	0.166	0.195	0.0499	0.0249	No	No	No
	October	23.5	27.5	128	500	1000	0.184	0.215	0.0549	0.0275	No	No	No
	November	16.1	18.5	128	500	1000	0.126	0.144	0.0369	0.0185	No	No	No
	December	20.6	23.9	128	500	1000	0.161	0.186	0.0477	0.0239	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent

Appendix 13-D9b. Lower Jones Creek (J1) Hazard Quotients for Total Antimony Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	March	0.00009	0.00010	0.020	0.014	0.00479	0.00684	No	No
	April	0.00003	0.00004	0.020	0.014	0.00185	0.00265	No	No
	May	0.00012	0.00012	0.020	0.014	0.00610	0.00872	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00012	0.00012	0.020	0.014	0.00620	0.00886	No	No
	August	0.00010	0.00010	0.020	0.014	0.00518	0.00740	No	No
	September	0.00010	0.00010	0.020	0.014	0.00505	0.00722	No	No
	October	0.00009	0.00009	0.020	0.014	0.00444	0.00634	No	No
	November	0.00008	0.00008	0.020	0.014	0.00406	0.00581	No	No
	December	0.00009	0.00009	0.020	0.014	0.00469	0.00670	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.020	0.014	0.00497	0.00710	No	No
	February	0.00010	0.00010	0.020	0.014	0.00503	0.00719	No	No
	March	0.00009	0.00009	0.020	0.014	0.00469	0.00670	No	No
	April	0.00003	0.00003	0.020	0.014	0.00158	0.00226	No	No
	May	0.00012	0.00012	0.020	0.014	0.00617	0.00881	No	No
	June	0.00010	0.00010	0.020	0.014	0.00512	0.00732	No	No
	July	0.00012	0.00013	0.020	0.014	0.00629	0.00899	No	No
	August	0.00010	0.00010	0.020	0.014	0.00518	0.00740	No	No
	September	0.00010	0.00010	0.020	0.014	0.00508	0.00725	No	No
	October	0.00009	0.00009	0.020	0.014	0.00442	0.00632	No	No
	November	0.00008	0.00008	0.020	0.014	0.00404	0.00577	No	No
	December	0.00009	0.00009	0.020	0.014	0.00471	0.00672	No	No
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.020	0.014	0.00497	0.00710	No	No
	February	0.00010	0.00010	0.020	0.014	0.00503	0.00719	No	No
	March	0.00009	0.00009	0.020	0.014	0.00469	0.00670	No	No
	April	0.00003	0.00003	0.020	0.014	0.00159	0.00227	No	No
	May	0.00012	0.00012	0.020	0.014	0.00614	0.00877	No	No
	June	0.00010	0.00010	0.020	0.014	0.00508	0.00726	No	No
	July	0.00012	0.00012	0.020	0.014	0.00625	0.00893	No	No
	August	0.00010	0.00010	0.020	0.014	0.00518	0.00741	No	No
	September	0.00010	0.00010	0.020	0.014	0.00508	0.00726	No	No
	October	0.00009	0.00009	0.020	0.014	0.00442	0.00632	No	No
	November	0.00008	0.00008	0.020	0.014	0.00404	0.00577	No	No
	December	0.00009	0.00009	0.020	0.014	0.00471	0.00672	No	No
Closure Phase (29-35)	January	0.00011	0.00014	0.020	0.014	0.00685	0.00978	No	No
	February	0.00012	0.00015	0.020	0.014	0.00741	0.0106	No	No
	March	0.00011	0.00014	0.020	0.014	0.00680	0.00972	No	No
	April	0.00003	0.00004	0.020	0.014	0.00189	0.00270	No	No
	May	0.00013	0.00013	0.020	0.014	0.00650	0.00928	No	No
	June	0.00010	0.00011	0.020	0.014	0.00556	0.00795	No	No
	July	0.00013	0.00014	0.020	0.014	0.00678	0.00969	No	No
	August	0.00011	0.00012	0.020	0.014	0.00581	0.00830	No	No
	September	0.00011	0.00012	0.020	0.014	0.00624	0.00891	No	No
	October	0.00009	0.00010	0.020	0.014	0.00510	0.00729	No	No
	November	0.00009	0.00009	0.020	0.014	0.00468	0.00669	No	No
	December	0.00011	0.00012	0.020	0.014	0.00596	0.00852	No	No
Post-Closure Phase (36-99)	January	0.00011	0.00011	0.020	0.014	0.00556	0.00794	No	No
	February	0.00011	0.00012	0.020	0.014	0.00583	0.00834	No	No
	March	0.00010	0.00011	0.020	0.014	0.00535	0.00764	No	No
	April	0.00003	0.00003	0.020	0.014	0.00168	0.00240	No	No
	May	0.00012	0.00012	0.020	0.014	0.00614	0.00877	No	No
	June	0.00010	0.00010	0.020	0.014	0.00503	0.00719	No	No
	July	0.00013	0.00013	0.020	0.014	0.00627	0.00896	No	No
	August	0.00011	0.00011	0.020	0.014	0.00540	0.00771	No	No
	September	0.00011	0.00011	0.020	0.014	0.00547	0.00781	No	No
	October	0.00009	0.00009	0.020	0.014	0.00463	0.00661	No	No
	November	0.00008	0.00008	0.020	0.014	0.00423	0.00605	No	No
	December	0.00010	0.00010	0.020	0.014	0.00510	0.00729	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D9c. Lower Jones Creek (J1) Hazard Quotients for Total Arsenic Concentrations, Expected Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE Maximum	Drinking Water Quality Guidelines BC DWQG	BC MOE Working Water Quality Guidelines for Wildlife Water Supply Maximum	BC MOE Livestock Watering Water Quality Guideline BC MOE Interim	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply Maximum Predicted vs. BC MOE Maximum Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs. BC MOE Interim Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum												
Construction (-2 to-1)	January	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0260	0.0052	0.0052	0.0052	No	No	No	No
	February	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0259	0.0052	0.0052	0.0052	No	No	No	No
	March	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0266	0.0053	0.0053	0.0053	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0336	0.0067	0.0067	0.0067	No	No	No	No
	May	0.0011	0.0011	0.005	0.025	0.025	0.025	0.230	0.0459	0.0459	0.0459	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.134	0.0268	0.0268	0.0268	No	No	No	No
	July	0.0016	0.0017	0.005	0.025	0.025	0.025	0.332	0.0663	0.0663	0.0663	No	No	No	No
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.136	0.0271	0.0271	0.0271	No	No	No	No
	September	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0276	0.0055	0.0055	0.0055	No	No	No	No
	October	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0297	0.0059	0.0059	0.0059	No	No	No	No
	November	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0293	0.0059	0.0059	0.0059	No	No	No	No
	December	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0269	0.0054	0.0054	0.0054	No	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0265	0.0053	0.0053	0.0053	No	No	No	No
	February	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0265	0.0053	0.0053	0.0053	No	No	No	No
	March	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0273	0.0055	0.0055	0.0055	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0338	0.0068	0.0068	0.0068	No	No	No	No
	May	0.0011	0.0012	0.005	0.025	0.025	0.025	0.233	0.0465	0.0465	0.0465	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.136	0.0273	0.0273	0.0273	No	No	No	No
	July	0.0017	0.0017	0.005	0.025	0.025	0.025	0.337	0.0675	0.0675	0.0675	No	No	No	No
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.137	0.0274	0.0274	0.0274	No	No	No	No
	September	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0279	0.0056	0.0056	0.0056	No	No	No	No
	October	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0298	0.0060	0.0060	0.0060	No	No	No	No
	November	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0295	0.0059	0.0059	0.0059	No	No	No	No
	December	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0273	0.0055	0.0055	0.0055	No	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0266	0.0053	0.0053	0.0053	No	No	No	No
	February	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0265	0.0053	0.0053	0.0053	No	No	No	No
	March	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0273	0.0055	0.0055	0.0055	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0338	0.0068	0.0068	0.0068	No	No	No	No
	May	0.0011	0.0011	0.005	0.025	0.025	0.025	0.228	0.0457	0.0457	0.0457	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.133	0.0266	0.0266	0.0266	No	No	No	No
	July	0.0016	0.0016	0.005	0.025	0.025	0.025	0.327	0.0655	0.0655	0.0655	No	No	No	No
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.136	0.0272	0.0272	0.0272	No	No	No	No
	September	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0279	0.0056	0.0056	0.0056	No	No	No	No
	October	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0298	0.0060	0.0060	0.0060	No	No	No	No
	November	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0296	0.0059	0.0059	0.0059	No	No	No	No
	December	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0273	0.0055	0.0055	0.0055	No	No	No	No
Closure Phase (29-35)	January	0.0001	0.0002	0.005	0.025	0.025	0.025	0.0365	0.0073	0.0073	0.0073	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0389	0.0078	0.0078	0.0078	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0385	0.0077	0.0077	0.0077	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0354	0.0071	0.0071	0.0071	No	No	No	No
	May	0.0012	0.0012	0.005	0.025	0.025	0.025	0.232	0.0464	0.0464	0.0464	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.137	0.0274	0.0274	0.0274	No	No	No	No
	July	0.0017	0.0017	0.005	0.025	0.025	0.025	0.335	0.0669	0.0669	0.0669	No	No	No	No
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.140	0.0281	0.0281	0.0281	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0340	0.0068	0.0068	0.0068	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0336	0.0067	0.0067	0.0067	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0330	0.0066	0.0066	0.0066	No	No	No	No
	December	0.0001	0.0002	0.005	0.025	0.025	0.025	0.0340	0.0068	0.0068	0.0068	No	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0282	0.0056	0.0056	0.0056	No	No	No	No
	February	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0287	0.0057	0.0057	0.0057	No	No	No	No
	March	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0291	0.0058	0.0058	0.0058	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0341	0.0068	0.0068	0.0068	No	No	No	No
	May	0.0012	0.0012	0.005	0.025	0.025	0.025	0.230	0.0460	0.0460	0.0460	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.134	0.0268	0.0268	0.0268	No	No	No	No
	July	0.0017	0.0017	0.005	0.025	0.025	0.025	0.333	0.0666	0.0666	0.0666	No	No	No	No
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.139	0.0277	0.0277	0.0277	No	No	No	No
	September	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0290	0.0058	0.0058	0.0058	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0307	0.0061	0.0061	0.0061	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0302	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0001	0.0001	0.005	0.025	0.025	0.025	0.0285	0.0057	0.0057	0.0057	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D9d. Lower Jones Creek (J1) Hazard Quotients for Total Barium Concentrations, Expected Case

		First Screening Step								Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum		Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline			
											Maximum Predicted vs. Canadian DWQG	
Construction (-2 to-1)	January	0.0045	0.0046	1	5	1	0.0045	0.0046	0.0009	0.0046	No	No
	February	0.0044	0.0044	1	5	1	0.0044	0.0044	0.0009	0.0044	No	No
	March	0.0050	0.0051	1	5	1	0.0050	0.0051	0.0010	0.0051	No	No
	April	0.0109	0.0111	1	5	1	0.0109	0.0111	0.0022	0.0111	No	No
	May	0.0088	0.0089	1	5	1	0.0088	0.0089	0.0018	0.0089	No	No
	June	0.0088	0.0088	1	5	1	0.0088	0.0088	0.0018	0.0088	No	No
	July	0.0092	0.0093	1	5	1	0.0092	0.0093	0.0019	0.0093	No	No
	August	0.0080	0.0081	1	5	1	0.0080	0.0081	0.0016	0.0081	No	No
	September	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	October	0.0083	0.0084	1	5	1	0.0083	0.0084	0.0017	0.0084	No	No
	November	0.0082	0.0084	1	5	1	0.0082	0.0084	0.0017	0.0084	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Operation 1 Phase (1-23)	January	0.0046	0.0047	1	5	1	0.0046	0.0047	0.0009	0.0047	No	No
	February	0.0044	0.0044	1	5	1	0.0044	0.0044	0.0009	0.0044	No	No
	March	0.0052	0.0053	1	5	1	0.0052	0.0053	0.0011	0.0053	No	No
	April	0.0112	0.0113	1	5	1	0.0112	0.0113	0.0023	0.0113	No	No
	May	0.0088	0.0089	1	5	1	0.0088	0.0089	0.0018	0.0089	No	No
	June	0.0087	0.0089	1	5	1	0.0087	0.0089	0.0018	0.0089	No	No
	July	0.0092	0.0094	1	5	1	0.0092	0.0094	0.0019	0.0094	No	No
	August	0.0081	0.0082	1	5	1	0.0081	0.0082	0.0016	0.0082	No	No
	September	0.0055	0.0056	1	5	1	0.0055	0.0056	0.0011	0.0056	No	No
	October	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No
	November	0.0083	0.0084	1	5	1	0.0083	0.0084	0.0017	0.0084	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Operations 2 Phase (24-28)	January	0.0046	0.0046	1	5	1	0.0046	0.0046	0.0009	0.0046	No	No
	February	0.0043	0.0043	1	5	1	0.0043	0.0043	0.0009	0.0043	No	No
	March	0.0051	0.0052	1	5	1	0.0051	0.0052	0.0010	0.0052	No	No
	April	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022	0.0112	No	No
	May	0.0087	0.0088	1	5	1	0.0087	0.0088	0.0018	0.0088	No	No
	June	0.0086	0.0087	1	5	1	0.0086	0.0087	0.0017	0.0087	No	No
	July	0.0091	0.0091	1	5	1	0.0091	0.0091	0.0018	0.0091	No	No
	August	0.0081	0.0081	1	5	1	0.0081	0.0081	0.0016	0.0081	No	No
	September	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	October	0.0083	0.0084	1	5	1	0.0083	0.0084	0.0017	0.0084	No	No
	November	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No
	December	0.0056	0.0056	1	5	1	0.0056	0.0056	0.0011	0.0056	No	No
Closure Phase (29-35)	January	0.0047	0.0049	1	5	1	0.0047	0.0049	0.0010	0.0049	No	No
	February	0.0045	0.0047	1	5	1	0.0045	0.0047	0.0009	0.0047	No	No
	March	0.0053	0.0055	1	5	1	0.0053	0.0055	0.0011	0.0055	No	No
	April	0.0112	0.0113	1	5	1	0.0112	0.0113	0.0023	0.0113	No	No
	May	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No
	June	0.0088	0.0089	1	5	1	0.0088	0.0089	0.0018	0.0089	No	No
	July	0.0093	0.0094	1	5	1	0.0093	0.0094	0.0019	0.0094	No	No
	August	0.0082	0.0083	1	5	1	0.0082	0.0083	0.0017	0.0083	No	No
	September	0.0056	0.0057	1	5	1	0.0056	0.0057	0.0011	0.0057	No	No
	October	0.0085	0.0085	1	5	1	0.0085	0.0085	0.0017	0.0085	No	No
	November	0.0084	0.0085	1	5	1	0.0084	0.0085	0.0017	0.0085	No	No
	December	0.0058	0.0059	1	5	1	0.0058	0.0059	0.0012	0.0059	No	No
Post-Closure Phase (36-99)	January	0.0047	0.0047	1	5	1	0.0047	0.0047	0.0009	0.0047	No	No
	February	0.0045	0.0045	1	5	1	0.0045	0.0045	0.0009	0.0045	No	No
	March	0.0053	0.0053	1	5	1	0.0053	0.0053	0.0011	0.0053	No	No
	April	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022	0.0112	No	No
	May	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No
	June	0.0088	0.0088	1	5	1	0.0088	0.0088	0.0018	0.0088	No	No
	July	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	No	No
	August	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No
	September	0.0056	0.0056	1	5	1	0.0056	0.0056	0.0011	0.0056	No	No
	October	0.0085	0.0085	1	5	1	0.0085	0.0085	0.0017	0.0085	No	No
	November	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No
	December	0.0058	0.0058	1	5	1	0.0058	0.0058	0.0012	0.0058	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D9e. Lower Jones Creek (J1) Hazard Quotients for Total Beryllium Concentrations, Expected Case

		First Screening Step								Retained as COFC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE Working (Chronic, 30-day mean)	Drinking Water Quality Guidelines BC DWQG	BC MOE Livestock Watering Water Quality Guideline BC MOE Working	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs. BC MOE Working Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline					
Construction (-2 to-1)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0189	0.0250	0.00100	No	No	No
	February	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0189	0.0250	0.00100	No	No	No
	March	0.00009	0.00010	0.0053	0.004	0.1	0.0177	0.0180	0.0238	0.00095	No	No	No
	April	0.00003	0.00003	0.0053	0.004	0.1	0.00503	0.00550	0.00729	0.00029	No	No	No
	May	0.00012	0.00012	0.0053	0.004	0.1	0.0230	0.0230	0.0305	0.00122	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	July	0.00008	0.00008	0.0053	0.004	0.1	0.0153	0.0153	0.0203	0.00081	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0195	0.0195	0.0259	0.00104	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	October	0.00009	0.00009	0.0053	0.004	0.1	0.0163	0.0164	0.0217	0.00087	No	No	No
	November	0.00008	0.00008	0.0053	0.004	0.1	0.0148	0.0149	0.0197	0.00079	No	No	No
	December	0.00009	0.00009	0.0053	0.004	0.1	0.0175	0.0176	0.0233	0.00093	No	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0185	0.0246	0.00098	No	No	No
	February	0.00010	0.00010	0.0053	0.004	0.1	0.0185	0.0188	0.0249	0.00099	No	No	No
	March	0.00009	0.00009	0.0053	0.004	0.1	0.0170	0.0173	0.0229	0.00092	No	No	No
	April	0.00002	0.00002	0.0053	0.004	0.1	0.00427	0.00434	0.00576	0.00023	No	No	No
	May	0.00012	0.00012	0.0053	0.004	0.1	0.0227	0.0231	0.0306	0.00122	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0184	0.0189	0.0250	0.00100	No	No	No
	July	0.00008	0.00008	0.0053	0.004	0.1	0.0148	0.0152	0.0201	0.00081	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0194	0.0195	0.0259	0.00103	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0187	0.0248	0.00099	No	No	No
	October	0.00009	0.00009	0.0053	0.004	0.1	0.0162	0.0162	0.0215	0.00086	No	No	No
	November	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
	December	0.00009	0.00009	0.0053	0.004	0.1	0.0173	0.0174	0.0231	0.00092	No	No	No
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0181	0.0181	0.0239	0.00096	No	No	No
	February	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0241	0.00096	No	No	No
	March	0.00009	0.00009	0.0053	0.004	0.1	0.0167	0.0167	0.0222	0.00089	No	No	No
	April	0.00002	0.00002	0.0053	0.004	0.1	0.00426	0.00427	0.00565	0.00023	No	No	No
	May	0.00012	0.00012	0.0053	0.004	0.1	0.0225	0.0226	0.0300	0.00120	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0181	0.0183	0.0242	0.00097	No	No	No
	July	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0148	0.0196	0.00078	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0193	0.0193	0.0256	0.00102	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0184	0.0184	0.0244	0.00098	No	No	No
	October	0.00009	0.00009	0.0053	0.004	0.1	0.0161	0.0161	0.0213	0.00085	No	No	No
	November	0.00008	0.00008	0.0053	0.004	0.1	0.0145	0.0145	0.0193	0.00077	No	No	No
	December	0.00009	0.00009	0.0053	0.004	0.1	0.0171	0.0171	0.0227	0.00091	No	No	No
Closure Phase (29-35)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0183	0.0242	0.00097	No	No	No
	February	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0184	0.0244	0.00098	No	No	No
	March	0.00009	0.00009	0.0053	0.004	0.1	0.0169	0.0170	0.0225	0.00090	No	No	No
	April	0.00002	0.00002	0.0053	0.004	0.1	0.00429	0.00431	0.00572	0.00023	No	No	No
	May	0.00012	0.00012	0.0053	0.004	0.1	0.0229	0.0230	0.0305	0.00122	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0188	0.0250	0.00100	No	No	No
	July	0.00008	0.00008	0.0053	0.004	0.1	0.0151	0.0152	0.0201	0.00080	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0194	0.0195	0.0258	0.00103	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0185	0.0185	0.0246	0.00098	No	No	No
	October	0.00009	0.00009	0.0053	0.004	0.1	0.0161	0.0161	0.0213	0.00085	No	No	No
	November	0.00008	0.00008	0.0053	0.004	0.1	0.0145	0.0145	0.0193	0.00077	No	No	No
	December	0.00009	0.00009	0.0053	0.004	0.1	0.0171	0.0172	0.0228	0.00091	No	No	No
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0184	0.0185	0.0245	0.00098	No	No	No
	February	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0187	0.0248	0.00099	No	No	No
	March	0.00009	0.00009	0.0053	0.004	0.1	0.0172	0.0173	0.0229	0.00092	No	No	No
	April	0.00002	0.00002	0.0053	0.004	0.1	0.00433	0.00434	0.00575	0.00023	No	No	No
	May	0.00012	0.00012	0.0053	0.004	0.1	0.0230	0.0230	0.0305	0.00122	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	July	0.00008	0.00008	0.0053	0.004	0.1	0.0152	0.0152	0.0202	0.00081	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0195	0.0196	0.0259	0.00104	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0187	0.0247	0.00099	No	No	No
	October	0.00009	0.00009	0.0053	0.004	0.1	0.0161	0.0162	0.0214	0.00086	No	No	No
	November	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0193	0.00077	No	No	No
	December	0.00009	0.00009	0.0053	0.004	0.1	0.0173	0.0174	0.0230	0.00092	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D9f. Lower Jones Creek (J1) Hazard Quotients for Total Boron Concentrations, Expected Case

		First Screening Step										Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE Maximum	Drinking Water Quality Guidelines BC DWQG	BC MOE Working Water Quality Guidelines for Wildlife Water Supply Maximum	BC MOE Livestock Watering Water Quality Guideline Maximum	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply Maximum Predicted vs. BC MOE Maximum Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
		Mean	Maximum													
Construction (-2 to-1)	January	0.0103	0.0107	1.2	5	5	5	0.0089	0.0021	0.0021	0.0021	No	No	No	No	
	February	0.0101	0.0102	1.2	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No	
	March	0.0126	0.0132	1.2	5	5	5	0.0110	0.0026	0.0026	0.0026	No	No	No	No	
	April	0.0426	0.0437	1.2	5	5	5	0.0364	0.0087	0.0087	0.0087	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0159	0.0161	1.2	5	5	5	0.0134	0.0032	0.0032	0.0032	No	No	No	No	
	November	0.0196	0.0199	1.2	5	5	5	0.0166	0.0040	0.0040	0.0040	No	No	No	No	
	December	0.0132	0.0133	1.2	5	5	5	0.0111	0.0027	0.0027	0.0027	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0112	0.0115	1.2	5	5	5	0.0096	0.0023	0.0023	0.0023	No	No	No	No	
	February	0.0108	0.0111	1.2	5	5	5	0.0093	0.0022	0.0022	0.0022	No	No	No	No	
	March	0.0142	0.0146	1.2	5	5	5	0.0122	0.0029	0.0029	0.0029	No	No	No	No	
	April	0.0444	0.0444	1.2	5	5	5	0.0370	0.0089	0.0089	0.0089	No	No	No	No	
	May	0.0105	0.0110	1.2	5	5	5	0.0092	0.0022	0.0022	0.0022	No	No	No	No	
	June	0.0109	0.0117	1.2	5	5	5	0.0097	0.0023	0.0023	0.0023	No	No	No	No	
	July	0.0108	0.0115	1.2	5	5	5	0.0096	0.0023	0.0023	0.0023	No	No	No	No	
	August	0.0102	0.0103	1.2	5	5	5	0.0086	0.0021	0.0021	0.0021	No	No	No	No	
	September	0.0103	0.0105	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No	
	October	0.0163	0.0163	1.2	5	5	5	0.0136	0.0033	0.0033	0.0033	No	No	No	No	
	November	0.0200	0.0201	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	
	December	0.0137	0.0138	1.2	5	5	5	0.0115	0.0028	0.0028	0.0028	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0115	0.0116	1.2	5	5	5	0.0096	0.0023	0.0023	0.0023	No	No	No	No	
	February	0.0112	0.0112	1.2	5	5	5	0.0093	0.0022	0.0022	0.0022	No	No	No	No	
	March	0.0146	0.0147	1.2	5	5	5	0.0123	0.0029	0.0029	0.0029	No	No	No	No	
	April	0.0444	0.0444	1.2	5	5	5	0.0370	0.0089	0.0089	0.0089	No	No	No	No	
	May	0.0108	0.0110	1.2	5	5	5	0.0091	0.0022	0.0022	0.0022	No	No	No	No	
	June	0.0113	0.0116	1.2	5	5	5	0.0097	0.0023	0.0023	0.0023	No	No	No	No	
	July	0.0111	0.0114	1.2	5	5	5	0.0095	0.0023	0.0023	0.0023	No	No	No	No	
	August	0.0103	0.0103	1.2	5	5	5	0.0086	0.0021	0.0021	0.0021	No	No	No	No	
	September	0.0105	0.0106	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No	
	October	0.0164	0.0164	1.2	5	5	5	0.0137	0.0033	0.0033	0.0033	No	No	No	No	
	November	0.0201	0.0202	1.2	5	5	5	0.0168	0.0040	0.0040	0.0040	No	No	No	No	
	December	0.0139	0.0139	1.2	5	5	5	0.0116	0.0028	0.0028	0.0028	No	No	No	No	
Closure Phase (29-35)	January	0.0129	0.0174	1.2	5	5	5	0.0145	0.0035	0.0035	0.0035	No	No	No	No	
	February	0.0129	0.0184	1.2	5	5	5	0.0153	0.0037	0.0037	0.0037	No	No	No	No	
	March	0.0161	0.0211	1.2	5	5	5	0.0176	0.0042	0.0042	0.0042	No	No	No	No	
	April	0.0445	0.0452	1.2	5	5	5	0.0377	0.0090	0.0090	0.0090	No	No	No	No	
	May	0.0109	0.0120	1.2	5	5	5	0.0100	0.0024	0.0024	0.0024	No	No	No	No	
	June	0.0114	0.0130	1.2	5	5	5	0.0108	0.0026	0.0026	0.0026	No	No	No	No	
	July	0.0113	0.0129	1.2	5	5	5	0.0108	0.0026	0.0026	0.0026	No	No	No	No	
	August	0.0107	0.0122	1.2	5	5	5	0.0101	0.0024	0.0024	0.0024	No	No	No	No	
	September	0.0114	0.0140	1.2	5	5	5	0.0117	0.0028	0.0028	0.0028	No	No	No	No	
	October	0.0170	0.0186	1.2	5	5	5	0.0155	0.0037	0.0037	0.0037	No	No	No	No	
	November	0.0207	0.0222	1.2	5	5	5	0.0185	0.0044	0.0044	0.0044	No	No	No	No	
	December	0.0149	0.0178	1.2	5	5	5	0.0149	0.0036	0.0036	0.0036	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0109	0.0109	1.2	5	5	5	0.0091	0.0022	0.0022	0.0022	No	No	No	No	
	February	0.0104	0.0104	1.2	5	5	5	0.0087	0.0021	0.0021	0.0021	No	No	No	No	
	March	0.0138	0.0140	1.2	5	5	5	0.0116	0.0028	0.0028	0.0028	No	No	No	No	
	April	0.0442	0.0443	1.2	5	5	5	0.0369	0.0089	0.0089	0.0089	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0101	1.2	5	5	5	0.0084	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0101	0.0101	1.2	5	5	5	0.0084	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0163	0.0163	1.2	5	5	5	0.0136	0.0033	0.0033	0.0033	No	No	No	No	
	November	0.0201	0.0201	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	
	December	0.0135	0.0136	1.2	5	5	5	0.0113	0.0027	0.0027	0.0027	No	No	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D9g. Lower Jones Creek (J1) Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE Working		Maximum Predicted vs. BC MOE Working Guideline
Construction (-2 to-1)	January	4.71	5.22	1000	0.0052	No
	February	4.30	4.40	1000	0.0044	No
	March	6.68	7.16	1000	0.0072	No
	April	30.2	31.1	1000	0.0311	No
	May	15.7	15.8	1000	0.0158	No
	June	13.1	13.2	1000	0.0132	No
	July	23.2	23.5	1000	0.0235	No
	August	16.3	16.7	1000	0.0167	No
	September	8.03	8.23	1000	0.0082	No
	October	16.7	17.0	1000	0.0170	No
	November	18.9	19.3	1000	0.0193	No
	December	6.95	7.07	1000	0.0071	No
Operation 1 Phase (1-23)	January	5.35	5.36	1000	0.0054	No
	February	4.48	4.49	1000	0.0045	No
	March	7.69	7.79	1000	0.0078	No
	April	31.5	31.5	1000	0.0315	No
	May	15.8	16.0	1000	0.0160	No
	June	13.3	13.4	1000	0.0134	No
	July	23.4	23.8	1000	0.0238	No
	August	16.8	16.9	1000	0.0169	No
	September	8.22	8.30	1000	0.0083	No
	October	17.0	17.2	1000	0.0172	No
	November	19.3	19.4	1000	0.0194	No
	December	7.07	7.11	1000	0.0071	No
Operations 2 Phase (24-28)	January	5.36	5.37	1000	0.0054	No
	February	4.50	4.50	1000	0.0045	No
	March	7.71	7.79	1000	0.0078	No
	April	31.5	31.5	1000	0.0315	No
	May	15.7	15.8	1000	0.0158	No
	June	13.1	13.2	1000	0.0132	No
	July	23.1	23.2	1000	0.0232	No
	August	16.8	16.8	1000	0.0168	No
	September	8.21	8.26	1000	0.0083	No
	October	17.0	17.1	1000	0.0171	No
	November	19.2	19.3	1000	0.0193	No
	December	7.07	7.10	1000	0.0071	No
Closure Phase (29-35)	January	5.73	6.61	1000	0.0066	No
	February	4.91	5.99	1000	0.0060	No
	March	8.07	9.04	1000	0.0090	No
	April	31.5	31.6	1000	0.0316	No
	May	15.9	16.1	1000	0.0161	No
	June	13.4	13.7	1000	0.0137	No
	July	23.6	23.9	1000	0.0239	No
	August	17.0	17.3	1000	0.0173	No
	September	8.57	9.08	1000	0.0091	No
	October	17.3	17.6	1000	0.0176	No
	November	19.6	19.9	1000	0.0199	No
	December	7.40	7.97	1000	0.0080	No
Post-Closure Phase (36-99)	January	5.47	5.48	1000	0.0055	No
	February	4.58	4.59	1000	0.0046	No
	March	7.75	7.85	1000	0.0079	No
	April	31.5	31.5	1000	0.0315	No
	May	15.8	15.8	1000	0.0158	No
	June	13.2	13.2	1000	0.0132	No
	July	23.5	23.5	1000	0.0235	No
	August	17.0	17.0	1000	0.0170	No
	September	8.44	8.45	1000	0.0085	No
	October	17.3	17.3	1000	0.0173	No
	November	19.5	19.6	1000	0.0196	No
	December	7.23	7.23	1000	0.0072	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D9i. Lower Jones Creek (J1) Hazard Quotients for Total Chromium Concentrations, Expected Case

		First Screening Step								Second Screening Step				Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline			Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline			Mean	95%ile	Mean	95%ile			
Construction (-2 to 1)	January	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.175	0.0197	0.0035	0.0035				No	No	No	
	February	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.175	0.0197	0.0035	0.0035				No	No	No	
	March	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.170	0.0191	0.0034	0.0034				No	No	No	
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.117	0.0131	0.0023	0.0023				No	No	No	
	May	0.0009	0.0009	0.001	0.0089	0.05	0.05	0.859	0.0965	0.0172	0.0172				No	No	No	
	June	0.0012	0.0012	0.001	0.0089	0.05	0.05	1.21	0.136	0.0241	0.0241	0.0014	0.0014	0.859	0.865	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.159	0.0178	0.0032	0.0032				No	No	No	
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.144	0.0161	0.0029	0.0029				No	No	No	
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.166	0.0186	0.0033	0.0033				No	No	No	
	October	0.0001	0.0002	0.001	0.0089	0.05	0.05	0.150	0.0169	0.0030	0.0030				No	No	No	
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.139	0.0157	0.0028	0.0028				No	No	No	
	December	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.163	0.0184	0.0033	0.0033				No	No	No	
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.172	0.0193	0.0034	0.0034				No	No	No	
	February	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.174	0.0196	0.0035	0.0035				No	No	No	
	March	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.167	0.0187	0.0033	0.0033				No	No	No	
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.111	0.0125	0.0022	0.0022				No	No	No	
	May	0.0009	0.0009	0.001	0.0089	0.05	0.05	0.869	0.0976	0.0174	0.0174				No	No	No	
	June	0.0012	0.0012	0.001	0.0089	0.05	0.05	1.23	0.138	0.0246	0.0246	0.0014	0.0014	0.857	0.880	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.159	0.0178	0.0032	0.0032				No	No	No	
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.141	0.0159	0.0028	0.0028				No	No	No	
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.165	0.0185	0.0033	0.0033				No	No	No	
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0167	0.0030	0.0030				No	No	No	
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.138	0.0155	0.0028	0.0028				No	No	No	
	December	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.162	0.0182	0.0032	0.0032				No	No	No	
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.170	0.0191	0.0034	0.0034				No	No	No	
	February	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.172	0.0193	0.0034	0.0034				No	No	No	
	March	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.164	0.0184	0.0033	0.0033				No	No	No	
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.111	0.0125	0.0022	0.0022				No	No	No	
	May	0.0008	0.0009	0.001	0.0089	0.05	0.05	0.851	0.0957	0.0170	0.0170				No	No	No	
	June	0.0012	0.0012	0.001	0.0089	0.05	0.05	1.19	0.133	0.0237	0.0237	0.0014	0.0014	0.845	0.851	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.157	0.0176	0.0031	0.0031				No	No	No	
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.141	0.0159	0.0028	0.0028				No	No	No	
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.164	0.0184	0.0033	0.0033				No	No	No	
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0166	0.0030	0.0030				No	No	No	
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.137	0.0154	0.0027	0.0027				No	No	No	
	December	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.161	0.0181	0.0032	0.0032				No	No	No	
Closure Phase (29-35)	January	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.179	0.0201	0.0036	0.0036				No	No	No	
	February	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.183	0.0206	0.0037	0.0037				No	No	No	
	March	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.175	0.0196	0.0035	0.0035				No	No	No	
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.113	0.0127	0.0023	0.0023				No	No	No	
	May	0.0009	0.0009	0.001	0.0089	0.05	0.05	0.861	0.0967	0.0172	0.0172				No	No	No	
	June	0.0012	0.0012	0.001	0.0089	0.05	0.05	1.21	0.136	0.0241	0.0241	0.0014	0.0014	0.862	0.865	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.162	0.0182	0.0032	0.0032				No	No	No	
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.143	0.0161	0.0029	0.0029				No	No	No	
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.169	0.0190	0.0034	0.0034				No	No	No	
	October	0.0001	0.0002	0.001	0.0089	0.05	0.05	0.151	0.0169	0.0030	0.0030				No	No	No	
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028				No	No	No	
	December	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.167	0.0187	0.0033	0.0033				No	No	No	
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.172	0.0193	0.0034	0.0034				No	No	No	
	February	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.174	0.0196	0.0035	0.0035				No	No	No	
	March	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.167	0.0188	0.0033	0.0033				No	No	No	
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.112	0.0125	0.0022	0.0022				No	No	No	
	May	0.0009	0.0009	0.001	0.0089	0.05	0.05	0.861	0.0967	0.0172	0.0172				No	No	No	
	June	0.0012	0.0012	0.001	0.0089	0.05	0.05	1.21	0.136	0.0241	0.0241	0.0014	0.0014	0.865	0.865	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.158	0.0178	0.0032	0.0032				No	No	No	
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.141	0.0158	0.0028	0.0028				No	No	No	
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.165	0.0185	0.0033	0.0033				No	No	No	
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0166	0.0030	0.0030				No	No	No	
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.137	0.0154	0.0027	0.0027				No	No	No	
	December	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.162	0.0182	0.0032	0.0032				No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 CCME = Canadian Council of Ministers of the Environment
 Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D9j. Lower Jones Creek (J1) Hazard Quotients for Total Cobalt Concentrations, Expected Case

		First Screening Step										Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs. BC MOE Working Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		Mean Predicted vs. BC MOE 30-Day Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
		BC MOE 30-Day Mean	BC MOE Maximum	BC MOE Working	Mean Predicted vs. BC MOE 30-Day Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Working Guideline					
Construction (-2 to-1)	January	0.00013	0.00013	0.004	0.110	1	0.0326	0.0329	0.0012	0.00013	No	No	
	February	0.00013	0.00013	0.004	0.110	1	0.0328	0.0329	0.0012	0.00013	No	No	
	March	0.00012	0.00013	0.004	0.110	1	0.0309	0.0313	0.0011	0.00013	No	No	
	April	0.00004	0.00004	0.004	0.110	1	0.0096	0.0104	0.0004	0.00004	No	No	
	May	0.00045	0.00046	0.004	0.110	1	0.114	0.115	0.0042	0.00046	No	No	
	June	0.00055	0.00055	0.004	0.110	1	0.137	0.138	0.0050	0.00055	No	No	
	July	0.00013	0.00013	0.004	0.110	1	0.0323	0.0323	0.0012	0.00013	No	No	
	August	0.00012	0.00012	0.004	0.110	1	0.0300	0.0301	0.0011	0.00012	No	No	
	September	0.00012	0.00012	0.004	0.110	1	0.0303	0.0305	0.0011	0.00012	No	No	
	October	0.00010	0.00011	0.004	0.110	1	0.0262	0.0264	0.0010	0.00011	No	No	
	November	0.00010	0.00010	0.004	0.110	1	0.0240	0.0242	0.0009	0.00010	No	No	
	December	0.00012	0.00012	0.004	0.110	1	0.0299	0.0300	0.0011	0.00012	No	No	
Operation 1 Phase (1-23)	January	0.00013	0.00013	0.004	0.110	1	0.0318	0.0322	0.0012	0.00013	No	No	
	February	0.00013	0.00013	0.004	0.110	1	0.0323	0.0327	0.0012	0.00013	No	No	
	March	0.00012	0.00012	0.004	0.110	1	0.0297	0.0301	0.0011	0.00012	No	No	
	April	0.00003	0.00003	0.004	0.110	1	0.0083	0.0085	0.0003	0.00003	No	No	
	May	0.00046	0.00046	0.004	0.110	1	0.114	0.116	0.0042	0.00046	No	No	
	June	0.00055	0.00056	0.004	0.110	1	0.137	0.141	0.0051	0.00056	No	No	
	July	0.00013	0.00013	0.004	0.110	1	0.0318	0.0324	0.0012	0.00013	No	No	
	August	0.00012	0.00012	0.004	0.110	1	0.0297	0.0298	0.0011	0.00012	No	No	
	September	0.00012	0.00012	0.004	0.110	1	0.0300	0.0302	0.0011	0.00012	No	No	
	October	0.00010	0.00010	0.004	0.110	1	0.0258	0.0259	0.0009	0.00010	No	No	
	November	0.00009	0.00009	0.004	0.110	1	0.0237	0.0237	0.0009	0.00009	No	No	
	December	0.00012	0.00012	0.004	0.110	1	0.0295	0.0297	0.0011	0.00012	No	No	
Operations 2 Phase (24-28)	January	0.00013	0.00013	0.004	0.110	1	0.0315	0.0315	0.0011	0.00013	No	No	
	February	0.00013	0.00013	0.004	0.110	1	0.0319	0.0319	0.0012	0.00013	No	No	
	March	0.00012	0.00012	0.004	0.110	1	0.0293	0.0293	0.0011	0.00012	No	No	
	April	0.00003	0.00003	0.004	0.110	1	0.0083	0.0083	0.0003	0.00003	No	No	
	May	0.00045	0.00045	0.004	0.110	1	0.113	0.113	0.0041	0.00045	No	No	
	June	0.00054	0.00054	0.004	0.110	1	0.135	0.136	0.0049	0.00054	No	No	
	July	0.00013	0.00013	0.004	0.110	1	0.0315	0.0316	0.0012	0.00013	No	No	
	August	0.00012	0.00012	0.004	0.110	1	0.0296	0.0296	0.0011	0.00012	No	No	
	September	0.00012	0.00012	0.004	0.110	1	0.0298	0.0299	0.0011	0.00012	No	No	
	October	0.00010	0.00010	0.004	0.110	1	0.0257	0.0258	0.0009	0.00010	No	No	
	November	0.00009	0.00009	0.004	0.110	1	0.0236	0.0236	0.0009	0.00009	No	No	
	December	0.00012	0.00012	0.004	0.110	1	0.0293	0.0293	0.0011	0.00012	No	No	
Closure Phase (29-35)	January	0.00014	0.00016	0.004	0.110	1	0.0355	0.0389	0.0014	0.00016	No	No	
	February	0.00015	0.00017	0.004	0.110	1	0.0372	0.0415	0.0015	0.00017	No	No	
	March	0.00014	0.00015	0.004	0.110	1	0.0339	0.0377	0.0014	0.00015	No	No	
	April	0.00004	0.00004	0.004	0.110	1	0.0090	0.0096	0.0003	0.00004	No	No	
	May	0.00046	0.00046	0.004	0.110	1	0.115	0.115	0.0042	0.00046	No	No	
	June	0.00055	0.00055	0.004	0.110	1	0.138	0.139	0.0050	0.00055	No	No	
	July	0.00013	0.00013	0.004	0.110	1	0.0326	0.0332	0.0012	0.00013	No	No	
	August	0.00012	0.00013	0.004	0.110	1	0.0312	0.0320	0.0012	0.00013	No	No	
	September	0.00013	0.00014	0.004	0.110	1	0.0327	0.0342	0.0012	0.00014	No	No	
	October	0.00011	0.00011	0.004	0.110	1	0.0274	0.0283	0.0010	0.00011	No	No	
	November	0.00010	0.00010	0.004	0.110	1	0.0252	0.0260	0.0009	0.00010	No	No	
	December	0.00013	0.00014	0.004	0.110	1	0.0325	0.0341	0.0012	0.00014	No	No	
Post-Closure Phase (36-99)	January	0.00014	0.00014	0.004	0.110	1	0.0339	0.0360	0.0013	0.00014	No	No	
	February	0.00014	0.00015	0.004	0.110	1	0.0351	0.0379	0.0014	0.00015	No	No	
	March	0.00013	0.00014	0.004	0.110	1	0.0321	0.0344	0.0013	0.00014	No	No	
	April	0.00004	0.00004	0.004	0.110	1	0.0088	0.0091	0.0003	0.00004	No	No	
	May	0.00046	0.00046	0.004	0.110	1	0.115	0.115	0.0042	0.00046	No	No	
	June	0.00055	0.00055	0.004	0.110	1	0.138	0.139	0.0050	0.00055	No	No	
	July	0.00013	0.00013	0.004	0.110	1	0.0324	0.0326	0.0012	0.00013	No	No	
	August	0.00012	0.00012	0.004	0.110	1	0.0304	0.0311	0.0011	0.00012	No	No	
	September	0.00012	0.00013	0.004	0.110	1	0.0312	0.0325	0.0012	0.00013	No	No	
	October	0.00011	0.00011	0.004	0.110	1	0.0265	0.0273	0.0010	0.00011	No	No	
	November	0.00010	0.00010	0.004	0.110	1	0.0243	0.0250	0.0009	0.00010	No	No	
	December	0.00012	0.00013	0.004	0.110	1	0.0309	0.0323	0.0012	0.00013	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D9k. Lower Jones Creek (J1) Hazard Quotients for Total Copper Concentrations, Expected Case

		First Screening Step									Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Mean Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC Maximum Guideline					
		Mean	Maximum	Mean	Maximum	Maximum	Maximum								
Construction (-2 to-1)	January	0.0009	0.0009	0.0057	0.0154	0.3	0.3	0.159	0.161	0.0597	0.0031	0.0031	No	No	No
	February	0.0009	0.0009	0.0058	0.0156	0.3	0.3	0.159	0.159	0.0590	0.0031	0.0031	No	No	No
	March	0.0009	0.0009	0.0058	0.0157	0.3	0.3	0.148	0.150	0.0558	0.0029	0.0029	No	No	No
	April	0.0004	0.0004	0.0056	0.0153	0.3	0.3	0.0692	0.0724	0.0268	0.0014	0.0014	No	No	No
	May	0.0019	0.0019	0.0025	0.0078	0.3	0.3	0.772	0.776	0.246	0.0064	0.0064	No	No	No
	June	0.0019	0.0019	0.0022	0.0072	0.3	0.3	0.859	0.862	0.265	0.0064	0.0064	No	No	No
	July	0.0008	0.0008	0.0045	0.0125	0.3	0.3	0.174	0.175	0.0624	0.0026	0.0026	No	No	No
	August	0.0007	0.0007	0.0059	0.0159	0.3	0.3	0.125	0.126	0.0468	0.0025	0.0025	No	No	No
	September	0.0008	0.0008	0.0059	0.0159	0.3	0.3	0.142	0.143	0.0530	0.0028	0.0028	No	No	No
	October	0.0008	0.0008	0.0051	0.0140	0.3	0.3	0.154	0.155	0.0567	0.0026	0.0026	No	No	No
	November	0.0006	0.0007	0.0060	0.0162	0.3	0.3	0.108	0.109	0.0405	0.0022	0.0022	No	No	No
	December	0.0008	0.0008	0.0033	0.0099	0.3	0.3	0.246	0.247	0.0839	0.0028	0.0028	No	No	No
Operation 1 Phase (1-23)	January	0.0009	0.0009	0.0057	0.0154	0.3	0.3	0.156	0.157	0.0581	0.0030	0.0030	No	No	No
	February	0.0009	0.0009	0.0058	0.0156	0.3	0.3	0.157	0.158	0.0587	0.0030	0.0030	No	No	No
	March	0.0008	0.0008	0.0058	0.0157	0.3	0.3	0.143	0.145	0.0539	0.0028	0.0028	No	No	No
	April	0.0004	0.0004	0.0056	0.0153	0.3	0.3	0.0638	0.0644	0.0238	0.0012	0.0012	No	No	No
	May	0.0019	0.0019	0.0025	0.0078	0.3	0.3	0.769	0.780	0.247	0.0064	0.0064	No	No	No
	June	0.0019	0.0019	0.0022	0.0072	0.3	0.3	0.848	0.868	0.267	0.0064	0.0064	No	No	No
	July	0.0007	0.0008	0.0045	0.0125	0.3	0.3	0.166	0.172	0.0614	0.0026	0.0026	No	No	No
	August	0.0007	0.0007	0.0059	0.0159	0.3	0.3	0.123	0.124	0.0460	0.0024	0.0024	No	No	No
	September	0.0008	0.0008	0.0059	0.0159	0.3	0.3	0.141	0.141	0.0524	0.0028	0.0028	No	No	No
	October	0.0008	0.0008	0.0051	0.0140	0.3	0.3	0.151	0.152	0.0553	0.0026	0.0026	No	No	No
	November	0.0006	0.0006	0.0060	0.0162	0.3	0.3	0.106	0.106	0.0397	0.0021	0.0021	No	No	No
	December	0.0008	0.0008	0.0033	0.0099	0.3	0.3	0.243	0.244	0.0829	0.0027	0.0027	No	No	No
Operations 2 Phase (24-28)	January	0.0009	0.0009	0.0057	0.0154	0.3	0.3	0.154	0.154	0.0571	0.0029	0.0029	No	No	No
	February	0.0009	0.0009	0.0058	0.0156	0.3	0.3	0.155	0.155	0.0574	0.0030	0.0030	No	No	No
	March	0.0008	0.0008	0.0058	0.0157	0.3	0.3	0.142	0.142	0.0527	0.0028	0.0028	No	No	No
	April	0.0004	0.0004	0.0056	0.0153	0.3	0.3	0.0637	0.0639	0.0236	0.0012	0.0012	No	No	No
	May	0.0019	0.0019	0.0025	0.0078	0.3	0.3	0.763	0.767	0.243	0.0063	0.0063	No	No	No
	June	0.0019	0.0019	0.0022	0.0072	0.3	0.3	0.837	0.844	0.260	0.0063	0.0063	No	No	No
	July	0.0007	0.0008	0.0045	0.0125	0.3	0.3	0.165	0.167	0.0598	0.0025	0.0025	No	No	No
	August	0.0007	0.0007	0.0059	0.0159	0.3	0.3	0.123	0.123	0.0459	0.0024	0.0024	No	No	No
	September	0.0008	0.0008	0.0059	0.0159	0.3	0.3	0.140	0.140	0.0521	0.0028	0.0028	No	No	No
	October	0.0008	0.0008	0.0051	0.0140	0.3	0.3	0.150	0.150	0.0548	0.0026	0.0026	No	No	No
	November	0.0006	0.0006	0.0060	0.0162	0.3	0.3	0.106	0.106	0.0396	0.0021	0.0021	No	No	No
	December	0.0008	0.0008	0.0033	0.0099	0.3	0.3	0.242	0.242	0.0821	0.0027	0.0027	No	No	No
Closure Phase (29-35)	January	0.0009	0.0010	0.0057	0.0154	0.3	0.3	0.160	0.169	0.0626	0.0032	0.0032	No	No	No
	February	0.0009	0.0010	0.0058	0.0156	0.3	0.3	0.162	0.173	0.0642	0.0033	0.0033	No	No	No
	March	0.0009	0.0009	0.0058	0.0157	0.3	0.3	0.148	0.158	0.0588	0.0031	0.0031	No	No	No
	April	0.0004	0.0004	0.0056	0.0153	0.3	0.3	0.0650	0.0666	0.0246	0.0013	0.0013	No	No	No
	May	0.0019	0.0019	0.0025	0.0078	0.3	0.3	0.776	0.782	0.247	0.0064	0.0064	No	No	No
	June	0.0019	0.0019	0.0022	0.0072	0.3	0.3	0.861	0.869	0.267	0.0064	0.0064	No	No	No
	July	0.0008	0.0008	0.0045	0.0125	0.3	0.3	0.174	0.178	0.0636	0.0027	0.0027	No	No	No
	August	0.0007	0.0008	0.0059	0.0159	0.3	0.3	0.124	0.127	0.0473	0.0025	0.0025	No	No	No
	September	0.0008	0.0009	0.0059	0.0159	0.3	0.3	0.143	0.148	0.0550	0.0029	0.0029	No	No	No
	October	0.0008	0.0008	0.0051	0.0140	0.3	0.3	0.154	0.158	0.0575	0.0027	0.0027	No	No	No
	November	0.0006	0.0007	0.0060	0.0162	0.3	0.3	0.107	0.110	0.0410	0.0022	0.0022	No	No	No
	December	0.0008	0.0009	0.0033	0.0099	0.3	0.3	0.249	0.258	0.0875	0.0029	0.0029	No	No	No
Post-Closure Phase (36-99)	January	0.0009	0.0009	0.0057	0.0154	0.3	0.3	0.160	0.160	0.0592	0.0030	0.0030	No	No	No
	February	0.0009	0.0009	0.0058	0.0156	0.3	0.3	0.162	0.162	0.0602	0.0031	0.0031	No	No	No
	March	0.0009	0.0009	0.0058	0.0157	0.3	0.3	0.148	0.149	0.0552	0.0029	0.0029	No	No	No
	April	0.0004	0.0004	0.0056	0.0153	0.3	0.3	0.0650	0.0652	0.0241	0.0012	0.0012	No	No	No
	May	0.0019	0.0019	0.0025	0.0078	0.3	0.3	0.778	0.778	0.246	0.0064	0.0064	No	No	No
	June	0.0019	0.0019	0.0022	0.0072	0.3	0.3	0.863	0.863	0.266	0.0064	0.0064	No	No	No
	July	0.0008	0.0008	0.0045	0.0125	0.3	0.3	0.174	0.174	0.0622	0.0026	0.0026	No	No	No
	August	0.0007	0.0007	0.0059	0.0159	0.3	0.3	0.124	0.124	0.0462	0.0025	0.0025	No	No	No
	September	0.0008	0.0008	0.0059	0.0159	0.3	0.3	0.142	0.143	0.0530	0.0028	0.0028	No	No	No
	October	0.0008	0.0008	0.0051	0.0140	0.3	0.3	0.154	0.155	0.0564	0.0026	0.0026	No	No	No
	November	0.0006	0.0006	0.0060	0.0162	0.3	0.3	0.107	0.107	0.0398	0.0021	0.0021	No	No	No
	December	0.0008	0.0008	0.0033	0.0099	0.3	0.3	0.247	0.248	0.0840	0.0028	0.0028	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D9I. Lower Jones Creek (J1) Hazard Quotients for Dissolved and Total Iron Concentrations, Expected Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life	
		Dissolved Iron		Total Iron						Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum	BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron		
Construction (-2 to-1)	January	0.0166	0.0168	0.0606	0.0616	0.35	1	0.0480	0.0616	No	No
	February	0.0167	0.0168	0.0614	0.0616	0.35	1	0.0480	0.0616	No	No
	March	0.0157	0.0159	0.0570	0.0579	0.35	1	0.0455	0.0579	No	No
	April	0.0044	0.0048	0.0138	0.0155	0.35	1	0.0138	0.0155	No	No
	May	0.0257	0.0257	0.695	0.702	0.35	1	0.0735	0.702	No	No
	June	0.0139	0.0140	0.792	0.799	0.35	1	0.0399	0.799	No	No
	July	0.0114	0.0114	0.0421	0.0423	0.35	1	0.0327	0.0423	No	No
	August	0.0135	0.0136	0.0373	0.0381	0.35	1	0.0389	0.0381	No	No
	September	0.0154	0.0155	0.0541	0.0545	0.35	1	0.0443	0.0545	No	No
	October	0.0124	0.0125	0.0376	0.0384	0.35	1	0.0358	0.0384	No	No
	November	0.0113	0.0114	0.0348	0.0354	0.35	1	0.0327	0.0354	No	No
	December	0.0151	0.0152	0.0527	0.0530	0.35	1	0.0433	0.0530	No	No
Operation 1 Phase (1-23)	January	0.0162	0.0164	0.0587	0.0595	0.35	1	0.0469	0.0595	No	No
	February	0.0164	0.0167	0.0601	0.0611	0.35	1	0.0477	0.0611	No	No
	March	0.0151	0.0153	0.0542	0.0553	0.35	1	0.0437	0.0553	No	No
	April	0.0037	0.0038	0.0110	0.0114	0.35	1	0.0108	0.0114	No	No
	May	0.0254	0.0258	0.699	0.711	0.35	1	0.0737	0.711	No	No
	June	0.0132	0.0137	0.790	0.813	0.35	1	0.0392	0.813	No	No
	July	0.0111	0.0113	0.0410	0.0420	0.35	1	0.0323	0.0420	No	No
	August	0.0134	0.0134	0.0367	0.0369	0.35	1	0.0383	0.0369	No	No
	September	0.0153	0.0153	0.0534	0.0537	0.35	1	0.0438	0.0537	No	No
	October	0.0122	0.0123	0.0365	0.0366	0.35	1	0.0350	0.0366	No	No
	November	0.0111	0.0112	0.0341	0.0341	0.35	1	0.0319	0.0341	No	No
	December	0.0149	0.0150	0.0518	0.0522	0.35	1	0.0428	0.0522	No	No
Operations 2 Phase (24-28)	January	0.0160	0.0160	0.0579	0.0579	0.35	1	0.0458	0.0579	No	No
	February	0.0162	0.0162	0.0591	0.0591	0.35	1	0.0463	0.0591	No	No
	March	0.0148	0.0149	0.0532	0.0534	0.35	1	0.0424	0.0534	No	No
	April	0.0037	0.0037	0.0109	0.0110	0.35	1	0.0105	0.0110	No	No
	May	0.0252	0.0253	0.693	0.695	0.35	1	0.0723	0.695	No	No
	June	0.0131	0.0133	0.778	0.784	0.35	1	0.0379	0.784	No	No
	July	0.0110	0.0110	0.0405	0.0407	0.35	1	0.0315	0.0407	No	No
	August	0.0133	0.0134	0.0365	0.0368	0.35	1	0.0383	0.0368	No	No
	September	0.0151	0.0152	0.0529	0.0531	0.35	1	0.0433	0.0531	No	No
	October	0.0122	0.0122	0.0363	0.0364	0.35	1	0.0349	0.0364	No	No
	November	0.0111	0.0111	0.0339	0.0340	0.35	1	0.0318	0.0340	No	No
	December	0.0147	0.0148	0.0513	0.0514	0.35	1	0.0422	0.0514	No	No
Closure Phase (29-35)	January	0.0161	0.0161	0.0580	0.0582	0.35	1	0.0460	0.0582	No	No
	February	0.0163	0.0163	0.0593	0.0595	0.35	1	0.0466	0.0595	No	No
	March	0.0149	0.0150	0.0536	0.0538	0.35	1	0.0427	0.0538	No	No
	April	0.0037	0.0037	0.0112	0.0113	0.35	1	0.0107	0.0113	No	No
	May	0.0256	0.0258	0.701	0.703	0.35	1	0.0736	0.703	No	No
	June	0.0137	0.0139	0.794	0.799	0.35	1	0.0397	0.799	No	No
	July	0.0112	0.0113	0.0413	0.0415	0.35	1	0.0321	0.0415	No	No
	August	0.0133	0.0133	0.0357	0.0361	0.35	1	0.0380	0.0361	No	No
	September	0.0151	0.0151	0.0527	0.0528	0.35	1	0.0433	0.0528	No	No
	October	0.0121	0.0122	0.0360	0.0361	0.35	1	0.0348	0.0361	No	No
	November	0.0110	0.0111	0.0333	0.0336	0.35	1	0.0316	0.0336	No	No
	December	0.0148	0.0148	0.0512	0.0512	0.35	1	0.0422	0.0512	No	No
Post-Closure Phase (36-99)	January	0.0163	0.0164	0.0591	0.0593	0.35	1	0.0468	0.0593	No	No
	February	0.0166	0.0166	0.0607	0.0609	0.35	1	0.0475	0.0609	No	No
	March	0.0152	0.0153	0.0549	0.0551	0.35	1	0.0437	0.0551	No	No
	April	0.0038	0.0038	0.0114	0.0115	0.35	1	0.0108	0.0115	No	No
	May	0.0258	0.0258	0.703	0.703	0.35	1	0.0736	0.703	No	No
	June	0.0139	0.0139	0.799	0.799	0.35	1	0.0398	0.799	No	No
	July	0.0113	0.0113	0.0416	0.0416	0.35	1	0.0322	0.0416	No	No
	August	0.0133	0.0133	0.0358	0.0359	0.35	1	0.0381	0.0359	No	No
	September	0.0152	0.0153	0.0532	0.0533	0.35	1	0.0436	0.0533	No	No
	October	0.0122	0.0122	0.0363	0.0364	0.35	1	0.0348	0.0364	No	No
	November	0.0111	0.0111	0.0335	0.0335	0.35	1	0.0316	0.0335	No	No
	December	0.0149	0.0149	0.0518	0.0519	0.35	1	0.0427	0.0519	No	No

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D9n. Lower Jones Creek (J1) Hazard Quotients for Total Lithium Concentrations, Expected Case

		First Screening Step							Retained as COFC?
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			Aquatic Life
		Mean	Maximum	BC MOE Working Value Guideline	Final Chronic BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Construction (-2 to-1)	January	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0056	0.0057	0.0006	No
	April	0.0009	0.0009	0.096	0.87	0.0093	0.0094	0.0010	No
	May	0.0006	0.0006	0.096	0.87	0.0063	0.0064	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0063	0.0063	0.0007	No
	July	0.0007	0.0008	0.096	0.87	0.0078	0.0078	0.0009	No
	August	0.0007	0.0007	0.096	0.87	0.0076	0.0077	0.0008	No
	September	0.0005	0.0005	0.096	0.87	0.0057	0.0057	0.0006	No
	October	0.0007	0.0007	0.096	0.87	0.0074	0.0075	0.0008	No
	November	0.0008	0.0008	0.096	0.87	0.0079	0.0080	0.0009	No
	December	0.0006	0.0006	0.096	0.87	0.0061	0.0062	0.0007	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.096	0.87	0.0054	0.0054	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0053	0.0006	No
	March	0.0006	0.0006	0.096	0.87	0.0058	0.0058	0.0006	No
	April	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0010	No
	May	0.0006	0.0006	0.096	0.87	0.0063	0.0064	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0062	0.0063	0.0007	No
	July	0.0007	0.0008	0.096	0.87	0.0078	0.0079	0.0009	No
	August	0.0007	0.0007	0.096	0.87	0.0077	0.0077	0.0009	No
	September	0.0005	0.0005	0.096	0.87	0.0057	0.0057	0.0006	No
	October	0.0007	0.0007	0.096	0.87	0.0075	0.0075	0.0008	No
	November	0.0008	0.0008	0.096	0.87	0.0080	0.0080	0.0009	No
	December	0.0006	0.0006	0.096	0.87	0.0061	0.0062	0.0007	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.096	0.87	0.0054	0.0054	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0006	0.0006	0.096	0.87	0.0057	0.0058	0.0006	No
	April	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0010	No
	May	0.0006	0.0006	0.096	0.87	0.0063	0.0063	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0062	0.0062	0.0007	No
	July	0.0007	0.0007	0.096	0.87	0.0077	0.0078	0.0009	No
	August	0.0007	0.0007	0.096	0.87	0.0077	0.0077	0.0008	No
	September	0.0005	0.0005	0.096	0.87	0.0057	0.0057	0.0006	No
	October	0.0007	0.0007	0.096	0.87	0.0075	0.0075	0.0008	No
	November	0.0008	0.0008	0.096	0.87	0.0080	0.0080	0.0009	No
	December	0.0006	0.0006	0.096	0.87	0.0061	0.0061	0.0007	No
Closure Phase (29-35)	January	0.0006	0.0006	0.096	0.87	0.0058	0.0065	0.0007	No
	February	0.0006	0.0006	0.096	0.87	0.0057	0.0066	0.0007	No
	March	0.0006	0.0007	0.096	0.87	0.0062	0.0070	0.0008	No
	April	0.0009	0.0009	0.096	0.87	0.0095	0.0097	0.0011	No
	May	0.0006	0.0006	0.096	0.87	0.0064	0.0066	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0064	0.0066	0.0007	No
	July	0.0008	0.0008	0.096	0.87	0.0080	0.0082	0.0009	No
	August	0.0008	0.0008	0.096	0.87	0.0079	0.0081	0.0009	No
	September	0.0006	0.0006	0.096	0.87	0.0060	0.0063	0.0007	No
	October	0.0007	0.0008	0.096	0.87	0.0077	0.0079	0.0009	No
	November	0.0008	0.0008	0.096	0.87	0.0082	0.0084	0.0009	No
	December	0.0006	0.0007	0.096	0.87	0.0065	0.0069	0.0008	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.096	0.87	0.0057	0.0057	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0056	0.0056	0.0006	No
	March	0.0006	0.0006	0.096	0.87	0.0060	0.0061	0.0007	No
	April	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0011	No
	May	0.0006	0.0006	0.096	0.87	0.0064	0.0064	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0063	0.0063	0.0007	No
	July	0.0008	0.0008	0.096	0.87	0.0079	0.0079	0.0009	No
	August	0.0008	0.0008	0.096	0.87	0.0078	0.0078	0.0009	No
	September	0.0006	0.0006	0.096	0.87	0.0059	0.0059	0.0006	No
	October	0.0007	0.0007	0.096	0.87	0.0076	0.0076	0.0008	No
	November	0.0008	0.0008	0.096	0.87	0.0081	0.0081	0.0009	No
	December	0.0006	0.0006	0.096	0.87	0.0063	0.0064	0.0007	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D9o. Lower Jones Creek (J1) Hazard Quotients for Total Manganese Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
						Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				
Construction (-2 to-1)	January	0.0004	0.0004	1.23	2.11	0.0003	0.0003	0.0002	No
	February	0.0004	0.0004	1.24	2.13	0.0003	0.0003	0.0002	No
	March	0.0004	0.0004	1.25	2.15	0.0004	0.0004	0.0002	No
	April	0.0005	0.0005	1.23	2.09	0.0004	0.0004	0.0002	No
	May	0.0233	0.0235	0.877	1.22	0.0266	0.0269	0.0193	No
	June	0.0220	0.0222	0.850	1.15	0.0259	0.0261	0.0192	No
	July	0.0011	0.0011	1.10	1.78	0.0010	0.0010	0.0006	No
	August	0.0004	0.0004	1.26	2.18	0.0003	0.0003	0.0002	No
	September	0.0004	0.0004	1.26	2.17	0.0003	0.0003	0.0002	No
	October	0.0007	0.0007	1.17	1.94	0.0006	0.0006	0.0003	No
	November	0.0007	0.0007	1.27	2.20	0.0006	0.0006	0.0003	No
	December	0.0004	0.0004	0.973	1.46	0.0004	0.0004	0.0003	No
Operation 1 Phase (1-23)	January	0.0004	0.0004	1.23	2.11	0.0004	0.0004	0.0002	No
	February	0.0004	0.0005	1.24	2.13	0.0004	0.0004	0.0002	No
	March	0.0005	0.0005	1.25	2.15	0.0004	0.0004	0.0002	No
	April	0.0005	0.0005	1.23	2.09	0.0004	0.0004	0.0002	No
	May	0.0234	0.0238	0.877	1.22	0.0267	0.0272	0.0195	No
	June	0.0220	0.0226	0.850	1.15	0.0259	0.0266	0.0196	No
	July	0.0011	0.0011	1.10	1.78	0.0010	0.0010	0.0006	No
	August	0.0004	0.0004	1.26	2.18	0.0003	0.0003	0.0002	No
	September	0.0004	0.0005	1.26	2.17	0.0004	0.0004	0.0002	No
	October	0.0007	0.0007	1.17	1.94	0.0006	0.0006	0.0003	No
	November	0.0007	0.0007	1.27	2.20	0.0006	0.0006	0.0003	No
	December	0.0004	0.0004	0.973	1.46	0.0004	0.0005	0.0003	No
Operations 2 Phase (24-28)	January	0.0004	0.0004	1.23	2.11	0.0004	0.0004	0.0002	No
	February	0.0005	0.0005	1.24	2.13	0.0004	0.0004	0.0002	No
	March	0.0005	0.0005	1.25	2.15	0.0004	0.0004	0.0002	No
	April	0.0005	0.0005	1.23	2.09	0.0004	0.0004	0.0002	No
	May	0.0232	0.0233	0.877	1.22	0.0265	0.0266	0.0191	No
	June	0.0217	0.0218	0.850	1.15	0.0255	0.0257	0.0189	No
	July	0.0011	0.0011	1.10	1.78	0.0010	0.0010	0.0006	No
	August	0.0004	0.0004	1.26	2.18	0.0003	0.0003	0.0002	No
	September	0.0005	0.0005	1.26	2.17	0.0004	0.0004	0.0002	No
	October	0.0007	0.0007	1.17	1.94	0.0006	0.0006	0.0003	No
	November	0.0007	0.0007	1.27	2.20	0.0006	0.0006	0.0003	No
	December	0.0004	0.0004	0.973	1.46	0.0005	0.0005	0.0003	No
Closure Phase (29-35)	January	0.0007	0.0009	1.23	2.11	0.0005	0.0008	0.0004	No
	February	0.0007	0.0011	1.24	2.13	0.0006	0.0009	0.0005	No
	March	0.0007	0.0010	1.25	2.15	0.0006	0.0008	0.0005	No
	April	0.0005	0.0006	1.23	2.09	0.0004	0.0005	0.0003	No
	May	0.0235	0.0236	0.877	1.22	0.0269	0.0269	0.0193	No
	June	0.0221	0.0222	0.850	1.15	0.0260	0.0261	0.0192	No
	July	0.0012	0.0012	1.10	1.78	0.0011	0.0011	0.0007	No
	August	0.0005	0.0006	1.26	2.18	0.0004	0.0005	0.0003	No
	September	0.0006	0.0008	1.26	2.17	0.0005	0.0006	0.0004	No
	October	0.0008	0.0009	1.17	1.94	0.0007	0.0007	0.0004	No
	November	0.0008	0.0009	1.27	2.20	0.0007	0.0007	0.0004	No
	December	0.0006	0.0008	0.973	1.46	0.0006	0.0008	0.0005	No
Post-Closure Phase (36-99)	January	0.0006	0.0006	1.23	2.11	0.0005	0.0005	0.0003	No
	February	0.0007	0.0007	1.24	2.13	0.0005	0.0006	0.0003	No
	March	0.0007	0.0007	1.25	2.15	0.0005	0.0006	0.0003	No
	April	0.0005	0.0005	1.23	2.09	0.0004	0.0004	0.0002	No
	May	0.0236	0.0236	0.877	1.22	0.0269	0.0269	0.0194	No
	June	0.0222	0.0222	0.850	1.15	0.0261	0.0261	0.0193	No
	July	0.0011	0.0011	1.10	1.78	0.0010	0.0010	0.0006	No
	August	0.0005	0.0005	1.26	2.18	0.0004	0.0004	0.0002	No
	September	0.0006	0.0006	1.26	2.17	0.0004	0.0005	0.0003	No
	October	0.0007	0.0008	1.17	1.94	0.0006	0.0006	0.0004	No
	November	0.0008	0.0008	1.27	2.20	0.0006	0.0006	0.0004	No
	December	0.0006	0.0006	0.973	1.46	0.0006	0.0006	0.0004	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D9r. Lower Jones Creek (J1) Hazard Quotients for Total Nickel Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum						
		BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Guideline				
Construction (-2 to-1)	January	0.0008	0.0008	0.11	1	0.0074	0.0008	No	No
	February	0.0008	0.0008	0.11	1	0.0074	0.0008	No	No
	March	0.0008	0.0008	0.11	1	0.0070	0.0008	No	No
	April	0.0003	0.0003	0.11	1	0.0025	0.0003	No	No
	May	0.0013	0.0013	0.065	1	0.0205	0.0013	No	No
	June	0.0016	0.0016	0.025	1	0.0647	0.0016	No	No
	July	0.0009	0.0009	0.065	1	0.0135	0.0009	No	No
	August	0.0008	0.0008	0.11	1	0.0069	0.0008	No	No
	September	0.0007	0.0007	0.11	1	0.0068	0.0007	No	No
	October	0.0006	0.0006	0.11	1	0.0056	0.0006	No	No
	November	0.0006	0.0006	0.11	1	0.0052	0.0006	No	No
	December	0.0007	0.0007	0.065	1	0.0112	0.0007	No	No
Operation 1 Phase (1-23)	January	0.0008	0.0008	0.11	1	0.0072	0.0008	No	No
	February	0.0008	0.0008	0.11	1	0.0073	0.0008	No	No
	March	0.0007	0.0007	0.11	1	0.0067	0.0007	No	No
	April	0.0002	0.0002	0.11	1	0.0020	0.0002	No	No
	May	0.0013	0.0013	0.065	1	0.0206	0.0013	No	No
	June	0.0016	0.0016	0.025	1	0.0652	0.0016	No	No
	July	0.0008	0.0009	0.065	1	0.0133	0.0009	No	No
	August	0.0008	0.0008	0.11	1	0.0069	0.0008	No	No
	September	0.0007	0.0007	0.11	1	0.0067	0.0007	No	No
	October	0.0006	0.0006	0.11	1	0.0055	0.0006	No	No
	November	0.0006	0.0006	0.11	1	0.0050	0.0006	No	No
	December	0.0007	0.0007	0.065	1	0.0111	0.0007	No	No
Operations 2 Phase (24-28)	January	0.0008	0.0008	0.11	1	0.0070	0.0008	No	No
	February	0.0008	0.0008	0.11	1	0.0071	0.0008	No	No
	March	0.0007	0.0007	0.11	1	0.0066	0.0007	No	No
	April	0.0002	0.0002	0.11	1	0.0020	0.0002	No	No
	May	0.0013	0.0013	0.065	1	0.0202	0.0013	No	No
	June	0.0016	0.0016	0.025	1	0.0633	0.0016	No	No
	July	0.0008	0.0008	0.065	1	0.0128	0.0008	No	No
	August	0.0008	0.0008	0.11	1	0.0068	0.0008	No	No
	September	0.0007	0.0007	0.11	1	0.0067	0.0007	No	No
	October	0.0006	0.0006	0.11	1	0.0055	0.0006	No	No
	November	0.0006	0.0006	0.11	1	0.0050	0.0006	No	No
	December	0.0007	0.0007	0.065	1	0.0110	0.0007	No	No
Closure Phase (29-35)	January	0.0008	0.0008	0.11	1	0.0074	0.0008	No	No
	February	0.0008	0.0008	0.11	1	0.0076	0.0008	No	No
	March	0.0007	0.0008	0.11	1	0.0070	0.0008	No	No
	April	0.0002	0.0002	0.11	1	0.0021	0.0002	No	No
	May	0.0013	0.0013	0.065	1	0.0206	0.0013	No	No
	June	0.0016	0.0016	0.025	1	0.0649	0.0016	No	No
	July	0.0009	0.0009	0.065	1	0.0136	0.0009	No	No
	August	0.0008	0.0008	0.11	1	0.0069	0.0008	No	No
	September	0.0007	0.0008	0.11	1	0.0069	0.0008	No	No
	October	0.0006	0.0006	0.11	1	0.0056	0.0006	No	No
	November	0.0006	0.0006	0.11	1	0.0051	0.0006	No	No
	December	0.0007	0.0007	0.065	1	0.0114	0.0007	No	No
Post-Closure Phase (36-99)	January	0.0008	0.0008	0.11	1	0.0072	0.0008	No	No
	February	0.0008	0.0008	0.11	1	0.0074	0.0008	No	No
	March	0.0007	0.0007	0.11	1	0.0068	0.0007	No	No
	April	0.0002	0.0002	0.11	1	0.0020	0.0002	No	No
	May	0.0013	0.0013	0.065	1	0.0206	0.0013	No	No
	June	0.0016	0.0016	0.025	1	0.0648	0.0016	No	No
	July	0.0009	0.0009	0.065	1	0.0135	0.0009	No	No
	August	0.0008	0.0008	0.11	1	0.0069	0.0008	No	No
	September	0.0007	0.0007	0.11	1	0.0068	0.0007	No	No
	October	0.0006	0.0006	0.11	1	0.0055	0.0006	No	No
	November	0.0006	0.0006	0.11	1	0.0050	0.0006	No	No
	December	0.0007	0.0007	0.065	1	0.0112	0.0007	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix 13-D9t. Lower Jones Creek (J1) Hazard Quotients for Total Silver Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Maximum Predicted vs. BC			Aquatic Life
						Mean Predicted vs. BC MOE 30-Day Mean Guideline	MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.00001	0.00001	0.00150	0.00300	0.00665	0.00667	0.00333	No
	February	0.00001	0.00001	0.00150	0.00300	0.00666	0.00667	0.00333	No
	March	0.00001	0.00001	0.00150	0.00300	0.00646	0.00650	0.00325	No
	April	0.00001	0.00001	0.00150	0.00300	0.00395	0.00404	0.00202	No
	May	0.00002	0.00002	0.00005	0.00010	0.375	0.376	0.188	No
	June	0.00001	0.00001	0.00005	0.00010	0.212	0.212	0.106	No
	July	0.00002	0.00002	0.00150	0.00300	0.0130	0.0131	0.00654	No
	August	0.00001	0.00001	0.00150	0.00300	0.00761	0.00763	0.00382	No
	September	0.00001	0.00001	0.00150	0.00300	0.00695	0.00696	0.00348	No
	October	0.00001	0.00001	0.00150	0.00300	0.00663	0.00665	0.00332	No
	November	0.00001	0.00001	0.00150	0.00300	0.00586	0.00589	0.00294	No
	December	0.00001	0.00001	0.00005	0.00010	0.194	0.194	0.0969	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00150	0.00300	0.00657	0.00663	0.00331	No
	February	0.00001	0.00001	0.00150	0.00300	0.00658	0.00665	0.00332	No
	March	0.00001	0.00001	0.00150	0.00300	0.00632	0.00638	0.00319	No
	April	0.00001	0.00001	0.00150	0.00300	0.00380	0.00382	0.00191	No
	May	0.00002	0.00002	0.00005	0.00010	0.374	0.379	0.190	No
	June	0.00001	0.00001	0.00005	0.00010	0.208	0.212	0.106	No
	July	0.00002	0.00002	0.00150	0.00300	0.0129	0.0132	0.00660	No
	August	0.00001	0.00001	0.00150	0.00300	0.00750	0.00761	0.00380	No
	September	0.00001	0.00001	0.00150	0.00300	0.00688	0.00695	0.00347	No
	October	0.00001	0.00001	0.00150	0.00300	0.00657	0.00660	0.00330	No
	November	0.00001	0.00001	0.00150	0.00300	0.00582	0.00583	0.00292	No
	December	0.00001	0.00001	0.00005	0.00010	0.192	0.193	0.0965	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00150	0.00300	0.00651	0.00651	0.00326	No
	February	0.00001	0.00001	0.00150	0.00300	0.00651	0.00651	0.00326	No
	March	0.00001	0.00001	0.00150	0.00300	0.00625	0.00625	0.00313	No
	April	0.00001	0.00001	0.00150	0.00300	0.00380	0.00380	0.00190	No
	May	0.00002	0.00002	0.00005	0.00010	0.371	0.373	0.186	No
	June	0.00001	0.00001	0.00005	0.00010	0.206	0.208	0.104	No
	July	0.00002	0.00002	0.00150	0.00300	0.0128	0.0129	0.00643	No
	August	0.00001	0.00001	0.00150	0.00300	0.00748	0.00753	0.00376	No
	September	0.00001	0.00001	0.00150	0.00300	0.00684	0.00686	0.00343	No
	October	0.00001	0.00001	0.00150	0.00300	0.00654	0.00655	0.00327	No
	November	0.00001	0.00001	0.00150	0.00300	0.00580	0.00581	0.00290	No
	December	0.00001	0.00001	0.00005	0.00010	0.191	0.191	0.0954	No
Closure Phase (29-35)	January	0.00001	0.00001	0.00150	0.00300	0.00667	0.00703	0.00351	No
	February	0.00001	0.00001	0.00150	0.00300	0.00671	0.00714	0.00357	No
	March	0.00001	0.00001	0.00150	0.00300	0.00643	0.00683	0.00342	No
	April	0.00001	0.00001	0.00150	0.00300	0.00382	0.00388	0.00194	No
	May	0.00002	0.00002	0.00005	0.00010	0.377	0.380	0.190	No
	June	0.00001	0.00001	0.00005	0.00010	0.213	0.217	0.109	No
	July	0.00002	0.00002	0.00150	0.00300	0.0131	0.0132	0.00662	No
	August	0.00001	0.00001	0.00150	0.00300	0.00766	0.00777	0.00389	No
	September	0.00001	0.00001	0.00150	0.00300	0.00699	0.00720	0.00360	No
	October	0.00001	0.00001	0.00150	0.00300	0.00665	0.00678	0.00339	No
	November	0.00001	0.00001	0.00150	0.00300	0.00586	0.00597	0.00299	No
	December	0.00001	0.00001	0.00005	0.00010	0.194	0.201	0.101	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00150	0.00300	0.00665	0.00667	0.00333	No
	February	0.00001	0.00001	0.00150	0.00300	0.00669	0.00670	0.00335	No
	March	0.00001	0.00001	0.00150	0.00300	0.00642	0.00643	0.00322	No
	April	0.00001	0.00001	0.00150	0.00300	0.00382	0.00382	0.00191	No
	May	0.00002	0.00002	0.00005	0.00010	0.377	0.377	0.188	No
	June	0.00001	0.00001	0.00005	0.00010	0.212	0.212	0.106	No
	July	0.00002	0.00002	0.00150	0.00300	0.0131	0.0131	0.0066	No
	August	0.00001	0.00001	0.00150	0.00300	0.00768	0.00769	0.00384	No
	September	0.00001	0.00001	0.00150	0.00300	0.00699	0.00700	0.00350	No
	October	0.00001	0.00001	0.00150	0.00300	0.00666	0.00666	0.00333	No
	November	0.00001	0.00001	0.00150	0.00300	0.00584	0.00585	0.00292	No
	December	0.00001	0.00001	0.00005	0.00010	0.194	0.194	0.0970	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D9u. Lower Jones Creek (J1) Hazard Quotients for Total Thallium Concentrations, Expected Case

Project Phase		First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	March	0.000009	0.000010	0.0003	0.002	0.0319	0.00479	No	No
	April	0.000003	0.000004	0.0003	0.002	0.0123	0.00185	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0407	0.00610	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0414	0.00620	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0345	0.00518	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0337	0.00505	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0296	0.00444	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0271	0.00406	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0313	0.00469	No	No
Operation 1 Phase (1-23)	January	0.000010	0.000010	0.0003	0.002	0.0328	0.00492	No	No
	February	0.000010	0.000010	0.0003	0.002	0.0332	0.00498	No	No
	March	0.000009	0.000009	0.0003	0.002	0.0309	0.00463	No	No
	April	0.000003	0.000003	0.0003	0.002	0.0105	0.00158	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0408	0.00612	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0415	0.00622	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0345	0.00517	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0337	0.00505	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0293	0.00439	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0310	0.00466	No	No
Operations 2 Phase (24-28)	January	0.000010	0.000010	0.0003	0.002	0.0322	0.00483	No	No
	February	0.000010	0.000010	0.0003	0.002	0.0324	0.00486	No	No
	March	0.000009	0.000009	0.0003	0.002	0.0302	0.00452	No	No
	April	0.000003	0.000003	0.0003	0.002	0.0104	0.00156	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0402	0.00602	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0326	0.00489	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0405	0.00608	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0342	0.00513	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0332	0.00499	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0291	0.00436	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0266	0.00399	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0307	0.00460	No	No
Closure Phase (29-35)	January	0.000010	0.000010	0.0003	0.002	0.0344	0.00516	No	No
	February	0.000010	0.000011	0.0003	0.002	0.0351	0.00527	No	No
	March	0.000009	0.000010	0.0003	0.002	0.0326	0.00489	No	No
	April	0.000003	0.000003	0.0003	0.002	0.0108	0.00162	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0411	0.00616	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0339	0.00509	No	No
	July	0.000012	0.000013	0.0003	0.002	0.0419	0.00629	No	No
	August	0.000010	0.000011	0.0003	0.002	0.0351	0.00526	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0346	0.00520	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0298	0.00448	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0272	0.00408	No	No
	December	0.000009	0.000010	0.0003	0.002	0.0321	0.00481	No	No
Post-Closure Phase (36-99)	January	0.000010	0.000010	0.0003	0.002	0.0330	0.00495	No	No
	February	0.000010	0.000010	0.0003	0.002	0.0334	0.00502	No	No
	March	0.000009	0.000009	0.0003	0.002	0.0311	0.00467	No	No
	April	0.000003	0.000003	0.0003	0.002	0.0106	0.00158	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0407	0.00611	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0414	0.00621	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0347	0.00520	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0338	0.00508	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0293	0.00440	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0267	0.00401	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0312	0.00468	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D9v. Lower Jones Creek (J1) Hazard Quotients for Total Uranium Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs. BC MOE Working Guideline			
Construction (-2 to-1)	January	0.00005	0.00007	0.3	0.02	0.2	0.00023	0.00339	0.00034	No	No	No
	February	0.00003	0.00004	0.3	0.02	0.2	0.00013	0.00193	0.00019	No	No	No
	March	0.00012	0.00013	0.3	0.02	0.2	0.00044	0.00659	0.00066	No	No	No
	April	0.00082	0.00085	0.3	0.02	0.2	0.00283	0.0424	0.00424	No	No	No
	May	0.00025	0.00026	0.3	0.02	0.2	0.00085	0.0128	0.00128	No	No	No
	June	0.00017	0.00017	0.3	0.02	0.2	0.00056	0.00840	0.00084	No	No	No
	July	0.00038	0.00038	0.3	0.02	0.2	0.00128	0.0192	0.00192	No	No	No
	August	0.00039	0.00040	0.3	0.02	0.2	0.00134	0.0201	0.00201	No	No	No
	September	0.00014	0.00014	0.3	0.02	0.2	0.00048	0.00719	0.00072	No	No	No
	October	0.00036	0.00037	0.3	0.02	0.2	0.00124	0.0185	0.00185	No	No	No
	November	0.00052	0.00053	0.3	0.02	0.2	0.00178	0.0267	0.00267	No	No	No
	December	0.00009	0.00009	0.3	0.02	0.2	0.00030	0.00456	0.00046	No	No	No
Operation 1 Phase (1-23)	January	0.00007	0.00007	0.3	0.02	0.2	0.00024	0.00361	0.00036	No	No	No
	February	0.00004	0.00004	0.3	0.02	0.2	0.00013	0.00202	0.00020	No	No	No
	March	0.00015	0.00015	0.3	0.02	0.2	0.00051	0.00759	0.00076	No	No	No
	April	0.00086	0.00086	0.3	0.02	0.2	0.00287	0.0431	0.00431	No	No	No
	May	0.00026	0.00026	0.3	0.02	0.2	0.00086	0.0130	0.00130	No	No	No
	June	0.00017	0.00017	0.3	0.02	0.2	0.00057	0.00855	0.00086	No	No	No
	July	0.00038	0.00039	0.3	0.02	0.2	0.00130	0.0195	0.00195	No	No	No
	August	0.00040	0.00041	0.3	0.02	0.2	0.00135	0.0203	0.00203	No	No	No
	September	0.00014	0.00015	0.3	0.02	0.2	0.00049	0.00728	0.00073	No	No	No
	October	0.00037	0.00037	0.3	0.02	0.2	0.00125	0.0187	0.00187	No	No	No
	November	0.00053	0.00054	0.3	0.02	0.2	0.00179	0.0269	0.00269	No	No	No
	December	0.00009	0.00009	0.3	0.02	0.2	0.00031	0.00460	0.00046	No	No	No
Operations 2 Phase (24-28)	January	0.00007	0.00007	0.3	0.02	0.2	0.00024	0.00360	0.00036	No	No	No
	February	0.00004	0.00004	0.3	0.02	0.2	0.00014	0.00203	0.00020	No	No	No
	March	0.00015	0.00015	0.3	0.02	0.2	0.00051	0.00759	0.00076	No	No	No
	April	0.00086	0.00086	0.3	0.02	0.2	0.00287	0.0430	0.00430	No	No	No
	May	0.00025	0.00025	0.3	0.02	0.2	0.00085	0.0127	0.00127	No	No	No
	June	0.00017	0.00017	0.3	0.02	0.2	0.00056	0.00835	0.00084	No	No	No
	July	0.00038	0.00038	0.3	0.02	0.2	0.00126	0.0189	0.00189	No	No	No
	August	0.00040	0.00040	0.3	0.02	0.2	0.00135	0.0202	0.00202	No	No	No
	September	0.00014	0.00014	0.3	0.02	0.2	0.00048	0.00720	0.00072	No	No	No
	October	0.00037	0.00037	0.3	0.02	0.2	0.00124	0.0186	0.00186	No	No	No
	November	0.00053	0.00053	0.3	0.02	0.2	0.00178	0.0267	0.00267	No	No	No
	December	0.00009	0.00009	0.3	0.02	0.2	0.00031	0.00458	0.00046	No	No	No
Closure Phase (29-35)	January	0.00008	0.00009	0.3	0.02	0.2	0.00032	0.00474	0.00047	No	No	No
	February	0.00005	0.00007	0.3	0.02	0.2	0.00023	0.00342	0.00034	No	No	No
	March	0.00016	0.00017	0.3	0.02	0.2	0.00058	0.00864	0.00086	No	No	No
	April	0.00086	0.00086	0.3	0.02	0.2	0.00288	0.0431	0.00431	No	No	No
	May	0.00026	0.00026	0.3	0.02	0.2	0.00087	0.0130	0.00130	No	No	No
	June	0.00017	0.00017	0.3	0.02	0.2	0.00058	0.00867	0.00087	No	No	No
	July	0.00038	0.00039	0.3	0.02	0.2	0.00129	0.0194	0.00194	No	No	No
	August	0.00041	0.00041	0.3	0.02	0.2	0.00138	0.0207	0.00207	No	No	No
	September	0.00015	0.00016	0.3	0.02	0.2	0.00053	0.00800	0.00080	No	No	No
	October	0.00038	0.00038	0.3	0.02	0.2	0.00128	0.0191	0.00191	No	No	No
	November	0.00054	0.00055	0.3	0.02	0.2	0.00182	0.0273	0.00273	No	No	No
	December	0.00010	0.00011	0.3	0.02	0.2	0.00036	0.00538	0.00054	No	No	No
Post-Closure Phase (36-99)	January	0.00008	0.00008	0.3	0.02	0.2	0.00027	0.00408	0.00041	No	No	No
	February	0.00005	0.00005	0.3	0.02	0.2	0.00017	0.00257	0.00026	No	No	No
	March	0.00015	0.00016	0.3	0.02	0.2	0.00053	0.00801	0.00080	No	No	No
	April	0.00086	0.00086	0.3	0.02	0.2	0.00287	0.0431	0.00431	No	No	No
	May	0.00026	0.00026	0.3	0.02	0.2	0.00086	0.0128	0.00128	No	No	No
	June	0.00017	0.00017	0.3	0.02	0.2	0.00056	0.00842	0.00084	No	No	No
	July	0.00039	0.00039	0.3	0.02	0.2	0.00128	0.0193	0.00193	No	No	No
	August	0.00041	0.00041	0.3	0.02	0.2	0.00137	0.0206	0.00206	No	No	No
	September	0.00015	0.00015	0.3	0.02	0.2	0.00051	0.00766	0.00077	No	No	No
	October	0.00038	0.00038	0.3	0.02	0.2	0.00126	0.0190	0.00190	No	No	No
	November	0.00054	0.00054	0.3	0.02	0.2	0.00181	0.0272	0.00272	No	No	No
	December	0.00010	0.00010	0.3	0.02	0.2	0.00033	0.00495	0.00050	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D9w. Lower Jones Creek (J1) Hazard Quotients for Total Vanadium Concentrations, Expected Case

		First Screening Step							Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline			
						BC MOE Working					
Construction (-2 to 1)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	March	0.0009	0.0010	0.006	0.02	0.1	0.160	0.0479	0.0096	No	No
	April	0.0003	0.0004	0.006	0.02	0.1	0.062	0.0185	0.0037	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.168	0.0503	0.0101	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.181	0.0542	0.0108	No	No
	July	0.0008	0.0008	0.006	0.02	0.1	0.130	0.0389	0.0078	No	No
	August	0.0008	0.0009	0.006	0.02	0.1	0.142	0.0427	0.0085	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0496	0.0099	No	No
	October	0.0009	0.0009	0.006	0.02	0.1	0.147	0.0441	0.0088	No	No
	November	0.0008	0.0008	0.006	0.02	0.1	0.135	0.0406	0.0081	No	No
	December	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0469	0.0094	No	No
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.006	0.02	0.1	0.164	0.0492	0.0098	No	No
	February	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No
	March	0.0009	0.0009	0.006	0.02	0.1	0.154	0.0463	0.0093	No	No
	April	0.0003	0.0003	0.006	0.02	0.1	0.053	0.0158	0.0032	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.168	0.0503	0.0101	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.181	0.0542	0.0108	No	No
	July	0.0008	0.0008	0.006	0.02	0.1	0.128	0.0385	0.0077	No	No
	August	0.0008	0.0008	0.006	0.02	0.1	0.141	0.0422	0.0084	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0495	0.0099	No	No
	October	0.0009	0.0009	0.006	0.02	0.1	0.146	0.0438	0.0088	No	No
	November	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
	December	0.0009	0.0009	0.006	0.02	0.1	0.155	0.0466	0.0093	No	No
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.006	0.02	0.1	0.160	0.0481	0.0096	No	No
	February	0.0010	0.0010	0.006	0.02	0.1	0.161	0.0484	0.0097	No	No
	March	0.0009	0.0009	0.006	0.02	0.1	0.150	0.0450	0.0090	No	No
	April	0.0003	0.0003	0.006	0.02	0.1	0.052	0.0156	0.0031	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0494	0.0099	No	No
	June	0.0010	0.0011	0.006	0.02	0.1	0.176	0.0528	0.0106	No	No
	July	0.0007	0.0008	0.006	0.02	0.1	0.125	0.0375	0.0075	No	No
	August	0.0008	0.0008	0.006	0.02	0.1	0.140	0.0420	0.0084	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.163	0.0489	0.0098	No	No
	October	0.0009	0.0009	0.006	0.02	0.1	0.145	0.0435	0.0087	No	No
	November	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0398	0.0080	No	No
	December	0.0009	0.0009	0.006	0.02	0.1	0.153	0.0459	0.0092	No	No
Closure Phase (29-35)	January	0.0010	0.0010	0.006	0.02	0.1	0.163	0.0490	0.0098	No	No
	February	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0495	0.0099	No	No
	March	0.0009	0.0009	0.006	0.02	0.1	0.154	0.0461	0.0092	No	No
	April	0.0003	0.0003	0.006	0.02	0.1	0.053	0.0158	0.0032	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.168	0.0503	0.0101	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.180	0.0541	0.0108	No	No
	July	0.0008	0.0008	0.006	0.02	0.1	0.129	0.0386	0.0077	No	No
	August	0.0008	0.0008	0.006	0.02	0.1	0.140	0.0420	0.0084	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0494	0.0099	No	No
	October	0.0009	0.0009	0.006	0.02	0.1	0.145	0.0436	0.0087	No	No
	November	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
	December	0.0009	0.0009	0.006	0.02	0.1	0.155	0.0465	0.0093	No	No
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.006	0.02	0.1	0.164	0.0491	0.0098	No	No
	February	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0496	0.0099	No	No
	March	0.0009	0.0009	0.006	0.02	0.1	0.154	0.0463	0.0093	No	No
	April	0.0003	0.0003	0.006	0.02	0.1	0.053	0.0158	0.0032	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.168	0.0503	0.0101	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.181	0.0542	0.0108	No	No
	July	0.0008	0.0008	0.006	0.02	0.1	0.128	0.0385	0.0077	No	No
	August	0.0008	0.0008	0.006	0.02	0.1	0.140	0.0420	0.0084	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0495	0.0099	No	No
	October	0.0009	0.0009	0.006	0.02	0.1	0.145	0.0436	0.0087	No	No
	November	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
	December	0.0009	0.0009	0.006	0.02	0.1	0.155	0.0465	0.0093	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D9x. Lower Jones Creek (J1) Hazard Quotients for Total Zinc Concentrations, Expected Case

		First Screening Step									Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline				
Construction (-2 to-1)	January	0.0034	0.0034	0.0468	0.0723	2	0.0718	0.0724	0.0468	0.0017	No	No	
	February	0.0034	0.0034	0.0481	0.0736	2	0.0702	0.0703	0.0460	0.0017	No	No	
	March	0.0032	0.0032	0.0495	0.0750	2	0.0649	0.0656	0.0433	0.0016	No	No	
	April	0.0014	0.0015	0.0458	0.0713	2	0.0312	0.0327	0.0210	0.0007	No	No	
	May	0.0039	0.0039	0.0075	0.0330	2	0.514	0.514	0.117	0.0019	No	No	
	June	0.0047	0.0047	0.0075	0.0330	2	0.630	0.631	0.143	0.0024	No	No	
	July	0.0037	0.0037	0.0241	0.0496	2	0.151	0.152	0.0737	0.0018	No	No	
	August	0.0032	0.0032	0.0513	0.0768	2	0.0625	0.0626	0.0418	0.0016	No	No	
	September	0.0031	0.0032	0.0510	0.0765	2	0.0617	0.0619	0.0413	0.0016	No	No	
	October	0.0028	0.0028	0.0356	0.0611	2	0.0783	0.0788	0.0459	0.0014	No	No	
	November	0.0026	0.0026	0.0533	0.0788	2	0.0483	0.0487	0.0329	0.0013	No	No	
	December	0.0031	0.0031	0.0075	0.0330	2	0.415	0.417	0.0948	0.0016	No	No	
Operation 1 Phase (1-23)	January	0.0033	0.0033	0.0468	0.0723	2	0.0702	0.0710	0.0460	0.0017	No	No	
	February	0.0033	0.0034	0.0481	0.0736	2	0.0690	0.0700	0.0457	0.0017	No	No	
	March	0.0031	0.0031	0.0495	0.0750	2	0.0626	0.0636	0.0420	0.0016	No	No	
	April	0.0013	0.0013	0.0458	0.0713	2	0.0288	0.0291	0.0187	0.0007	No	No	
	May	0.0038	0.0039	0.0075	0.0330	2	0.507	0.515	0.117	0.0019	No	No	
	June	0.0046	0.0048	0.0075	0.0330	2	0.620	0.635	0.144	0.0024	No	No	
	July	0.0035	0.0036	0.0241	0.0496	2	0.144	0.150	0.0731	0.0018	No	No	
	August	0.0032	0.0032	0.0513	0.0768	2	0.0621	0.0623	0.0416	0.0016	No	No	
	September	0.0031	0.0031	0.0510	0.0765	2	0.0610	0.0614	0.0409	0.0016	No	No	
	October	0.0028	0.0028	0.0356	0.0611	2	0.0774	0.0776	0.0452	0.0014	No	No	
	November	0.0025	0.0025	0.0533	0.0788	2	0.0477	0.0478	0.0323	0.0013	No	No	
	December	0.0031	0.0031	0.0075	0.0330	2	0.410	0.413	0.0939	0.0015	No	No	
Operations 2 Phase (24-28)	January	0.0032	0.0032	0.0468	0.0723	2	0.0694	0.0695	0.0450	0.0016	No	No	
	February	0.0033	0.0033	0.0481	0.0736	2	0.0680	0.0681	0.0445	0.0016	No	No	
	March	0.0031	0.0031	0.0495	0.0750	2	0.0617	0.0618	0.0408	0.0015	No	No	
	April	0.0013	0.0013	0.0458	0.0713	2	0.0288	0.0288	0.0185	0.0007	No	No	
	May	0.0038	0.0038	0.0075	0.0330	2	0.503	0.506	0.115	0.0019	No	No	
	June	0.0046	0.0046	0.0075	0.0330	2	0.611	0.617	0.140	0.0023	No	No	
	July	0.0034	0.0035	0.0241	0.0496	2	0.143	0.146	0.0708	0.0018	No	No	
	August	0.0032	0.0032	0.0513	0.0768	2	0.0619	0.0619	0.0414	0.0016	No	No	
	September	0.0031	0.0031	0.0510	0.0765	2	0.0606	0.0607	0.0405	0.0015	No	No	
	October	0.0027	0.0027	0.0356	0.0611	2	0.0770	0.0771	0.0449	0.0014	No	No	
	November	0.0025	0.0025	0.0533	0.0788	2	0.0474	0.0475	0.0321	0.0013	No	No	
	December	0.0031	0.0031	0.0075	0.0330	2	0.407	0.407	0.0926	0.0015	No	No	
Closure Phase (29-35)	January	0.0033	0.0034	0.0468	0.0723	2	0.0705	0.0725	0.0469	0.0017	No	No	
	February	0.0033	0.0035	0.0481	0.0736	2	0.0693	0.0717	0.0469	0.0017	No	No	
	March	0.0031	0.0032	0.0495	0.0750	2	0.0630	0.0651	0.0430	0.0016	No	No	
	April	0.0013	0.0013	0.0458	0.0713	2	0.0290	0.0294	0.0189	0.0007	No	No	
	May	0.0038	0.0039	0.0075	0.0330	2	0.513	0.517	0.117	0.0019	No	No	
	June	0.0047	0.0048	0.0075	0.0330	2	0.629	0.634	0.144	0.0024	No	No	
	July	0.0036	0.0037	0.0241	0.0496	2	0.151	0.152	0.0740	0.0018	No	No	
	August	0.0032	0.0032	0.0513	0.0768	2	0.0622	0.0628	0.0419	0.0016	No	No	
	September	0.0031	0.0032	0.0510	0.0765	2	0.0611	0.0621	0.0414	0.0016	No	No	
	October	0.0028	0.0028	0.0356	0.0611	2	0.0774	0.0783	0.0456	0.0014	No	No	
	November	0.0025	0.0026	0.0533	0.0788	2	0.0476	0.0482	0.0326	0.0013	No	No	
	December	0.0031	0.0031	0.0075	0.0330	2	0.411	0.419	0.0953	0.0016	No	No	
Post-Closure Phase (36-99)	January	0.0033	0.0034	0.0468	0.0723	2	0.0715	0.0718	0.0465	0.0017	No	No	
	February	0.0034	0.0034	0.0481	0.0736	2	0.0706	0.0710	0.0464	0.0017	No	No	
	March	0.0032	0.0032	0.0495	0.0750	2	0.0641	0.0645	0.0426	0.0016	No	No	
	April	0.0013	0.0013	0.0458	0.0713	2	0.0292	0.0293	0.0188	0.0007	No	No	
	May	0.0039	0.0039	0.0075	0.0330	2	0.515	0.515	0.117	0.0019	No	No	
	June	0.0047	0.0047	0.0075	0.0330	2	0.631	0.631	0.143	0.0024	No	No	
	July	0.0037	0.0037	0.0241	0.0496	2	0.152	0.152	0.0740	0.0018	No	No	
	August	0.0032	0.0032	0.0513	0.0768	2	0.0624	0.0625	0.0418	0.0016	No	No	
	September	0.0031	0.0031	0.0510	0.0765	2	0.0615	0.0617	0.0411	0.0016	No	No	
	October	0.0028	0.0028	0.0356	0.0611	2	0.0777	0.0779	0.0454	0.0014	No	No	
	November	0.0025	0.0026	0.0533	0.0788	2	0.0478	0.0479	0.0324	0.0013	No	No	
	December	0.0031	0.0031	0.0075	0.0330	2	0.415	0.416	0.0946	0.0016	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D9z. Lower Jones Creek (J1) Hazard Quotients for Fluoride Concentrations, Expected Case (completed)

		Retained as COPC?			
Project Phase	Months	Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D9aa. Lower Jones Creek (J1) Hazard Quotients for Nitrate Concentrations, Expected Case

		First Screening Step											Retained as COPC?					
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE Maximum	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0281	0.0288	3	32.8	10	100	100	0.0094	0.0096	0.0009	0.0029	0.0003	0.0003	No	No	No	No
	February	0.0275	0.0276	3	32.8	10	100	100	0.0092	0.0092	0.0008	0.0028	0.0003	0.0003	No	No	No	No
	March	0.0283	0.0285	3	32.8	10	100	100	0.0094	0.0095	0.0009	0.0028	0.0003	0.0003	No	No	No	No
	April	0.0313	0.0314	3	32.8	10	100	100	0.0104	0.0105	0.0010	0.0031	0.0003	0.0003	No	No	No	No
	May	0.0388	0.0389	3	32.8	10	100	100	0.0129	0.0130	0.0012	0.0039	0.0004	0.0004	No	No	No	No
	June	0.0076	0.0077	3	32.8	10	100	100	0.0025	0.0026	0.0002	0.0008	0.0001	0.0001	No	No	No	No
	July	0.0112	0.0114	3	32.8	10	100	100	0.0037	0.0038	0.0003	0.0011	0.0001	0.0001	No	No	No	No
	August	0.0215	0.0217	3	32.8	10	100	100	0.0072	0.0072	0.0007	0.0022	0.0002	0.0002	No	No	No	No
	September	0.0268	0.0268	3	32.8	10	100	100	0.0089	0.0089	0.0008	0.0027	0.0003	0.0003	No	No	No	No
	October	0.0195	0.0198	3	32.8	10	100	100	0.0065	0.0066	0.0006	0.0020	0.0002	0.0002	No	No	No	No
	November	0.0222	0.0224	3	32.8	10	100	100	0.0074	0.0075	0.0007	0.0022	0.0002	0.0002	No	No	No	No
	December	0.0260	0.0261	3	32.8	10	100	100	0.0087	0.0087	0.0008	0.0026	0.0003	0.0003	No	No	No	No
Operation 1 Phase (1-23)	January	0.0285	0.0289	3	32.8	10	100	100	0.0095	0.0096	0.0009	0.0029	0.0003	0.0003	No	No	No	No
	February	0.0271	0.0276	3	32.8	10	100	100	0.0090	0.0092	0.0008	0.0028	0.0003	0.0003	No	No	No	No
	March	0.0282	0.0286	3	32.8	10	100	100	0.0094	0.0095	0.0009	0.0029	0.0003	0.0003	No	No	No	No
	April	0.0315	0.0315	3	32.8	10	100	100	0.0105	0.0105	0.0010	0.0032	0.0003	0.0003	No	No	No	No
	May	0.0386	0.0393	3	32.8	10	100	100	0.0129	0.0131	0.0012	0.0039	0.0004	0.0004	No	No	No	No
	June	0.0072	0.0075	3	32.8	10	100	100	0.0024	0.0025	0.0002	0.0007	0.0001	0.0001	No	No	No	No
	July	0.0109	0.0112	3	32.8	10	100	100	0.0036	0.0037	0.0003	0.0011	0.0001	0.0001	No	No	No	No
	August	0.0212	0.0213	3	32.8	10	100	100	0.0071	0.0071	0.0006	0.0021	0.0002	0.0002	No	No	No	No
	September	0.0265	0.0267	3	32.8	10	100	100	0.0088	0.0089	0.0008	0.0027	0.0003	0.0003	No	No	No	No
	October	0.0191	0.0191	3	32.8	10	100	100	0.0064	0.0064	0.0006	0.0019	0.0002	0.0002	No	No	No	No
	November	0.0220	0.0221	3	32.8	10	100	100	0.0073	0.0074	0.0007	0.0022	0.0002	0.0002	No	No	No	No
	December	0.0257	0.0259	3	32.8	10	100	100	0.0086	0.0086	0.0008	0.0026	0.0003	0.0003	No	No	No	No
Operations 2 Phase (24-28)	January	0.0281	0.0281	3	32.8	10	100	100	0.0094	0.0094	0.0009	0.0028	0.0003	0.0003	No	No	No	No
	February	0.0267	0.0267	3	32.8	10	100	100	0.0089	0.0089	0.0008	0.0027	0.0003	0.0003	No	No	No	No
	March	0.0277	0.0277	3	32.8	10	100	100	0.0092	0.0092	0.0008	0.0028	0.0003	0.0003	No	No	No	No
	April	0.0314	0.0314	3	32.8	10	100	100	0.0105	0.0105	0.0010	0.0031	0.0003	0.0003	No	No	No	No
	May	0.0382	0.0384	3	32.8	10	100	100	0.0127	0.0128	0.0012	0.0038	0.0004	0.0004	No	No	No	No
	June	0.0071	0.0072	3	32.8	10	100	100	0.0024	0.0024	0.0002	0.0007	0.0001	0.0001	No	No	No	No
	July	0.0107	0.0108	3	32.8	10	100	100	0.0036	0.0036	0.0003	0.0011	0.0001	0.0001	No	No	No	No
	August	0.0211	0.0211	3	32.8	10	100	100	0.0070	0.0070	0.0006	0.0021	0.0002	0.0002	No	No	No	No
	September	0.0263	0.0263	3	32.8	10	100	100	0.0088	0.0088	0.0008	0.0026	0.0003	0.0003	No	No	No	No
	October	0.0190	0.0190	3	32.8	10	100	100	0.0063	0.0063	0.0006	0.0019	0.0002	0.0002	No	No	No	No
	November	0.0219	0.0219	3	32.8	10	100	100	0.0073	0.0073	0.0007	0.0022	0.0002	0.0002	No	No	No	No
	December	0.0254	0.0254	3	32.8	10	100	100	0.0085	0.0085	0.0008	0.0025	0.0003	0.0003	No	No	No	No
Closure Phase (29-35)	January	0.0330	0.0361	3	32.8	10	100	100	0.0110	0.0120	0.0011	0.0036	0.0004	0.0004	No	No	No	No
	February	0.0331	0.0373	3	32.8	10	100	100	0.0110	0.0124	0.0011	0.0037	0.0004	0.0004	No	No	No	No
	March	0.0333	0.0368	3	32.8	10	100	100	0.0111	0.0123	0.0011	0.0037	0.0004	0.0004	No	No	No	No
	April	0.0322	0.0327	3	32.8	10	100	100	0.0107	0.0109	0.0010	0.0033	0.0003	0.0003	No	No	No	No
	May	0.0390	0.0392	3	32.8	10	100	100	0.0130	0.0131	0.0012	0.0039	0.0004	0.0004	No	No	No	No
	June	0.0075	0.0077	3	32.8	10	100	100	0.0025	0.0026	0.0002	0.0008	0.0001	0.0001	No	No	No	No
	July	0.0114	0.0116	3	32.8	10	100	100	0.0038	0.0039	0.0004	0.0012	0.0001	0.0001	No	No	No	No
	August	0.0229	0.0238	3	32.8	10	100	100	0.0076	0.0079	0.0007	0.0024	0.0002	0.0002	No	No	No	No
	September	0.0299	0.0316	3	32.8	10	100	100	0.0100	0.0105	0.0010	0.0032	0.0003	0.0003	No	No	No	No
	October	0.0211	0.0220	3	32.8	10	100	100	0.0070	0.0073	0.0007	0.0022	0.0002	0.0002	No	No	No	No
	November	0.0239	0.0249	3	32.8	10	100	100	0.0080	0.0083	0.0008	0.0025	0.0002	0.0002	No	No	No	No
	December	0.0295	0.0312	3	32.8	10	100	100	0.0098	0.0104	0.0010	0.0031	0.0003	0.0003	No	No	No	No
Post-Closure Phase (36-99)	January	0.0300	0.0341	3	32.8	10	100	100	0.0100	0.0114	0.0010	0.0034	0.0003	0.0003	No	No	No	No
	February	0.0291	0.0346	3	32.8	10	100	100	0.0097	0.0115	0.0011	0.0035	0.0003	0.0003	No	No	No	No
	March	0.0298	0.0344	3	32.8	10	100	100	0.0099	0.0115	0.0010	0.0034	0.0003	0.0003	No	No	No	No
	April	0.0317	0.0323	3	32.8	10	100	100	0.0106	0.0108	0.0010	0.0032	0.0003	0.0003	No	No	No	No
	May	0.0389	0.0392	3	32.8	10	100	100	0.0130	0.0131	0.0012	0.0039	0.0004	0.0004	No	No	No	No
	June	0.0074	0.0076	3	32.8	10	100	100	0.0025	0.0025	0.0002	0.0008	0.0001	0.0001	No	No	No	No
	July	0.0110	0.0114	3	32.8	10	100	100	0.0037	0.0038	0.0003	0.0011	0.0001	0.0001	No	No	No	No
	August	0.0215	0.0228	3	32.8	10	100	100	0.0072	0.0076	0.0007	0.0023	0.0002	0.0002	No	No	No	No
	September	0.0274	0.0298	3	32.8	10	100	100	0.0091	0.0099	0.0009	0.0030	0.0003	0.0003	No	No	No	No
	October	0.0195	0.0210	3	32.8	10	100	100	0.0065	0.0070	0.0006	0.0021	0.0002	0.0002	No	No	No	No
	November	0.0224	0.0238	3	32.8	10	100	100	0.0075	0.0079	0.0007	0.0024	0.0002	0.0002	No	No	No	No
	December	0.0266	0.0293	3	32.8	10	100	100	0.0089	0.0098	0.0009	0.0029	0.0003	0.0003	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D9ab. Lower Jones Creek (J1) Hazard Quotients for Nitrite Concentrations, Expected Case

Project Phase	Months	First Screening Step											Retained as COPC?					
		Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline							
		Mean	Maximum	Mean	Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean	Maximum	Maximum	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
Construction (-2 to 1)	January	0.0010	0.0011	0.02	0.06	1	10	10	0.0517	0.0534	0.0178	0.0011	0.0001	0.0001	No	No	No	No
	February	0.0010	0.0010	0.02	0.06	1	10	10	0.0504	0.0509	0.0170	0.0010	0.0001	0.0001	No	No	No	No
	March	0.0013	0.0013	0.02	0.06	1	10	10	0.0632	0.0658	0.0219	0.0013	0.0001	0.0001	No	No	No	No
	April	0.0043	0.0044	0.02	0.06	1	10	10	0.213	0.219	0.0729	0.0044	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0518	0.0518	0.0173	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0016	0.0016	0.02	0.06	1	10	10	0.0798	0.0806	0.0269	0.0016	0.0002	0.0002	No	No	No	No
	November	0.0021	0.0022	0.02	0.06	1	10	10	0.107	0.108	0.0360	0.0021	0.0002	0.0002	No	No	No	No
	December	0.0013	0.0014	0.02	0.06	1	10	10	0.0674	0.0682	0.0227	0.0014	0.0001	0.0001	No	No	No	No
Operation 1 Phase (1-23)	January	0.0011	0.0011	0.02	0.06	1	10	10	0.0529	0.0537	0.0179	0.0011	0.0001	0.0001	No	No	No	No
	February	0.0010	0.0010	0.02	0.06	1	10	10	0.0501	0.0510	0.0170	0.0010	0.0001	0.0001	No	No	No	No
	March	0.0013	0.0014	0.02	0.06	1	10	10	0.0675	0.0685	0.0228	0.0014	0.0001	0.0001	No	No	No	No
	April	0.0044	0.0044	0.02	0.06	1	10	10	0.221	0.221	0.0738	0.0044	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0491	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0485	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0487	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0513	0.0517	0.0172	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0495	0.0499	0.0166	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0016	0.0016	0.02	0.06	1	10	10	0.0800	0.0807	0.0269	0.0016	0.0002	0.0002	No	No	No	No
	November	0.0021	0.0022	0.02	0.06	1	10	10	0.107	0.108	0.0362	0.0021	0.0002	0.0002	No	No	No	No
	December	0.0013	0.0014	0.02	0.06	1	10	10	0.0674	0.0683	0.0228	0.0014	0.0001	0.0001	No	No	No	No
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0521	0.0522	0.0174	0.0010	0.0001	0.0001	No	No	No	No
	February	0.0010	0.0010	0.02	0.06	1	10	10	0.0492	0.0492	0.0164	0.0010	0.0001	0.0001	No	No	No	No
	March	0.0013	0.0013	0.02	0.06	1	10	10	0.0666	0.0671	0.0224	0.0013	0.0001	0.0001	No	No	No	No
	April	0.0044	0.0044	0.02	0.06	1	10	10	0.221	0.221	0.0737	0.0044	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0486	0.0490	0.0163	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0478	0.0483	0.0161	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0480	0.0485	0.0162	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0511	0.0512	0.0171	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0490	0.0491	0.0164	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0016	0.0016	0.02	0.06	1	10	10	0.0797	0.0799	0.0266	0.0016	0.0002	0.0002	No	No	No	No
	November	0.0021	0.0021	0.02	0.06	1	10	10	0.107	0.107	0.0358	0.0021	0.0002	0.0002	No	No	No	No
	December	0.0013	0.0013	0.02	0.06	1	10	10	0.0668	0.0670	0.0223	0.0013	0.0001	0.0001	No	No	No	No
Closure Phase (29-35)	January	0.0012	0.0012	0.02	0.06	1	10	10	0.0580	0.0616	0.0205	0.0012	0.0001	0.0001	No	No	No	No
	February	0.0011	0.0012	0.02	0.06	1	10	10	0.0568	0.0615	0.0205	0.0012	0.0001	0.0001	No	No	No	No
	March	0.0015	0.0015	0.02	0.06	1	10	10	0.0732	0.0772	0.0257	0.0015	0.0002	0.0002	No	No	No	No
	April	0.0044	0.0044	0.02	0.06	1	10	10	0.222	0.222	0.0741	0.0044	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0499	0.0504	0.0168	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0497	0.0503	0.0168	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0501	0.0506	0.0169	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0011	0.0011	0.02	0.06	1	10	10	0.0536	0.0545	0.0182	0.0011	0.0001	0.0001	No	No	No	No
	September	0.0011	0.0011	0.02	0.06	1	10	10	0.0534	0.0552	0.0184	0.0011	0.0001	0.0001	No	No	No	No
	October	0.0017	0.0017	0.02	0.06	1	10	10	0.0830	0.0840	0.0280	0.0017	0.0002	0.0002	No	No	No	No
	November	0.0022	0.0022	0.02	0.06	1	10	10	0.110	0.111	0.0371	0.0022	0.0002	0.0002	No	No	No	No
	December	0.0014	0.0015	0.02	0.06	1	10	10	0.0723	0.0741	0.0247	0.0015	0.0001	0.0001	No	No	No	No
Post-Closure Phase (36-99)	January	0.0011	0.0012	0.02	0.06	1	10	10	0.0550	0.0595	0.0198	0.0012	0.0001	0.0001	No	No	No	No
	February	0.0011	0.0012	0.02	0.06	1	10	10	0.0526	0.0587	0.0196	0.0012	0.0001	0.0001	No	No	No	No
	March	0.0014	0.0015	0.02	0.06	1	10	10	0.0696	0.0746	0.0249	0.0015	0.0001	0.0001	No	No	No	No
	April	0.0044	0.0044	0.02	0.06	1	10	10	0.221	0.222	0.0740	0.0044	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0501	0.0503	0.0168	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0501	0.0503	0.0168	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0501	0.0505	0.0168	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0011	0.02	0.06	1	10	10	0.0522	0.0536	0.0179	0.0011	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0011	0.02	0.06	1	10	10	0.0507	0.0534	0.0178	0.0011	0.0001	0.0001	No	No	No	No
	October	0.0016	0.0017	0.02	0.06	1	10	10	0.0818	0.0833	0.0278	0.0017	0.0002	0.0002	No	No	No	No
	November	0.0022	0.0022	0.02	0.06	1	10	10	0.109	0.111	0.0369	0.0022	0.0002	0.0002	No	No	No	No
	December	0.0014	0.0014	0.02	0.06	1	10	10	0.0695	0.0724	0.0241	0.0014	0.0001	0.0001	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are chloride dependent

Appendix 13-D9ac. Lower Jones Creek (J1) Hazard Quotients for Ammonia Concentrations, Expected Case

		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
	February	0.0088	0.0088	0.636	3.31	0.0138	0.0138	0.0027	No
	March	0.0087	0.0087	0.788	4.09	0.0111	0.0111	0.0021	No
	April	0.0059	0.0060	0.606	3.15	0.0097	0.0099	0.0019	No
	May	0.0106	0.0106	1.67	8.67	0.0063	0.0064	0.0012	No
	June	0.0077	0.0077	1.38	7.17	0.0056	0.0056	0.0011	No
	July	0.0124	0.0124	0.709	3.69	0.0175	0.0175	0.0034	No
	August	0.0132	0.0134	0.566	2.94	0.0234	0.0236	0.0045	No
	September	0.0101	0.0102	0.568	2.96	0.0179	0.0180	0.0034	No
	October	0.0089	0.0089	0.942	4.90	0.0094	0.0094	0.0018	No
	November	0.0113	0.0113	0.788	4.09	0.0143	0.0144	0.0028	No
	December	0.0181	0.0185	1.50	7.82	0.0121	0.0123	0.0024	No
Operation 1 Phase (1-23)	January	0.0089	0.0090	0.628	3.22	0.0141	0.0143	0.0028	No
	February	0.0086	0.0088	0.636	3.31	0.0135	0.0138	0.0026	No
	March	0.0086	0.0087	0.788	4.09	0.0109	0.0111	0.0021	No
	April	0.0057	0.0057	0.606	3.15	0.0094	0.0095	0.0018	No
	May	0.0104	0.0106	1.67	8.67	0.0062	0.0064	0.0012	No
	June	0.0074	0.0076	1.38	7.17	0.0054	0.0055	0.0011	No
	July	0.0121	0.0124	0.709	3.69	0.0170	0.0175	0.0034	No
	August	0.0129	0.0133	0.566	2.94	0.0227	0.0234	0.0045	No
	September	0.0101	0.0102	0.568	2.96	0.0177	0.0180	0.0034	No
	October	0.0088	0.0089	0.942	4.90	0.0094	0.0094	0.0018	No
	November	0.0113	0.0114	0.788	4.09	0.0143	0.0144	0.0028	No
	December	0.0183	0.0186	1.50	7.82	0.0122	0.0124	0.0024	No
Operations 2 Phase (24-28)	January	0.0087	0.0087	0.628	3.22	0.0139	0.0139	0.0027	No
	February	0.0085	0.0085	0.636	3.31	0.0133	0.0133	0.0026	No
	March	0.0084	0.0084	0.788	4.09	0.0107	0.0107	0.0021	No
	April	0.0057	0.0057	0.606	3.15	0.0094	0.0094	0.0018	No
	May	0.0103	0.0104	1.67	8.67	0.0062	0.0062	0.0012	No
	June	0.0073	0.0074	1.38	7.17	0.0053	0.0053	0.0010	No
	July	0.0119	0.0121	0.709	3.69	0.0168	0.0170	0.0033	No
	August	0.0128	0.0130	0.566	2.94	0.0227	0.0230	0.0044	No
	September	0.0100	0.0100	0.568	2.96	0.0176	0.0176	0.0034	No
	October	0.0088	0.0088	0.942	4.90	0.0093	0.0093	0.0018	No
	November	0.0112	0.0112	0.788	4.09	0.0142	0.0143	0.0027	No
	December	0.0181	0.0183	1.50	7.82	0.0121	0.0122	0.0023	No
Closure Phase (29-35)	January	0.0094	0.0098	0.628	3.22	0.0150	0.0156	0.0030	No
	February	0.0093	0.0099	0.636	3.31	0.0147	0.0155	0.0030	No
	March	0.0092	0.0097	0.788	4.09	0.0117	0.0123	0.0024	No
	April	0.0058	0.0059	0.606	3.15	0.0096	0.0097	0.0019	No
	May	0.0106	0.0107	1.67	8.67	0.0063	0.0064	0.0012	No
	June	0.0076	0.0077	1.38	7.17	0.0055	0.0056	0.0011	No
	July	0.0124	0.0125	0.709	3.69	0.0175	0.0177	0.0034	No
	August	0.0136	0.0138	0.566	2.94	0.0240	0.0243	0.0047	No
	September	0.0106	0.0108	0.568	2.96	0.0186	0.0190	0.0036	No
	October	0.0091	0.0092	0.942	4.90	0.0096	0.0098	0.0019	No
	November	0.0115	0.0117	0.788	4.09	0.0146	0.0148	0.0028	No
	December	0.0190	0.0192	1.50	7.82	0.0127	0.0128	0.0025	No
Post-Closure Phase (36-99)	January	0.0091	0.0096	0.628	3.22	0.0146	0.0153	0.0030	No
	February	0.0090	0.0096	0.636	3.31	0.0141	0.0151	0.0029	No
	March	0.0089	0.0094	0.788	4.09	0.0113	0.0119	0.0023	No
	April	0.0058	0.0058	0.606	3.15	0.0095	0.0096	0.0019	No
	May	0.0106	0.0107	1.67	8.67	0.0064	0.0064	0.0012	No
	June	0.0077	0.0077	1.38	7.17	0.0056	0.0056	0.0011	No
	July	0.0125	0.0125	0.709	3.69	0.0176	0.0177	0.0034	No
	August	0.0136	0.0137	0.566	2.94	0.0240	0.0243	0.0047	No
	September	0.0104	0.0106	0.568	2.96	0.0182	0.0187	0.0036	No
	October	0.0089	0.0091	0.942	4.90	0.0095	0.0097	0.0019	No
	November	0.0114	0.0115	0.788	4.09	0.0145	0.0147	0.0028	No
	December	0.0189	0.0192	1.50	7.82	0.0126	0.0128	0.0024	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Appendix 13-D9ad. Lower Jones Creek (J1) Hazard Quotients for Sulphate Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?				
		Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				BC MOE 30-Day Mean Guideline	BC DWQG					
Construction (-2 to-1)	January	5.28	5.59	309	500	1000	0.0171	0.0181	0.0112	0.0056	No	No	No
	February	5.04	5.10	309	500	1000	0.0163	0.0165	0.0102	0.0051	No	No	No
	March	6.41	6.68	309	500	1000	0.0207	0.0216	0.0134	0.0067	No	No	No
	April	14.6	14.9	309	500	1000	0.0471	0.0482	0.0298	0.0149	No	No	No
	May	6.51	6.53	218	500	1000	0.0298	0.0299	0.0131	0.0065	No	No	No
	June	6.37	6.39	218	500	1000	0.0292	0.0293	0.0128	0.0064	No	No	No
	July	10.2	10.3	309	500	1000	0.0331	0.0333	0.0206	0.0103	No	No	No
	August	10.9	11.1	309	500	1000	0.0354	0.0360	0.0223	0.0111	No	No	No
	September	6.85	6.95	309	500	1000	0.0222	0.0225	0.0139	0.0069	No	No	No
	October	10.8	11.0	309	500	1000	0.0350	0.0356	0.0220	0.0110	No	No	No
	November	13.6	13.8	309	500	1000	0.0439	0.0447	0.0276	0.0138	No	No	No
	December	6.13	6.18	309	500	1000	0.0198	0.0200	0.0124	0.0062	No	No	No
Operation 1 Phase (1-23)	January	5.76	5.81	309	500	1000	0.0186	0.0188	0.0116	0.0058	No	No	No
	February	5.25	5.33	309	500	1000	0.0170	0.0173	0.0107	0.0053	No	No	No
	March	7.09	7.20	309	500	1000	0.0229	0.0233	0.0144	0.0072	No	No	No
	April	15.1	15.1	309	500	1000	0.0488	0.0488	0.0302	0.0151	No	No	No
	May	6.69	6.80	218	500	1000	0.0307	0.0312	0.0136	0.0068	No	No	No
	June	6.65	6.83	218	500	1000	0.0305	0.0313	0.0137	0.0068	No	No	No
	July	10.5	10.6	309	500	1000	0.0339	0.0342	0.0212	0.0106	No	No	No
	August	11.2	11.2	309	500	1000	0.0363	0.0364	0.0225	0.0112	No	No	No
	September	7.01	7.02	309	500	1000	0.0227	0.0227	0.0140	0.0070	No	No	No
	October	11.0	11.1	309	500	1000	0.0357	0.0358	0.0221	0.0111	No	No	No
	November	13.8	13.9	309	500	1000	0.0447	0.0449	0.0278	0.0139	No	No	No
	December	6.26	6.29	309	500	1000	0.0203	0.0204	0.0126	0.0063	No	No	No
Operations 2 Phase (24-28)	January	5.83	5.84	309	500	1000	0.0189	0.0189	0.0117	0.0058	No	No	No
	February	5.35	5.35	309	500	1000	0.0173	0.0173	0.0107	0.0054	No	No	No
	March	7.18	7.23	309	500	1000	0.0232	0.0234	0.0145	0.0072	No	No	No
	April	15.1	15.1	309	500	1000	0.0488	0.0488	0.0302	0.0151	No	No	No
	May	6.73	6.78	218	500	1000	0.0309	0.0311	0.0136	0.0068	No	No	No
	June	6.72	6.80	218	500	1000	0.0308	0.0312	0.0136	0.0068	No	No	No
	July	10.5	10.5	309	500	1000	0.0339	0.0341	0.0211	0.0105	No	No	No
	August	11.2	11.2	309	500	1000	0.0363	0.0364	0.0225	0.0112	No	No	No
	September	7.05	7.07	309	500	1000	0.0228	0.0229	0.0141	0.0071	No	No	No
	October	11.0	11.1	309	500	1000	0.0357	0.0358	0.0222	0.0111	No	No	No
	November	13.8	13.9	309	500	1000	0.0447	0.0449	0.0277	0.0139	No	No	No
	December	6.31	6.32	309	500	1000	0.0204	0.0204	0.0126	0.0063	No	No	No
Closure Phase (29-35)	January	7.13	9.15	309	500	1000	0.0231	0.0296	0.0183	0.0091	No	No	No
	February	7.00	9.52	309	500	1000	0.0226	0.0308	0.0190	0.0095	No	No	No
	March	8.61	10.88	309	500	1000	0.0279	0.0352	0.0218	0.0109	No	No	No
	April	15.3	15.6	309	500	1000	0.0494	0.0504	0.0312	0.0156	No	No	No
	May	6.84	7.27	218	500	1000	0.0314	0.0333	0.0145	0.0073	No	No	No
	June	6.84	7.44	218	500	1000	0.0314	0.0341	0.0149	0.0074	No	No	No
	July	10.8	11.4	309	500	1000	0.0348	0.0368	0.0227	0.0114	No	No	No
	August	11.8	12.4	309	500	1000	0.0381	0.0400	0.0247	0.0124	No	No	No
	September	8.02	9.13	309	500	1000	0.0260	0.0295	0.0183	0.0091	No	No	No
	October	11.7	12.3	309	500	1000	0.0378	0.0399	0.0247	0.0123	No	No	No
	November	14.5	15.1	309	500	1000	0.0468	0.0488	0.0302	0.0151	No	No	No
	December	7.35	8.56	309	500	1000	0.0238	0.0277	0.0171	0.0086	No	No	No
Post-Closure Phase (36-99)	January	6.57	6.80	309	500	1000	0.0212	0.0220	0.0136	0.0068	No	No	No
	February	6.33	6.63	309	500	1000	0.0205	0.0214	0.0133	0.0066	No	No	No
	March	7.95	8.24	309	500	1000	0.0257	0.0267	0.0165	0.0082	No	No	No
	April	15.2	15.2	309	500	1000	0.0491	0.0492	0.0304	0.0152	No	No	No
	May	6.57	6.59	218	500	1000	0.0301	0.0302	0.0132	0.0066	No	No	No
	June	6.42	6.43	218	500	1000	0.0295	0.0295	0.0129	0.0064	No	No	No
	July	10.4	10.4	309	500	1000	0.0336	0.0337	0.0208	0.0104	No	No	No
	August	11.6	11.6	309	500	1000	0.0374	0.0376	0.0232	0.0116	No	No	No
	September	7.60	7.73	309	500	1000	0.0246	0.0250	0.0155	0.0077	No	No	No
	October	11.4	11.5	309	500	1000	0.0370	0.0372	0.0230	0.0115	No	No	No
	November	14.2	14.3	309	500	1000	0.0461	0.0464	0.0286	0.0143	No	No	No
	December	6.85	7.00	309	500	1000	0.0222	0.0227	0.0140	0.0070	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D10a. Middle Baker Creek (BK1) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case

		First Screening Step																	
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines for Dissolved Aluminum Concentrations ¹		Drinking Water Quality Guidelines for Dissolved Aluminum	BC MOE Working Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline for Dissolved Aluminum			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum			
		Dissolved Aluminum		Total Aluminum		BC MOE 30-Day Mean	BC MOE Maximum				BC maximum DWQG	Maximum	Maximum				Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
		Mean	Maximum	Mean	Maximum														
Construction (-2 to 1)	January	0.0030	0.0033	0.0038	0.0042	0.050	0.100	0.2	5	5	0.0600	0.0660	0.0330	0.0165	0.0008				
	February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007				
	March	0.0030	0.0061	0.0037	0.0075	0.050	0.100	0.2	5	5	0.0605	0.121	0.0605	0.0303	0.0015				
	April	0.0037	0.0037	0.0046	0.0046	0.050	0.100	0.2	5	5	0.0738	0.0738	0.0369	0.0185	0.0009				
	May	0.0135	0.0135	0.257	0.258	0.050	0.100	0.2	5	5	0.269	0.270	0.135	0.0675	0.0516				
	June	0.0231	0.0231	0.313	0.313	0.050	0.100	0.2	5	5	0.463	0.463	0.231	0.116	0.0627				
	July	0.0095	0.0095	0.0151	0.0151	0.050	0.100	0.2	5	5	0.190	0.190	0.0950	0.0475	0.0030				
	August	0.0049	0.0049	0.0101	0.0102	0.050	0.100	0.2	5	5	0.0979	0.0982	0.0491	0.0246	0.0020				
	September	0.0042	0.0043	0.0056	0.0058	0.050	0.100	0.2	5	5	0.0839	0.0856	0.0428	0.0214	0.0012				
	October	0.0044	0.0044	0.0055	0.0056	0.050	0.100	0.2	5	5	0.0874	0.0879	0.0439	0.0220	0.0011				
	November	0.0022	0.0022	0.0056	0.0057	0.050	0.100	0.2	5	5	0.0446	0.0449	0.0225	0.0112	0.0011				
	December	0.0025	0.0025	0.0049	0.0050	0.050	0.100	0.2	5	5	0.0495	0.0510	0.0255	0.0127	0.0010				
Operation 1 Phase (1-23)	January	0.0027	0.0027	0.0042	0.0042	0.050	0.100	0.2	5	5	0.0540	0.0540	0.0270	0.0135	0.0008				
	February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007				
	March	0.0061	0.0061	0.0075	0.0075	0.050	0.100	0.2	5	5	0.121	0.121	0.0605	0.0303	0.0015				
	April	0.0037	0.0037	0.0046	0.0046	0.050	0.100	0.2	5	5	0.0738	0.0738	0.0369	0.0185	0.0009				
	May	0.0135	0.0135	0.259	0.259	0.050	0.100	0.2	5	5	0.271	0.271	0.135	0.0677	0.0518				
	June	0.0233	0.0233	0.315	0.315	0.050	0.100	0.2	5	5	0.465	0.466	0.233	0.116	0.0631				
	July	0.0096	0.0096	0.0153	0.0153	0.050	0.100	0.2	5	5	0.191	0.192	0.0958	0.0479	0.0031				
	August	0.0050	0.0051	0.0107	0.0108	0.050	0.100	0.2	5	5	0.101	0.101	0.0505	0.0253	0.0022				
	September	0.0047	0.0049	0.0067	0.0071	0.050	0.100	0.2	5	5	0.0940	0.0973	0.0486	0.0243	0.0014				
	October	0.0045	0.0045	0.0057	0.0058	0.050	0.100	0.2	5	5	0.0894	0.0898	0.0449	0.0225	0.0012				
	November	0.0022	0.0022	0.0058	0.0058	0.050	0.100	0.2	5	5	0.0432	0.0439	0.0219	0.0110	0.0012				
	December	0.0024	0.0024	0.0050	0.0050	0.050	0.100	0.2	5	5	0.0480	0.0480	0.0240	0.0120	0.0010				
Operations 2 Phase (24-28)	January	0.0027	0.0027	0.0042	0.0042	0.050	0.100	0.2	5	5	0.0540	0.0540	0.0270	0.0135	0.0008				
	February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007				
	March	0.0061	0.0061	0.0075	0.0075	0.050	0.100	0.2	5	5	0.121	0.121	0.0605	0.0303	0.0015				
	April	0.0037	0.0037	0.0046	0.0046	0.050	0.100	0.2	5	5	0.0738	0.0738	0.0369	0.0185	0.0009				
	May	0.0135	0.0135	0.259	0.259	0.050	0.100	0.2	5	5	0.271	0.271	0.135	0.0677	0.0518				
	June	0.0233	0.0233	0.315	0.315	0.050	0.100	0.2	5	5	0.466	0.466	0.233	0.116	0.0631				
	July	0.0096	0.0096	0.0153	0.0153	0.050	0.100	0.2	5	5	0.192	0.192	0.0959	0.0480	0.0031				
	August	0.0051	0.0051	0.0108	0.0108	0.050	0.100	0.2	5	5	0.102	0.102	0.0511	0.0256	0.0022				
	September	0.0048	0.0049	0.0070	0.0070	0.050	0.100	0.2	5	5	0.0969	0.0970	0.0485	0.0243	0.0014				
	October	0.0045	0.0045	0.0058	0.0058	0.050	0.100	0.2	5	5	0.0902	0.0904	0.0452	0.0226	0.0012				
	November	0.0022	0.0022	0.0058	0.0058	0.050	0.100	0.2	5	5	0.0434	0.0437	0.0218	0.0109	0.0012				
	December	0.0024	0.0024	0.0050	0.0050	0.050	0.100	0.2	5	5	0.0480	0.048	0.0240	0.0120	0.0010				
Closure Phase (29-35)	January	0.0027	0.0027	0.0042	0.0042	0.050	0.100	0.2	5	5	0.0540	0.0540	0.0270	0.0135	0.0008				
	February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007				
	March	0.0061	0.0061	0.0075	0.0075	0.050	0.100	0.2	5	5	0.121	0.121	0.0605	0.0303	0.0015				
	April	0.0037	0.0037	0.0046	0.0046	0.050	0.100	0.2	5	5	0.0738	0.0738	0.0369	0.0185	0.0009				
	May	0.0135	0.0135	0.259	0.259	0.050	0.100	0.2	5	5	0.271	0.271	0.135	0.0677	0.0518				
	June	0.0233	0.0233	0.315	0.315	0.050	0.100	0.2	5	5	0.465	0.466	0.233	0.116	0.0630				
	July	0.0096	0.0096	0.0153	0.0153	0.050	0.100	0.2	5	5	0.192	0.192	0.0959	0.0480	0.0031				
	August	0.0051	0.0051	0.0108	0.0108	0.050	0.100	0.2	5	5	0.102	0.102	0.0511	0.0256	0.0022				
	September	0.0048	0.0048	0.0069	0.0070	0.050	0.100	0.2	5	5	0.0966	0.0969	0.0485	0.0242	0.0014				
	October	0.0045	0.0045	0.0058	0.0058	0.050	0.100	0.2	5	5	0.0903	0.0904	0.0452	0.0226	0.0012				
	November	0.0022	0.0022	0.0058	0.0058	0.050	0.100	0.2	5	5	0.0437	0.0437	0.0218	0.0109	0.0012				
	December	0.0024	0.0024	0.0050	0.0050	0.050	0.100	0.2	5	5	0.0480	0.048	0.0240	0.0120	0.0010				
Post-Closure Phase (36-99)	January	0.0027	0.0027	0.0041	0.0042	0.050	0.100	0.2	5	5	0.0540	0.0540	0.0270	0.0135	0.0008				
	February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007				
	March	0.0061	0.0061	0.0075	0.0075	0.050	0.100	0.2	5	5	0.121	0.121	0.0605	0.0303	0.0015				
	April	0.0037	0.0037	0.0046	0.0046	0.050	0.100	0.2	5	5	0.0738	0.0738	0.0369	0.0185	0.0009				
	May	0.0135	0.0135	0.259	0.259	0.050	0.100	0.2	5	5	0.271	0.271	0.135	0.0677	0.0518				
	June	0.0233	0.0233	0.315	0.315	0.050	0.100	0.2	5	5	0.465	0.466	0.233	0.116	0.0631				
	July	0.0096	0.0096	0.0153	0.0153	0.050	0.100	0.2	5	5	0.192	0.192	0.0959	0.0479	0.0031				
	August	0.0051	0.0051	0.0107	0.0108	0.050	0.100	0.2	5	5	0.101	0.102	0.0509	0.0255	0.0022				
	September	0.0048	0.0048	0.0069	0.0069	0.050	0.100	0.2	5	5	0.0957	0.0963	0.0481	0.0241	0.0014				
	October	0.0045	0.0045	0.0058	0.0058	0.050	0.100	0.2	5	5	0.0898	0.0903	0.0451	0.0226	0.0012				
	November	0.0022	0.0022	0.0058	0.0058	0.050	0.100	0.2	5	5	0.0432	0.0437	0.0218	0.0109	0.0012				
	December	0.0024	0.0024	0.0050	0.0050	0.050	0.100	0.2	5	5	0.0480	0.0480	0.0240	0.0120	0.0010				

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

(continued)

Appendix 13-D10a. Middle Baker Creek (BK1) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case (completed)

		Retained as COPC?			
Project Phase	Months	Aquatic Life for Dissolved Aluminum	Drinking Water for Dissolved Aluminum	Wildlife for Total Aluminum	Livestock for Total Aluminum
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

Appendix 13-D10b. Middle Baker Creek (BK1) Hazard Quotients for Total Antimony Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
		Construction (-2 to-1)	January	0.00004	0.00006	0.020	0.014		
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00001	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00499	0.00713	No	No
	June	0.00010	0.00010	0.020	0.014	0.00493	0.00704	No	No
	July	0.00010	0.00010	0.020	0.014	0.00482	0.00688	No	No
	August	0.00011	0.00011	0.020	0.014	0.00572	0.00817	No	No
	September	0.00008	0.00009	0.020	0.014	0.00442	0.00632	No	No
	October	0.00007	0.00007	0.020	0.014	0.00349	0.00499	No	No
	November	0.00009	0.00009	0.020	0.014	0.00464	0.00662	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operation 1 Phase (1-23)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00496	0.00708	No	No
	July	0.00010	0.00010	0.020	0.014	0.00487	0.00695	No	No
	August	0.00012	0.00012	0.020	0.014	0.00609	0.00870	No	No
	September	0.00012	0.00013	0.020	0.014	0.00637	0.00910	No	No
	October	0.00007	0.00007	0.020	0.014	0.00370	0.00529	No	No
	November	0.00010	0.00010	0.020	0.014	0.00486	0.00694	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00497	0.00710	No	No
	July	0.00010	0.00010	0.020	0.014	0.00490	0.00700	No	No
	August	0.00012	0.00012	0.020	0.014	0.00617	0.00881	No	No
	September	0.00012	0.00013	0.020	0.014	0.00626	0.00894	No	No
	October	0.00007	0.00007	0.020	0.014	0.00375	0.00535	No	No
	November	0.00010	0.00010	0.020	0.014	0.00488	0.00698	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Closure Phase (29-35)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00497	0.00710	No	No
	July	0.00010	0.00010	0.020	0.014	0.00490	0.00700	No	No
	August	0.00012	0.00012	0.020	0.014	0.00616	0.00880	No	No
	September	0.00012	0.00012	0.020	0.014	0.00616	0.00880	No	No
	October	0.00007	0.00007	0.020	0.014	0.00374	0.00534	No	No
	November	0.00010	0.00010	0.020	0.014	0.00488	0.00697	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Post-Closure Phase (36-99)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00496	0.00709	No	No
	July	0.00010	0.00010	0.020	0.014	0.00488	0.00698	No	No
	August	0.00012	0.00012	0.020	0.014	0.00611	0.00873	No	No
	September	0.00012	0.00012	0.020	0.014	0.00610	0.00872	No	No
	October	0.00007	0.00007	0.020	0.014	0.00372	0.00531	No	No
	November	0.00010	0.00010	0.020	0.014	0.00486	0.00694	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D10c. Middle Baker Creek (BK1) Hazard Quotients for Total Arsenic Concentrations, Expected Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Interim Guideline				
Construction (-2 to-1)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	March	0.0001	0.0002	0.005	0.025	0.025	0.025	0.0300	0.0060	0.0060	0.0060	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0324	0.0065	0.0065	0.0065	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.112	0.0224	0.0224	0.0224	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.140	0.0279	0.0279	0.0279	No	No	No	No
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0437	0.0087	0.0087	0.0087	No	No	No	No
	August	0.0012	0.0012	0.005	0.025	0.025	0.025	0.244	0.0487	0.0487	0.0487	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0362	0.0072	0.0072	0.0072	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0379	0.0076	0.0076	0.0076	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0372	0.0074	0.0074	0.0074	No	No	No	No
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0300	0.0060	0.0060	0.0060	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0324	0.0065	0.0065	0.0065	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.112	0.0225	0.0225	0.0225	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.141	0.0281	0.0281	0.0281	No	No	No	No
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0438	0.0088	0.0088	0.0088	No	No	No	No
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.260	0.0521	0.0521	0.0521	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0357	0.0071	0.0071	0.0071	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0370	0.0074	0.0074	0.0074	No	No	No	No
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0300	0.0060	0.0060	0.0060	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0324	0.0065	0.0065	0.0065	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.112	0.0225	0.0225	0.0225	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.141	0.0281	0.0281	0.0281	No	No	No	No
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0441	0.0088	0.0088	0.0088	No	No	No	No
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.260	0.0520	0.0520	0.0520	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0364	0.0073	0.0073	0.0073	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0386	0.0077	0.0077	0.0077	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0385	0.0077	0.0077	0.0077	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0370	0.0074	0.0074	0.0074	No	No	No	No
Closure Phase (29-35)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0300	0.0060	0.0060	0.0060	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0324	0.0065	0.0065	0.0065	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.112	0.0225	0.0225	0.0225	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.141	0.0281	0.0281	0.0281	No	No	No	No
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0441	0.0088	0.0088	0.0088	No	No	No	No
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.259	0.0518	0.0518	0.0518	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0364	0.0073	0.0073	0.0073	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0386	0.0077	0.0077	0.0077	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0384	0.0077	0.0077	0.0077	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0370	0.0074	0.0074	0.0074	No	No	No	No
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0300	0.0060	0.0060	0.0060	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0324	0.0065	0.0065	0.0065	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.112	0.0225	0.0225	0.0225	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.140	0.0281	0.0281	0.0281	No	No	No	No
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0440	0.0088	0.0088	0.0088	No	No	No	No
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.259	0.0517	0.0517	0.0517	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0363	0.0073	0.0073	0.0073	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0384	0.0077	0.0077	0.0077	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0383	0.0077	0.0077	0.0077	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0370	0.0074	0.0074	0.0074	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D10d. Middle Baker Creek (BK1) Hazard Quotients for Total Barium Concentrations, Expected Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Canadian DWQG	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Maximum Predicted vs. Canadian DWQG	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum		Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Maximum Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline				
Construction (-2 to-1)	January	0.0093	0.0096	1	5	1	0.0093	0.0096	0.0019	0.0096	No	No	
	February	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	March	0.0047	0.0094	1	5	1	0.0047	0.0094	0.0019	0.0094	No	No	
	April	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	May	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	June	0.0084	0.0085	1	5	1	0.0084	0.0085	0.0017	0.0085	No	No	
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No	
	August	0.0095	0.0096	1	5	1	0.0095	0.0096	0.0019	0.0096	No	No	
	September	0.0098	0.0099	1	5	1	0.0098	0.0099	0.0020	0.0099	No	No	
	October	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	No	No	
	November	0.0086	0.0087	1	5	1	0.0086	0.0087	0.0017	0.0087	No	No	
	December	0.0088	0.0088	1	5	1	0.0088	0.0088	0.0018	0.0088	No	No	
Operation 1 Phase (1-23)	January	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No	
	February	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	March	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	April	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	May	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	June	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No	
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No	
	August	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	September	0.0101	0.0102	1	5	1	0.0101	0.0102	0.0020	0.0102	No	No	
	October	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	No	No	
	November	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	December	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No	
Operations 2 Phase (24-28)	January	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No	
	February	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	March	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	April	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	May	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	June	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No	
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No	
	August	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	September	0.0102	0.0102	1	5	1	0.0102	0.0102	0.0020	0.0102	No	No	
	October	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	No	No	
	November	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	December	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No	
Closure Phase (29-35)	January	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No	
	February	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	March	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	April	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	May	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	June	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No	
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No	
	August	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	September	0.0102	0.0102	1	5	1	0.0102	0.0102	0.0020	0.0102	No	No	
	October	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	No	No	
	November	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	December	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No	
Post-Closure Phase (36-99)	January	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No	
	February	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	March	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	April	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	May	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	June	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No	
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No	
	August	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	September	0.0102	0.0102	1	5	1	0.0102	0.0102	0.0020	0.0102	No	No	
	October	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	No	No	
	November	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	December	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D10e. Middle Baker Creek (BK1) Hazard Quotients for Total Beryllium Concentrations, Expected Case

		First Screening Step							Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working (Chronic, 30-day mean)	BC DWQG	BC MOE Working	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.00003	0.00006	0.0053	0.004	0.1	0.00613	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00094	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0186	0.0246	0.00098	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0181	0.0181	0.0240	0.00096	No	No	No
	August	0.00011	0.00011	0.0053	0.004	0.1	0.0210	0.0212	0.0281	0.00113	No	No	No
	September	0.00005	0.00005	0.0053	0.004	0.1	0.00952	0.0102	0.0135	0.00054	No	No	No
	October	0.00006	0.00006	0.0053	0.004	0.1	0.0116	0.0118	0.0157	0.00063	No	No	No
	November	0.00009	0.00009	0.0053	0.004	0.1	0.0171	0.0173	0.0230	0.00092	No	No	No
	December	0.00007	0.00008	0.0053	0.004	0.1	0.0136	0.0146	0.0194	0.00078	No	No	No
Operation 1 Phase (1-23)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0183	0.0243	0.00097	No	No	No
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0224	0.0228	0.0302	0.00121	No	No	No
	September	0.00007	0.00008	0.0053	0.004	0.1	0.0136	0.0150	0.0199	0.00079	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0125	0.0127	0.0168	0.00067	No	No	No
	November	0.00010	0.00010	0.0053	0.004	0.1	0.0180	0.0183	0.0242	0.00097	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0183	0.0242	0.00097	No	No	No
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0226	0.0227	0.0301	0.00120	No	No	No
	September	0.00008	0.00008	0.0053	0.004	0.1	0.0144	0.0146	0.0194	0.00078	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0126	0.0126	0.0167	0.00067	No	No	No
	November	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0241	0.00097	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
Closure Phase (29-35)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0247	0.00099	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0183	0.0242	0.00097	No	No	No
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0225	0.0226	0.0299	0.00120	No	No	No
	September	0.00007	0.00008	0.0053	0.004	0.1	0.0140	0.0142	0.0188	0.00075	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0126	0.0126	0.0167	0.00067	No	No	No
	November	0.00010	0.00010	0.0053	0.004	0.1	0.0181	0.0181	0.0240	0.00096	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
Post-Closure Phase (36-99)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0183	0.0242	0.00097	No	No	No
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0226	0.0226	0.0300	0.00120	No	No	No
	September	0.00007	0.00008	0.0053	0.004	0.1	0.0141	0.0143	0.0190	0.00076	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0126	0.0126	0.0167	0.00067	No	No	No
	November	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0241	0.00096	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D10f. Middle Baker Creek (BK1) Hazard Quotients for Total Boron Concentrations, Expected Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0400	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0250	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0102	0.0104	1.2	5	5	5	0.0086	0.0021	0.0021	0.0021	No	No	No	No
	June	0.0107	0.0107	1.2	5	5	5	0.0090	0.0021	0.0021	0.0021	No	No	No	No
	July	0.0117	0.0118	1.2	5	5	5	0.0099	0.0024	0.0024	0.0024	No	No	No	No
	August	0.0168	0.0175	1.2	5	5	5	0.0146	0.0035	0.0035	0.0035	No	No	No	No
	September	0.0273	0.0296	1.2	5	5	5	0.0247	0.0059	0.0059	0.0059	No	No	No	No
	October	0.0268	0.0273	1.2	5	5	5	0.0227	0.0055	0.0055	0.0055	No	No	No	No
	November	0.0143	0.0149	1.2	5	5	5	0.0124	0.0030	0.0030	0.0030	No	No	No	No
	December	0.0225	0.0249	1.2	5	5	5	0.0208	0.0050	0.0050	0.0050	No	No	No	No
Operation 1 Phase (1-23)	January	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0084	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0105	0.0106	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No
	July	0.0114	0.0115	1.2	5	5	5	0.0096	0.0023	0.0023	0.0023	No	No	No	No
	August	0.0146	0.0156	1.2	5	5	5	0.0130	0.0031	0.0031	0.0031	No	No	No	No
	September	0.0162	0.0229	1.2	5	5	5	0.0191	0.0046	0.0046	0.0046	No	No	No	No
	October	0.0251	0.0259	1.2	5	5	5	0.0216	0.0052	0.0052	0.0052	No	No	No	No
	November	0.0120	0.0131	1.2	5	5	5	0.0110	0.0026	0.0026	0.0026	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No
Operations 2 Phase (24-28)	January	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0105	0.0105	1.2	5	5	5	0.0087	0.0021	0.0021	0.0021	No	No	No	No
	July	0.0114	0.0114	1.2	5	5	5	0.0095	0.0023	0.0023	0.0023	No	No	No	No
	August	0.0144	0.0146	1.2	5	5	5	0.0121	0.0029	0.0029	0.0029	No	No	No	No
	September	0.0139	0.0146	1.2	5	5	5	0.0122	0.0029	0.0029	0.0029	No	No	No	No
	October	0.0248	0.0249	1.2	5	5	5	0.0207	0.0050	0.0050	0.0050	No	No	No	No
	November	0.0117	0.0117	1.2	5	5	5	0.0098	0.0023	0.0023	0.0023	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No
Closure Phase (29-35)	January	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0105	0.0105	1.2	5	5	5	0.0087	0.0021	0.0021	0.0021	No	No	No	No
	July	0.0115	0.0115	1.2	5	5	5	0.0096	0.0023	0.0023	0.0023	No	No	No	No
	August	0.0146	0.0147	1.2	5	5	5	0.0122	0.0029	0.0029	0.0029	No	No	No	No
	September	0.0152	0.0156	1.2	5	5	5	0.0130	0.0031	0.0031	0.0031	No	No	No	No
	October	0.0249	0.0250	1.2	5	5	5	0.0208	0.0050	0.0050	0.0050	No	No	No	No
	November	0.0118	0.0118	1.2	5	5	5	0.0099	0.0024	0.0024	0.0024	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No
Post-Closure Phase (36-99)	January	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0105	0.0105	1.2	5	5	5	0.0087	0.0021	0.0021	0.0021	No	No	No	No
	July	0.0114	0.0115	1.2	5	5	5	0.0096	0.0023	0.0023	0.0023	No	No	No	No
	August	0.0145	0.0147	1.2	5	5	5	0.0123	0.0029	0.0029	0.0029	No	No	No	No
	September	0.0147	0.0157	1.2	5	5	5	0.0130	0.0031	0.0031	0.0031	No	No	No	No
	October	0.0248	0.0250	1.2	5	5	5	0.0208	0.0050	0.0050	0.0050	No	No	No	No
	November	0.0117	0.0119	1.2	5	5	5	0.0099	0.0024	0.0024	0.0024	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D10g. Middle Baker Creek (BK1) Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	35.9	37.0	1000	0.0370	No
	February	37.0	37.0	1000	0.0370	No
	March	18.8	37.6	1000	0.0376	No
	April	36.9	36.9	1000	0.0369	No
	May	21.5	21.6	1000	0.0216	No
	June	17.7	17.8	1000	0.0178	No
	July	28.3	28.5	1000	0.0285	No
	August	34.9	35.2	1000	0.0352	No
	September	36.5	36.8	1000	0.0368	No
	October	35.0	35.1	1000	0.0351	No
	November	37.0	37.0	1000	0.0370	No
	December	35.9	36.0	1000	0.0360	No
Operation 1 Phase (1-23)	January	34.7	34.7	1000	0.0347	No
	February	37.0	37.0	1000	0.0370	No
	March	37.6	37.6	1000	0.0376	No
	April	36.9	36.9	1000	0.0369	No
	May	21.4	21.5	1000	0.0215	No
	June	17.7	17.7	1000	0.0177	No
	July	28.3	28.4	1000	0.0284	No
	August	34.9	35.0	1000	0.0350	No
	September	37.0	37.0	1000	0.0370	No
	October	35.0	35.1	1000	0.0351	No
	November	37.0	37.0	1000	0.0370	No
	December	35.9	35.9	1000	0.0359	No
Operations 2 Phase (24-28)	January	34.7	34.7	1000	0.0347	No
	February	37.0	37.0	1000	0.0370	No
	March	37.6	37.6	1000	0.0376	No
	April	36.9	36.9	1000	0.0369	No
	May	21.5	21.5	1000	0.0215	No
	June	17.7	17.7	1000	0.0177	No
	July	28.4	28.4	1000	0.0284	No
	August	35.0	35.0	1000	0.0350	No
	September	37.1	37.1	1000	0.0371	No
	October	35.0	35.0	1000	0.0350	No
	November	37.0	37.0	1000	0.0370	No
	December	35.9	35.9	1000	0.0359	No
Closure Phase (29-35)	January	34.7	34.7	1000	0.0347	No
	February	37.0	37.0	1000	0.0370	No
	March	37.6	37.6	1000	0.0376	No
	April	36.9	36.9	1000	0.0369	No
	May	21.5	21.5	1000	0.0215	No
	June	17.7	17.7	1000	0.0177	No
	July	28.4	28.4	1000	0.0284	No
	August	35.0	35.0	1000	0.0350	No
	September	37.1	37.1	1000	0.0371	No
	October	35.0	35.0	1000	0.0350	No
	November	37.0	37.0	1000	0.0370	No
	December	35.9	35.9	1000	0.0359	No
Post-Closure Phase (36-99)	January	34.7	34.7	1000	0.0347	No
	February	37.0	37.0	1000	0.0370	No
	March	37.6	37.6	1000	0.0376	No
	April	36.9	36.9	1000	0.0369	No
	May	21.5	21.5	1000	0.0215	No
	June	17.7	17.7	1000	0.0177	No
	July	28.4	28.4	1000	0.0284	No
	August	35.0	35.0	1000	0.0350	No
	September	37.1	37.1	1000	0.0371	No
	October	35.0	35.0	1000	0.0350	No
	November	37.0	37.0	1000	0.0370	No
	December	35.9	35.9	1000	0.0359	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D10i. Middle Baker Creek (BK1) Hazard Quotients for Total Chromium Concentrations, Expected Case

		First Screening Step								Second Screening Step				Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline			Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline			Mean	95%ile	Mean	95%ile			
		Canadian DWQG	BC MOE Working	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs. BC MOE Working	Mean	95%ile	Mean	95%ile									
Construction (-2 to-1)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.115	0.0129	0.0023	0.0023			No	No	No		
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020			No	No	No		
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020			No	No	No		
	April	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.150	0.0169	0.0030	0.0030			No	No	No		
	May	0.0010	0.0010	0.001	0.0089	0.05	0.05	1.02	0.114	0.0203	0.0203	0.0010	0.0010	0.995	1.00	No	No	No
	June	0.0009	0.0009	0.001	0.0089	0.05	0.05	0.945	0.106	0.0189	0.0189			No	No	No		
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0166	0.0030	0.0030			No	No	No		
	August	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.196	0.0220	0.0039	0.0039			No	No	No		
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.141	0.0158	0.0028	0.0028			No	No	No		
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.143	0.0161	0.0029	0.0029			No	No	No		
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.145	0.0163	0.0029	0.0029			No	No	No		
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.133	0.0149	0.0027	0.0027			No	No	No		
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.115	0.0129	0.0023	0.0023			No	No	No		
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020			No	No	No		
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020			No	No	No		
	April	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.150	0.0169	0.0030	0.0030			No	No	No		
	May	0.0010	0.0010	0.001	0.0089	0.05	0.05	1.02	0.114	0.0204	0.0204	0.0010	0.0010	1.00	1.00	No	No	No
	June	0.0009	0.0009	0.001	0.0089	0.05	0.05	0.951	0.107	0.0190	0.0190			No	No	No		
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0167	0.0030	0.0030			No	No	No		
	August	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.205	0.0230	0.0041	0.0041			No	No	No		
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.166	0.0187	0.0033	0.0033			No	No	No		
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0166	0.0030	0.0030			No	No	No		
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0167	0.0030	0.0030			No	No	No		
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.133	0.0149	0.0027	0.0027			No	No	No		
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.115	0.0129	0.0023	0.0023			No	No	No		
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020			No	No	No		
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020			No	No	No		
	April	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.150	0.0169	0.0030	0.0030			No	No	No		
	May	0.0010	0.0010	0.001	0.0089	0.05	0.05	1.02	0.114	0.0204	0.0204	0.0010	0.0010	1.00	1.00	No	No	No
	June	0.0010	0.0010	0.001	0.0089	0.05	0.05	0.951	0.107	0.0190	0.0190			No	No	No		
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0167	0.0030	0.0030			No	No	No		
	August	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.204	0.0230	0.0041	0.0041			No	No	No		
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.165	0.0185	0.0033	0.0033			No	No	No		
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0166	0.0030	0.0030			No	No	No		
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0166	0.0030	0.0030			No	No	No		
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.133	0.0149	0.0027	0.0027			No	No	No		
Closure Phase (29-35)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.115	0.0129	0.0023	0.0023			No	No	No		
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020			No	No	No		
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020			No	No	No		
	April	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.150	0.0169	0.0030	0.0030			No	No	No		
	May	0.0010	0.0010	0.001	0.0089	0.05	0.05	1.02	0.114	0.0204	0.0204	0.0010	0.0010	1.00	1.00	No	No	No
	June	0.0010	0.0010	0.001	0.0089	0.05	0.05	0.950	0.107	0.0190	0.0190			No	No	No		
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0167	0.0030	0.0030			No	No	No		
	August	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.204	0.0229	0.0041	0.0041			No	No	No		
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.162	0.0182	0.0032	0.0032			No	No	No		
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.147	0.0166	0.0029	0.0029			No	No	No		
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0166	0.0030	0.0030			No	No	No		
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.133	0.0149	0.0027	0.0027			No	No	No		
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.115	0.0129	0.0023	0.0023			No	No	No		
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020			No	No	No		
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020			No	No	No		
	April	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.150	0.0169	0.0030	0.0030			No	No	No		
	May	0.0010	0.0010	0.001	0.0089	0.05	0.05	1.02	0.114	0.0204	0.0204	0.0010	0.0010	1.00	1.00	No	No	No
	June	0.0010	0.0010	0.001	0.0089	0.05	0.05	0.950	0.107	0.0190	0.0190			No	No	No		
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0167	0.0030	0.0030			No	No	No		
	August	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.204	0.0229	0.0041	0.0041			No	No	No		
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.163	0.0183	0.0033	0.0033			No	No	No		
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.147	0.0166	0.0029	0.0029			No	No	No		
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.148	0.0166	0.0030	0.0030			No	No	No		
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.133	0.0149	0.0027	0.0027			No	No	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

CCME = Canadian Council

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D10j. Middle Baker Creek (BK1) Hazard Quotients for Total Cobalt Concentrations, Expected Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Aquatic Life Guidelines				BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
		Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Working	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline				Maximum Predicted vs. BC MOE Maximum Guideline
		Mean	Maximum										
Construction (-2 to-1)	January	0.00003	0.00006	0.004	0.110	1	0.00825	0.01375	0.00050	0.00006	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00000	0.00001	0.004	0.110	1	0.00100	0.00200	0.00007	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00360	0.00360	0.00013	0.00001	No	No	
	May	0.00038	0.00038	0.004	0.110	1	0.0938	0.0941	0.00342	0.00038	No	No	
	June	0.00057	0.00057	0.004	0.110	1	0.142	0.143	0.00518	0.00057	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0240	0.0240	0.00087	0.00010	No	No	
	August	0.00011	0.00011	0.004	0.110	1	0.0279	0.0282	0.00102	0.00011	No	No	
	September	0.00004	0.00005	0.004	0.110	1	0.0111	0.0119	0.00043	0.00005	No	No	
	October	0.00006	0.00006	0.004	0.110	1	0.0160	0.0162	0.00059	0.00006	No	No	
	November	0.00009	0.00009	0.004	0.110	1	0.0226	0.0230	0.00084	0.00009	No	No	
	December	0.00007	0.00008	0.004	0.110	1	0.0180	0.0194	0.00070	0.00008	No	No	
Operation 1 Phase (1-23)	January	0.00006	0.00006	0.004	0.110	1	0.0138	0.0138	0.00050	0.00006	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00200	0.00200	0.00007	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00360	0.00360	0.00013	0.00001	No	No	
	May	0.00038	0.00038	0.004	0.110	1	0.0944	0.0944	0.00343	0.00038	No	No	
	June	0.00057	0.00057	0.004	0.110	1	0.143	0.143	0.00522	0.00057	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0242	0.0243	0.00088	0.00010	No	No	
	August	0.00012	0.00012	0.004	0.110	1	0.0298	0.0302	0.00110	0.00012	No	No	
	September	0.00006	0.00007	0.004	0.110	1	0.0155	0.0171	0.00062	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0171	0.0174	0.00063	0.00007	No	No	
	November	0.00010	0.00010	0.004	0.110	1	0.0239	0.0242	0.00088	0.00010	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0194	0.0194	0.00070	0.00008	No	No	
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.004	0.110	1	0.0138	0.0138	0.00050	0.00006	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00200	0.00200	0.00007	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00360	0.00360	0.00013	0.00001	No	No	
	May	0.00038	0.00038	0.004	0.110	1	0.0944	0.0944	0.00343	0.00038	No	No	
	June	0.00057	0.00057	0.004	0.110	1	0.144	0.144	0.00522	0.00057	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0245	0.0248	0.00090	0.00010	No	No	
	August	0.00012	0.00013	0.004	0.110	1	0.0311	0.0319	0.00116	0.00013	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0176	0.0184	0.00067	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0183	0.00067	0.00007	No	No	
	November	0.00010	0.00010	0.004	0.110	1	0.0246	0.0249	0.00091	0.00010	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0194	0.0194	0.00070	0.00008	No	No	
Closure Phase (29-35)	January	0.00006	0.00006	0.004	0.110	1	0.0138	0.0138	0.00050	0.00006	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00200	0.00200	0.00007	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00360	0.00360	0.00013	0.00001	No	No	
	May	0.00038	0.00038	0.004	0.110	1	0.0944	0.0944	0.00343	0.00038	No	No	
	June	0.00057	0.00057	0.004	0.110	1	0.144	0.144	0.00522	0.00057	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0247	0.0248	0.00090	0.00010	No	No	
	August	0.00013	0.00013	0.004	0.110	1	0.0316	0.0320	0.00116	0.00013	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0180	0.0184	0.00067	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0181	0.0183	0.00067	0.00007	No	No	
	November	0.00010	0.00010	0.004	0.110	1	0.0247	0.0249	0.00090	0.00010	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0194	0.0194	0.00070	0.00008	No	No	
Post-Closure Phase (36-99)	January	0.00006	0.00006	0.004	0.110	1	0.0138	0.0138	0.00050	0.00006	No	No	
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1	0.00200	0.00200	0.00007	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1	0.00360	0.00360	0.00013	0.00001	No	No	
	May	0.00038	0.00038	0.004	0.110	1	0.0944	0.0944	0.00343	0.00038	No	No	
	June	0.00057	0.00057	0.004	0.110	1	0.143	0.143	0.00522	0.00057	No	No	
	July	0.00010	0.00010	0.004	0.110	1	0.0243	0.0246	0.00089	0.00010	No	No	
	August	0.00012	0.00012	0.004	0.110	1	0.0302	0.0312	0.00113	0.00012	No	No	
	September	0.00007	0.00007	0.004	0.110	1	0.0165	0.0176	0.00064	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1	0.0174	0.0179	0.00065	0.00007	No	No	
	November	0.00010	0.00010	0.004	0.110	1	0.0242	0.0246	0.00089	0.00010	No	No	
	December	0.00008	0.00008	0.004	0.110	1	0.0194	0.0194	0.00070	0.00008	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D10k. Middle Baker Creek (BK1) Hazard Quotients for Total Copper Concentrations, Expected Case

		First Screening Step										Second Screening Step				Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Day Mean			Maximum Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE Maximum Guideline	Mean	95%ile			
Construction (-2 to 1)	January	0.0006	0.0010	0.0043	0.0121	0.3	0.3	0.139	0.222	0.0790	0.0032	0.0032			No	No	No		
	February	0.0002	0.0002	0.0047	0.0130	0.3	0.3	0.0513	0.0513	0.0185	0.0008	0.0008			No	No	No		
	March	0.0001	0.0002	0.0047	0.0131	0.3	0.3	0.0169	0.0339	0.0122	0.0005	0.0005			No	No	No		
	April	0.0003	0.0003	0.0046	0.0127	0.3	0.3	0.0581	0.0581	0.0208	0.0009	0.0009			No	No	No		
	May	0.0020	0.0020	0.0026	0.0082	0.3	0.3	0.750	0.753	0.242	0.0066	0.0066			No	No	No		
	June	0.0028	0.0028	0.0022	0.0071	0.3	0.3	1.29	1.29	0.395	0.0093	0.0093	0.0028	0.0028	0.983	0.984	No	No	No
	July	0.0009	0.0009	0.0034	0.0101	0.3	0.3	0.265	0.265	0.0904	0.0030	0.0030			No	No	No		
	August	0.0005	0.0005	0.0044	0.0124	0.3	0.3	0.108	0.109	0.0388	0.0016	0.0016			No	No	No		
	September	0.0003	0.0003	0.0046	0.0127	0.3	0.3	0.0739	0.0757	0.0271	0.0012	0.0012			No	No	No		
	October	0.0005	0.0005	0.0043	0.0121	0.3	0.3	0.125	0.126	0.0447	0.0018	0.0018			No	No	No		
	November	0.0005	0.0005	0.0046	0.0127	0.3	0.3	0.104	0.104	0.0375	0.0016	0.0016			No	No	No		
	December	0.0007	0.0007	0.0044	0.0124	0.3	0.3	0.155	0.164	0.0587	0.0024	0.0024			No	No	No		
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.0043	0.0121	0.3	0.3	0.222	0.222	0.0790	0.0032	0.0032			No	No	No		
	February	0.0002	0.0002	0.0047	0.0130	0.3	0.3	0.0513	0.0513	0.0185	0.0008	0.0008			No	No	No		
	March	0.0002	0.0002	0.0047	0.0131	0.3	0.3	0.0339	0.0339	0.0122	0.0005	0.0005			No	No	No		
	April	0.0003	0.0003	0.0046	0.0127	0.3	0.3	0.0581	0.0581	0.0208	0.0009	0.0009			No	No	No		
	May	0.0020	0.0020	0.0026	0.0082	0.3	0.3	0.754	0.754	0.243	0.0066	0.0066			No	No	No		
	June	0.0028	0.0028	0.0022	0.0071	0.3	0.3	1.30	1.30	0.398	0.0094	0.0094	0.0028	0.0028	0.989	0.990	No	No	No
	July	0.0009	0.0009	0.0034	0.0101	0.3	0.3	0.267	0.268	0.0913	0.0031	0.0031			No	No	No		
	August	0.0005	0.0005	0.0044	0.0124	0.3	0.3	0.113	0.114	0.0406	0.0017	0.0017			No	No	No		
	September	0.0004	0.0004	0.0046	0.0127	0.3	0.3	0.0860	0.0902	0.0323	0.0014	0.0014			No	No	No		
	October	0.0006	0.0006	0.0043	0.0121	0.3	0.3	0.130	0.132	0.0469	0.0019	0.0019			No	No	No		
	November	0.0005	0.0005	0.0046	0.0127	0.3	0.3	0.107	0.108	0.0386	0.0016	0.0016			No	No	No		
	December	0.0007	0.0007	0.0044	0.0124	0.3	0.3	0.164	0.164	0.0587	0.0024	0.0024			No	No	No		
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.0043	0.0121	0.3	0.3	0.222	0.222	0.0790	0.0032	0.0032			No	No	No		
	February	0.0002	0.0002	0.0047	0.0130	0.3	0.3	0.0513	0.0513	0.0185	0.0008	0.0008			No	No	No		
	March	0.0002	0.0002	0.0047	0.0131	0.3	0.3	0.0339	0.0339	0.0122	0.0005	0.0005			No	No	No		
	April	0.0003	0.0003	0.0046	0.0127	0.3	0.3	0.0581	0.0581	0.0208	0.0009	0.0009			No	No	No		
	May	0.0020	0.0020	0.0026	0.0082	0.3	0.3	0.754	0.754	0.243	0.0066	0.0066			No	No	No		
	June	0.0028	0.0028	0.0022	0.0071	0.3	0.3	1.30	1.30	0.398	0.0094	0.0094	0.0028	0.0028	0.990	0.990	No	No	No
	July	0.0009	0.0009	0.0034	0.0101	0.3	0.3	0.268	0.269	0.0916	0.0031	0.0031			No	No	No		
	August	0.0005	0.0005	0.0044	0.0124	0.3	0.3	0.116	0.116	0.0416	0.0017	0.0017			No	No	No		
	September	0.0004	0.0004	0.0046	0.0127	0.3	0.3	0.0910	0.0915	0.0328	0.0014	0.0014			No	No	No		
	October	0.0006	0.0006	0.0043	0.0121	0.3	0.3	0.133	0.133	0.0473	0.0019	0.0019			No	No	No		
	November	0.0005	0.0005	0.0046	0.0127	0.3	0.3	0.108	0.109	0.0389	0.0017	0.0017			No	No	No		
	December	0.0007	0.0007	0.0044	0.0124	0.3	0.3	0.164	0.164	0.0587	0.0024	0.0024			No	No	No		
Closure Phase (29-35)	January	0.0010	0.0010	0.0043	0.0121	0.3	0.3	0.222	0.222	0.0790	0.0032	0.0032			No	No	No		
	February	0.0002	0.0002	0.0047	0.0130	0.3	0.3	0.0513	0.0513	0.0185	0.0008	0.0008			No	No	No		
	March	0.0002	0.0002	0.0047	0.0131	0.3	0.3	0.0339	0.0339	0.0122	0.0005	0.0005			No	No	No		
	April	0.0003	0.0003	0.0046	0.0127	0.3	0.3	0.0581	0.0581	0.0208	0.0009	0.0009			No	No	No		
	May	0.0020	0.0020	0.0026	0.0082	0.3	0.3	0.754	0.754	0.243	0.0066	0.0066			No	No	No		
	June	0.0028	0.0028	0.0022	0.0071	0.3	0.3	1.30	1.30	0.398	0.0094	0.0094	0.0028	0.0028	0.990	0.990	No	No	No
	July	0.0009	0.0009	0.0034	0.0101	0.3	0.3	0.268	0.268	0.0916	0.0031	0.0031			No	No	No		
	August	0.0005	0.0005	0.0044	0.0124	0.3	0.3	0.116	0.116	0.0415	0.0017	0.0017			No	No	No		
	September	0.0004	0.0004	0.0046	0.0127	0.3	0.3	0.0905	0.0912	0.0327	0.0014	0.0014			No	No	No		
	October	0.0006	0.0006	0.0043	0.0121	0.3	0.3	0.133	0.133	0.0472	0.0019	0.0019			No	No	No		
	November	0.0005	0.0005	0.0046	0.0127	0.3	0.3	0.108	0.108	0.0389	0.0016	0.0016			No	No	No		
	December	0.0007	0.0007	0.0044	0.0124	0.3	0.3	0.164	0.164	0.0587	0.0024	0.0024			No	No	No		
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.0043	0.0121	0.3	0.3	0.222	0.222	0.0790	0.0032	0.0032			No	No	No		
	February	0.0002	0.0002	0.0047	0.0130	0.3	0.3	0.0513	0.0513	0.0185	0.0008	0.0008			No	No	No		
	March	0.0002	0.0002	0.0047	0.0131	0.3	0.3	0.0339	0.0339	0.0122	0.0005	0.0005			No	No	No		
	April	0.0003	0.0003	0.0046	0.0127	0.3	0.3	0.0581	0.0581	0.0208	0.0009	0.0009			No	No	No		
	May	0.0020	0.0020	0.0026	0.0082	0.3	0.3	0.754	0.754	0.243	0.0066	0.0066			No	No	No		
	June	0.0028	0.0028	0.0022	0.0071	0.3	0.3	1.30	1.30	0.398	0.0094	0.0094	0.0028	0.0028	0.990	0.990	No	No	No
	July	0.0009	0.0009	0.0034	0.0101	0.3	0.3	0.267	0.268	0.0914	0.0031	0.0031			No	No	No		
	August	0.0005	0.0005	0.0044	0.0124	0.3	0.3	0.113	0.115	0.0411	0.0017	0.0017			No	No	No		
	September	0.0004	0.0004	0.0046	0.0127	0.3	0.3	0.0883	0.0897	0.0322	0.0014	0.0014			No	No	No		
	October	0.0006	0.0006	0.0043	0.0121	0.3	0.3	0.132	0.132	0.0470	0.0019	0.0019			No	No	No		
	November	0.0005	0.0005	0.0046	0.0127	0.3	0.3	0.107	0.108	0.0387	0.0016	0.0016			No	No	No		
	December	0.0007	0.0007	0.0044	0.0124	0.3	0.3	0.164	0.164	0.0587	0.0024	0.0024			No	No	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D10L. Middle Baker Creek (BK1) Hazard Quotients for Dissolved and Total Iron Concentrations, Expected Case

		First Screening Step								Retained as COPC?	
		Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life	
Project Phase	Months	Dissolved Iron		Total Iron		BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0033	0.0055	0.0045	0.0070	0.35	1	0.0157	0.0070	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0005	0.0010	0.0005	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0010	0.0010	0.0034	0.0034	0.35	1	0.0029	0.0034	No	No
	May	0.0138	0.0138	0.545	0.547	0.35	1	0.0394	0.547	No	No
	June	0.0140	0.0140	0.749	0.749	0.35	1	0.0399	0.749	No	No
	July	0.0102	0.0102	0.0208	0.0208	0.35	1	0.0292	0.0208	No	No
	August	0.0070	0.0071	0.0088	0.0088	0.35	1	0.0203	0.0088	No	No
	September	0.0039	0.0041	0.0055	0.0058	0.35	1	0.0118	0.0058	No	No
	October	0.0065	0.0066	0.0066	0.0067	0.35	1	0.0187	0.0067	No	No
	November	0.0090	0.0092	0.0091	0.0093	0.35	1	0.0262	0.0093	No	No
	December	0.0072	0.0078	0.0080	0.0085	0.35	1	0.0221	0.0085	No	No
Operation 1 Phase (1-23)	January	0.0055	0.0055	0.0070	0.0070	0.35	1	0.0157	0.0070	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0010	0.0010	0.0034	0.0034	0.35	1	0.0029	0.0034	No	No
	May	0.0138	0.0138	0.549	0.549	0.35	1	0.0395	0.549	No	No
	June	0.0140	0.0141	0.754	0.755	0.35	1	0.0402	0.755	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0296	0.0210	No	No
	August	0.0075	0.0076	0.0093	0.0094	0.35	1	0.0217	0.0094	No	No
	September	0.0054	0.0059	0.0073	0.0080	0.35	1	0.0169	0.0080	No	No
	October	0.0069	0.0070	0.0070	0.0071	0.35	1	0.0201	0.0071	No	No
	November	0.0096	0.0097	0.0096	0.0097	0.35	1	0.0277	0.0097	No	No
	December	0.0078	0.0078	0.0085	0.0085	0.35	1	0.0221	0.0085	No	No
Operations 2 Phase (24-28)	January	0.0055	0.0055	0.0070	0.0070	0.35	1	0.0157	0.0070	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0010	0.0010	0.0034	0.0034	0.35	1	0.0029	0.0034	No	No
	May	0.0138	0.0138	0.549	0.549	0.35	1	0.0395	0.549	No	No
	June	0.0141	0.0141	0.754	0.754	0.35	1	0.0402	0.754	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0295	0.0210	No	No
	August	0.0075	0.0076	0.0094	0.0094	0.35	1	0.0216	0.0094	No	No
	September	0.0057	0.0058	0.0077	0.0078	0.35	1	0.0166	0.0078	No	No
	October	0.0070	0.0070	0.0070	0.0071	0.35	1	0.0200	0.0071	No	No
	November	0.0096	0.0097	0.0097	0.0097	0.35	1	0.0276	0.0097	No	No
	December	0.0078	0.0078	0.0085	0.0085	0.35	1	0.0221	0.0085	No	No
Closure Phase (29-35)	January	0.0055	0.0055	0.0070	0.0070	0.35	1	0.0157	0.0070	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0010	0.0010	0.0034	0.0034	0.35	1	0.0029	0.0034	No	No
	May	0.0138	0.0138	0.549	0.549	0.35	1	0.0395	0.549	No	No
	June	0.0140	0.0141	0.754	0.754	0.35	1	0.0401	0.754	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0295	0.0210	No	No
	August	0.0075	0.0075	0.0093	0.0093	0.35	1	0.0215	0.0093	No	No
	September	0.0056	0.0056	0.0075	0.0076	0.35	1	0.0160	0.0076	No	No
	October	0.0070	0.0070	0.0070	0.0070	0.35	1	0.0199	0.0070	No	No
	November	0.0096	0.0096	0.0097	0.0097	0.35	1	0.0275	0.0097	No	No
	December	0.0078	0.0078	0.0085	0.0085	0.35	1	0.0221	0.0085	No	No
Post-Closure Phase (36-99)	January	0.0055	0.0055	0.0070	0.0070	0.35	1	0.0157	0.0070	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0010	0.0010	0.0034	0.0034	0.35	1	0.0029	0.0034	No	No
	May	0.0138	0.0138	0.549	0.549	0.35	1	0.0395	0.549	No	No
	June	0.0141	0.0141	0.754	0.754	0.35	1	0.0402	0.754	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0295	0.0210	No	No
	August	0.0075	0.0075	0.0093	0.0094	0.35	1	0.0215	0.0094	No	No
	September	0.0056	0.0057	0.0076	0.0077	0.35	1	0.0162	0.0077	No	No
	October	0.0070	0.0070	0.0070	0.0070	0.35	1	0.0200	0.0070	No	No
	November	0.0096	0.0096	0.0097	0.0097	0.35	1	0.0275	0.0097	No	No
	December	0.0077	0.0078	0.0085	0.0085	0.35	1	0.0221	0.0085	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D10m. Middle Baker Creek (BK1) Hazard Quotients for Total Lead Concentrations, Expected Case

		First Screening Step											Retained as COPC?								
Project Phase	Months	Aquatic Life Guidelines ¹				Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Water	Wildlife	Livestock			
		Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum				Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline								Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
		Mean	Maximum																		
Construction (-2 to 1)	January	0.00002	0.00003	0.00682	0.0900	0.05	0.1	0.1	0.00279	0.00455	0.00034	0.00062	0.00031	0.00031	No	No	No	No			
	February	0.00001	0.00001	0.00720	0.0997	0.05	0.1	0.1	0.00097	0.00097	0.00007	0.00014	0.00007	0.00007	No	No	No	No			
	March	0.00001	0.00001	0.00724	0.101	0.05	0.1	0.1	0.00083	0.00166	0.00012	0.00024	0.00012	0.00012	No	No	No	No			
	April	0.00001	0.00001	0.00707	0.0965	0.05	0.1	0.1	0.00102	0.00102	0.00007	0.00014	0.00007	0.00007	No	No	No	No			
	May	0.00061	0.00062	0.00519	0.0482	0.05	0.1	0.1	0.118	0.119	0.0128	0.0123	0.00616	0.00616	No	No	No	No			
	June	0.00113	0.00113	0.00477	0.0374	0.05	0.1	0.1	0.237	0.237	0.0303	0.0226	0.0113	0.0113	No	No	No	No			
	July	0.00005	0.00005	0.00594	0.0673	0.05	0.1	0.1	0.00809	0.00809	0.00071	0.00096	0.00048	0.00048	No	No	No	No			
	August	0.00008	0.00008	0.00695	0.0934	0.05	0.1	0.1	0.0120	0.0121	0.00090	0.00169	0.00084	0.00084	No	No	No	No			
	September	0.00010	0.00011	0.00709	0.0968	0.05	0.1	0.1	0.0146	0.0159	0.00116	0.00225	0.00112	0.00112	No	No	No	No			
	October	0.00004	0.00004	0.00680	0.0895	0.05	0.1	0.1	0.00530	0.00538	0.00041	0.00073	0.00037	0.00037	No	No	No	No			
	November	0.00005	0.00005	0.00707	0.0965	0.05	0.1	0.1	0.00642	0.00652	0.00048	0.00092	0.00046	0.00046	No	No	No	No			
	December	0.00004	0.00004	0.00695	0.0932	0.05	0.1	0.1	0.00543	0.00583	0.00043	0.00081	0.00041	0.00041	No	No	No	No			
Operation 1 Phase (1-23)	January	0.00003	0.00003	0.00682	0.0900	0.05	0.1	0.1	0.00455	0.00455	0.00034	0.00062	0.00031	0.00031	No	No	No	No			
	February	0.00001	0.00001	0.00720	0.0997	0.05	0.1	0.1	0.00097	0.00097	0.00007	0.00014	0.00007	0.00007	No	No	No	No			
	March	0.00001	0.00001	0.00724	0.101	0.05	0.1	0.1	0.00166	0.00166	0.00012	0.00024	0.00012	0.00012	No	No	No	No			
	April	0.00001	0.00001	0.00707	0.0965	0.05	0.1	0.1	0.00102	0.00102	0.00007	0.00014	0.00007	0.00007	No	No	No	No			
	May	0.00062	0.00062	0.00519	0.0482	0.05	0.1	0.1	0.119	0.119	0.0128	0.0124	0.00618	0.00618	No	No	No	No			
	June	0.00114	0.00114	0.00477	0.0374	0.05	0.1	0.1	0.239	0.239	0.0305	0.0228	0.0114	0.0114	No	No	No	No			
	July	0.00005	0.00005	0.00594	0.0673	0.05	0.1	0.1	0.00817	0.00818	0.00072	0.00097	0.00049	0.00049	No	No	No	No			
	August	0.00009	0.00009	0.00695	0.0934	0.05	0.1	0.1	0.0128	0.0130	0.00097	0.00181	0.00091	0.00091	No	No	No	No			
	September	0.00015	0.00017	0.00709	0.0968	0.05	0.1	0.1	0.0218	0.0243	0.00178	0.00345	0.00173	0.00173	No	No	No	No			
	October	0.00004	0.00004	0.00680	0.0895	0.05	0.1	0.1	0.00566	0.00575	0.00044	0.00078	0.00039	0.00039	No	No	No	No			
	November	0.00005	0.00005	0.00707	0.0965	0.05	0.1	0.1	0.00677	0.00686	0.00050	0.00097	0.00048	0.00048	No	No	No	No			
	December	0.00004	0.00004	0.00695	0.0932	0.05	0.1	0.1	0.00583	0.00583	0.00043	0.00081	0.00041	0.00041	No	No	No	No			
Operations 2 Phase (24-28)	January	0.00003	0.00003	0.00682	0.0900	0.05	0.1	0.1	0.00455	0.00455	0.00034	0.00062	0.00031	0.00031	No	No	No	No			
	February	0.00001	0.00001	0.00720	0.0997	0.05	0.1	0.1	0.00097	0.00097	0.00007	0.00014	0.00007	0.00007	No	No	No	No			
	March	0.00001	0.00001	0.00724	0.101	0.05	0.1	0.1	0.00166	0.00166	0.00012	0.00024	0.00012	0.00012	No	No	No	No			
	April	0.00001	0.00001	0.00707	0.0965	0.05	0.1	0.1	0.00102	0.00102	0.00007	0.00014	0.00007	0.00007	No	No	No	No			
	May	0.00062	0.00062	0.00519	0.0482	0.05	0.1	0.1	0.119	0.119	0.0128	0.0124	0.00618	0.00618	No	No	No	No			
	June	0.00114	0.00114	0.00477	0.0374	0.05	0.1	0.1	0.239	0.239	0.0305	0.0228	0.0114	0.0114	No	No	No	No			
	July	0.00005	0.00005	0.00594	0.0673	0.05	0.1	0.1	0.00818	0.00818	0.00072	0.00097	0.00049	0.00049	No	No	No	No			
	August	0.00009	0.00009	0.00695	0.0934	0.05	0.1	0.1	0.0130	0.0130	0.00097	0.00180	0.00090	0.00090	No	No	No	No			
	September	0.00017	0.00017	0.00709	0.0968	0.05	0.1	0.1	0.0233	0.0237	0.00174	0.00336	0.00168	0.00168	No	No	No	No			
	October	0.00004	0.00004	0.00680	0.0895	0.05	0.1	0.1	0.00573	0.00574	0.00044	0.00078	0.00039	0.00039	No	No	No	No			
	November	0.00005	0.00005	0.00707	0.0965	0.05	0.1	0.1	0.00683	0.00684	0.00050	0.00097	0.00048	0.00048	No	No	No	No			
	December	0.00004	0.00004	0.00695	0.0932	0.05	0.1	0.1	0.00583	0.00583	0.00043	0.00081	0.00041	0.00041	No	No	No	No			
Closure Phase (29-35)	January	0.00003	0.00003	0.00682	0.0900	0.05	0.1	0.1	0.00455	0.00455	0.00034	0.00062	0.00031	0.00031	No	No	No	No			
	February	0.00001	0.00001	0.00720	0.0997	0.05	0.1	0.1	0.00097	0.00097	0.00007	0.00014	0.00007	0.00007	No	No	No	No			
	March	0.00001	0.00001	0.00724	0.101	0.05	0.1	0.1	0.00166	0.00166	0.00012	0.00024	0.00012	0.00012	No	No	No	No			
	April	0.00001	0.00001	0.00707	0.0965	0.05	0.1	0.1	0.00102	0.00102	0.00007	0.00014	0.00007	0.00007	No	No	No	No			
	May	0.00062	0.00062	0.00519	0.0482	0.05	0.1	0.1	0.119	0.119	0.0128	0.0124	0.00618	0.00618	No	No	No	No			
	June	0.00114	0.00114	0.00477	0.0374	0.05	0.1	0.1	0.239	0.239	0.0305	0.0228	0.0114	0.0114	No	No	No	No			
	July	0.00005	0.00005	0.00594	0.0673	0.05	0.1	0.1	0.00818	0.00818	0.00072	0.00097	0.00049	0.00049	No	No	No	No			
	August	0.00009	0.00009	0.00695	0.0934	0.05	0.1	0.1	0.0129	0.0129	0.00096	0.00180	0.00090	0.00090	No	No	No	No			
	September	0.00016	0.00016	0.00709	0.0968	0.05	0.1	0.1	0.0226	0.0229	0.00168	0.00324	0.00162	0.00162	No	No	No	No			
	October	0.00004	0.00004	0.00680	0.0895	0.05	0.1	0.1	0.00571	0.00572	0.00043	0.00078	0.00039	0.00039	No	No	No	No			
	November	0.00005	0.00005	0.00707	0.0965	0.05	0.1	0.1	0.00681	0.00682	0.00050	0.00097	0.00048	0.00048	No	No	No	No			
	December	0.00004	0.00004	0.00695	0.0932	0.05	0.1	0.1	0.00583	0.00583	0.00043	0.00081	0.00041	0.00041	No	No	No	No			
Post-Closure Phase (36-99)	January	0.00003	0.00003	0.00682	0.0900	0.05	0.1	0.1	0.00455	0.00455	0.00034	0.00062	0.00031	0.00031	No	No	No	No			
	February	0.00001	0.00001	0.00720	0.0997	0.05	0.1	0.1	0.00097	0.00097	0.00007	0.00014	0.00007	0.00007	No	No	No	No			
	March	0.00001	0.00001	0.00724	0.101	0.05	0.1	0.1	0.00166	0.00166	0.00012	0.00024	0.00012	0.00012	No	No	No	No			
	April	0.00001	0.00001	0.00707	0.0965	0.05	0.1	0.1	0.00102	0.00102	0.00007	0.00014	0.00007	0.00007	No	No	No	No			
	May	0.00062	0.00062	0.00519	0.0482	0.05	0.1	0.1	0.119	0.119	0.0128	0.0124	0.00618	0.00618	No	No	No	No			
	June	0.00114	0.00114	0.00477	0.0374	0.05	0.1	0.1	0.239	0.239	0.0305	0.0228	0.0114	0.0114	No	No	No	No			
	July	0.00005	0.00005	0.00594	0.0673	0.05	0.1	0.1	0.00817	0.00817	0.00072	0.00097	0.00049	0.00049	No	No	No	No			
	August	0.00009	0.00009	0.00695	0.0934	0.05	0.1	0.1	0.0129	0.0129	0.00096	0.00180	0.00090	0.00090	No	No	No	No			
	September	0.00016	0.00016	0.00709	0.0968	0.05	0.1	0.1	0.0228	0.0232	0.00170	0.00329	0.00164	0.00164	No	No	No	No			
	October	0.00004	0.00004	0.00680	0.0895	0.05	0.1	0.1	0.00571	0.00571	0.00043	0.00078	0.00039	0.00039	No	No	No	No			
	November	0.00005	0.00005	0.00707	0.0965	0.05	0.1	0.1	0.00682	0.00683	0.00050	0.00097	0.00048	0.00048	No	No	No	No			
	December	0.00004	0.00004	0.00695	0.0932	0.05	0.1	0.1	0.00583	0.00583	0.00043	0.00081	0.00041	0.00041	No	No	No	No			

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness

Appendix 13-D10n. Middle Baker Creek (BK1) Hazard Quotients for Total Lithium Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
									Aquatic Life
Construction (-2 to-1)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0003	0.0005	0.096	0.87	0.0026	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0054	0.0054	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0010	No
	September	0.0004	0.0004	0.096	0.87	0.0044	0.0045	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0054	0.0054	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0009	0.0009	0.096	0.87	0.0098	0.0099	0.0011	No
	September	0.0004	0.0004	0.096	0.87	0.0040	0.0042	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0053	0.0006	No
	August	0.0010	0.0010	0.096	0.87	0.0100	0.0100	0.0011	No
	September	0.0004	0.0004	0.096	0.87	0.0041	0.0042	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Closure Phase (29-35)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0053	0.0006	No
	August	0.0010	0.0010	0.096	0.87	0.0100	0.0100	0.0011	No
	September	0.0004	0.0004	0.096	0.87	0.0042	0.0042	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0009	0.0010	0.096	0.87	0.0099	0.0099	0.0011	No
	September	0.0004	0.0004	0.096	0.87	0.0040	0.0042	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0052	0.0053	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0053	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D100. Middle Baker Creek (BK1) Hazard Quotients for Total Manganese Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.00013	0.00017	1.08	1.73	0.00012	0.00016	0.00010	No
	February	0.00008	0.00008	1.12	1.83	0.00007	0.00007	0.00004	No
	March	0.00015	0.00029	1.12	1.84	0.00013	0.00026	0.00016	No
	April	0.00023	0.00023	1.11	1.80	0.00021	0.00021	0.00013	No
	May	0.0140	0.0141	0.896	1.27	0.0157	0.0157	0.0111	No
	June	0.0255	0.0256	0.843	1.14	0.0303	0.0303	0.0225	No
	July	0.00098	0.00098	0.983	1.49	0.00100	0.00100	0.00066	No
	August	0.00081	0.00082	1.09	1.76	0.00074	0.00075	0.00046	No
	September	0.00023	0.00025	1.11	1.80	0.00021	0.00022	0.00014	No
	October	0.00020	0.00020	1.08	1.72	0.00018	0.00018	0.00012	No
	November	0.00024	0.00025	1.11	1.80	0.00022	0.00022	0.00014	No
	December	0.00021	0.00022	1.09	1.76	0.00019	0.00020	0.00012	No
Operation 1 Phase (1-23)	January	0.00017	0.00017	1.08	1.73	0.00016	0.00016	0.00010	No
	February	0.00008	0.00008	1.12	1.83	0.00007	0.00007	0.00004	No
	March	0.00029	0.00029	1.12	1.84	0.00026	0.00026	0.00016	No
	April	0.00023	0.00023	1.11	1.80	0.00021	0.00021	0.00013	No
	May	0.0141	0.0141	0.896	1.27	0.0157	0.0157	0.0111	No
	June	0.0257	0.0257	0.843	1.14	0.0305	0.0305	0.0226	No
	July	0.00099	0.00099	0.983	1.49	0.00101	0.00101	0.00067	No
	August	0.00086	0.00087	1.09	1.76	0.00079	0.00080	0.00049	No
	September	0.00031	0.00034	1.11	1.80	0.00028	0.00031	0.00019	No
	October	0.00021	0.00021	1.08	1.72	0.00019	0.00019	0.00012	No
	November	0.00025	0.00026	1.11	1.80	0.00023	0.00023	0.00014	No
	December	0.00022	0.00022	1.09	1.76	0.00020	0.00020	0.00012	No
Operations 2 Phase (24-28)	January	0.00017	0.00017	1.08	1.73	0.00016	0.00016	0.00010	No
	February	0.00008	0.00008	1.12	1.83	0.00007	0.00007	0.00004	No
	March	0.00029	0.00029	1.12	1.84	0.00026	0.00026	0.00016	No
	April	0.00023	0.00023	1.11	1.80	0.00021	0.00021	0.00013	No
	May	0.0141	0.0141	0.896	1.27	0.0157	0.0157	0.0111	No
	June	0.0257	0.0257	0.843	1.14	0.0305	0.0305	0.0226	No
	July	0.00103	0.00104	0.983	1.49	0.00105	0.00106	0.00070	No
	August	0.00101	0.00105	1.09	1.76	0.00092	0.00096	0.00059	No
	September	0.00047	0.00052	1.11	1.80	0.00042	0.00047	0.00029	No
	October	0.00028	0.00030	1.08	1.72	0.00026	0.00028	0.00018	No
	November	0.00032	0.00033	1.11	1.80	0.00028	0.00030	0.00018	No
	December	0.00022	0.00022	1.09	1.76	0.00020	0.00020	0.00012	No
Closure Phase (29-35)	January	0.00017	0.00017	1.08	1.73	0.00016	0.00016	0.00010	No
	February	0.00008	0.00008	1.12	1.83	0.00007	0.00007	0.00004	No
	March	0.00029	0.00029	1.12	1.84	0.00026	0.00026	0.00016	No
	April	0.00023	0.00023	1.11	1.80	0.00021	0.00021	0.00013	No
	May	0.0141	0.0141	0.896	1.27	0.0157	0.0157	0.0111	No
	June	0.0257	0.0257	0.843	1.14	0.0305	0.0305	0.0226	No
	July	0.00103	0.00104	0.983	1.49	0.00105	0.00106	0.00070	No
	August	0.00101	0.00104	1.09	1.76	0.00092	0.00095	0.00059	No
	September	0.00050	0.00052	1.11	1.80	0.00045	0.00047	0.00029	No
	October	0.00029	0.00030	1.08	1.72	0.00027	0.00028	0.00017	No
	November	0.00032	0.00033	1.11	1.80	0.00029	0.00029	0.00018	No
	December	0.00022	0.00022	1.09	1.76	0.00020	0.00020	0.00012	No
Post-Closure Phase (36-99)	January	0.00017	0.00017	1.08	1.73	0.00016	0.00016	0.00010	No
	February	0.00008	0.00008	1.12	1.83	0.00007	0.00007	0.00004	No
	March	0.00029	0.00029	1.12	1.84	0.00026	0.00026	0.00016	No
	April	0.00023	0.00023	1.11	1.80	0.00021	0.00021	0.00013	No
	May	0.0141	0.0141	0.896	1.27	0.0157	0.0157	0.0111	No
	June	0.0257	0.0257	0.843	1.14	0.0305	0.0305	0.0226	No
	July	0.00100	0.00102	0.983	1.49	0.00101	0.00104	0.00069	No
	August	0.00089	0.00098	1.09	1.76	0.00081	0.00090	0.00056	No
	September	0.00035	0.00047	1.11	1.80	0.00032	0.00043	0.00026	No
	October	0.00022	0.00027	1.08	1.72	0.00020	0.00025	0.00016	No
	November	0.00027	0.00031	1.11	1.80	0.00024	0.00028	0.00017	No
	December	0.00022	0.00022	1.09	1.76	0.00020	0.00020	0.00012	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D10p. Middle Baker Creek (BK1) Hazard Quotients for Total Mercury Concentrations, Expected Case

		First Screening Step											Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Drinking Water Quality Guidelines BC DWQG	BC MOE Working Water Quality Guidelines for Wildlife Water Supply BC MOE 30-Day Mean if MeHg is 0.5% of THg	BC MOE Livestock Watering Water Quality Guideline Maximum	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum					Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg		Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg					
Construction (-2 to 1)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.250	0.500	0.0100	0.250	0.500	0.00333	No	No	No	No
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333	No	No	No	No
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.500	0.0100	0.498	0.500	0.00333	No	No	No	No
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.500	0.0100	0.496	0.500	0.00333	No	No	No	No
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.585	0.590	0.0118	0.585	0.590	0.00393	No	No	No	No
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.499	0.0100	0.498	0.499	0.00332	No	No	No	No
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333	No	No	No	No
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.639	0.658	0.0132	0.639	0.658	0.00439	No	No	No	No
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00334	No	No	No	No
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.502	0.0100	0.501	0.502	0.00334	No	No	No	No
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.652	0.654	0.0131	0.652	0.654	0.00436	No	No	No	No
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.501	0.0100	0.501	0.501	0.00334	No	No	No	No
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.501	0.0100	0.501	0.501	0.00334	No	No	No	No
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
Closure Phase (29-35)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00334	No	No	No	No
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.502	0.0100	0.501	0.502	0.00334	No	No	No	No
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.647	0.649	0.0130	0.647	0.649	0.00433	No	No	No	No
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.501	0.0100	0.501	0.501	0.00334	No	No	No	No
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.501	0.0100	0.501	0.501	0.00334	No	No	No	No
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00334	No	No	No	No
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.501	0.0100	0.500	0.501	0.00334	No	No	No	No
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.648	0.650	0.0130	0.648	0.650	0.00433	No	No	No	No
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.501	0.0100	0.500	0.501	0.00334	No	No	No	No
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00334	No	No	No	No
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D10q. Middle Baker Creek (BK1) Hazard Quotients for Total Molybdenum Concentrations, Expected Case

		First Screening Step											Retained as COPC?													
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Retained as COPC?											
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				BC DWQG	Maximum	Maximum				Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Aquatic Life	Water	Wildlife	Livestock
Construction (-2 to 1)	January	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No								
	February	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No								
	March	0.0002	0.0003	1	2	0.25	0.05	0.05	0.0002	0.0003	0.0002	0.0012	0.0060	0.0060	No	No	No	No								
	April	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0014	0.0069	0.0069	No	No	No	No								
	May	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0029	0.0029	No	No	No	No								
	June	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0005	0.0026	0.0026	No	No	No	No								
	July	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0008	0.0039	0.0039	No	No	No	No								
	August	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0011	0.0054	0.0054	No	No	No	No								
	September	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0060	0.0060	No	No	No	No								
	October	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0011	0.0055	0.0055	No	No	No	No								
	November	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0011	0.0056	0.0056	No	No	No	No								
	December	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0059	0.0059	No	No	No	No								
Operation 1 Phase (1-23)	January	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0061	0.0061	No	No	No	No								
	February	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No								
	March	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0060	0.0060	No	No	No	No								
	April	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0014	0.0069	0.0069	No	No	No	No								
	May	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0029	0.0029	No	No	No	No								
	June	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0005	0.0026	0.0026	No	No	No	No								
	July	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0008	0.0039	0.0039	No	No	No	No								
	August	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0011	0.0054	0.0054	No	No	No	No								
	September	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0060	0.0060	No	No	No	No								
	October	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0011	0.0055	0.0055	No	No	No	No								
	November	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0011	0.0056	0.0056	No	No	No	No								
	December	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0058	0.0058	No	No	No	No								
Operations 2 Phase (24-28)	January	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0061	0.0061	No	No	No	No								
	February	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No								
	March	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0060	0.0060	No	No	No	No								
	April	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0014	0.0069	0.0069	No	No	No	No								
	May	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0029	0.0029	No	No	No	No								
	June	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0005	0.0027	0.0027	No	No	No	No								
	July	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0008	0.0042	0.0042	No	No	No	No								
	August	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0063	0.0063	No	No	No	No								
	September	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0014	0.0069	0.0069	No	No	No	No								
	October	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0060	0.0060	No	No	No	No								
	November	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0059	0.0059	No	No	No	No								
	December	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0058	0.0058	No	No	No	No								
Closure Phase (29-35)	January	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0061	0.0061	No	No	No	No								
	February	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No								
	March	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0060	0.0060	No	No	No	No								
	April	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0014	0.0069	0.0069	No	No	No	No								
	May	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0029	0.0029	No	No	No	No								
	June	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0005	0.0027	0.0027	No	No	No	No								
	July	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0008	0.0042	0.0042	No	No	No	No								
	August	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0063	0.0063	No	No	No	No								
	September	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0014	0.0069	0.0069	No	No	No	No								
	October	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0059	0.0059	No	No	No	No								
	November	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0059	0.0059	No	No	No	No								
	December	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0058	0.0058	No	No	No	No								
Post-Closure Phase (36-99)	January	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0061	0.0061	No	No	No	No								
	February	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No								
	March	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0060	0.0060	No	No	No	No								
	April	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0014	0.0069	0.0069	No	No	No	No								
	May	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0029	0.0029	No	No	No	No								
	June	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0005	0.0027	0.0027	No	No	No	No								
	July	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0008	0.0041	0.0041	No	No	No	No								
	August	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0060	0.0060	No	No	No	No								
	September	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0067	0.0067	No	No	No	No								
	October	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0058	0.0058	No	No	No	No								
	November	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0058	0.0058	No	No	No	No								
	December	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0058	0.0058	No	No	No	No								

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D10r. Middle Baker Creek (BK1) Hazard Quotients for Total Nickel Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0002	0.0004	0.065	1	0.0054	0.0004	No	No
	February	0.0001	0.0001	0.065	1	0.0015	0.0001	No	No
	March	0.0000	0.0001	0.065	1	0.0014	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0016	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0206	0.0013	No	No
	June	0.0017	0.0017	0.025	1	0.0696	0.0017	No	No
	July	0.0005	0.0005	0.065	1	0.0074	0.0005	No	No
	August	0.0006	0.0007	0.065	1	0.0101	0.0007	No	No
	September	0.0003	0.0003	0.065	1	0.0041	0.0003	No	No
	October	0.0003	0.0003	0.065	1	0.0053	0.0003	No	No
	November	0.0005	0.0005	0.065	1	0.0071	0.0005	No	No
	December	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
Operation 1 Phase (1-23)	January	0.0004	0.0004	0.065	1	0.0054	0.0004	No	No
	February	0.0001	0.0001	0.065	1	0.0015	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0014	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0016	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0207	0.0013	No	No
	June	0.0017	0.0018	0.025	1	0.0700	0.0018	No	No
	July	0.0005	0.0005	0.065	1	0.0075	0.0005	No	No
	August	0.0007	0.0007	0.065	1	0.0108	0.0007	No	No
	September	0.0003	0.0004	0.065	1	0.0055	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0056	0.0004	No	No
	November	0.0005	0.0005	0.065	1	0.0075	0.0005	No	No
	December	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
Operations 2 Phase (24-28)	January	0.0004	0.0004	0.065	1	0.0054	0.0004	No	No
	February	0.0001	0.0001	0.065	1	0.0015	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0014	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0016	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0207	0.0013	No	No
	June	0.0017	0.0018	0.025	1	0.0700	0.0018	No	No
	July	0.0005	0.0005	0.065	1	0.0075	0.0005	No	No
	August	0.0007	0.0007	0.065	1	0.0108	0.0007	No	No
	September	0.0004	0.0004	0.065	1	0.0054	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0056	0.0004	No	No
	November	0.0005	0.0005	0.065	1	0.0075	0.0005	No	No
	December	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
Closure Phase (29-35)	January	0.0004	0.0004	0.065	1	0.0054	0.0004	No	No
	February	0.0001	0.0001	0.065	1	0.0015	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0014	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0016	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0207	0.0013	No	No
	June	0.0017	0.0017	0.025	1	0.0700	0.0017	No	No
	July	0.0005	0.0005	0.065	1	0.0075	0.0005	No	No
	August	0.0007	0.0007	0.065	1	0.0107	0.0007	No	No
	September	0.0003	0.0003	0.065	1	0.0054	0.0003	No	No
	October	0.0004	0.0004	0.065	1	0.0056	0.0004	No	No
	November	0.0005	0.0005	0.065	1	0.0075	0.0005	No	No
	December	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
Post-Closure Phase (36-99)	January	0.0004	0.0004	0.065	1	0.0054	0.0004	No	No
	February	0.0001	0.0001	0.065	1	0.0015	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0014	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0016	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0207	0.0013	No	No
	June	0.0017	0.0017	0.025	1	0.0700	0.0017	No	No
	July	0.0005	0.0005	0.065	1	0.0075	0.0005	No	No
	August	0.0007	0.0007	0.065	1	0.0107	0.0007	No	No
	September	0.0003	0.0003	0.065	1	0.0053	0.0003	No	No
	October	0.0004	0.0004	0.065	1	0.0056	0.0004	No	No
	November	0.0005	0.0005	0.065	1	0.0074	0.0005	No	No
	December	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix 13-D10t. Middle Baker Creek (BK1) Hazard Quotients for Total Silver Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
	February	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	March	0.00000	0.00001	0.00150	0.00300	0.00167	0.00333	0.00167	No
	April	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.00010	0.199	0.200	0.0998	No
	June	0.00001	0.00001	0.00005	0.00010	0.270	0.270	0.135	No
	July	0.00001	0.00001	0.00005	0.00010	0.195	0.195	0.0977	No
	August	0.00002	0.00002	0.00150	0.00300	0.0134	0.0135	0.00673	No
	September	0.00002	0.00002	0.00150	0.00300	0.0101	0.0107	0.00533	No
	October	0.00001	0.00001	0.00150	0.00300	0.00524	0.00526	0.00263	No
	November	0.00001	0.00001	0.00150	0.00300	0.00631	0.00636	0.00318	No
	December	0.00001	0.00001	0.00150	0.00300	0.00609	0.00633	0.00317	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00150	0.00300	0.00600	0.00600	0.00300	No
	February	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.00010	0.271	0.272	0.136	No
	July	0.00001	0.00001	0.00005	0.00010	0.196	0.197	0.0983	No
	August	0.00002	0.00002	0.00150	0.00300	0.0141	0.0143	0.00716	No
	September	0.00002	0.00002	0.00150	0.00300	0.0136	0.0149	0.00745	No
	October	0.00001	0.00001	0.00150	0.00300	0.00541	0.00545	0.00273	No
	November	0.00001	0.00001	0.00150	0.00300	0.00650	0.00655	0.00328	No
	December	0.00001	0.00001	0.00150	0.00300	0.00633	0.00633	0.00317	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00150	0.00300	0.00600	0.00600	0.00300	No
	February	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.00010	0.272	0.272	0.136	No
	July	0.00001	0.00001	0.00005	0.00010	0.197	0.197	0.0985	No
	August	0.00002	0.00002	0.00150	0.00300	0.0143	0.0143	0.00714	No
	September	0.00002	0.00002	0.00150	0.00300	0.0144	0.0146	0.00731	No
	October	0.00001	0.00001	0.00150	0.00300	0.00546	0.00546	0.00273	No
	November	0.00001	0.00001	0.00150	0.00300	0.00655	0.00655	0.00327	No
	December	0.00001	0.00001	0.00150	0.00300	0.00633	0.00633	0.00317	No
Closure Phase (29-35)	January	0.00001	0.00001	0.00150	0.00300	0.00600	0.00600	0.00300	No
	February	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.00010	0.271	0.272	0.136	No
	July	0.00001	0.00001	0.00005	0.00010	0.197	0.197	0.0985	No
	August	0.00002	0.00002	0.00150	0.00300	0.0142	0.0142	0.00712	No
	September	0.00002	0.00002	0.00150	0.00300	0.0141	0.0142	0.00711	No
	October	0.00001	0.00001	0.00150	0.00300	0.00545	0.00546	0.00273	No
	November	0.00001	0.00001	0.00150	0.00300	0.00654	0.00654	0.00327	No
	December	0.00001	0.00001	0.00150	0.00300	0.00633	0.00633	0.00317	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00150	0.00300	0.00600	0.00600	0.00300	No
	February	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.00150	0.00300	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.00010	0.271	0.271	0.136	No
	July	0.00001	0.00001	0.00005	0.00010	0.197	0.197	0.0984	No
	August	0.00002	0.00002	0.00150	0.00300	0.0142	0.0142	0.00711	No
	September	0.00002	0.00002	0.00150	0.00300	0.0141	0.0143	0.00717	No
	October	0.00001	0.00001	0.00150	0.00300	0.00544	0.00544	0.00272	No
	November	0.00001	0.00001	0.00150	0.00300	0.00653	0.00653	0.00327	No
	December	0.00001	0.00001	0.00150	0.00300	0.00633	0.00633	0.00317	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D10u. Middle Baker Creek (BK1) Hazard Quotients for Total Thallium Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum						
Construction (-2 to-1)	January	0.000004	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000001	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00499	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0329	0.00493	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0321	0.00481	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0380	0.00570	No	No
	September	0.000008	0.000009	0.0003	0.002	0.0294	0.00441	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0222	0.00334	No	No
	November	0.000009	0.000009	0.0003	0.002	0.0309	0.00464	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operation 1 Phase (1-23)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0331	0.00496	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0325	0.00487	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0406	0.00609	No	No
	September	0.000012	0.000013	0.0003	0.002	0.0424	0.00637	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0236	0.00354	No	No
	November	0.000010	0.000010	0.0003	0.002	0.0324	0.00486	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operations 2 Phase (24-28)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00496	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0324	0.00487	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0405	0.00607	No	No
	September	0.000012	0.000012	0.0003	0.002	0.0415	0.00623	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0236	0.00353	No	No
	November	0.000010	0.000010	0.0003	0.002	0.0323	0.00485	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Closure Phase (29-35)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00496	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0324	0.00487	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0404	0.00606	No	No
	September	0.000012	0.000012	0.0003	0.002	0.0403	0.00605	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0235	0.00353	No	No
	November	0.000010	0.000010	0.0003	0.002	0.0323	0.00484	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Post-Closure Phase (36-99)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00496	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0324	0.00486	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0403	0.00605	No	No
	September	0.000012	0.000012	0.0003	0.002	0.0407	0.00610	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0235	0.00352	No	No
	November	0.000010	0.000010	0.0003	0.002	0.0323	0.00484	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D10v. Middle Baker Creek (BK1) Hazard Quotients for Total Uranium Concentrations, Expected Case

		First Screening Step							Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum									
		BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline					
Construction (-2 to-1)	January	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0014	No	No	No
	February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0014	No	No	No
	March	0.0001	0.0003	0.3	0.02	0.2	0.0009	0.0131	0.0013	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0115	0.0011	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0082	0.0008	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0038	0.0004	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0054	0.0005	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0107	0.0011	No	No	No
	September	0.0002	0.0003	0.3	0.02	0.2	0.0008	0.0126	0.0013	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0110	0.0011	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0106	0.0011	No	No	No
	December	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0119	0.0012	No	No	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.3	0.02	0.2	0.0008	0.0127	0.0013	No	No	No
	February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0014	No	No	No
	March	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0131	0.0013	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0115	0.0011	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0081	0.0008	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0037	0.0004	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0053	0.0005	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0010	No	No	No
	September	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0119	0.0012	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0108	0.0011	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0104	0.0010	No	No	No
	December	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0114	0.0011	No	No	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.3	0.02	0.2	0.0008	0.0127	0.0013	No	No	No
	February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0014	No	No	No
	March	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0131	0.0013	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0115	0.0011	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0081	0.0008	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0037	0.0004	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0053	0.0005	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0010	No	No	No
	September	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0115	0.0011	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0107	0.0011	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	December	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0114	0.0011	No	No	No
Closure Phase (29-35)	January	0.0003	0.0003	0.3	0.02	0.2	0.0008	0.0127	0.0013	No	No	No
	February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0014	No	No	No
	March	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0131	0.0013	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0115	0.0011	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0081	0.0008	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0037	0.0004	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0053	0.0005	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0010	No	No	No
	September	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0115	0.0012	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0107	0.0011	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	December	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0114	0.0011	No	No	No
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.3	0.02	0.2	0.0008	0.0127	0.0013	No	No	No
	February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0014	No	No	No
	March	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0131	0.0013	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0115	0.0011	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0081	0.0008	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0037	0.0004	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0053	0.0005	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0010	No	No	No
	September	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0115	0.0012	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0107	0.0011	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	December	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0114	0.0011	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D10w. Middle Baker Creek (BK1) Hazard Quotients for Total Vanadium Concentrations, Expected Case

		First Screening Step							Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	Chronic Value		BC MOE Working	Maximum Predicted vs. BC MOE Working Secondary Chronic Value			
						Working Guideline		Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0004	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0001	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.197	0.0591	0.0118	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.160	0.0481	0.0096	No	No
	August	0.0006	0.0007	0.006	0.02	0.1	0.109	0.0327	0.0065	No	No
	September	0.0005	0.0005	0.006	0.02	0.1	0.0814	0.0244	0.0049	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.1112	0.0334	0.0067	No	No
	November	0.0009	0.0009	0.006	0.02	0.1	0.155	0.0464	0.0093	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Operation 1 Phase (1-23)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0595	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0487	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.116	0.0347	0.0069	No	No
	September	0.0006	0.0007	0.006	0.02	0.1	0.110	0.0329	0.0066	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.118	0.0354	0.0071	No	No
	November	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0486	0.0097	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0595	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0487	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.115	0.0346	0.0069	No	No
	September	0.0006	0.0006	0.006	0.02	0.1	0.108	0.0323	0.0065	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.118	0.0353	0.0071	No	No
	November	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0485	0.0097	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Closure Phase (29-35)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0594	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0486	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.115	0.0345	0.0069	No	No
	September	0.0006	0.0006	0.006	0.02	0.1	0.105	0.0315	0.0063	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No
	November	0.0010	0.0010	0.006	0.02	0.1	0.161	0.0483	0.0097	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Post-Closure Phase (36-99)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0594	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0486	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.115	0.0345	0.0069	No	No
	September	0.0006	0.0006	0.006	0.02	0.1	0.106	0.0318	0.0064	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No
	November	0.0010	0.0010	0.006	0.02	0.1	0.161	0.0484	0.0097	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D10x. Middle Baker Creek (BK1) Hazard Quotients for Total Zinc Concentrations, Expected Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Aquatic Life Guidelines				BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
		Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline				Maximum Predicted vs. BC MOE Maximum Guideline
		Mean	Maximum										
Construction (-2 to-1)	January	0.0008	0.0016	0.021	0.046	2	0.0394	0.0740	0.0334	0.0008	No	No	
	February	0.0001	0.0001	0.028	0.053	2	0.0036	0.0036	0.0019	0.0001	No	No	
	March	0.0002	0.0004	0.029	0.054	2	0.0070	0.0140	0.0074	0.0002	No	No	
	April	0.0021	0.0021	0.026	0.051	2	0.0804	0.0804	0.0402	0.0010	No	No	
	May	0.0040	0.0040	0.008	0.033	2	0.530	0.532	0.121	0.0020	No	No	
	June	0.0045	0.0045	0.008	0.033	2	0.598	0.599	0.136	0.0022	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.395	0.395	0.0898	0.0015	No	No	
	August	0.0022	0.0022	0.023	0.049	2	0.0947	0.0958	0.0458	0.0011	No	No	
	September	0.0012	0.0013	0.026	0.051	2	0.0454	0.0492	0.0247	0.0006	No	No	
	October	0.0018	0.0018	0.021	0.046	2	0.0858	0.0874	0.0390	0.0009	No	No	
	November	0.0027	0.0027	0.026	0.051	2	0.106	0.107	0.0537	0.0014	No	No	
	December	0.0021	0.0023	0.023	0.049	2	0.0903	0.0980	0.0467	0.0011	No	No	
Operation 1 Phase (1-23)	January	0.0016	0.0016	0.021	0.046	2	0.0740	0.0740	0.0334	0.0008	No	No	
	February	0.0001	0.0001	0.028	0.053	2	0.0036	0.0036	0.0019	0.0001	No	No	
	March	0.0004	0.0004	0.029	0.054	2	0.0140	0.0140	0.0074	0.0002	No	No	
	April	0.0021	0.0021	0.026	0.051	2	0.0804	0.0804	0.0402	0.0010	No	No	
	May	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	June	0.0045	0.0045	0.008	0.033	2	0.602	0.603	0.137	0.0023	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.399	0.400	0.0909	0.0015	No	No	
	August	0.0024	0.0024	0.023	0.049	2	0.101	0.103	0.0492	0.0012	No	No	
	September	0.0017	0.0019	0.026	0.051	2	0.0672	0.0750	0.0377	0.0010	No	No	
	October	0.0019	0.0019	0.021	0.046	2	0.0926	0.0944	0.0422	0.0010	No	No	
	November	0.0029	0.0029	0.026	0.051	2	0.112	0.114	0.0568	0.0014	No	No	
	December	0.0023	0.0023	0.023	0.049	2	0.0980	0.0980	0.0467	0.0011	No	No	
Operations 2 Phase (24-28)	January	0.0016	0.0016	0.021	0.046	2	0.0740	0.0740	0.0334	0.0008	No	No	
	February	0.0001	0.0001	0.028	0.053	2	0.0036	0.0036	0.0019	0.0001	No	No	
	March	0.0004	0.0004	0.029	0.054	2	0.0140	0.0140	0.0074	0.0002	No	No	
	April	0.0021	0.0021	0.026	0.051	2	0.0804	0.0804	0.0402	0.0010	No	No	
	May	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	June	0.0045	0.0045	0.008	0.033	2	0.603	0.603	0.137	0.0023	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.401	0.403	0.0916	0.0015	No	No	
	August	0.0024	0.0025	0.023	0.049	2	0.104	0.106	0.0506	0.0012	No	No	
	September	0.0019	0.0019	0.026	0.051	2	0.0738	0.0745	0.0374	0.0010	No	No	
	October	0.0020	0.0020	0.021	0.046	2	0.0951	0.0960	0.0429	0.0010	No	No	
	November	0.0029	0.0029	0.026	0.051	2	0.114	0.114	0.0572	0.0015	No	No	
	December	0.0023	0.0023	0.023	0.049	2	0.0980	0.0980	0.0467	0.0011	No	No	
Closure Phase (29-35)	January	0.0016	0.0016	0.021	0.046	2	0.0740	0.0740	0.0334	0.0008	No	No	
	February	0.0001	0.0001	0.028	0.053	2	0.0036	0.0036	0.0019	0.0001	No	No	
	March	0.0004	0.0004	0.029	0.054	2	0.0140	0.0140	0.0074	0.0002	No	No	
	April	0.0021	0.0021	0.026	0.051	2	0.0804	0.0804	0.0402	0.0010	No	No	
	May	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	June	0.0045	0.0045	0.008	0.033	2	0.603	0.603	0.137	0.0023	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.402	0.403	0.0916	0.0015	No	No	
	August	0.0025	0.0025	0.023	0.049	2	0.105	0.106	0.0506	0.0012	No	No	
	September	0.0019	0.0019	0.026	0.051	2	0.0731	0.0743	0.0373	0.0010	No	No	
	October	0.0020	0.0020	0.021	0.046	2	0.0954	0.0958	0.0428	0.0010	No	No	
	November	0.0029	0.0029	0.026	0.051	2	0.114	0.114	0.0571	0.0015	No	No	
	December	0.0023	0.0023	0.023	0.049	2	0.0980	0.0980	0.0467	0.0011	No	No	
Post-Closure Phase (36-99)	January	0.0016	0.0016	0.021	0.046	2	0.0740	0.0740	0.0334	0.0008	No	No	
	February	0.0001	0.0001	0.028	0.053	2	0.0036	0.0036	0.0019	0.0001	No	No	
	March	0.0004	0.0004	0.029	0.054	2	0.0140	0.0140	0.0074	0.0002	No	No	
	April	0.0021	0.0021	0.026	0.051	2	0.0804	0.0804	0.0402	0.0010	No	No	
	May	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	June	0.0045	0.0045	0.008	0.033	2	0.602	0.603	0.137	0.0023	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.401	0.0912	0.0015	No	No	
	August	0.0024	0.0024	0.023	0.049	2	0.103	0.104	0.0499	0.0012	No	No	
	September	0.0018	0.0019	0.026	0.051	2	0.0709	0.0719	0.0361	0.0009	No	No	
	October	0.0019	0.0020	0.021	0.046	2	0.0938	0.0948	0.0424	0.0010	No	No	
	November	0.0029	0.0029	0.026	0.051	2	0.113	0.114	0.0568	0.0014	No	No	
	December	0.0023	0.0023	0.023	0.049	2	0.0980	0.0980	0.0467	0.0011	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D10y. Middle Baker Creek (BK1) Hazard Quotients for Chloride Concentrations, Expected Case

		First Screening Step											Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline					
		Mean	Maximum	Day Mean	Maximum	Maximum	Maximum	Mean Guideline	Mean Guideline	Maximum Guideline	Maximum Guideline	Maximum Guideline			
Construction (-2 to-1)	January	0.650	0.800	150	600	600	600	0.0043	0.0053	0.0013	0.0013	0.0013	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.250	0.500	150	600	600	600	0.0017	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.551	0.552	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.504	0.505	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.607	0.609	150	600	600	600	0.0040	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.569	0.577	150	600	600	600	0.0038	0.0038	0.0010	0.0010	0.0010	No	No	No
	September	0.679	0.695	150	600	600	600	0.0045	0.0046	0.0012	0.0012	0.0012	No	No	No
	October	0.538	0.544	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	November	0.532	0.537	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	December	0.525	0.549	150	600	600	600	0.0035	0.0037	0.0009	0.0009	0.0009	No	No	No
Operation 1 Phase (1-23)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.550	0.550	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.503	0.504	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.607	0.607	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	August	0.556	0.561	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	September	0.630	0.654	150	600	600	600	0.0042	0.0044	0.0011	0.0011	0.0011	No	No	No
	October	0.519	0.527	150	600	600	600	0.0035	0.0035	0.0009	0.0009	0.0009	No	No	No
	November	0.515	0.524	150	600	600	600	0.0034	0.0035	0.0009	0.0009	0.0009	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Operations 2 Phase (24-28)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.550	0.550	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.504	0.504	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.608	0.609	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.559	0.562	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	September	0.623	0.629	150	600	600	600	0.0042	0.0042	0.0010	0.0010	0.0010	No	No	No
	October	0.518	0.520	150	600	600	600	0.0035	0.0035	0.0009	0.0009	0.0009	No	No	No
	November	0.514	0.515	150	600	600	600	0.0034	0.0034	0.0009	0.0009	0.0009	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Closure Phase (29-35)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.550	0.550	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.504	0.504	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.609	0.609	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.561	0.562	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	September	0.631	0.633	150	600	600	600	0.0042	0.0042	0.0011	0.0011	0.0011	No	No	No
	October	0.520	0.520	150	600	600	600	0.0035	0.0035	0.0009	0.0009	0.0009	No	No	No
	November	0.515	0.516	150	600	600	600	0.0034	0.0034	0.0009	0.0009	0.0009	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Post-Closure Phase (36-99)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.550	0.550	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.504	0.504	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.607	0.609	150	600	600	600	0.0040	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.557	0.561	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	September	0.625	0.633	150	600	600	600	0.0042	0.0042	0.0011	0.0011	0.0011	No	No	No
	October	0.517	0.520	150	600	600	600	0.0034	0.0035	0.0009	0.0009	0.0009	No	No	No
	November	0.513	0.515	150	600	600	600	0.0034	0.0034	0.0009	0.0009	0.0009	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D10z. Middle Baker Creek (BK1) Hazard Quotients for Fluoride Concentrations, Expected Case

		First Screening Step															
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		
		Mean	Maximum	BC MOE Maximum Guideline	BC 30-Day Mean DWQG	BC Maximum DWQG	30-Day Mean	Maximum	30-Day Mean	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	BC 30-Day Mean DWQG	Maximum predicted vs. BC 30-Day Mean DWQG	Maximum predicted vs. BC Maximum DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
		Mean	Maximum		30-Day Mean DWQG	BC Maximum DWQG	30-Day Mean	Maximum	30-Day Mean	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	BC 30-Day Mean DWQG	Maximum predicted vs. BC 30-Day Mean DWQG	Maximum predicted vs. BC Maximum DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to 1)	January	0.0333	0.0390	1.36	1	1.5	1	1.5	1	2	0.0286	0.0333	0.0390	0.0260	0.0333	0.0390	0.0260
	February	0.0390	0.0390	1.40	1	1.5	1	1.5	1	2	0.0279	0.0390	0.0390	0.0260	0.0390	0.0390	0.0260
	March	0.0163	0.0325	1.40	1	1.5	1	1.5	1	2	0.0232	0.0163	0.0325	0.0217	0.0163	0.0325	0.0217
	April	0.0350	0.0350	1.39	1	1.5	1	1.5	1	2	0.0252	0.0350	0.0350	0.0233	0.0350	0.0350	0.0233
	May	0.0257	0.0258	1.17	1	1.5	1	1.5	1	2	0.0221	0.0257	0.0258	0.0172	0.0257	0.0258	0.0172
	June	0.0252	0.0253	1.09	1	1.5	1	1.5	1	2	0.0232	0.0252	0.0253	0.0168	0.0252	0.0253	0.0168
	July	0.0255	0.0256	1.27	1	1.5	1	1.5	1	2	0.0201	0.0255	0.0256	0.0171	0.0255	0.0256	0.0171
	August	0.0335	0.0338	1.38	1	1.5	1	1.5	1	2	0.0246	0.0335	0.0338	0.0225	0.0335	0.0338	0.0225
	September	0.0332	0.0339	1.39	1	1.5	1	1.5	1	2	0.0245	0.0332	0.0339	0.0226	0.0332	0.0339	0.0226
	October	0.0291	0.0294	1.36	1	1.5	1	1.5	1	2	0.0216	0.0291	0.0294	0.0196	0.0291	0.0294	0.0196
	November	0.0301	0.0302	1.39	1	1.5	1	1.5	1	2	0.0218	0.0301	0.0302	0.0202	0.0301	0.0302	0.0202
	December	0.0292	0.0301	1.38	1	1.5	1	1.5	1	2	0.0219	0.0292	0.0301	0.0201	0.0292	0.0301	0.0201
Operation 1 Phase (1-23)	January	0.0277	0.0277	1.36	1	1.5	1	1.5	1	2	0.0203	0.0277	0.0277	0.0184	0.0277	0.0277	0.0184
	February	0.0390	0.0390	1.40	1	1.5	1	1.5	1	2	0.0279	0.0390	0.0390	0.0260	0.0390	0.0390	0.0260
	March	0.0325	0.0325	1.40	1	1.5	1	1.5	1	2	0.0232	0.0325	0.0325	0.0217	0.0325	0.0325	0.0217
	April	0.0350	0.0350	1.39	1	1.5	1	1.5	1	2	0.0252	0.0350	0.0350	0.0233	0.0350	0.0350	0.0233
	May	0.0257	0.0257	1.17	1	1.5	1	1.5	1	2	0.0220	0.0257	0.0257	0.0171	0.0257	0.0257	0.0171
	June	0.0252	0.0252	1.09	1	1.5	1	1.5	1	2	0.0232	0.0252	0.0252	0.0168	0.0252	0.0252	0.0168
	July	0.0255	0.0255	1.27	1	1.5	1	1.5	1	2	0.0200	0.0255	0.0255	0.0170	0.0255	0.0255	0.0170
	August	0.0333	0.0334	1.38	1	1.5	1	1.5	1	2	0.0243	0.0333	0.0334	0.0223	0.0333	0.0334	0.0223
	September	0.0308	0.0320	1.39	1	1.5	1	1.5	1	2	0.0231	0.0308	0.0320	0.0213	0.0308	0.0320	0.0213
	October	0.0285	0.0287	1.36	1	1.5	1	1.5	1	2	0.0211	0.0285	0.0287	0.0192	0.0285	0.0287	0.0192
	November	0.0295	0.0298	1.39	1	1.5	1	1.5	1	2	0.0215	0.0295	0.0298	0.0199	0.0295	0.0298	0.0199
	December	0.0283	0.0283	1.38	1	1.5	1	1.5	1	2	0.0206	0.0283	0.0283	0.0189	0.0283	0.0283	0.0189
Operations 2 Phase (24-28)	January	0.0277	0.0277	1.36	1	1.5	1	1.5	1	2	0.0203	0.0277	0.0277	0.0184	0.0277	0.0277	0.0184
	February	0.0390	0.0390	1.40	1	1.5	1	1.5	1	2	0.0279	0.0390	0.0390	0.0260	0.0390	0.0390	0.0260
	March	0.0325	0.0325	1.40	1	1.5	1	1.5	1	2	0.0232	0.0325	0.0325	0.0217	0.0325	0.0325	0.0217
	April	0.0350	0.0350	1.39	1	1.5	1	1.5	1	2	0.0252	0.0350	0.0350	0.0233	0.0350	0.0350	0.0233
	May	0.0257	0.0257	1.17	1	1.5	1	1.5	1	2	0.0220	0.0257	0.0257	0.0171	0.0257	0.0257	0.0171
	June	0.0252	0.0252	1.09	1	1.5	1	1.5	1	2	0.0232	0.0252	0.0252	0.0168	0.0252	0.0252	0.0168
	July	0.0256	0.0256	1.27	1	1.5	1	1.5	1	2	0.0201	0.0256	0.0256	0.0171	0.0256	0.0256	0.0171
	August	0.0336	0.0337	1.38	1	1.5	1	1.5	1	2	0.0245	0.0336	0.0337	0.0224	0.0336	0.0337	0.0224
	September	0.0306	0.0309	1.39	1	1.5	1	1.5	1	2	0.0222	0.0306	0.0309	0.0206	0.0306	0.0309	0.0206
	October	0.0285	0.0286	1.36	1	1.5	1	1.5	1	2	0.0210	0.0285	0.0286	0.0190	0.0285	0.0286	0.0190
	November	0.0295	0.0296	1.39	1	1.5	1	1.5	1	2	0.0213	0.0295	0.0296	0.0197	0.0295	0.0296	0.0197
	December	0.0283	0.0283	1.38	1	1.5	1	1.5	1	2	0.0206	0.0283	0.0283	0.0189	0.0283	0.0283	0.0189
Closure Phase (29-35)	January	0.0277	0.0277	1.36	1	1.5	1	1.5	1	2	0.0203	0.0277	0.0277	0.0184	0.0277	0.0277	0.0184
	February	0.0390	0.0390	1.40	1	1.5	1	1.5	1	2	0.0279	0.0390	0.0390	0.0260	0.0390	0.0390	0.0260
	March	0.0325	0.0325	1.40	1	1.5	1	1.5	1	2	0.0232	0.0325	0.0325	0.0217	0.0325	0.0325	0.0217
	April	0.0350	0.0350	1.39	1	1.5	1	1.5	1	2	0.0252	0.0350	0.0350	0.0233	0.0350	0.0350	0.0233
	May	0.0257	0.0257	1.17	1	1.5	1	1.5	1	2	0.0220	0.0257	0.0257	0.0171	0.0257	0.0257	0.0171
	June	0.0252	0.0252	1.09	1	1.5	1	1.5	1	2	0.0232	0.0252	0.0252	0.0168	0.0252	0.0252	0.0168
	July	0.0256	0.0256	1.27	1	1.5	1	1.5	1	2	0.0201	0.0256	0.0256	0.0171	0.0256	0.0256	0.0171
	August	0.0336	0.0337	1.38	1	1.5	1	1.5	1	2	0.0245	0.0336	0.0337	0.0224	0.0336	0.0337	0.0224
	September	0.0310	0.0310	1.39	1	1.5	1	1.5	1	2	0.0224	0.0310	0.0310	0.0207	0.0310	0.0310	0.0207
	October	0.0286	0.0286	1.36	1	1.5	1	1.5	1	2	0.0210	0.0286	0.0286	0.0190	0.0286	0.0286	0.0190
	November	0.0296	0.0296	1.39	1	1.5	1	1.5	1	2	0.0213	0.0296	0.0296	0.0197	0.0296	0.0296	0.0197
	December	0.0283	0.0283	1.38	1	1.5	1	1.5	1	2	0.0206	0.0283	0.0283	0.0189	0.0283	0.0283	0.0189
Post-Closure Phase (36-99)	January	0.0277	0.0277	1.36	1	1.5	1	1.5	1	2	0.0203	0.0277	0.0277	0.0184	0.0277	0.0277	0.0184
	February	0.0390	0.0390	1.40	1	1.5	1	1.5	1	2	0.0279	0.0390	0.0390	0.0260	0.0390	0.0390	0.0260
	March	0.0325	0.0325	1.40	1	1.5	1	1.5	1	2	0.0232	0.0325	0.0325	0.0217	0.0325	0.0325	0.0217
	April	0.0350	0.0350	1.39	1	1.5	1	1.5	1	2	0.0252	0.0350	0.0350	0.0233	0.0350	0.0350	0.0233
	May	0.0257	0.0257	1.17	1	1.5	1	1.5	1	2	0.0220	0.0257	0.0257	0.0171	0.0257	0.0257	0.0171
	June	0.0252	0.0252	1.09	1	1.5	1	1.5	1	2	0.0232	0.0252	0.0252	0.0168	0.0252	0.0252	0.0168
	July	0.0255	0.0256	1.27	1	1.5	1	1.5	1	2	0.0201	0.0255	0.0256	0.0171	0.0255	0.0256	0.0171
	August	0.0334	0.0336	1.38	1	1.5	1	1.5	1	2	0.0244	0.0334	0.0336	0.0224	0.0334	0.0336	0.0224
	September	0.0306	0.0311	1.39	1	1.5	1	1.5	1	2	0.0224	0.0306	0.0311	0.0207	0.0306	0.0311	0.0207
	October	0.0284	0.0286	1.36	1	1.5	1	1.5	1	2	0.0210	0.0284	0.0286	0.0190	0.0284	0.0286	0.0190
	November	0.0294	0.0296	1.39	1	1.5	1	1.5	1	2	0.0213	0.0294	0.0296	0.0197	0.0294	0.0296	0.0197
	December	0.0283	0.0283	1.38	1	1.5	1	1.5	1	2	0.0206	0.0283	0.0283	0.0189	0.0283	0.0283	0.0189

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness

(continued)

Appendix 13-D10z. Middle Baker Creek (BK1) Hazard Quotients for Fluoride Concentrations, Expected Case (completed)

		First Screening Step			Retained as COPC?			
		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline						
Project Phase	Months	Mean Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE 30-Day	Maximum Predicted vs. BC MOE	Aquatic Life	Drinking Water	Wildlife	Livestock
		Guideline	Mean Guideline	Maximum Guideline				
Construction (-2 to-1)	January	0.0333	0.0390	0.0195	No	No	No	No
	February	0.0390	0.0390	0.0195	No	No	No	No
	March	0.0163	0.0325	0.0163	No	No	No	No
	April	0.0350	0.0350	0.0175	No	No	No	No
	May	0.0257	0.0258	0.0129	No	No	No	No
	June	0.0252	0.0253	0.0126	No	No	No	No
	July	0.0255	0.0256	0.0128	No	No	No	No
	August	0.0335	0.0338	0.0169	No	No	No	No
	September	0.0332	0.0339	0.0170	No	No	No	No
	October	0.0291	0.0294	0.0147	No	No	No	No
	November	0.0301	0.0302	0.0151	No	No	No	No
	December	0.0292	0.0301	0.0150	No	No	No	No
Operation 1 Phase (1-23)	January	0.0277	0.0277	0.0138	No	No	No	No
	February	0.0390	0.0390	0.0195	No	No	No	No
	March	0.0325	0.0325	0.0163	No	No	No	No
	April	0.0350	0.0350	0.0175	No	No	No	No
	May	0.0257	0.0257	0.0128	No	No	No	No
	June	0.0252	0.0252	0.0126	No	No	No	No
	July	0.0255	0.0255	0.0128	No	No	No	No
	August	0.0333	0.0334	0.0167	No	No	No	No
	September	0.0308	0.0320	0.0160	No	No	No	No
	October	0.0285	0.0287	0.0144	No	No	No	No
	November	0.0295	0.0298	0.0149	No	No	No	No
	December	0.0283	0.0283	0.0142	No	No	No	No
Operations 2 Phase (24-28)	January	0.0277	0.0277	0.0138	No	No	No	No
	February	0.0390	0.0390	0.0195	No	No	No	No
	March	0.0325	0.0325	0.0163	No	No	No	No
	April	0.0350	0.0350	0.0175	No	No	No	No
	May	0.0257	0.0257	0.0128	No	No	No	No
	June	0.0252	0.0252	0.0126	No	No	No	No
	July	0.0256	0.0256	0.0128	No	No	No	No
	August	0.0336	0.0337	0.0168	No	No	No	No
	September	0.0306	0.0309	0.0154	No	No	No	No
	October	0.0285	0.0286	0.0143	No	No	No	No
	November	0.0295	0.0296	0.0148	No	No	No	No
	December	0.0283	0.0283	0.0142	No	No	No	No
Closure Phase (29-35)	January	0.0277	0.0277	0.0138	No	No	No	No
	February	0.0390	0.0390	0.0195	No	No	No	No
	March	0.0325	0.0325	0.0163	No	No	No	No
	April	0.0350	0.0350	0.0175	No	No	No	No
	May	0.0257	0.0257	0.0128	No	No	No	No
	June	0.0252	0.0252	0.0126	No	No	No	No
	July	0.0256	0.0256	0.0128	No	No	No	No
	August	0.0336	0.0337	0.0168	No	No	No	No
	September	0.0310	0.0310	0.0155	No	No	No	No
	October	0.0286	0.0286	0.0143	No	No	No	No
	November	0.0296	0.0296	0.0148	No	No	No	No
	December	0.0283	0.0283	0.0142	No	No	No	No
Post-Closure Phase (36-99)	January	0.0277	0.0277	0.0138	No	No	No	No
	February	0.0390	0.0390	0.0195	No	No	No	No
	March	0.0325	0.0325	0.0163	No	No	No	No
	April	0.0350	0.0350	0.0175	No	No	No	No
	May	0.0257	0.0257	0.0128	No	No	No	No
	June	0.0252	0.0252	0.0126	No	No	No	No
	July	0.0255	0.0256	0.0128	No	No	No	No
	August	0.0334	0.0336	0.0168	No	No	No	No
	September	0.0306	0.0311	0.0155	No	No	No	No
	October	0.0284	0.0286	0.0143	No	No	No	No
	November	0.0294	0.0296	0.0148	No	No	No	No
	December	0.0283	0.0283	0.0142	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness

Appendix 13-D10aa. Middle Baker Creek (BK1) Hazard Quotients for Nitrate Concentrations, Expected Case

Project Phase		First Screening Step											Retained as COPC?						
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Drinking Water				
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				BC DWQG	Maximum	BC MOE Maximum				Mean Predicted vs BC MOE 30-Day	Maximum Predicted vs BC MOE 30-Day	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline
[The table body contains 20 columns of data for 120 rows, grouped into Construction, Operation, and Closure phases. Each row represents a month and contains predicted concentrations, various MOE and DWQG values, hazard quotients, and COPC status for Aquatic Life, Water, Wildlife, and Livestock. The table is very repetitive and follows the structure defined in the header.]																			

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D10ab. Middle Baker Creek (BK1) Hazard Quotients for Nitrite Concentrations, Expected Case

		First Screening Step										Retained as COPC?						
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				BC MOE Maximum	Mean Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE 30-Day Mean Guideline							
		BC DWQG	Maximum	BC MOE Maximum	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline											
Construction (-2 to-1)	January	0.0040	0.0050	0.02	0.06	1	10	10	0.200	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0025	0.0050	0.02	0.06	1	10	10	0.125	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0510	0.0518	0.0173	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0011	0.02	0.06	1	10	10	0.0533	0.0537	0.0179	0.0011	0.0001	0.0001	No	No	No	No
	July	0.0012	0.0012	0.02	0.06	1	10	10	0.0584	0.0592	0.0197	0.0012	0.0001	0.0001	No	No	No	No
	August	0.0019	0.0020	0.02	0.06	1	10	10	0.0975	0.101	0.0337	0.0020	0.0002	0.0002	No	No	No	No
	September	0.0027	0.0030	0.02	0.06	1	10	10	0.136	0.148	0.0493	0.0030	0.0003	0.0003	No	No	No	No
	October	0.0027	0.0027	0.02	0.06	1	10	10	0.136	0.136	0.0455	0.0027	0.0003	0.0003	No	No	No	No
	November	0.0014	0.0015	0.02	0.06	1	10	10	0.0714	0.0745	0.0248	0.0015	0.0001	0.0001	No	No	No	No
	December	0.0022	0.0025	0.02	0.06	1	10	10	0.112	0.125	0.0415	0.0025	0.0002	0.0002	No	No	No	No
Operation 1 Phase (1-23)	January	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0523	0.0525	0.0175	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0011	0.0011	0.02	0.06	1	10	10	0.0569	0.0572	0.0191	0.0011	0.0001	0.0001	No	No	No	No
	August	0.0018	0.0018	0.02	0.06	1	10	10	0.0876	0.0907	0.0302	0.0018	0.0002	0.0002	No	No	No	No
	September	0.0016	0.0022	0.02	0.06	1	10	10	0.0806	0.112	0.0374	0.0022	0.0002	0.0002	No	No	No	No
	October	0.0025	0.0026	0.02	0.06	1	10	10	0.125	0.129	0.0430	0.0026	0.0003	0.0003	No	No	No	No
	November	0.0012	0.0013	0.02	0.06	1	10	10	0.0599	0.0657	0.0219	0.0013	0.0001	0.0001	No	No	No	No
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002	No	No	No	No
Operations 2 Phase (24-28)	January	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0522	0.0523	0.0174	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0011	0.0011	0.02	0.06	1	10	10	0.0569	0.0570	0.0190	0.0011	0.0001	0.0001	No	No	No	No
	August	0.0017	0.0017	0.02	0.06	1	10	10	0.0865	0.0870	0.0290	0.0017	0.0002	0.0002	No	No	No	No
	September	0.0014	0.0014	0.02	0.06	1	10	10	0.0691	0.0724	0.0241	0.0014	0.0001	0.0001	No	No	No	No
	October	0.0025	0.0025	0.02	0.06	1	10	10	0.124	0.124	0.0414	0.0025	0.0002	0.0002	No	No	No	No
	November	0.0012	0.0012	0.02	0.06	1	10	10	0.0581	0.0585	0.0195	0.0012	0.0001	0.0001	No	No	No	No
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002	No	No	No	No
Closure Phase (29-35)	January	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0523	0.0523	0.0174	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0011	0.0011	0.02	0.06	1	10	10	0.0571	0.0572	0.0191	0.0011	0.0001	0.0001	No	No	No	No
	August	0.0017	0.0018	0.02	0.06	1	10	10	0.0874	0.0877	0.0292	0.0018	0.0002	0.0002	No	No	No	No
	September	0.0015	0.0015	0.02	0.06	1	10	10	0.0752	0.0772	0.0257	0.0015	0.0002	0.0002	No	No	No	No
	October	0.0025	0.0025	0.02	0.06	1	10	10	0.124	0.125	0.0415	0.0025	0.0002	0.0002	No	No	No	No
	November	0.0012	0.0012	0.02	0.06	1	10	10	0.0588	0.0590	0.0197	0.0012	0.0001	0.0001	No	No	No	No
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002	No	No	No	No
Post-Closure Phase (36-99)	January	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0030	0.0030	0.02	0.06	1	10	10	0.150	0.150	0.0500	0.0030	0.0003	0.0003	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0523	0.0523	0.0174	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0011	0.0011	0.02	0.06	1	10	10	0.0571	0.0572	0.0191	0.0011	0.0001	0.0001	No	No	No	No
	August	0.0017	0.0018	0.02	0.06	1	10	10	0.0871	0.0878	0.0293	0.0018	0.0002	0.0002	No	No	No	No
	September	0.0015	0.0016	0.02	0.06	1	10	10	0.0732	0.0777	0.0259	0.0016	0.0002	0.0002	No	No	No	No
	October	0.0025	0.0025	0.02	0.06	1	10	10	0.124	0.125	0.0415	0.0025	0.0002	0.0002	No	No	No	No
	November	0.0012	0.0012	0.02	0.06	1	10	10	0.0584	0.0591	0.0197	0.0012	0.0001	0.0001	No	No	No	No
	December	0.0020	0.0020	0.02	0.06	1	10	10	0.100	0.100	0.0333	0.0020	0.0002	0.0002	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are chloride

Appendix 13-D10ac. Middle Baker Creek (BK1) Hazard Quotients for Ammonia Concentrations, Expected Case

		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Maximum Predicted			Aquatic Life
						Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Construction (-2 to-1)	January	0.0165	0.0210	0.788	4.09	0.0209	0.0266	0.0051	No
	February	0.0210	0.0210	0.628	3.27	0.0334	0.0334	0.0064	No
	March	0.0060	0.0120	0.788	4.09	0.0076	0.0152	0.0029	No
	April	0.0145	0.0145	0.620	3.22	0.0234	0.0234	0.0045	No
	May	0.0170	0.0170	1.73	8.98	0.0098	0.0098	0.0019	No
	June	0.0088	0.0088	1.41	7.33	0.0062	0.0063	0.0012	No
	July	0.0120	0.0121	0.906	4.71	0.0133	0.0133	0.0026	No
	August	0.0662	0.0667	0.724	3.76	0.0915	0.0921	0.0177	No
	September	0.0238	0.0239	0.736	3.83	0.0323	0.0324	0.0062	No
	October	0.0122	0.0124	0.759	3.95	0.0160	0.0163	0.0031	No
	November	0.0067	0.0070	0.636	3.31	0.0105	0.0109	0.0021	No
	December	0.0095	0.0106	0.799	4.15	0.0119	0.0132	0.0025	No
Operation 1 Phase (1-23)	January	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	February	0.0210	0.0210	0.628	3.27	0.0334	0.0334	0.0064	No
	March	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	April	0.0145	0.0145	0.620	3.22	0.0234	0.0234	0.0045	No
	May	0.0170	0.0170	1.73	8.98	0.0098	0.0098	0.0019	No
	June	0.0087	0.0088	1.41	7.33	0.0062	0.0062	0.0012	No
	July	0.0120	0.0120	0.906	4.71	0.0132	0.0132	0.0025	No
	August	0.0698	0.0706	0.724	3.76	0.0964	0.0975	0.0188	No
	September	0.0256	0.0262	0.736	3.83	0.0348	0.0356	0.0068	No
	October	0.0115	0.0118	0.759	3.95	0.0152	0.0155	0.0030	No
	November	0.0058	0.0063	0.636	3.31	0.0091	0.0098	0.0019	No
	December	0.0085	0.0085	0.799	4.15	0.0106	0.0106	0.0020	No
Operations 2 Phase (24-28)	January	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	February	0.0210	0.0210	0.628	3.27	0.0334	0.0334	0.0064	No
	March	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	April	0.0145	0.0145	0.620	3.22	0.0234	0.0234	0.0045	No
	May	0.0170	0.0170	1.73	8.98	0.0098	0.0098	0.0019	No
	June	0.0087	0.0087	1.41	7.33	0.0062	0.0062	0.0012	No
	July	0.0120	0.0120	0.906	4.71	0.0132	0.0132	0.0025	No
	August	0.0703	0.0704	0.724	3.76	0.0970	0.0973	0.0187	No
	September	0.0260	0.0261	0.736	3.83	0.0353	0.0354	0.0068	No
	October	0.0114	0.0114	0.759	3.95	0.0150	0.0151	0.0029	No
	November	0.0057	0.0057	0.636	3.31	0.0089	0.0089	0.0017	No
	December	0.0085	0.0085	0.799	4.15	0.0106	0.0106	0.0020	No
Closure Phase (29-35)	January	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	February	0.0210	0.0210	0.628	3.27	0.0334	0.0334	0.0064	No
	March	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	April	0.0145	0.0145	0.620	3.22	0.0234	0.0234	0.0045	No
	May	0.0170	0.0170	1.73	8.98	0.0098	0.0098	0.0019	No
	June	0.0087	0.0087	1.41	7.33	0.0062	0.0062	0.0012	No
	July	0.0120	0.0120	0.906	4.71	0.0132	0.0132	0.0025	No
	August	0.0700	0.0701	0.724	3.76	0.0967	0.0968	0.0186	No
	September	0.0258	0.0259	0.736	3.83	0.0351	0.0352	0.0068	No
	October	0.0115	0.0115	0.759	3.95	0.0151	0.0151	0.0029	No
	November	0.0057	0.0057	0.636	3.31	0.0090	0.0090	0.0017	No
	December	0.0085	0.0085	0.799	4.15	0.0106	0.0106	0.0020	No
Post-Closure Phase (36-99)	January	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	February	0.0210	0.0210	0.628	3.27	0.0334	0.0334	0.0064	No
	March	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	April	0.0145	0.0145	0.620	3.22	0.0234	0.0234	0.0045	No
	May	0.0170	0.0170	1.73	8.98	0.0098	0.0098	0.0019	No
	June	0.0087	0.0087	1.41	7.33	0.0062	0.0062	0.0012	No
	July	0.0120	0.0120	0.906	4.71	0.0132	0.0132	0.0025	No
	August	0.0701	0.0702	0.724	3.76	0.0968	0.0970	0.0187	No
	September	0.0259	0.0260	0.736	3.83	0.0351	0.0353	0.0068	No
	October	0.0114	0.0115	0.759	3.95	0.0151	0.0151	0.0029	No
	November	0.0057	0.0057	0.636	3.31	0.0089	0.0090	0.0017	No
	December	0.0085	0.0085	0.799	4.15	0.0106	0.0106	0.0020	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Appendix 13-D10ad. Middle Baker Creek (BK1) Hazard Quotients for Sulphate Concentrations, Expected Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	8.57	8.76	309	500	1000	0.0277	0.0283	0.0175	0.0088	No	No	No
	February	8.76	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	March	4.84	9.69	309	500	1000	0.0157	0.0313	0.0194	0.0097	No	No	No
	April	8.08	8.08	309	500	1000	0.0261	0.0261	0.0162	0.0081	No	No	No
	May	4.71	4.72	218	500	1000	0.0216	0.0217	0.0094	0.0047	No	No	No
	June	4.37	4.38	218	500	1000	0.0200	0.0201	0.0088	0.0044	No	No	No
	July	5.54	5.56	309	500	1000	0.0179	0.0180	0.0111	0.0056	No	No	No
	August	7.27	7.33	309	500	1000	0.0235	0.0237	0.0147	0.0073	No	No	No
	September	8.04	8.14	309	500	1000	0.0260	0.0264	0.0163	0.0081	No	No	No
	October	7.66	7.69	309	500	1000	0.0248	0.0249	0.0154	0.0077	No	No	No
	November	8.68	8.68	309	500	1000	0.0281	0.0281	0.0174	0.0087	No	No	No
	December	8.55	8.57	309	500	1000	0.0277	0.0277	0.0171	0.0086	No	No	No
Operation 1 Phase (1-23)	January	8.39	8.39	309	500	1000	0.0271	0.0271	0.0168	0.0084	No	No	No
	February	8.76	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	March	9.69	9.69	309	500	1000	0.0313	0.0313	0.0194	0.0097	No	No	No
	April	8.08	8.08	309	500	1000	0.0261	0.0261	0.0162	0.0081	No	No	No
	May	4.69	4.69	218	500	1000	0.0215	0.0215	0.0094	0.0047	No	No	No
	June	4.35	4.36	218	500	1000	0.0199	0.0200	0.0087	0.0044	No	No	No
	July	5.52	5.54	309	500	1000	0.0179	0.0179	0.0111	0.0055	No	No	No
	August	7.20	7.23	309	500	1000	0.0233	0.0234	0.0145	0.0072	No	No	No
	September	7.81	7.94	309	500	1000	0.0253	0.0257	0.0159	0.0079	No	No	No
	October	7.60	7.63	309	500	1000	0.0246	0.0247	0.0153	0.0076	No	No	No
	November	8.67	8.68	309	500	1000	0.0281	0.0281	0.0174	0.0087	No	No	No
	December	8.53	8.53	309	500	1000	0.0276	0.0276	0.0171	0.0085	No	No	No
Operations 2 Phase (24-28)	January	8.39	8.39	309	500	1000	0.0271	0.0271	0.0168	0.0084	No	No	No
	February	8.76	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	March	9.69	9.69	309	500	1000	0.0313	0.0313	0.0194	0.0097	No	No	No
	April	8.08	8.08	309	500	1000	0.0261	0.0261	0.0162	0.0081	No	No	No
	May	4.69	4.69	218	500	1000	0.0215	0.0215	0.0094	0.0047	No	No	No
	June	4.36	4.37	218	500	1000	0.0200	0.0200	0.0087	0.0044	No	No	No
	July	5.56	5.59	309	500	1000	0.0180	0.0181	0.0112	0.0056	No	No	No
	August	7.33	7.41	309	500	1000	0.0237	0.0240	0.0148	0.0074	No	No	No
	September	7.88	8.00	309	500	1000	0.0255	0.0259	0.0160	0.0080	No	No	No
	October	7.66	7.71	309	500	1000	0.0248	0.0249	0.0154	0.0077	No	No	No
	November	8.73	8.76	309	500	1000	0.0283	0.0284	0.0175	0.0088	No	No	No
	December	8.53	8.53	309	500	1000	0.0276	0.0276	0.0171	0.0085	No	No	No
Closure Phase (29-35)	January	8.39	8.39	309	500	1000	0.0271	0.0271	0.0168	0.0084	No	No	No
	February	8.76	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	March	9.69	9.69	309	500	1000	0.0313	0.0313	0.0194	0.0097	No	No	No
	April	8.08	8.08	309	500	1000	0.0261	0.0261	0.0162	0.0081	No	No	No
	May	4.69	4.69	218	500	1000	0.0215	0.0215	0.0094	0.0047	No	No	No
	June	4.37	4.37	218	500	1000	0.0200	0.0200	0.0087	0.0044	No	No	No
	July	5.58	5.59	309	500	1000	0.0181	0.0181	0.0112	0.0056	No	No	No
	August	7.39	7.41	309	500	1000	0.0239	0.0240	0.0148	0.0074	No	No	No
	September	8.00	8.01	309	500	1000	0.0259	0.0259	0.0160	0.0080	No	No	No
	October	7.70	7.71	309	500	1000	0.0249	0.0249	0.0154	0.0077	No	No	No
	November	8.75	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	December	8.53	8.53	309	500	1000	0.0276	0.0276	0.0171	0.0085	No	No	No
Post-Closure Phase (36-99)	January	8.39	8.39	309	500	1000	0.0271	0.0271	0.0168	0.0084	No	No	No
	February	8.76	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	March	9.68	9.69	309	500	1000	0.0313	0.0313	0.0194	0.0097	No	No	No
	April	8.08	8.08	309	500	1000	0.0261	0.0261	0.0162	0.0081	No	No	No
	May	4.69	4.69	218	500	1000	0.0215	0.0215	0.0094	0.0047	No	No	No
	June	4.35	4.37	218	500	1000	0.0200	0.0200	0.0087	0.0044	No	No	No
	July	5.54	5.58	309	500	1000	0.0179	0.0180	0.0112	0.0056	No	No	No
	August	7.24	7.37	309	500	1000	0.0234	0.0238	0.0147	0.0074	No	No	No
	September	7.82	8.00	309	500	1000	0.0253	0.0259	0.0160	0.0080	No	No	No
	October	7.62	7.69	309	500	1000	0.0246	0.0249	0.0154	0.0077	No	No	No
	November	8.69	8.74	309	500	1000	0.0281	0.0283	0.0175	0.0087	No	No	No
	December	8.53	8.53	309	500	1000	0.0276	0.0276	0.0171	0.0085	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness

Appendix 13-D11a. Lower Baker Creek (BK0) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case

		First Screening Step														
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines for Dissolved Aluminum Concentrations ¹		Drinking Water Quality Guidelines for Dissolved Aluminum	BC MOE Working Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline for Dissolved Aluminum			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum
		Dissolved Aluminum		Total Aluminum		BC MOE 30-Day Mean	BC MOE Maximum				BC maximum DWQG	Maximum	Maximum			
		Mean	Maximum	Mean	Maximum			BC MOE 30-Day Mean	BC MOE Maximum	BC maximum DWQG				Maximum	Maximum	Maximum Predicted vs. BC MOE Mean Guideline
Construction (-2 to-1)	January	0.0029	0.0030	0.0030	0.0031	0.05	0.1	0.2	5	5	0.0586	0.0598	0.0299	0.0150	0.0006	0.0006
	February	0.0029	0.0029	0.0029	0.0029	0.05	0.1	0.2	5	5	0.0583	0.0583	0.0292	0.0146	0.0006	0.0006
	March	0.0039	0.0042	0.0045	0.0051	0.05	0.1	0.2	5	5	0.0774	0.0847	0.0423	0.0212	0.0010	0.0010
	April	0.0039	0.0039	0.0050	0.0050	0.05	0.1	0.2	5	5	0.0771	0.0776	0.0388	0.0194	0.0010	0.0010
	May	0.0131	0.0133	0.249	0.252	0.05	0.1	0.2	5	5	0.262	0.265	0.133	0.0663	0.0505	0.0505
	June	0.0226	0.0228	0.308	0.311	0.05	0.1	0.2	5	5	0.452	0.455	0.228	0.114	0.0622	0.0622
	July	0.0092	0.0093	0.0147	0.0149	0.05	0.1	0.2	5	5	0.185	0.187	0.0934	0.0467	0.0030	0.0030
	August	0.0046	0.0047	0.0091	0.0095	0.05	0.1	0.2	5	5	0.0921	0.0944	0.0472	0.0236	0.0019	0.0019
	September	0.0037	0.0039	0.0046	0.0049	0.05	0.1	0.2	5	5	0.0747	0.0776	0.0388	0.0194	0.0010	0.0010
	October	0.0042	0.0043	0.0052	0.0053	0.05	0.1	0.2	5	5	0.0835	0.0851	0.0425	0.0213	0.0011	0.0011
	November	0.0023	0.0023	0.0053	0.0054	0.05	0.1	0.2	5	5	0.0461	0.0470	0.0235	0.0117	0.0011	0.0011
	December	0.0026	0.0027	0.0041	0.0043	0.05	0.1	0.2	5	5	0.0528	0.0543	0.0271	0.0136	0.0009	0.0009
Operation 1 Phase (1-23)	January	0.0028	0.0028	0.0036	0.0037	0.05	0.1	0.2	5	5	0.0557	0.0569	0.0284	0.0142	0.0007	0.0007
	February	0.0032	0.0033	0.0033	0.0034	0.05	0.1	0.2	5	5	0.0650	0.0660	0.0330	0.0165	0.0007	0.0007
	March	0.0057	0.0057	0.0076	0.0076	0.05	0.1	0.2	5	5	0.113	0.114	0.0570	0.0285	0.0015	0.0015
	April	0.0039	0.0039	0.0051	0.0051	0.05	0.1	0.2	5	5	0.0781	0.0781	0.0391	0.0195	0.0010	0.0010
	May	0.0134	0.0134	0.256	0.256	0.05	0.1	0.2	5	5	0.268	0.268	0.134	0.0670	0.0512	0.0512
	June	0.0230	0.0231	0.316	0.316	0.05	0.1	0.2	5	5	0.461	0.461	0.231	0.115	0.0633	0.0633
	July	0.0095	0.0095	0.0152	0.0153	0.05	0.1	0.2	5	5	0.190	0.191	0.0954	0.0477	0.0031	0.0031
	August	0.0050	0.0050	0.0105	0.0106	0.05	0.1	0.2	5	5	0.0994	0.100	0.0501	0.0250	0.0021	0.0021
	September	0.0045	0.0047	0.0063	0.0067	0.05	0.1	0.2	5	5	0.0897	0.0932	0.0466	0.0233	0.0013	0.0013
	October	0.0044	0.0044	0.0056	0.0057	0.05	0.1	0.2	5	5	0.0882	0.0887	0.0443	0.0222	0.0011	0.0011
	November	0.0022	0.0022	0.0056	0.0057	0.05	0.1	0.2	5	5	0.0438	0.0447	0.0224	0.0112	0.0011	0.0011
	December	0.0025	0.0025	0.0046	0.0047	0.05	0.1	0.2	5	5	0.0499	0.0505	0.0253	0.0126	0.0009	0.0009
Operations 2 Phase (24-28)	January	0.0029	0.0030	0.0038	0.0040	0.05	0.1	0.2	5	5	0.0580	0.0604	0.0302	0.0151	0.0008	0.0008
	February	0.0033	0.0033	0.0034	0.0034	0.05	0.1	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007	0.0007
	March	0.0057	0.0057	0.0076	0.0076	0.05	0.1	0.2	5	5	0.114	0.114	0.0570	0.0285	0.0015	0.0015
	April	0.0039	0.0039	0.0051	0.0051	0.05	0.1	0.2	5	5	0.0781	0.0781	0.0391	0.0195	0.0010	0.0010
	May	0.0134	0.0134	0.256	0.256	0.05	0.1	0.2	5	5	0.268	0.268	0.134	0.0669	0.0512	0.0512
	June	0.0231	0.0231	0.316	0.316	0.05	0.1	0.2	5	5	0.461	0.461	0.231	0.115	0.0632	0.0632
	July	0.0095	0.0095	0.0153	0.0153	0.05	0.1	0.2	5	5	0.191	0.191	0.0955	0.0477	0.0031	0.0031
	August	0.0050	0.0051	0.0106	0.0106	0.05	0.1	0.2	5	5	0.101	0.101	0.0507	0.0254	0.0021	0.0021
	September	0.0047	0.0047	0.0066	0.0066	0.05	0.1	0.2	5	5	0.0935	0.0941	0.0470	0.0235	0.0013	0.0013
	October	0.0045	0.0045	0.0057	0.0057	0.05	0.1	0.2	5	5	0.0893	0.0897	0.0449	0.0224	0.0011	0.0011
	November	0.0022	0.0022	0.0057	0.0057	0.05	0.1	0.2	5	5	0.0444	0.0449	0.0224	0.0112	0.0011	0.0011
	December	0.0026	0.0026	0.0047	0.0048	0.05	0.1	0.2	5	5	0.0514	0.052442	0.0262	0.0131	0.0010	0.0010
Closure Phase (29-35)	January	0.0031	0.0031	0.0040	0.0040	0.05	0.1	0.2	5	5	0.0610	0.0613	0.0307	0.0153	0.0008	0.0008
	February	0.0033	0.0033	0.0034	0.0034	0.05	0.1	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007	0.0007
	March	0.0057	0.0057	0.0076	0.0076	0.05	0.1	0.2	5	5	0.114	0.114	0.0570	0.0285	0.0015	0.0015
	April	0.0039	0.0039	0.0051	0.0051	0.05	0.1	0.2	5	5	0.0781	0.0781	0.0391	0.0195	0.0010	0.0010
	May	0.0134	0.0134	0.256	0.256	0.05	0.1	0.2	5	5	0.268	0.268	0.134	0.0669	0.0512	0.0512
	June	0.0231	0.0231	0.316	0.316	0.05	0.1	0.2	5	5	0.461	0.461	0.231	0.115	0.0632	0.0632
	July	0.0095	0.0095	0.0153	0.0153	0.05	0.1	0.2	5	5	0.191	0.191	0.0955	0.0477	0.0031	0.0031
	August	0.0051	0.0051	0.0106	0.0106	0.05	0.1	0.2	5	5	0.101	0.101	0.0507	0.0254	0.0021	0.0021
	September	0.0047	0.0047	0.0066	0.0066	0.05	0.1	0.2	5	5	0.0936	0.0940	0.0470	0.0235	0.0013	0.0013
	October	0.0045	0.0045	0.0057	0.0057	0.05	0.1	0.2	5	5	0.0896	0.0897	0.0448	0.0224	0.0011	0.0011
	November	0.0022	0.0022	0.0057	0.0057	0.05	0.1	0.2	5	5	0.0449	0.0449	0.0225	0.0112	0.0011	0.0011
	December	0.0026	0.0026	0.0048	0.0048	0.05	0.1	0.2	5	5	0.0522	0.0524	0.0262	0.0131	0.0010	0.0010
Post-Closure Phase (36-99)	January	0.0029	0.0030	0.0038	0.0039	0.05	0.1	0.2	5	5	0.0571	0.0607	0.0304	0.0152	0.0008	0.0008
	February	0.0033	0.0033	0.0034	0.0034	0.05	0.1	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007	0.0007
	March	0.0057	0.0057	0.0076	0.0076	0.05	0.1	0.2	5	5	0.114	0.114	0.0570	0.0285	0.0015	0.0015
	April	0.0039	0.0039	0.0051	0.0051	0.05	0.1	0.2	5	5	0.0781	0.0781	0.0391	0.0195	0.0010	0.0010
	May	0.0134	0.0134	0.256	0.256	0.05	0.1	0.2	5	5	0.268	0.268	0.134	0.0669	0.0512	0.0512
	June	0.0231	0.0231	0.316	0.316	0.05	0.1	0.2	5	5	0.461	0.461	0.231	0.115	0.0632	0.0632
	July	0.0095	0.0095	0.0152	0.0152	0.05	0.1	0.2	5	5	0.191	0.191	0.0954	0.0477	0.0030	0.0030
	August	0.0050	0.0051	0.0105	0.0106	0.05	0.1	0.2	5	5	0.100	0.101	0.0505	0.0253	0.0021	0.0021
	September	0.0046	0.0047	0.0065	0.0065	0.05	0.1	0.2	5	5	0.0919	0.0932	0.0466	0.0233	0.0013	0.0013
	October	0.0044	0.0045	0.0057	0.0057	0.05	0.1	0.2	5	5	0.0887	0.0894	0.0447	0.0224	0.0011	0.0011
	November	0.0022	0.0022	0.0057	0.0057	0.05	0.1	0.2	5	5	0.0440	0.0448	0.0224	0.0112	0.0011	0.0011
	December	0.0025	0.0026	0.0047	0.0048	0.05	0.1	0.2	5	5	0.0504	0.0521	0.0260	0.0130	0.0010	0.0010

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

(continued)

Appendix 13-D11a. Lower Baker Creek (BK0) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Expected Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life for Dissolved Aluminum	Drinking Water for Dissolved Aluminum	Wildlife for Total Aluminum	Livestock for Total Aluminum
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

Appendix 13-D11b. Lower Baker Creek (BK0) Hazard Quotients for Total Antimony Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
		Construction (-2 to-1)	January	0.00002	0.00003	0.020	0.014		
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00498	0.00711	No	No
	June	0.00010	0.00010	0.020	0.014	0.00489	0.00698	No	No
	July	0.00009	0.00009	0.020	0.014	0.00475	0.00678	No	No
	August	0.00010	0.00011	0.020	0.014	0.00528	0.00754	No	No
	September	0.00006	0.00007	0.020	0.014	0.00343	0.00491	No	No
	October	0.00006	0.00007	0.020	0.014	0.00327	0.00467	No	No
	November	0.00008	0.00009	0.020	0.014	0.00432	0.00617	No	No
	December	0.00005	0.00006	0.020	0.014	0.00296	0.00423	No	No
Operation 1 Phase (1-23)	January	0.00004	0.00005	0.020	0.014	0.00231	0.00330	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00504	0.00720	No	No
	June	0.00010	0.00010	0.020	0.014	0.00495	0.00707	No	No
	July	0.00010	0.00010	0.020	0.014	0.00486	0.00695	No	No
	August	0.00012	0.00012	0.020	0.014	0.00600	0.00857	No	No
	September	0.00010	0.00012	0.020	0.014	0.00583	0.00833	No	No
	October	0.00007	0.00007	0.020	0.014	0.00361	0.00516	No	No
	November	0.00009	0.00009	0.020	0.014	0.00469	0.00670	No	No
	December	0.00007	0.00007	0.020	0.014	0.00348	0.00497	No	No
Operations 2 Phase (24-28)	January	0.00005	0.00005	0.020	0.014	0.00266	0.00380	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00504	0.00720	No	No
	June	0.00010	0.00010	0.020	0.014	0.00496	0.00709	No	No
	July	0.00010	0.00010	0.020	0.014	0.00490	0.00699	No	No
	August	0.00012	0.00012	0.020	0.014	0.00608	0.00869	No	No
	September	0.00011	0.00012	0.020	0.014	0.00577	0.00825	No	No
	October	0.00007	0.00007	0.020	0.014	0.00369	0.00528	No	No
	November	0.00009	0.00010	0.020	0.014	0.00476	0.00680	No	No
	December	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
Closure Phase (29-35)	January	0.00005	0.00005	0.020	0.014	0.00270	0.00386	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00504	0.00719	No	No
	June	0.00010	0.00010	0.020	0.014	0.00496	0.00709	No	No
	July	0.00010	0.00010	0.020	0.014	0.00489	0.00699	No	No
	August	0.00012	0.00012	0.020	0.014	0.00607	0.00868	No	No
	September	0.00011	0.00011	0.020	0.014	0.00571	0.00816	No	No
	October	0.00007	0.00007	0.020	0.014	0.00369	0.00527	No	No
	November	0.00009	0.00010	0.020	0.014	0.00475	0.00679	No	No
	December	0.00007	0.00007	0.020	0.014	0.00366	0.00523	No	No
Post-Closure Phase (36-99)	January	0.00005	0.00005	0.020	0.014	0.00256	0.00365	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00504	0.00719	No	No
	June	0.00010	0.00010	0.020	0.014	0.00496	0.00708	No	No
	July	0.00010	0.00010	0.020	0.014	0.00488	0.00697	No	No
	August	0.00012	0.00012	0.020	0.014	0.00601	0.00859	No	No
	September	0.00011	0.00011	0.020	0.014	0.00557	0.00795	No	No
	October	0.00007	0.00007	0.020	0.014	0.00365	0.00522	No	No
	November	0.00009	0.00009	0.020	0.014	0.00472	0.00674	No	No
	December	0.00007	0.00007	0.020	0.014	0.00360	0.00514	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11c. Lower Baker Creek (BK0) Hazard Quotients for Total Arsenic Concentrations, Expected Case

Project Phase		First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Interim Guideline				
Construction (-2 to-1)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0349	0.0070	0.0070	0.0070	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0342	0.0068	0.0068	0.0068	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0349	0.0070	0.0070	0.0070	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0357	0.0071	0.0071	0.0071	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.117	0.0233	0.0233	0.0233	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.140	0.0280	0.0280	0.0280	No	No	No	No
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0456	0.0091	0.0091	0.0091	No	No	No	No
	August	0.0011	0.0011	0.005	0.025	0.025	0.025	0.224	0.0448	0.0448	0.0448	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0352	0.0070	0.0070	0.0070	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0376	0.0075	0.0075	0.0075	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0377	0.0075	0.0075	0.0075	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0353	0.0071	0.0071	0.0071	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0358	0.0072	0.0072	0.0072	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.118	0.0237	0.0237	0.0237	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.142	0.0284	0.0284	0.0284	No	No	No	No
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0467	0.0093	0.0093	0.0093	No	No	No	No
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.257	0.0513	0.0513	0.0513	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0384	0.0071	0.0071	0.0071	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0381	0.0076	0.0076	0.0076	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0378	0.0076	0.0076	0.0076	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0365	0.0073	0.0073	0.0073	No	No	No	No
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0390	0.0078	0.0078	0.0078	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0358	0.0072	0.0072	0.0072	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.118	0.0237	0.0237	0.0237	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.142	0.0284	0.0284	0.0284	No	No	No	No
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0470	0.0094	0.0094	0.0094	No	No	No	No
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.256	0.0512	0.0512	0.0512	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0372	0.0074	0.0074	0.0074	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0390	0.0078	0.0078	0.0078	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0387	0.0077	0.0077	0.0077	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0383	0.0077	0.0077	0.0077	No	No	No	No
Closure Phase (29-35)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0392	0.0078	0.0078	0.0078	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0358	0.0072	0.0072	0.0072	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.118	0.0237	0.0237	0.0237	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.142	0.0284	0.0284	0.0284	No	No	No	No
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0470	0.0094	0.0094	0.0094	No	No	No	No
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.255	0.0509	0.0509	0.0509	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0372	0.0074	0.0074	0.0074	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0390	0.0078	0.0078	0.0078	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0387	0.0077	0.0077	0.0077	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0358	0.0072	0.0072	0.0072	No	No	No	No
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.118	0.0237	0.0237	0.0237	No	No	No	No
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.142	0.0283	0.0283	0.0283	No	No	No	No
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0469	0.0094	0.0094	0.0094	No	No	No	No
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.254	0.0509	0.0509	0.0509	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0368	0.0074	0.0074	0.0074	No	No	No	No
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0387	0.0077	0.0077	0.0077	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0385	0.0077	0.0077	0.0077	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0378	0.0076	0.0076	0.0076	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11d. Lower Baker Creek (BK0) Hazard Quotients for Total Barium Concentrations, Expected Case

Project Phase	Months	First Screening Step								Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day	BC MOE Working Maximum		Mean Predicted vs. BC MOE Working 30-Day	Maximum Predicted vs. BC MOE Working 30-Day	Maximum Predicted vs. BC MOE Working Maximum			
		Mean	Maximum	Day Mean	Maximum	Canadian DWQG	Day Mean Guideline	Day Mean Guideline	Maximum Guideline	Maximum Predicted vs. Canadian DWQG		
Construction (-2 to-1)	January	0.0145	0.0147	1	5	1	0.0145	0.0147	0.0029	0.0147	No	No
	February	0.0155	0.0155	1	5	1	0.0155	0.0155	0.0031	0.0155	No	No
	March	0.0156	0.0156	1	5	1	0.0156	0.0156	0.0031	0.0156	No	No
	April	0.0116	0.0117	1	5	1	0.0116	0.0117	0.0023	0.0117	No	No
	May	0.0085	0.0086	1	5	1	0.0085	0.0086	0.0017	0.0086	No	No
	June	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No
	July	0.0085	0.0086	1	5	1	0.0085	0.0086	0.0017	0.0086	No	No
	August	0.0104	0.0108	1	5	1	0.0104	0.0108	0.0022	0.0108	No	No
	September	0.0120	0.0124	1	5	1	0.0120	0.0124	0.0025	0.0124	No	No
	October	0.0101	0.0104	1	5	1	0.0101	0.0104	0.0021	0.0104	No	No
	November	0.0095	0.0098	1	5	1	0.0095	0.0098	0.0020	0.0098	No	No
	December	0.0116	0.0121	1	5	1	0.0116	0.0121	0.0024	0.0121	No	No
Operation 1 Phase (1-23)	January	0.0119	0.0138	1	5	1	0.0119	0.0138	0.0028	0.0138	No	No
	February	0.0104	0.0151	1	5	1	0.0104	0.0151	0.0030	0.0151	No	No
	March	0.0154	0.0154	1	5	1	0.0154	0.0154	0.0031	0.0154	No	No
	April	0.0115	0.0115	1	5	1	0.0115	0.0115	0.0023	0.0115	No	No
	May	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No
	June	0.0085	0.0086	1	5	1	0.0085	0.0086	0.0017	0.0086	No	No
	July	0.0082	0.0083	1	5	1	0.0082	0.0083	0.0017	0.0083	No	No
	August	0.0098	0.0098	1	5	1	0.0098	0.0098	0.0020	0.0098	No	No
	September	0.0108	0.0109	1	5	1	0.0108	0.0109	0.0022	0.0109	No	No
	October	0.0095	0.0096	1	5	1	0.0095	0.0096	0.0019	0.0096	No	No
	November	0.0089	0.0090	1	5	1	0.0089	0.0090	0.0018	0.0090	No	No
	December	0.0100	0.0105	1	5	1	0.0100	0.0105	0.0021	0.0105	No	No
Operations 2 Phase (24-28)	January	0.0115	0.0116	1	5	1	0.0115	0.0116	0.0023	0.0116	No	No
	February	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No
	March	0.0154	0.0154	1	5	1	0.0154	0.0154	0.0031	0.0154	No	No
	April	0.0115	0.0115	1	5	1	0.0115	0.0115	0.0023	0.0115	No	No
	May	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No
	June	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No
	August	0.0098	0.0098	1	5	1	0.0098	0.0098	0.0020	0.0098	No	No
	September	0.0108	0.0109	1	5	1	0.0108	0.0109	0.0022	0.0109	No	No
	October	0.0095	0.0095	1	5	1	0.0095	0.0095	0.0019	0.0095	No	No
	November	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No
	December	0.0100	0.0100	1	5	1	0.0100	0.0100	0.0020	0.0100	No	No
Closure Phase (29-35)	January	0.0117	0.0117	1	5	1	0.0117	0.0117	0.0023	0.0117	No	No
	February	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No
	March	0.0154	0.0154	1	5	1	0.0154	0.0154	0.0031	0.0154	No	No
	April	0.0115	0.0115	1	5	1	0.0115	0.0115	0.0023	0.0115	No	No
	May	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No
	June	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No
	August	0.0098	0.0098	1	5	1	0.0098	0.0098	0.0020	0.0098	No	No
	September	0.0108	0.0109	1	5	1	0.0108	0.0109	0.0022	0.0109	No	No
	October	0.0095	0.0095	1	5	1	0.0095	0.0095	0.0019	0.0095	No	No
	November	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No
	December	0.0100	0.0100	1	5	1	0.0100	0.0100	0.0020	0.0100	No	No
Post-Closure Phase (36-99)	January	0.0115	0.0117	1	5	1	0.0115	0.0117	0.0023	0.0117	No	No
	February	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No
	March	0.0154	0.0154	1	5	1	0.0154	0.0154	0.0031	0.0154	No	No
	April	0.0115	0.0115	1	5	1	0.0115	0.0115	0.0023	0.0115	No	No
	May	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No
	June	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No
	August	0.0098	0.0098	1	5	1	0.0098	0.0098	0.0020	0.0098	No	No
	September	0.0108	0.0108	1	5	1	0.0108	0.0108	0.0022	0.0108	No	No
	October	0.0095	0.0095	1	5	1	0.0095	0.0095	0.0019	0.0095	No	No
	November	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No
	December	0.0100	0.0100	1	5	1	0.0100	0.0100	0.0020	0.0100	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11e. Lower Baker Creek (BK0) Hazard Quotients for Total Beryllium Concentrations, Expected Case

Project Phase		First Screening Step										Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock	
		Mean	Maximum	BC MOE Working (Chronic, 30-Day Mean)	BC DWQG	BC MOE Working	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs BC MOE Working Guideline				
Construction (-2 to-1)	January	0.00001	0.00002	0.0053	0.004	0.1	0.00250	0.00312	0.00413	0.00017	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0185	0.0187	0.0248	0.00099	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0184	0.0244	0.00097	No	No	No	
	July	0.00009	0.00009	0.0053	0.004	0.1	0.0175	0.0178	0.0235	0.00094	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0194	0.0257	0.00103	No	No	No	
	September	0.00004	0.00004	0.0053	0.004	0.1	0.00682	0.00780	0.0103	0.00041	No	No	No	
	October	0.00005	0.00006	0.0053	0.004	0.1	0.0104	0.0109	0.0145	0.00058	No	No	No	
	November	0.00008	0.00008	0.0053	0.004	0.1	0.0152	0.0160	0.0212	0.00085	No	No	No	
	December	0.00005	0.00005	0.0053	0.004	0.1	0.00887	0.0102	0.0135	0.00054	No	No	No	
Operation 1 Phase (1-23)	January	0.00004	0.00004	0.0053	0.004	0.1	0.00665	0.00744	0.00986	0.00039	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0190	0.0190	0.0252	0.00101	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0187	0.0247	0.00099	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0183	0.0242	0.00097	No	No	No	
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0219	0.0224	0.0297	0.00119	No	No	No	
	September	0.00006	0.00007	0.0053	0.004	0.1	0.0122	0.0137	0.0181	0.00072	No	No	No	
	October	0.00006	0.00007	0.0053	0.004	0.1	0.0121	0.0123	0.0163	0.00065	No	No	No	
	November	0.00009	0.00009	0.0053	0.004	0.1	0.0173	0.0176	0.0233	0.00093	No	No	No	
	December	0.00006	0.00007	0.0053	0.004	0.1	0.0122	0.0124	0.0164	0.00066	No	No	No	
Operations 2 Phase (24-28)	January	0.00004	0.00004	0.0053	0.004	0.1	0.00724	0.00740	0.00981	0.00039	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0190	0.0190	0.0252	0.00101	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0187	0.0247	0.00099	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0183	0.0242	0.00097	No	No	No	
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0222	0.0223	0.0296	0.00118	No	No	No	
	September	0.00007	0.00007	0.0053	0.004	0.1	0.0131	0.0133	0.0177	0.00071	No	No	No	
	October	0.00006	0.00007	0.0053	0.004	0.1	0.0122	0.0123	0.0163	0.00065	No	No	No	
	November	0.00009	0.00009	0.0053	0.004	0.1	0.0175	0.0175	0.0232	0.00093	No	No	No	
	December	0.00007	0.00007	0.0053	0.004	0.1	0.0123	0.0124	0.0164	0.00066	No	No	No	
Closure Phase (29-35)	January	0.00004	0.00004	0.0053	0.004	0.1	0.00702	0.00707	0.00937	0.00037	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0190	0.0190	0.0252	0.00101	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0186	0.0247	0.00099	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0242	0.00097	No	No	No	
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0221	0.0221	0.0293	0.00117	No	No	No	
	September	0.00007	0.00007	0.0053	0.004	0.1	0.0126	0.0128	0.0170	0.00068	No	No	No	
	October	0.00006	0.00006	0.0053	0.004	0.1	0.0122	0.0122	0.0162	0.00065	No	No	No	
	November	0.00009	0.00009	0.0053	0.004	0.1	0.0174	0.0174	0.0231	0.00092	No	No	No	
	December	0.00007	0.00007	0.0053	0.004	0.1	0.0123	0.0123	0.0163	0.00065	No	No	No	
Post-Closure Phase (36-99)	January	0.00004	0.00004	0.0053	0.004	0.1	0.00709	0.00721	0.00955	0.00038	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0190	0.0190	0.0252	0.00101	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0186	0.0247	0.00099	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0242	0.00097	No	No	No	
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0221	0.0222	0.0294	0.00118	No	No	No	
	September	0.00007	0.00007	0.0053	0.004	0.1	0.0128	0.0130	0.0173	0.00069	No	No	No	
	October	0.00006	0.00006	0.0053	0.004	0.1	0.0122	0.0122	0.0162	0.00065	No	No	No	
	November	0.00009	0.00009	0.0053	0.004	0.1	0.0174	0.0175	0.0231	0.00093	No	No	No	
	December	0.00007	0.00007	0.0053	0.004	0.1	0.0123	0.0124	0.0164	0.00065	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11f. Lower Baker Creek (BK0) Hazard Quotients for Total Boron Concentrations, Expected Case

Project Phase	Months	First Screening Step											Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline					
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
Construction (-2 to-1)	January	0.0485	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0111	0.0117	1.2	5	5	5	0.0097	0.0023	0.0023	0.0023	No	No	No	No	
	June	0.0114	0.0118	1.2	5	5	5	0.0099	0.0024	0.0024	0.0024	No	No	No	No	
	July	0.0131	0.0138	1.2	5	5	5	0.0115	0.0028	0.0028	0.0028	No	No	No	No	
	August	0.0215	0.0238	1.2	5	5	5	0.0199	0.0048	0.0048	0.0048	No	No	No	No	
	September	0.0353	0.0384	1.2	5	5	5	0.0320	0.0077	0.0077	0.0077	No	No	No	No	
	October	0.0298	0.0313	1.2	5	5	5	0.0260	0.0063	0.0063	0.0063	No	No	No	No	
	November	0.0186	0.0204	1.2	5	5	5	0.0170	0.0041	0.0041	0.0041	No	No	No	No	
	December	0.0335	0.0367	1.2	5	5	5	0.0306	0.0073	0.0073	0.0073	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0388	0.0444	1.2	5	5	5	0.0370	0.0089	0.0089	0.0089	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0101	0.0102	1.2	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0106	0.0108	1.2	5	5	5	0.0090	0.0022	0.0022	0.0022	No	No	No	No	
	July	0.0116	0.0119	1.2	5	5	5	0.0100	0.0024	0.0024	0.0024	No	No	No	No	
	August	0.0155	0.0174	1.2	5	5	5	0.0145	0.0035	0.0035	0.0035	No	No	No	No	
	September	0.0201	0.0281	1.2	5	5	5	0.0234	0.0056	0.0056	0.0056	No	No	No	No	
	October	0.0260	0.0273	1.2	5	5	5	0.0227	0.0055	0.0055	0.0055	No	No	No	No	
	November	0.0138	0.0154	1.2	5	5	5	0.0128	0.0031	0.0031	0.0031	No	No	No	No	
	December	0.0257	0.0277	1.2	5	5	5	0.0231	0.0055	0.0055	0.0055	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0376	0.0381	1.2	5	5	5	0.0317	0.0076	0.0076	0.0076	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0084	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0105	0.0105	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No	
	July	0.0116	0.0116	1.2	5	5	5	0.0097	0.0023	0.0023	0.0023	No	No	No	No	
	August	0.0152	0.0154	1.2	5	5	5	0.0128	0.0031	0.0031	0.0031	No	No	No	No	
	September	0.0179	0.0186	1.2	5	5	5	0.0155	0.0037	0.0037	0.0037	No	No	No	No	
	October	0.0257	0.0258	1.2	5	5	5	0.0215	0.0052	0.0052	0.0052	No	No	No	No	
	November	0.0134	0.0135	1.2	5	5	5	0.0113	0.0027	0.0027	0.0027	No	No	No	No	
	December	0.0256	0.0257	1.2	5	5	5	0.0214	0.0051	0.0051	0.0051	No	No	No	No	
Closure Phase (29-35)	January	0.0383	0.0384	1.2	5	5	5	0.0320	0.0077	0.0077	0.0077	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0084	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0106	0.0106	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No	
	July	0.0116	0.0116	1.2	5	5	5	0.0097	0.0023	0.0023	0.0023	No	No	No	No	
	August	0.0154	0.0155	1.2	5	5	5	0.0129	0.0031	0.0031	0.0031	No	No	No	No	
	September	0.0192	0.0196	1.2	5	5	5	0.0163	0.0039	0.0039	0.0039	No	No	No	No	
	October	0.0259	0.0259	1.2	5	5	5	0.0216	0.0052	0.0052	0.0052	No	No	No	No	
	November	0.0136	0.0136	1.2	5	5	5	0.0114	0.0027	0.0027	0.0027	No	No	No	No	
	December	0.0257	0.0257	1.2	5	5	5	0.0214	0.0051	0.0051	0.0051	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0378	0.0385	1.2	5	5	5	0.0320	0.0077	0.0077	0.0077	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0084	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0105	0.0106	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No	
	July	0.0116	0.0117	1.2	5	5	5	0.0097	0.0023	0.0023	0.0023	No	No	No	No	
	August	0.0152	0.0155	1.2	5	5	5	0.0129	0.0031	0.0031	0.0031	No	No	No	No	
	September	0.0185	0.0197	1.2	5	5	5	0.0164	0.0039	0.0039	0.0039	No	No	No	No	
	October	0.0257	0.0259	1.2	5	5	5	0.0216	0.0052	0.0052	0.0052	No	No	No	No	
	November	0.0134	0.0136	1.2	5	5	5	0.0114	0.0027	0.0027	0.0027	No	No	No	No	
	December	0.0255	0.0257	1.2	5	5	5	0.0215	0.0051	0.0051	0.0051	No	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11g. Lower Baker Creek (BK0) Hazard Quotients for Dissolved Calcium Concentrations, Expected Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE Working		Maximum Predicted vs BC MOE Working Guideline
Construction (-2 to-1)	January	46.3	46.6	1000	0.0466	No
	February	48.2	48.2	1000	0.0482	No
	March	48.2	48.3	1000	0.0483	No
	April	41.9	42.0	1000	0.0420	No
	May	22.4	22.7	1000	0.0227	No
	June	18.5	18.8	1000	0.0188	No
	July	29.1	29.5	1000	0.0295	No
	August	36.9	37.8	1000	0.0378	No
	September	40.9	41.9	1000	0.0419	No
	October	36.8	37.5	1000	0.0375	No
	November	38.4	38.8	1000	0.0388	No
	December	41.1	41.9	1000	0.0419	No
Operation 1 Phase (1-23)	January	40.8	44.7	1000	0.0447	No
	February	38.5	47.5	1000	0.0475	No
	March	47.3	47.6	1000	0.0476	No
	April	41.7	41.7	1000	0.0417	No
	May	21.8	21.8	1000	0.0218	No
	June	17.9	17.9	1000	0.0179	No
	July	28.5	28.6	1000	0.0286	No
	August	35.3	35.5	1000	0.0355	No
	September	38.4	38.6	1000	0.0386	No
	October	35.5	35.6	1000	0.0356	No
	November	37.6	37.7	1000	0.0377	No
	December	38.3	39.1	1000	0.0391	No
Operations 2 Phase (24-28)	January	40.0	40.3	1000	0.0403	No
	February	37.0	37.0	1000	0.0370	No
	March	47.3	47.3	1000	0.0473	No
	April	41.7	41.7	1000	0.0417	No
	May	21.8	21.8	1000	0.0218	No
	June	17.9	17.9	1000	0.0179	No
	July	28.5	28.5	1000	0.0285	No
	August	35.4	35.4	1000	0.0354	No
	September	38.4	38.5	1000	0.0385	No
	October	35.5	35.6	1000	0.0356	No
	November	37.6	37.6	1000	0.0376	No
	December	38.2	38.3	1000	0.0383	No
Closure Phase (29-35)	January	40.4	40.5	1000	0.0405	No
	February	37.0	37.0	1000	0.0370	No
	March	47.3	47.3	1000	0.0473	No
	April	41.7	41.7	1000	0.0417	No
	May	21.8	21.8	1000	0.0218	No
	June	17.9	17.9	1000	0.0179	No
	July	28.5	28.5	1000	0.0285	No
	August	35.4	35.4	1000	0.0354	No
	September	38.5	38.5	1000	0.0385	No
	October	35.6	35.6	1000	0.0356	No
	November	37.6	37.6	1000	0.0376	No
	December	38.3	38.3	1000	0.0383	No
Post-Closure Phase (36-99)	January	40.1	40.6	1000	0.0406	No
	February	37.0	37.0	1000	0.0370	No
	March	47.3	47.3	1000	0.0473	No
	April	41.7	41.7	1000	0.0417	No
	May	21.8	21.8	1000	0.0218	No
	June	17.9	17.9	1000	0.0179	No
	July	28.5	28.5	1000	0.0285	No
	August	35.3	35.4	1000	0.0354	No
	September	38.4	38.5	1000	0.0385	No
	October	35.5	35.6	1000	0.0356	No
	November	37.5	37.6	1000	0.0376	No
	December	38.2	38.3	1000	0.0383	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D11i. Lower Baker Creek (BK0) Hazard Quotients for Total Chromium Concentrations, Expected Case

Project Phase		First Screening Step										Second Screening Step				Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline	Canadian DWQG	BC MOE Working	Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs. BC MOE Working	Mean	95%ile	Mean	95%ile			
Construction (-2 to-1)	January	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.102	0.0115	0.00204					No	No	No	
	February	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200					No	No	No	
	March	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200					No	No	No	
	April	0.00095	0.00097	0.001	0.0089	0.05	0.05	0.974	0.109	0.0195					No	No	No	
	May	0.00098	0.00099	0.001	0.0089	0.05	0.05	0.994	0.112	0.0199					No	No	No	
	June	0.00094	0.00094	0.001	0.0089	0.05	0.05	0.944	0.106	0.0189					No	No	No	
	July	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.146	0.0164	0.00292					No	No	No	
	August	0.00018	0.00019	0.001	0.0089	0.05	0.05	0.187	0.0210	0.00374					No	No	No	
	September	0.00012	0.00013	0.001	0.0089	0.05	0.05	0.129	0.0145	0.00257					No	No	No	
	October	0.00014	0.00014	0.001	0.0089	0.05	0.05	0.139	0.0157	0.00279					No	No	No	
	November	0.00014	0.00014	0.001	0.0089	0.05	0.05	0.141	0.0159	0.00283					No	No	No	
	December	0.00012	0.00012	0.001	0.0089	0.05	0.05	0.121	0.0136	0.00243					No	No	No	
Operation 1 Phase (1-23)	January	0.00011	0.00011	0.001	0.0089	0.05	0.05	0.110	0.0123	0.00220					No	No	No	
	February	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200					No	No	No	
	March	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200					No	No	No	
	April	0.00101	0.00102	0.001	0.0089	0.05	0.05	1.02	0.115	0.0204	0.00230	0.00406	0.440	0.252	No	No	No	
	May	0.00101	0.00101	0.001	0.0089	0.05	0.05	1.01	0.113	0.0201	0.00067	0.00145	1.49	0.695	Yes	No	No	
	June	0.00096	0.00096	0.001	0.0089	0.05	0.05	0.959	0.108	0.0192					No	No	No	
	July	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.148	0.0167	0.00296					No	No	No	
	August	0.00020	0.00020	0.001	0.0089	0.05	0.05	0.203	0.0228	0.00406					No	No	No	
	September	0.00015	0.00016	0.001	0.0089	0.05	0.05	0.159	0.0179	0.00319					No	No	No	
	October	0.00014	0.00015	0.001	0.0089	0.05	0.05	0.146	0.0164	0.00292					No	No	No	
	November	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.146	0.0164	0.00292					No	No	No	
	December	0.00013	0.00013	0.001	0.0089	0.05	0.05	0.127	0.0142	0.00254					No	No	No	
Operations 2 Phase (24-28)	January	0.00011	0.00011	0.001	0.0089	0.05	0.05	0.110	0.0123	0.00220					No	No	No	
	February	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200					No	No	No	
	March	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200					No	No	No	
	April	0.00102	0.00102	0.001	0.0089	0.05	0.05	1.02	0.115	0.0204	0.00230	0.00406	0.444	0.252	No	No	No	
	May	0.00101	0.00101	0.001	0.0089	0.05	0.05	1.01	0.113	0.0201	0.00067	0.00145	1.49	0.695	Yes	No	No	
	June	0.00096	0.00096	0.001	0.0089	0.05	0.05	0.959	0.108	0.0192					No	No	No	
	July	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.148	0.0166	0.00296					No	No	No	
	August	0.00020	0.00020	0.001	0.0089	0.05	0.05	0.202	0.0227	0.00405					No	No	No	
	September	0.00016	0.00016	0.001	0.0089	0.05	0.05	0.158	0.0177	0.00316					No	No	No	
	October	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.146	0.0164	0.00292					No	No	No	
	November	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.146	0.0164	0.00292					No	No	No	
	December	0.00013	0.00013	0.001	0.0089	0.05	0.05	0.127	0.0143	0.00254					No	No	No	
Closure Phase (29-35)	January	0.00011	0.00011	0.001	0.0089	0.05	0.05	0.110	0.0123	0.00220					No	No	No	
	February	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200					No	No	No	
	March	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200					No	No	No	
	April	0.00102	0.00102	0.001	0.0089	0.05	0.05	1.02	0.115	0.0204	0.00230	0.00406	0.443	0.251	No	No	No	
	May	0.00101	0.00101	0.001	0.0089	0.05	0.05	1.01	0.113	0.0201	0.00067	0.00145	1.49	0.695	Yes	No	No	
	June	0.00096	0.00096	0.001	0.0089	0.05	0.05	0.958	0.108	0.0192					No	No	No	
	July	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.148	0.0166	0.00296					No	No	No	
	August	0.00020	0.00020	0.001	0.0089	0.05	0.05	0.202	0.0227	0.00403					No	No	No	
	September	0.00015	0.00016	0.001	0.0089	0.05	0.05	0.155	0.0175	0.00311					No	No	No	
	October	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.146	0.0164	0.00291					No	No	No	
	November	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.146	0.0164	0.00292					No	No	No	
	December	0.00013	0.00013	0.001	0.0089	0.05	0.05	0.127	0.0143	0.00254					No	No	No	
Post-Closure Phase (36-99)	January	0.00011	0.00011	0.001	0.0089	0.05	0.05	0.110	0.0124	0.00220					No	No	No	
	February	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200					No	No	No	
	March	0.00010	0.00010	0.001	0.0089	0.05	0.05	0.100	0.0112	0.00200					No	No	No	
	April	0.00102	0.00102	0.001	0.0089	0.05	0.05	1.02	0.114	0.0204	0.00230	0.00406	0.443	0.251	No	No	No	
	May	0.00101	0.00101	0.001	0.0089	0.05	0.05	1.01	0.113	0.0201	0.00067	0.00145	1.49	0.695	Yes	No	No	
	June	0.00096	0.00096	0.001	0.0089	0.05	0.05	0.959	0.108	0.0192					No	No	No	
	July	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.148	0.0166	0.00296					No	No	No	
	August	0.00020	0.00020	0.001	0.0089	0.05	0.05	0.202	0.0227	0.00404					No	No	No	
	September	0.00016	0.00016	0.001	0.0089	0.05	0.05	0.156	0.0176	0.00313					No	No	No	
	October	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.146	0.0164	0.00291					No	No	No	
	November	0.00015	0.00015	0.001	0.0089	0.05	0.05	0.146	0.0164	0.00292					No	No	No	
	December	0.00013	0.00013	0.001	0.0089	0.05	0.05	0.127	0.0143	0.00254					No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 CCME = Canadian Council
 Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D11j. Lower Baker Creek (BK0) Hazard Quotients for Total Cobalt Concentrations, Expected Case

		First Screening Step									Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE		BC MOE Working	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline			
		Mean	Maximum	Mean	Maximum	BC MOE Working	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.000015	0.000018	0.004	0.110	1	0.00375	0.00456	0.000166	0.000018	No	No
	February	0.000012	0.000012	0.004	0.110	1	0.00299	0.00299	0.000109	0.000012	No	No
	March	0.000011	0.000011	0.004	0.110	1	0.00274	0.00284	0.000103	0.000011	No	No
	April	0.000014	0.000014	0.004	0.110	1	0.00343	0.00344	0.000125	0.000014	No	No
	May	0.000366	0.000371	0.004	0.110	1	0.0915	0.0928	0.000337	0.000371	No	No
	June	0.000564	0.000569	0.004	0.110	1	0.141	0.142	0.00517	0.000569	No	No
	July	0.000093	0.000094	0.004	0.110	1	0.0233	0.0236	0.000857	0.000094	No	No
	August	0.000097	0.000103	0.004	0.110	1	0.0243	0.0258	0.000939	0.000103	No	No
	September	0.000033	0.000037	0.004	0.110	1	0.00825	0.00931	0.000339	0.000037	No	No
	October	0.000057	0.000060	0.004	0.110	1	0.0143	0.0150	0.000546	0.000060	No	No
	November	0.000081	0.000085	0.004	0.110	1	0.0203	0.0212	0.000773	0.000085	No	No
	December	0.000048	0.000055	0.004	0.110	1	0.0120	0.0137	0.000499	0.000055	No	No
Operation 1 Phase (1-23)	January	0.000036	0.000040	0.004	0.110	1	0.00903	0.0100	0.000365	0.000040	No	No
	February	0.000011	0.000012	0.004	0.110	1	0.00278	0.00298	0.000108	0.000012	No	No
	March	0.000009	0.000010	0.004	0.110	1	0.00226	0.00241	0.000088	0.000010	No	No
	April	0.000014	0.000014	0.004	0.110	1	0.00345	0.00345	0.000126	0.000014	No	No
	May	0.000376	0.000376	0.004	0.110	1	0.0940	0.0941	0.00342	0.000376	No	No
	June	0.000578	0.000579	0.004	0.110	1	0.144	0.145	0.00526	0.000579	No	No
	July	0.000097	0.000097	0.004	0.110	1	0.0242	0.0242	0.000881	0.000097	No	No
	August	0.000116	0.000119	0.004	0.110	1	0.0291	0.0297	0.00108	0.000119	No	No
	September	0.000056	0.000063	0.004	0.110	1	0.0141	0.0157	0.000571	0.000063	No	No
	October	0.000066	0.000068	0.004	0.110	1	0.0166	0.0169	0.000615	0.000068	No	No
	November	0.000092	0.000093	0.004	0.110	1	0.0229	0.0233	0.000847	0.000093	No	No
	December	0.000065	0.000066	0.004	0.110	1	0.0162	0.0165	0.000601	0.000066	No	No
Operations 2 Phase (24-28)	January	0.000049	0.000062	0.004	0.110	1	0.0124	0.0155	0.000562	0.000062	No	No
	February	0.000011	0.000011	0.004	0.110	1	0.00275	0.00275	0.000100	0.000011	No	No
	March	0.000009	0.000009	0.004	0.110	1	0.00225	0.00225	0.000082	0.000009	No	No
	April	0.000014	0.000014	0.004	0.110	1	0.00345	0.00345	0.000125	0.000014	No	No
	May	0.000376	0.000376	0.004	0.110	1	0.0940	0.0941	0.00342	0.000376	No	No
	June	0.000579	0.000579	0.004	0.110	1	0.145	0.145	0.00527	0.000579	No	No
	July	0.000098	0.000099	0.004	0.110	1	0.0245	0.0248	0.000903	0.000099	No	No
	August	0.000123	0.000127	0.004	0.110	1	0.0307	0.0317	0.00115	0.000127	No	No
	September	0.000068	0.000075	0.004	0.110	1	0.0170	0.0187	0.000680	0.000075	No	No
	October	0.000071	0.000074	0.004	0.110	1	0.0177	0.0184	0.000670	0.000074	No	No
	November	0.000096	0.000099	0.004	0.110	1	0.0240	0.0247	0.000899	0.000099	No	No
	December	0.000073	0.000080	0.004	0.110	1	0.0183	0.0199	0.000723	0.000080	No	No
Closure Phase (29-35)	January	0.000064	0.000069	0.004	0.110	1	0.0160	0.0173	0.000628	0.000069	No	No
	February	0.000011	0.000011	0.004	0.110	1	0.00275	0.00275	0.000100	0.000011	No	No
	March	0.000009	0.000009	0.004	0.110	1	0.00225	0.00225	0.000082	0.000009	No	No
	April	0.000014	0.000014	0.004	0.110	1	0.00345	0.00345	0.000125	0.000014	No	No
	May	0.000376	0.000376	0.004	0.110	1	0.0940	0.0940	0.00342	0.000376	No	No
	June	0.000579	0.000579	0.004	0.110	1	0.145	0.145	0.00527	0.000579	No	No
	July	0.000099	0.000099	0.004	0.110	1	0.0247	0.0249	0.000904	0.000099	No	No
	August	0.000125	0.000127	0.004	0.110	1	0.0313	0.0317	0.00115	0.000127	No	No
	September	0.000072	0.000075	0.004	0.110	1	0.0181	0.0188	0.000683	0.000075	No	No
	October	0.000072	0.000074	0.004	0.110	1	0.0181	0.0184	0.000669	0.000074	No	No
	November	0.000098	0.000099	0.004	0.110	1	0.0244	0.0247	0.000897	0.000099	No	No
	December	0.000077	0.000079	0.004	0.110	1	0.0191	0.0197	0.000715	0.000079	No	No
Post-Closure Phase (36-99)	January	0.000043	0.000059	0.004	0.110	1	0.0107	0.0147	0.000533	0.000059	No	No
	February	0.000011	0.000011	0.004	0.110	1	0.00275	0.00275	0.000100	0.000011	No	No
	March	0.000009	0.000009	0.004	0.110	1	0.00225	0.00225	0.000082	0.000009	No	No
	April	0.000014	0.000014	0.004	0.110	1	0.00345	0.00345	0.000125	0.000014	No	No
	May	0.000376	0.000376	0.004	0.110	1	0.0940	0.0940	0.00342	0.000376	No	No
	June	0.000578	0.000579	0.004	0.110	1	0.145	0.145	0.00526	0.000579	No	No
	July	0.000097	0.000098	0.004	0.110	1	0.0243	0.0246	0.000895	0.000098	No	No
	August	0.000119	0.000123	0.004	0.110	1	0.0297	0.0308	0.00112	0.000123	No	No
	September	0.000061	0.000069	0.004	0.110	1	0.0153	0.0174	0.000631	0.000069	No	No
	October	0.000068	0.000071	0.004	0.110	1	0.0170	0.0178	0.000648	0.000071	No	No
	November	0.000093	0.000096	0.004	0.110	1	0.0233	0.0241	0.000877	0.000096	No	No
	December	0.000067	0.000074	0.004	0.110	1	0.0169	0.0186	0.000675	0.000074	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D11k. Lower Baker Creek (BK0) Hazard Quotients for Total Copper Concentrations, Expected Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Mean Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE Maximum Guideline					
		Mean	Maximum	Mean	Maximum			Mean	Maximum	Maximum					
Construction (-2 to-1)	January	0.0002	0.0003	0.0062	0.0166	0.3	0.3	0.0391	0.0471	0.0176	0.0010	0.0010	No	No	No
	February	0.0002	0.0002	0.0065	0.0173	0.3	0.3	0.0279	0.0280	0.0105	0.0006	0.0006	No	No	No
	March	0.0002	0.0002	0.0063	0.0168	0.3	0.3	0.0264	0.0272	0.0102	0.0006	0.0006	No	No	No
	April	0.0003	0.0003	0.0063	0.0169	0.3	0.3	0.0491	0.0496	0.0186	0.0010	0.0010	No	No	No
	May	0.0019	0.0019	0.0039	0.0111	0.3	0.3	0.496	0.503	0.175	0.0065	0.0065	No	No	No
	June	0.0027	0.0028	0.0033	0.0098	0.3	0.3	0.831	0.838	0.284	0.0092	0.0092	No	No	No
	July	0.0009	0.0009	0.0049	0.0134	0.3	0.3	0.182	0.184	0.0667	0.0030	0.0030	No	No	No
	August	0.0004	0.0005	0.0060	0.0160	0.3	0.3	0.0733	0.0761	0.0283	0.0015	0.0015	No	No	No
	September	0.0003	0.0003	0.0060	0.0162	0.3	0.3	0.0467	0.0494	0.0184	0.0010	0.0010	No	No	No
	October	0.0005	0.0005	0.0061	0.0164	0.3	0.3	0.0795	0.0827	0.0309	0.0017	0.0017	No	No	No
	November	0.0004	0.0005	0.0070	0.0185	0.3	0.3	0.0621	0.0640	0.0243	0.0015	0.0015	No	No	No
	December	0.0005	0.0005	0.0049	0.0136	0.3	0.3	0.0984	0.110	0.0398	0.0018	0.0018	No	No	No
Operation 1 Phase (1-23)	January	0.0006	0.0007	0.0062	0.0166	0.3	0.3	0.0991	0.111	0.0415	0.0023	0.0023	No	No	No
	February	0.0002	0.0002	0.0065	0.0173	0.3	0.3	0.0356	0.0368	0.0138	0.0008	0.0008	No	No	No
	March	0.0001	0.0001	0.0063	0.0168	0.3	0.3	0.0223	0.0236	0.0088	0.0005	0.0005	No	No	No
	April	0.0003	0.0003	0.0063	0.0169	0.3	0.3	0.0502	0.0503	0.0189	0.0011	0.0011	No	No	No
	May	0.0020	0.0020	0.0039	0.0111	0.3	0.3	0.508	0.509	0.177	0.0066	0.0066	No	No	No
	June	0.0028	0.0028	0.0033	0.0098	0.3	0.3	0.849	0.851	0.288	0.0094	0.0094	No	No	No
	July	0.0009	0.0009	0.0049	0.0134	0.3	0.3	0.188	0.189	0.0684	0.0031	0.0031	No	No	No
	August	0.0005	0.0005	0.0060	0.0160	0.3	0.3	0.0824	0.0835	0.0311	0.0017	0.0017	No	No	No
	September	0.0004	0.0004	0.0060	0.0162	0.3	0.3	0.0612	0.0647	0.0241	0.0013	0.0013	No	No	No
	October	0.0005	0.0006	0.0061	0.0164	0.3	0.3	0.0890	0.0903	0.0338	0.0018	0.0018	No	No	No
	November	0.0005	0.0005	0.0070	0.0185	0.3	0.3	0.0672	0.0678	0.0257	0.0016	0.0016	No	No	No
	December	0.0006	0.0006	0.0049	0.0136	0.3	0.3	0.127	0.129	0.0468	0.0021	0.0021	No	No	No
Operations 2 Phase (24-28)	January	0.0007	0.0007	0.0062	0.0166	0.3	0.3	0.112	0.114	0.0427	0.0024	0.0024	No	No	No
	February	0.0002	0.0002	0.0065	0.0173	0.3	0.3	0.0368	0.0368	0.0138	0.0008	0.0008	No	No	No
	March	0.0001	0.0001	0.0063	0.0168	0.3	0.3	0.0222	0.0222	0.0083	0.0005	0.0005	No	No	No
	April	0.0003	0.0003	0.0063	0.0169	0.3	0.3	0.0503	0.0503	0.0189	0.0011	0.0011	No	No	No
	May	0.0020	0.0020	0.0039	0.0111	0.3	0.3	0.509	0.509	0.177	0.0066	0.0066	No	No	No
	June	0.0028	0.0028	0.0033	0.0098	0.3	0.3	0.851	0.851	0.288	0.0094	0.0094	No	No	No
	July	0.0009	0.0009	0.0049	0.0134	0.3	0.3	0.189	0.190	0.0686	0.0031	0.0031	No	No	No
	August	0.0005	0.0005	0.0060	0.0160	0.3	0.3	0.0853	0.0859	0.0320	0.0017	0.0017	No	No	No
	September	0.0004	0.0004	0.0060	0.0162	0.3	0.3	0.0667	0.0676	0.0252	0.0014	0.0014	No	No	No
	October	0.0006	0.0006	0.0061	0.0164	0.3	0.3	0.0914	0.0917	0.0343	0.0019	0.0019	No	No	No
	November	0.0005	0.0005	0.0070	0.0185	0.3	0.3	0.0688	0.0692	0.0263	0.0016	0.0016	No	No	No
	December	0.0006	0.0007	0.0049	0.0136	0.3	0.3	0.132	0.133	0.0482	0.0022	0.0022	No	No	No
Closure Phase (29-35)	January	0.0007	0.0007	0.0062	0.0166	0.3	0.3	0.1120	0.114	0.0427	0.0024	0.0024	No	No	No
	February	0.0002	0.0002	0.0065	0.0173	0.3	0.3	0.0368	0.0368	0.0138	0.0008	0.0008	No	No	No
	March	0.0001	0.0001	0.0063	0.0168	0.3	0.3	0.0222	0.0222	0.0083	0.0005	0.0005	No	No	No
	April	0.0003	0.0003	0.0063	0.0169	0.3	0.3	0.0503	0.0503	0.0189	0.0011	0.0011	No	No	No
	May	0.0020	0.0020	0.0039	0.0111	0.3	0.3	0.508	0.509	0.177	0.0066	0.0066	No	No	No
	June	0.0028	0.0028	0.0033	0.0098	0.3	0.3	0.850	0.851	0.288	0.0094	0.0094	No	No	No
	July	0.0009	0.0009	0.0049	0.0134	0.3	0.3	0.189	0.189	0.0686	0.0031	0.0031	No	No	No
	August	0.0005	0.0005	0.0060	0.0160	0.3	0.3	0.0852	0.0857	0.0319	0.0017	0.0017	No	No	No
	September	0.0004	0.0004	0.0060	0.0162	0.3	0.3	0.0665	0.0674	0.0251	0.0014	0.0014	No	No	No
	October	0.0006	0.0006	0.0061	0.0164	0.3	0.3	0.0912	0.0916	0.0342	0.0019	0.0019	No	No	No
	November	0.0005	0.0005	0.0070	0.0185	0.3	0.3	0.0688	0.0691	0.0262	0.0016	0.0016	No	No	No
	December	0.0006	0.0007	0.0049	0.0136	0.3	0.3	0.132	0.133	0.0481	0.0022	0.0022	No	No	No
Post-Closure Phase (36-99)	January	0.0007	0.0007	0.0062	0.0166	0.3	0.3	0.1070	0.110	0.0411	0.0023	0.0023	No	No	No
	February	0.0002	0.0002	0.0065	0.0173	0.3	0.3	0.0368	0.0368	0.0138	0.0008	0.0008	No	No	No
	March	0.0001	0.0001	0.0063	0.0168	0.3	0.3	0.0222	0.0222	0.0083	0.0005	0.0005	No	No	No
	April	0.0003	0.0003	0.0063	0.0169	0.3	0.3	0.0503	0.0503	0.0189	0.0011	0.0011	No	No	No
	May	0.0020	0.0020	0.0039	0.0111	0.3	0.3	0.509	0.509	0.177	0.0066	0.0066	No	No	No
	June	0.0028	0.0028	0.0033	0.0098	0.3	0.3	0.850	0.850	0.288	0.0094	0.0094	No	No	No
	July	0.0009	0.0009	0.0049	0.0134	0.3	0.3	0.189	0.189	0.0684	0.0031	0.0031	No	No	No
	August	0.0005	0.0005	0.0060	0.0160	0.3	0.3	0.0833	0.0847	0.0315	0.0017	0.0017	No	No	No
	September	0.0004	0.0004	0.0060	0.0162	0.3	0.3	0.0635	0.0656	0.0244	0.0013	0.0013	No	No	No
	October	0.0006	0.0006	0.0061	0.0164	0.3	0.3	0.0900	0.0908	0.0339	0.0019	0.0019	No	No	No
	November	0.0005	0.0005	0.0070	0.0185	0.3	0.3	0.0677	0.0685	0.0260	0.0016	0.0016	No	No	No
	December	0.0006	0.0006	0.0049	0.0136	0.3	0.3	0.129	0.131	0.0475	0.0021	0.0021	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D111. Lower Baker Creek (BK0) Hazard Quotients for Dissolved and Total Iron Concentrations, Expected Case

Project Phase		First Screening Step								Retained as COPC?	
		Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life	
		Dissolved Iron		Total Iron		BC MOE Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline for	Maximum Predicted vs. BC MOE Maximum Guideline for	Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum	Guideline for Dissolved Iron	Guideline for Total Iron	Dissolved Iron	Total Iron		
Construction (-2 to-1)	January	0.0013	0.0017	0.0024	0.0027	0.35	1	0.0047	0.0027	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0017	0.0018	0.35	1	0.0029	0.0018	No	No
	April	0.0039	0.0040	0.0054	0.0054	0.35	1	0.0114	0.0054	No	No
	May	0.0137	0.0139	0.528	0.535	0.35	1	0.0396	0.535	No	No
	June	0.0137	0.0138	0.740	0.746	0.35	1	0.0394	0.746	No	No
	July	0.0099	0.0100	0.0201	0.0204	0.35	1	0.0286	0.0204	No	No
	August	0.0062	0.0065	0.0078	0.0082	0.35	1	0.0187	0.0082	No	No
	September	0.0029	0.0032	0.0043	0.0047	0.35	1	0.0092	0.0047	No	No
	October	0.0057	0.0061	0.0060	0.0063	0.35	1	0.0173	0.0063	No	No
	November	0.0081	0.0085	0.0083	0.0086	0.35	1	0.0242	0.0086	No	No
	December	0.0047	0.0054	0.0056	0.0063	0.35	1	0.0155	0.0063	No	No
Operation 1 Phase (1-23)	January	0.0035	0.0039	0.0048	0.0053	0.35	1	0.0113	0.0053	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0012	0.35	1	0.0029	0.0012	No	No
	April	0.0041	0.0042	0.0056	0.0056	0.35	1	0.0119	0.0056	No	No
	May	0.0141	0.0141	0.542	0.542	0.35	1	0.0402	0.542	No	No
	June	0.0140	0.0140	0.758	0.760	0.35	1	0.0400	0.760	No	No
	July	0.0103	0.0103	0.0209	0.0210	0.35	1	0.0295	0.0210	No	No
	August	0.0073	0.0075	0.0091	0.0093	0.35	1	0.0214	0.0093	No	No
	September	0.0049	0.0054	0.0067	0.0074	0.35	1	0.0155	0.0074	No	No
	October	0.0067	0.0068	0.0068	0.0069	0.35	1	0.0195	0.0069	No	No
	November	0.0092	0.0093	0.0092	0.0094	0.35	1	0.0266	0.0094	No	No
	December	0.0065	0.0066	0.0073	0.0074	0.35	1	0.0188	0.0074	No	No
Operations 2 Phase (24-28)	January	0.0038	0.0039	0.0052	0.0053	0.35	1	0.0112	0.0053	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0042	0.0042	0.0056	0.0056	0.35	1	0.0119	0.0056	No	No
	May	0.0141	0.0141	0.542	0.542	0.35	1	0.0402	0.542	No	No
	June	0.0140	0.0140	0.759	0.760	0.35	1	0.0400	0.760	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0294	0.0210	No	No
	August	0.0074	0.0074	0.0092	0.0093	0.35	1	0.0213	0.0093	No	No
	September	0.0052	0.0053	0.0071	0.0073	0.35	1	0.0152	0.0073	No	No
	October	0.0068	0.0068	0.0069	0.0069	0.35	1	0.0195	0.0069	No	No
	November	0.0092	0.0093	0.0093	0.0094	0.35	1	0.0265	0.0094	No	No
	December	0.0065	0.0066	0.0073	0.0074	0.35	1	0.0187	0.0074	No	No
Closure Phase (29-35)	January	0.0037	0.0038	0.0050	0.0051	0.35	1	0.0107	0.0051	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0042	0.0042	0.0056	0.0056	0.35	1	0.0119	0.0056	No	No
	May	0.0141	0.0141	0.542	0.542	0.35	1	0.0402	0.542	No	No
	June	0.0140	0.0140	0.759	0.759	0.35	1	0.0399	0.759	No	No
	July	0.0103	0.0103	0.0209	0.0210	0.35	1	0.0294	0.0210	No	No
	August	0.0074	0.0074	0.0092	0.0092	0.35	1	0.0211	0.0092	No	No
	September	0.0051	0.0051	0.0069	0.0070	0.35	1	0.0146	0.0070	No	No
	October	0.0068	0.0068	0.0069	0.0069	0.35	1	0.0193	0.0069	No	No
	November	0.0092	0.0092	0.0093	0.0093	0.35	1	0.0264	0.0093	No	No
	December	0.0065	0.0065	0.0073	0.0073	0.35	1	0.0186	0.0073	No	No
Post-Closure Phase (36-99)	January	0.0038	0.0038	0.0051	0.0051	0.35	1	0.0109	0.0051	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0041	0.0042	0.0056	0.0056	0.35	1	0.0119	0.0056	No	No
	May	0.0141	0.0141	0.542	0.542	0.35	1	0.0402	0.542	No	No
	June	0.0140	0.0140	0.759	0.759	0.35	1	0.0399	0.759	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0294	0.0210	No	No
	August	0.0074	0.0074	0.0092	0.0092	0.35	1	0.0212	0.0092	No	No
	September	0.0051	0.0052	0.0070	0.0071	0.35	1	0.0149	0.0071	No	No
	October	0.0068	0.0068	0.0069	0.0069	0.35	1	0.0194	0.0069	No	No
	November	0.0092	0.0093	0.0093	0.0093	0.35	1	0.0264	0.0093	No	No
	December	0.0065	0.0065	0.0073	0.0073	0.35	1	0.0187	0.0073	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D11n. Lower Baker Creek (BK0) Hazard Quotients for Total Lithium Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE Working Final Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Aquatic Life
Construction (-2 to-1)	January	0.0008	0.0008	0.096	0.87	0.0086	0.0088	0.0010	No
	February	0.0009	0.0009	0.096	0.87	0.0092	0.0092	0.0010	No
	March	0.0009	0.0009	0.096	0.87	0.0094	0.0094	0.0010	No
	April	0.0006	0.0006	0.096	0.87	0.0066	0.0067	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0056	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0054	0.0054	0.0006	No
	August	0.0009	0.0009	0.096	0.87	0.0094	0.0095	0.0010	No
	September	0.0006	0.0006	0.096	0.87	0.0062	0.0066	0.0007	No
	October	0.0006	0.0006	0.096	0.87	0.0057	0.0059	0.0007	No
	November	0.0005	0.0006	0.096	0.87	0.0057	0.0059	0.0006	No
	December	0.0007	0.0007	0.096	0.87	0.0069	0.0072	0.0008	No
Operation 1 Phase (1-23)	January	0.0007	0.0008	0.096	0.87	0.0070	0.0082	0.0009	No
	February	0.0006	0.0009	0.096	0.87	0.0057	0.0090	0.0010	No
	March	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	April	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0009	0.0009	0.096	0.87	0.0098	0.0099	0.0011	No
	September	0.0004	0.0005	0.096	0.87	0.0047	0.0052	0.0006	No
	October	0.0005	0.0005	0.096	0.87	0.0054	0.0054	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	December	0.0006	0.0006	0.096	0.87	0.0060	0.0063	0.0007	No
Operations 2 Phase (24-28)	January	0.0007	0.0007	0.096	0.87	0.0071	0.0074	0.0008	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	April	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	August	0.0010	0.0010	0.096	0.87	0.0100	0.0100	0.0011	No
	September	0.0005	0.0005	0.096	0.87	0.0048	0.0049	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	December	0.0006	0.0006	0.096	0.87	0.0062	0.0062	0.0007	No
Closure Phase (29-35)	January	0.0007	0.0007	0.096	0.87	0.0074	0.0074	0.0008	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	April	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	August	0.0010	0.0010	0.096	0.87	0.0100	0.0100	0.0011	No
	September	0.0005	0.0005	0.096	0.87	0.0049	0.0049	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	December	0.0006	0.0006	0.096	0.87	0.0062	0.0062	0.0007	No
Post-Closure Phase (36-99)	January	0.0007	0.0007	0.096	0.87	0.0069	0.0073	0.0008	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	April	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0053	0.0006	No
	August	0.0009	0.0010	0.096	0.87	0.0099	0.0099	0.0011	No
	September	0.0004	0.0005	0.096	0.87	0.0046	0.0049	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	December	0.0006	0.0006	0.096	0.87	0.0060	0.0062	0.0007	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D11o. Lower Baker Creek (BK0) Hazard Quotients for Total Manganese Concentrations, Expected Case

		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Aquatic Life
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC	Maximum Predicted vs. BC	Maximum Predicted vs. BC MOE Maximum	
						30-Day Mean Guideline	30-Day Mean Guideline	BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.0001	0.0002	1.28	2.23	0.0001	0.0001	0.0001	No
	February	0.0001	0.0001	1.32	2.34	0.0001	0.0001	0.0001	No
	March	0.0003	0.0004	1.30	2.28	0.0002	0.0003	0.0002	No
	April	0.0003	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	May	0.0137	0.0138	1.01	1.56	0.0135	0.0137	0.0089	No
	June	0.0252	0.0254	0.967	1.45	0.0260	0.0263	0.0176	No
	July	0.0010	0.0010	1.16	1.92	0.0008	0.0008	0.0005	No
	August	0.0007	0.0008	1.28	2.23	0.0006	0.0006	0.0003	No
	September	0.0002	0.0002	1.25	2.17	0.0002	0.0002	0.0001	No
	October	0.0002	0.0002	1.31	2.30	0.0001	0.0001	0.0001	No
	November	0.0002	0.0002	1.38	2.48	0.0002	0.0002	0.0001	No
	December	0.0002	0.0002	1.15	1.90	0.0002	0.0002	0.0001	No
Operation 1 Phase (1-23)	January	0.0002	0.0002	1.28	2.23	0.0001	0.0001	0.0001	No
	February	0.0001	0.0001	1.32	2.34	0.0001	0.0001	0.0001	No
	March	0.0006	0.0006	1.30	2.28	0.0005	0.0005	0.0003	No
	April	0.0003	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	May	0.0140	0.0140	1.01	1.56	0.0138	0.0139	0.0090	No
	June	0.0258	0.0258	0.967	1.45	0.0267	0.0267	0.0179	No
	July	0.0010	0.0010	1.16	1.92	0.0009	0.0009	0.0005	No
	August	0.0008	0.0009	1.28	2.23	0.0007	0.0007	0.0004	No
	September	0.0003	0.0003	1.25	2.17	0.0002	0.0003	0.0001	No
	October	0.0002	0.0002	1.31	2.30	0.0002	0.0002	0.0001	No
	November	0.0003	0.0003	1.38	2.48	0.0002	0.0002	0.0001	No
	December	0.0002	0.0002	1.15	1.90	0.0002	0.0002	0.0001	No
Operations 2 Phase (24-28)	January	0.0005	0.0008	1.28	2.23	0.0004	0.0006	0.0003	No
	February	0.0001	0.0001	1.32	2.34	0.0001	0.0001	0.0000	No
	March	0.0006	0.0006	1.30	2.28	0.0005	0.0005	0.0003	No
	April	0.0003	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	May	0.0140	0.0140	1.01	1.56	0.0139	0.0139	0.0090	No
	June	0.0258	0.0258	0.967	1.45	0.0267	0.0267	0.0179	No
	July	0.0010	0.0010	1.16	1.92	0.0009	0.0009	0.0005	No
	August	0.0010	0.0011	1.28	2.23	0.0008	0.0008	0.0005	No
	September	0.0006	0.0007	1.25	2.17	0.0004	0.0005	0.0003	No
	October	0.0003	0.0004	1.31	2.30	0.0002	0.0003	0.0002	No
	November	0.0004	0.0004	1.38	2.48	0.0003	0.0003	0.0002	No
	December	0.0004	0.0005	1.15	1.90	0.0004	0.0004	0.0003	No
Closure Phase (29-35)	January	0.0007	0.0008	1.28	2.23	0.0006	0.0006	0.0004	No
	February	0.0001	0.0001	1.32	2.34	0.0001	0.0001	0.0000	No
	March	0.0006	0.0006	1.30	2.28	0.0005	0.0005	0.0003	No
	April	0.0003	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	May	0.0140	0.0140	1.01	1.56	0.0139	0.0139	0.0090	No
	June	0.0258	0.0258	0.967	1.45	0.0267	0.0267	0.0179	No
	July	0.0010	0.0010	1.16	1.92	0.0009	0.0009	0.0005	No
	August	0.0010	0.0011	1.28	2.23	0.0008	0.0008	0.0005	No
	September	0.0006	0.0007	1.25	2.17	0.0005	0.0005	0.0003	No
	October	0.0003	0.0004	1.31	2.30	0.0003	0.0003	0.0002	No
	November	0.0004	0.0004	1.38	2.48	0.0003	0.0003	0.0002	No
	December	0.0004	0.0005	1.15	1.90	0.0004	0.0004	0.0003	No
Post-Closure Phase (36-99)	January	0.0003	0.0006	1.28	2.23	0.0002	0.0005	0.0003	No
	February	0.0001	0.0001	1.32	2.34	0.0001	0.0001	0.0000	No
	March	0.0006	0.0006	1.30	2.28	0.0005	0.0005	0.0003	No
	April	0.0003	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	May	0.0140	0.0140	1.01	1.56	0.0139	0.0139	0.0090	No
	June	0.0258	0.0258	0.967	1.45	0.0267	0.0267	0.0179	No
	July	0.0010	0.0010	1.16	1.92	0.0009	0.0009	0.0005	No
	August	0.0009	0.0010	1.28	2.23	0.0007	0.0008	0.0004	No
	September	0.0004	0.0006	1.25	2.17	0.0003	0.0004	0.0003	No
	October	0.0002	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	November	0.0003	0.0003	1.38	2.48	0.0002	0.0003	0.0001	No
	December	0.0002	0.0004	1.15	1.90	0.0002	0.0004	0.0002	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D11p. Lower Baker Creek (BK0) Hazard Quotients for Total Mercury Concentrations, Expected Case

		First Screening Step											
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Drinking Water Quality Guidelines BC DWQG	BC MOE Working Water Quality Guidelines for Wildlife Water Supply BC MOE 30-Day Mean if MeHg is 0.5% of THg	BC MOE Livestock Watering Water Quality Guideline Maximum	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Maximum Guideline
		Mean	Maximum					Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg		Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	
Construction (-2 to-1)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.500	0.0100	0.498	0.500	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.500	0.0100	0.497	0.500	0.00333
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.555	0.564	0.0113	0.555	0.564	0.00376
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.499	0.0100	0.498	0.499	0.00333
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.500	0.0100	0.499	0.500	0.00333
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.623	0.642	0.0128	0.623	0.642	0.00428
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00334
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.503	0.505	0.0101	0.503	0.505	0.00337
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.501	0.0100	0.500	0.501	0.00334
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.502	0.0100	0.501	0.502	0.00335
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.637	0.639	0.0128	0.637	0.639	0.00426
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.502	0.0100	0.501	0.502	0.00334
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.501	0.0100	0.501	0.501	0.00334
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.502	0.503	0.0101	0.502	0.503	0.00335
Closure Phase (29-35)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.505	0.506	0.0101	0.505	0.506	0.00337
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.501	0.0100	0.500	0.501	0.00334
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.502	0.0100	0.501	0.502	0.00335
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.632	0.634	0.0127	0.632	0.634	0.00423
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.501	0.0100	0.501	0.501	0.00334
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.501	0.0100	0.501	0.501	0.00334
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.502	0.502	0.0100	0.502	0.502	0.00335
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.501	0.504	0.0101	0.501	0.504	0.00336
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00333
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500	0.0100	0.500	0.500	0.00334
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.501	0.0100	0.500	0.501	0.00334
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.632	0.634	0.0127	0.632	0.634	0.00423
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.501	0.0100	0.500	0.501	0.00334
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.501	0.0100	0.500	0.501	0.00334
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.502	0.0100	0.500	0.502	0.00334

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

(continued)

Appendix 13-D11p. Lower Baker Creek (BK0) Hazard Quotients for Total Mercury Concentrations, Expected Case (completed)

		Retained as COPC?			
Project Phase	Months	Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11q. Lower Baker Creek (BK0) Hazard Quotients for Total Molybdenum Concentrations, Expected Case

Project Phase		First Screening Step												Retained as COPC?						
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock		
									Mean	Maximum	Mean Predicted vs. BC MOE 30-Day								Maximum Predicted vs. BC MOE 30-Day	Maximum Predicted vs. BC MOE Maximum
Months	Mean	Maximum	BC MOE 30-Day	BC MOE	BC DWQG	Maximum	Maximum	Day Mean Guideline	Mean Guideline	Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline							
Construction (-2 to-1)	January	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0014	0.0070	0.0070	No	No	No	No		
	February	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0014	0.0072	0.0072	No	No	No	No		
	March	0.0003	0.0004	1	2	0.25	0.05	0.05	0.0003	0.0004	0.0002	0.0014	0.0071	0.0071	No	No	No	No		
	April	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0014	0.0071	0.0071	No	No	No	No		
	May	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0006	0.0031	0.0031	No	No	No	No		
	June	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0028	0.0028	No	No	No	No		
	July	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0008	0.0041	0.0041	No	No	No	No		
	August	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0011	0.0057	0.0057	No	No	No	No		
	September	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0065	0.0065	No	No	No	No		
	October	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0058	0.0058	No	No	No	No		
	November	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0012	0.0058	0.0058	No	No	No	No		
	December	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0065	0.0065	No	No	No	No		
Operation 1 Phase (1-23)	January	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0014	0.0069	0.0069	No	No	No	No		
	February	0.0003	0.0004	1	2	0.25	0.05	0.05	0.0003	0.0004	0.0002	0.0014	0.0071	0.0071	No	No	No	No		
	March	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0067	0.0067	No	No	No	No		
	April	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0014	0.0071	0.0071	No	No	No	No		
	May	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0030	0.0030	No	No	No	No		
	June	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0005	0.0027	0.0027	No	No	No	No		
	July	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0008	0.0039	0.0039	No	No	No	No		
	August	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0011	0.0055	0.0055	No	No	No	No		
	September	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0062	0.0062	No	No	No	No		
	October	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0011	0.0056	0.0056	No	No	No	No		
	November	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0001	0.0011	0.0057	0.0057	No	No	No	No		
	December	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0062	0.0062	No	No	No	No		
Operations 2 Phase (24-28)	January	0.0004	0.0005	1	2	0.25	0.05	0.05	0.0004	0.0005	0.0003	0.0020	0.0100	0.0100	No	No	No	No		
	February	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No		
	March	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0066	0.0066	No	No	No	No		
	April	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0014	0.0071	0.0071	No	No	No	No		
	May	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0030	0.0030	No	No	No	No		
	June	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0028	0.0028	No	No	No	No		
	July	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0008	0.0042	0.0042	No	No	No	No		
	August	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0066	0.0066	No	No	No	No		
	September	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0016	0.0080	0.0080	No	No	No	No		
	October	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0063	0.0063	No	No	No	No		
	November	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No		
	December	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0016	0.0078	0.0078	No	No	No	No		
Closure Phase (29-35)	January	0.0005	0.0005	1	2	0.25	0.05	0.05	0.0005	0.0005	0.0003	0.0021	0.0103	0.0103	No	No	No	No		
	February	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No		
	March	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0066	0.0066	No	No	No	No		
	April	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0014	0.0071	0.0071	No	No	No	No		
	May	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0030	0.0030	No	No	No	No		
	June	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0028	0.0028	No	No	No	No		
	July	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0008	0.0042	0.0042	No	No	No	No		
	August	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0065	0.0065	No	No	No	No		
	September	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0016	0.0080	0.0080	No	No	No	No		
	October	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0063	0.0063	No	No	No	No		
	November	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No		
	December	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0015	0.0077	0.0077	No	No	No	No		
Post-Closure Phase (36-99)	January	0.0004	0.0005	1	2	0.25	0.05	0.05	0.0004	0.0005	0.0002	0.0018	0.0092	0.0092	No	No	No	No		
	February	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0064	0.0064	No	No	No	No		
	March	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0013	0.0066	0.0066	No	No	No	No		
	April	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002	0.0014	0.0071	0.0071	No	No	No	No		
	May	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0006	0.0030	0.0030	No	No	No	No		
	June	0.0001	0.0001	1	2	0.25	0.05	0.05	0.0001	0.0001	0.0001	0.0005	0.0027	0.0027	No	No	No	No		
	July	0.0002	0.0002	1	2	0.25	0.05	0.05	0.0002	0.0002	0.0001	0.0008	0.0041	0.0041	No	No	No	No		
	August	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0062	0.0062	No	No	No	No		
	September	0.0003	0.0004	1	2	0.25	0.05	0.05	0.0003	0.0004	0.0002	0.0015	0.0075	0.0075	No	No	No	No		
	October	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0061	0.0061	No	No	No	No		
	November	0.0003	0.0003	1	2	0.25	0.05	0.05	0.0003	0.0003	0.0002	0.0012	0.0062	0.0062	No	No	No	No		
	December	0.0003	0.0004	1	2	0.25	0.05	0.05	0.0003	0.0004	0.0002	0.0014	0.0072	0.0072	No	No	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11r. Lower Baker Creek (BK0) Hazard Quotients for Total Nickel Concentrations, Expected Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
		Construction (-2 to-1)	January	0.00009	0.00011	0.11	1		
	February	0.00007	0.00007	0.11	1	0.00065	0.00007	No	No
	March	0.00007	0.00007	0.11	1	0.00062	0.00007	No	No
	April	0.00011	0.00011	0.11	1	0.00101	0.00011	No	No
	May	0.00130	0.00132	0.065	1	0.0203	0.00132	No	No
	June	0.00172	0.00174	0.065	1	0.0267	0.00174	No	No
	July	0.00047	0.00047	0.11	1	0.00430	0.00047	No	No
	August	0.00057	0.00060	0.11	1	0.00545	0.00060	No	No
	September	0.00019	0.00021	0.11	1	0.00189	0.00021	No	No
	October	0.00030	0.00032	0.11	1	0.00289	0.00032	No	No
	November	0.00041	0.00043	0.11	1	0.00391	0.00043	No	No
	December	0.00027	0.00030	0.11	1	0.00275	0.00030	No	No
Operation 1 Phase (1-23)	January	0.00023	0.00025	0.11	1	0.00230	0.00025	No	No
	February	0.00010	0.00010	0.11	1	0.00091	0.00010	No	No
	March	0.00006	0.00006	0.11	1	0.00057	0.00006	No	No
	April	0.00011	0.00011	0.11	1	0.00102	0.00011	No	No
	May	0.00133	0.00133	0.065	1	0.0205	0.00133	No	No
	June	0.00176	0.00177	0.065	1	0.0272	0.00177	No	No
	July	0.00048	0.00049	0.11	1	0.00442	0.00049	No	No
	August	0.00067	0.00069	0.11	1	0.00625	0.00069	No	No
	September	0.00030	0.00033	0.11	1	0.00300	0.00033	No	No
	October	0.00035	0.00035	0.11	1	0.00322	0.00035	No	No
	November	0.00046	0.00047	0.11	1	0.00425	0.00047	No	No
	December	0.00036	0.00036	0.11	1	0.00330	0.00036	No	No
Operations 2 Phase (24-28)	January	0.00026	0.00026	0.11	1	0.00238	0.00026	No	No
	February	0.00010	0.00010	0.11	1	0.00091	0.00010	No	No
	March	0.00006	0.00006	0.11	1	0.00055	0.00006	No	No
	April	0.00011	0.00011	0.11	1	0.00102	0.00011	No	No
	May	0.00133	0.00133	0.065	1	0.0205	0.00133	No	No
	June	0.00176	0.00177	0.065	1	0.0272	0.00177	No	No
	July	0.00049	0.00049	0.11	1	0.00443	0.00049	No	No
	August	0.00069	0.00069	0.11	1	0.00625	0.00069	No	No
	September	0.00032	0.00033	0.11	1	0.00296	0.00033	No	No
	October	0.00036	0.00036	0.11	1	0.00324	0.00036	No	No
	November	0.00047	0.00047	0.11	1	0.00427	0.00047	No	No
	December	0.00037	0.00037	0.11	1	0.00337	0.00037	No	No
Closure Phase (29-35)	January	0.00026	0.00026	0.11	1	0.00241	0.00026	No	No
	February	0.00010	0.00010	0.11	1	0.00091	0.00010	No	No
	March	0.00006	0.00006	0.11	1	0.00055	0.00006	No	No
	April	0.00011	0.00011	0.11	1	0.00102	0.00011	No	No
	May	0.00133	0.00133	0.065	1	0.0205	0.00133	No	No
	June	0.00176	0.00176	0.065	1	0.0271	0.00176	No	No
	July	0.00049	0.00049	0.11	1	0.00443	0.00049	No	No
	August	0.00068	0.00069	0.11	1	0.00624	0.00069	No	No
	September	0.00032	0.00032	0.11	1	0.00295	0.00032	No	No
	October	0.00036	0.00036	0.11	1	0.00324	0.00036	No	No
	November	0.00047	0.00047	0.11	1	0.00426	0.00047	No	No
	December	0.00037	0.00037	0.11	1	0.00336	0.00037	No	No
Post-Closure Phase (36-99)	January	0.00025	0.00025	0.11	1	0.00231	0.00025	No	No
	February	0.00010	0.00010	0.11	1	0.00091	0.00010	No	No
	March	0.00006	0.00006	0.11	1	0.00055	0.00006	No	No
	April	0.00011	0.00011	0.11	1	0.00102	0.00011	No	No
	May	0.00133	0.00133	0.065	1	0.0205	0.00133	No	No
	June	0.00176	0.00176	0.065	1	0.0271	0.00176	No	No
	July	0.00049	0.00049	0.11	1	0.00442	0.00049	No	No
	August	0.00068	0.00068	0.11	1	0.00620	0.00068	No	No
	September	0.00031	0.00032	0.11	1	0.00288	0.00032	No	No
	October	0.00035	0.00035	0.11	1	0.00322	0.00035	No	No
	November	0.00047	0.00047	0.11	1	0.00424	0.00047	No	No
	December	0.00036	0.00037	0.11	1	0.00333	0.00037	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guideline is hardness dependent

Appendix 13-D11t. Lower Baker Creek (BK0) Hazard Quotients for Total Silver Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.00001	0.00001	0.00150	0.00300	0.0035	0.0037	0.0019	No
	February	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	March	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	April	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	May	0.00001	0.00001	0.00005	0.00010	0.218	0.219	0.110	No
	June	0.00001	0.00001	0.00005	0.00010	0.267	0.269	0.134	No
	July	0.00001	0.00001	0.00150	0.00300	0.0064	0.0065	0.0032	No
	August	0.00002	0.00002	0.00150	0.00300	0.0119	0.0125	0.0063	No
	September	0.00001	0.00001	0.00150	0.00300	0.0077	0.0085	0.0043	No
	October	0.00001	0.00001	0.00150	0.00300	0.0050	0.0051	0.0025	No
	November	0.00001	0.00001	0.00150	0.00300	0.0060	0.0061	0.0031	No
	December	0.00001	0.00001	0.00150	0.00300	0.0050	0.0053	0.0026	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00150	0.00300	0.0048	0.0051	0.0025	No
	February	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	March	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	April	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	May	0.00001	0.00001	0.00005	0.00010	0.222	0.223	0.112	No
	June	0.00001	0.00001	0.00005	0.00010	0.271	0.272	0.136	No
	July	0.00001	0.00001	0.00150	0.00300	0.0066	0.0066	0.0033	No
	August	0.00002	0.00002	0.00150	0.00300	0.0139	0.0141	0.0071	No
	September	0.00002	0.00002	0.00150	0.00300	0.0124	0.0138	0.0069	No
	October	0.00001	0.00001	0.00150	0.00300	0.0053	0.0054	0.0027	No
	November	0.00001	0.00001	0.00150	0.00300	0.0064	0.0064	0.0032	No
	December	0.00001	0.00001	0.00150	0.00300	0.0058	0.0058	0.0029	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00150	0.00300	0.0051	0.0051	0.0026	No
	February	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	March	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	April	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	May	0.00001	0.00001	0.00005	0.00010	0.223	0.223	0.112	No
	June	0.00001	0.00001	0.00005	0.00010	0.272	0.272	0.136	No
	July	0.00001	0.00001	0.00150	0.00300	0.0066	0.0066	0.0033	No
	August	0.00002	0.00002	0.00150	0.00300	0.0140	0.0141	0.0070	No
	September	0.00002	0.00002	0.00150	0.00300	0.0133	0.0135	0.0067	No
	October	0.00001	0.00001	0.00150	0.00300	0.0054	0.0054	0.0027	No
	November	0.00001	0.00001	0.00150	0.00300	0.0064	0.0064	0.0032	No
	December	0.00001	0.00001	0.00150	0.00300	0.0059	0.0059	0.0029	No
Closure Phase (29-35)	January	0.00001	0.00001	0.00150	0.00300	0.0051	0.0051	0.0026	No
	February	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	March	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	April	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	May	0.00001	0.00001	0.00005	0.00010	0.223	0.223	0.112	No
	June	0.00001	0.00001	0.00005	0.00010	0.272	0.272	0.136	No
	July	0.00001	0.00001	0.00150	0.00300	0.0066	0.0066	0.0033	No
	August	0.00002	0.00002	0.00150	0.00300	0.0140	0.0140	0.0070	No
	September	0.00002	0.00002	0.00150	0.00300	0.0129	0.0131	0.0065	No
	October	0.00001	0.00001	0.00150	0.00300	0.0054	0.0054	0.0027	No
	November	0.00001	0.00001	0.00150	0.00300	0.0064	0.0064	0.0032	No
	December	0.00001	0.00001	0.00150	0.00300	0.0058	0.0059	0.0029	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00150	0.00300	0.0050	0.0051	0.0025	No
	February	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	March	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	April	0.00001	0.00001	0.00150	0.00300	0.0033	0.0033	0.0017	No
	May	0.00001	0.00001	0.00005	0.00010	0.223	0.223	0.112	No
	June	0.00001	0.00001	0.00005	0.00010	0.272	0.272	0.136	No
	July	0.00001	0.00001	0.00150	0.00300	0.0066	0.0066	0.0033	No
	August	0.00002	0.00002	0.00150	0.00300	0.0140	0.0140	0.0070	No
	September	0.00002	0.00002	0.00150	0.00300	0.0130	0.0132	0.0066	No
	October	0.00001	0.00001	0.00150	0.00300	0.0054	0.0054	0.0027	No
	November	0.00001	0.00001	0.00150	0.00300	0.0064	0.0064	0.0032	No
	December	0.00001	0.00001	0.00150	0.00300	0.0058	0.0058	0.0029	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D11u. Lower Baker Creek (BK0) Hazard Quotients for Total Thallium Concentrations, Expected Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000002	0.000003	0.0003	0.002	0.00860	0.00129	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0332	0.00497	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0326	0.00488	No	No
	July	0.000009	0.000009	0.0003	0.002	0.0316	0.00474	No	No
	August	0.000010	0.000011	0.0003	0.002	0.0351	0.00526	No	No
	September	0.000006	0.000007	0.0003	0.002	0.0228	0.00342	No	No
	October	0.000006	0.000006	0.0003	0.002	0.0209	0.00313	No	No
	November	0.000008	0.000009	0.0003	0.002	0.0288	0.00432	No	No
	December	0.000005	0.000006	0.0003	0.002	0.0198	0.00296	No	No
Operation 1 Phase (1-23)	January	0.000004	0.000005	0.0003	0.002	0.0154	0.00231	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0147	0.00221	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0336	0.00504	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00495	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0324	0.00486	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0400	0.00600	No	No
	September	0.000010	0.000012	0.0003	0.002	0.0389	0.00583	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0231	0.00346	No	No
	November	0.000009	0.000009	0.0003	0.002	0.0313	0.00469	No	No
	December	0.000007	0.000007	0.0003	0.002	0.0232	0.00348	No	No
Operations 2 Phase (24-28)	January	0.000005	0.000005	0.0003	0.002	0.0154	0.00230	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0336	0.00504	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00495	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0324	0.00486	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0398	0.00598	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0380	0.00570	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0230	0.00345	No	No
	November	0.000009	0.000009	0.0003	0.002	0.0312	0.00468	No	No
	December	0.000007	0.000007	0.0003	0.002	0.0233	0.00349	No	No
Closure Phase (29-35)	January	0.000005	0.000005	0.0003	0.002	0.0154	0.00231	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0336	0.00504	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00495	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0324	0.00486	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0397	0.00596	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0368	0.00552	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0230	0.00345	No	No
	November	0.000009	0.000009	0.0003	0.002	0.0312	0.00467	No	No
	December	0.000007	0.000007	0.0003	0.002	0.0233	0.00349	No	No
Post-Closure Phase (36-99)	January	0.000004	0.000005	0.0003	0.002	0.0151	0.00226	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0336	0.00504	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00495	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0324	0.00485	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0397	0.00595	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0371	0.00557	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0229	0.00344	No	No
	November	0.000009	0.000009	0.0003	0.002	0.0311	0.00467	No	No
	December	0.000007	0.000007	0.0003	0.002	0.0231	0.00347	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11v. Lower Baker Creek (BK0) Hazard Quotients for Total Uranium Concentrations, Expected Case

Project Phase		First Screening Step							Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs. BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0009	0.0010	0.3	0.02	0.2	0.0032	0.0484	0.0048	No	No	No
	February	0.0011	0.0011	0.3	0.02	0.2	0.0035	0.0531	0.0053	No	No	No
	March	0.0010	0.0011	0.3	0.02	0.2	0.0035	0.0529	0.0053	No	No	No
	April	0.0005	0.0005	0.3	0.02	0.2	0.0018	0.0263	0.0026	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0100	0.0010	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0053	0.0005	No	No	No
	July	0.0001	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	August	0.0003	0.0004	0.3	0.02	0.2	0.0013	0.0193	0.0019	No	No	No
	September	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0307	0.0031	No	No	No
	October	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0186	0.0019	No	No	No
	November	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0175	0.0017	No	No	No
	December	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0319	0.0032	No	No	No
Operation 1 Phase (1-23)	January	0.0006	0.0009	0.3	0.02	0.2	0.0029	0.0429	0.0043	No	No	No
	February	0.0004	0.0010	0.3	0.02	0.2	0.0034	0.0508	0.0051	No	No	No
	March	0.0009	0.0010	0.3	0.02	0.2	0.0032	0.0486	0.0049	No	No	No
	April	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0249	0.0025	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0087	0.0009	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0005	0.0041	0.0004	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0059	0.0006	No	No	No
	August	0.0002	0.0003	0.3	0.02	0.2	0.0009	0.0128	0.0013	No	No	No
	September	0.0003	0.0004	0.3	0.02	0.2	0.0013	0.0201	0.0020	No	No	No
	October	0.0002	0.0003	0.3	0.02	0.2	0.0009	0.0133	0.0013	No	No	No
	November	0.0002	0.0003	0.3	0.02	0.2	0.0009	0.0131	0.0013	No	No	No
	December	0.0004	0.0004	0.3	0.02	0.2	0.0015	0.0225	0.0022	No	No	No
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.3	0.02	0.2	0.0019	0.0290	0.0029	No	No	No
	February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0015	No	No	No
	March	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0470	0.0047	No	No	No
	April	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0249	0.0025	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0085	0.0009	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0039	0.0004	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0116	0.0012	No	No	No
	September	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0164	0.0016	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0123	0.0012	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0123	0.0012	No	No	No
	December	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0194	0.0019	No	No	No
Closure Phase (29-35)	January	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0298	0.0030	No	No	No
	February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0015	No	No	No
	March	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0470	0.0047	No	No	No
	April	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0248	0.0025	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0085	0.0009	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0039	0.0004	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0057	0.0006	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0116	0.0012	No	No	No
	September	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0166	0.0017	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0124	0.0012	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0123	0.0012	No	No	No
	December	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0195	0.0019	No	No	No
Post-Closure Phase (36-99)	January	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0299	0.0030	No	No	No
	February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0015	No	No	No
	March	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0470	0.0047	No	No	No
	April	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0248	0.0025	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0085	0.0009	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0039	0.0004	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0057	0.0006	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0116	0.0012	No	No	No
	September	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0167	0.0017	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0124	0.0012	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0123	0.0012	No	No	No
	December	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0195	0.0020	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11w. Lower Baker Creek (BK0) Hazard Quotients for Total Vanadium Concentrations, Expected Case

Project Phase	Months	First Screening Step							Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline	Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Livestock
Construction (-2 to-1)	January	0.0002	0.0003	0.006	0.02	0.1	0.0430	0.0129	0.0026	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0004	0.0004	0.006	0.02	0.1	0.0731	0.0219	0.0044	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.164	0.0493	0.0099	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.195	0.0585	0.0117	No	No
	July	0.0009	0.0009	0.006	0.02	0.1	0.158	0.0473	0.0095	No	No
	August	0.0006	0.0006	0.006	0.02	0.1	0.102	0.0306	0.0061	No	No
	September	0.0004	0.0004	0.006	0.02	0.1	0.0675	0.0202	0.0040	No	No
	October	0.0006	0.0006	0.006	0.02	0.1	0.104	0.0312	0.0062	No	No
	November	0.0008	0.0009	0.006	0.02	0.1	0.144	0.0432	0.0086	No	No
	December	0.0005	0.0006	0.006	0.02	0.1	0.0988	0.0296	0.0059	No	No
Operation 1 Phase (1-23)	January	0.0004	0.0005	0.006	0.02	0.1	0.0769	0.0231	0.0046	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0004	0.0004	0.006	0.02	0.1	0.0736	0.0221	0.0044	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0593	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0485	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.114	0.0342	0.0068	No	No
	September	0.0006	0.0006	0.006	0.02	0.1	0.102	0.0306	0.0061	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.115	0.0346	0.0069	No	No
	November	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0469	0.0094	No	No
	December	0.0007	0.0007	0.006	0.02	0.1	0.116	0.0348	0.0070	No	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.006	0.02	0.1	0.0767	0.0230	0.0046	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0004	0.0004	0.006	0.02	0.1	0.0730	0.0219	0.0044	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0593	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0485	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.114	0.0341	0.0068	No	No
	September	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.115	0.0345	0.0069	No	No
	November	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0468	0.0094	No	No
	December	0.0007	0.0007	0.006	0.02	0.1	0.116	0.0347	0.0069	No	No
Closure Phase (29-35)	January	0.0004	0.0005	0.006	0.02	0.1	0.0751	0.0225	0.0045	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0004	0.0004	0.006	0.02	0.1	0.0731	0.0219	0.0044	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0593	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.161	0.0484	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.113	0.0340	0.0068	No	No
	September	0.0006	0.0006	0.006	0.02	0.1	0.0974	0.0292	0.0058	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.114	0.0343	0.0069	No	No
	November	0.0009	0.0009	0.006	0.02	0.1	0.155	0.0466	0.0093	No	No
	December	0.0007	0.0007	0.006	0.02	0.1	0.115	0.0346	0.0069	No	No
Post-Closure Phase (36-99)	January	0.0004	0.0005	0.006	0.02	0.1	0.0751	0.0225	0.0045	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0004	0.0004	0.006	0.02	0.1	0.0731	0.0219	0.0044	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0593	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.161	0.0484	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.113	0.0340	0.0068	No	No
	September	0.0006	0.0006	0.006	0.02	0.1	0.0983	0.0295	0.0059	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.115	0.0344	0.0069	No	No
	November	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0467	0.0093	No	No
	December	0.0007	0.0007	0.006	0.02	0.1	0.115	0.0346	0.0069	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11x. Lower Baker Creek (BK0) Hazard Quotients for Total Zinc Concentrations, Expected Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		Mean Predicted vs. BC MOE 30-Day Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				Maximum Predicted vs BC MOE Maximum Guideline
		Mean	Maximum	Mean	Maximum								
Construction (-2 to-1)	January	0.0003	0.0004	0.0548	0.0803	2	0.0052	0.0072	0.0049	0.0002	No	No	
	February	0.0002	0.0002	0.0623	0.0878	2	0.0032	0.0032	0.0022	0.0001	No	No	
	March	0.0003	0.0003	0.0581	0.0836	2	0.0046	0.0051	0.0035	0.0001	No	No	
	April	0.0017	0.0018	0.0600	0.0855	2	0.0291	0.0296	0.0208	0.0009	No	No	
	May	0.0039	0.0039	0.0095	0.0350	2	0.407	0.412	0.112	0.0020	No	No	
	June	0.0044	0.0045	0.0075	0.0330	2	0.589	0.594	0.135	0.0022	No	No	
	July	0.0029	0.0029	0.0338	0.0593	2	0.0849	0.0861	0.0490	0.0015	No	No	
	August	0.0019	0.0020	0.0548	0.0803	2	0.0351	0.0374	0.0255	0.0010	No	No	
	September	0.0008	0.0010	0.0506	0.0761	2	0.0164	0.0189	0.0126	0.0005	No	No	
	October	0.0016	0.0017	0.0600	0.0855	2	0.0260	0.0276	0.0193	0.0008	No	No	
	November	0.0024	0.0025	0.0720	0.0975	2	0.0332	0.0350	0.0258	0.0013	No	No	
	December	0.0013	0.0016	0.0323	0.0578	2	0.0414	0.0483	0.0270	0.0008	No	No	
Operation 1 Phase (1-23)	January	0.0010	0.0011	0.0548	0.0803	2	0.0175	0.0198	0.0135	0.0005	No	No	
	February	0.0001	0.0002	0.0623	0.0878	2	0.0018	0.0031	0.0022	0.0001	No	No	
	March	0.0004	0.0004	0.0581	0.0836	2	0.0068	0.0069	0.0048	0.0002	No	No	
	April	0.0018	0.0018	0.0600	0.0855	2	0.0301	0.0301	0.0211	0.0009	No	No	
	May	0.0040	0.0040	0.0095	0.0350	2	0.417	0.417	0.113	0.0020	No	No	
	June	0.0045	0.0045	0.0075	0.0330	2	0.603	0.604	0.137	0.0023	No	No	
	July	0.0030	0.0030	0.0338	0.0593	2	0.0883	0.0887	0.0505	0.0015	No	No	
	August	0.0023	0.0024	0.0548	0.0803	2	0.0423	0.0433	0.0295	0.0012	No	No	
	September	0.0016	0.0018	0.0506	0.0761	2	0.0307	0.0347	0.0231	0.0009	No	No	
	October	0.0018	0.0019	0.0600	0.0855	2	0.0307	0.0314	0.0221	0.0009	No	No	
	November	0.0027	0.0028	0.0720	0.0975	2	0.0380	0.0386	0.0285	0.0014	No	No	
	December	0.0019	0.0019	0.0323	0.0578	2	0.0582	0.0593	0.0331	0.0010	No	No	
Operations 2 Phase (24-28)	January	0.0012	0.0013	0.0548	0.0803	2	0.0214	0.0238	0.0162	0.0007	No	No	
	February	0.0001	0.0001	0.0623	0.0878	2	0.0016	0.0016	0.0011	0.0001	No	No	
	March	0.0004	0.0004	0.0581	0.0836	2	0.0069	0.0069	0.0048	0.0002	No	No	
	April	0.0018	0.0018	0.0600	0.0855	2	0.0300	0.0301	0.0211	0.0009	No	No	
	May	0.0040	0.0040	0.0095	0.0350	2	0.417	0.417	0.113	0.0020	No	No	
	June	0.0045	0.0045	0.0075	0.0330	2	0.604	0.605	0.137	0.0023	No	No	
	July	0.0030	0.0030	0.0338	0.0593	2	0.0890	0.0893	0.0509	0.0015	No	No	
	August	0.0024	0.0024	0.0548	0.0803	2	0.0439	0.0446	0.0305	0.0012	No	No	
	September	0.0018	0.0018	0.0506	0.0761	2	0.0349	0.0360	0.0239	0.0009	No	No	
	October	0.0019	0.0019	0.0600	0.0855	2	0.0319	0.0324	0.0227	0.0010	No	No	
	November	0.0028	0.0028	0.0720	0.0975	2	0.0389	0.0393	0.0290	0.0014	No	No	
	December	0.0020	0.0021	0.0323	0.0578	2	0.0616	0.0638	0.0356	0.0010	No	No	
Closure Phase (29-35)	January	0.0013	0.0014	0.0548	0.0803	2	0.0240	0.0252	0.0172	0.0007	No	No	
	February	0.0001	0.0001	0.0623	0.0878	2	0.0016	0.0016	0.0011	0.0001	No	No	
	March	0.0004	0.0004	0.0581	0.0836	2	0.0069	0.0069	0.0048	0.0002	No	No	
	April	0.0018	0.0018	0.0600	0.0855	2	0.0301	0.0301	0.0211	0.0009	No	No	
	May	0.0040	0.0040	0.0095	0.0350	2	0.417	0.417	0.113	0.0020	No	No	
	June	0.0045	0.0045	0.0075	0.0330	2	0.604	0.605	0.137	0.0023	No	No	
	July	0.0030	0.0030	0.0338	0.0593	2	0.0891	0.0893	0.0509	0.0015	No	No	
	August	0.0024	0.0024	0.0548	0.0803	2	0.0443	0.0447	0.0305	0.0012	No	No	
	September	0.0018	0.0018	0.0506	0.0761	2	0.0351	0.0359	0.0239	0.0009	No	No	
	October	0.0019	0.0019	0.0600	0.0855	2	0.0321	0.0323	0.0227	0.0010	No	No	
	November	0.0028	0.0028	0.0720	0.0975	2	0.0391	0.0393	0.0290	0.0014	No	No	
	December	0.0020	0.0020	0.0323	0.0578	2	0.0626	0.0634	0.0354	0.0010	No	No	
Post-Closure Phase (36-99)	January	0.0011	0.0012	0.0548	0.0803	2	0.0197	0.0228	0.0155	0.0006	No	No	
	February	0.0001	0.0001	0.0623	0.0878	2	0.0016	0.0016	0.0011	0.0001	No	No	
	March	0.0004	0.0004	0.0581	0.0836	2	0.0069	0.0069	0.0048	0.0002	No	No	
	April	0.0018	0.0018	0.0600	0.0855	2	0.0301	0.0301	0.0211	0.0009	No	No	
	May	0.0040	0.0040	0.0095	0.0350	2	0.417	0.417	0.113	0.0020	No	No	
	June	0.0045	0.0045	0.0075	0.0330	2	0.603	0.604	0.137	0.0023	No	No	
	July	0.0030	0.0030	0.0338	0.0593	2	0.0885	0.0889	0.0507	0.0015	No	No	
	August	0.0024	0.0024	0.0548	0.0803	2	0.0430	0.0438	0.0299	0.0012	No	No	
	September	0.0017	0.0017	0.0506	0.0761	2	0.0329	0.0341	0.0227	0.0009	No	No	
	October	0.0019	0.0019	0.0600	0.0855	2	0.0313	0.0318	0.0223	0.0010	No	No	
	November	0.0028	0.0028	0.0720	0.0975	2	0.0384	0.0388	0.0287	0.0014	No	No	
	December	0.0019	0.0020	0.0323	0.0578	2	0.0595	0.0617	0.0345	0.0010	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D11y. Lower Baker Creek (BK0) Hazard Quotients for Chloride Concentrations, Expected Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
		Mean	Maximum	Mean	Maximum			Mean	Maximum	Maximum					
Construction (-2 to-1)	January	0.778	0.800	150	600	600	600	0.0052	0.0053	0.0013	0.0013	0.0013	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.696	0.735	150	600	600	600	0.0046	0.0049	0.0012	0.0012	0.0012	No	No	No
	April	0.569	0.574	150	600	600	600	0.0038	0.0038	0.0010	0.0010	0.0010	No	No	No
	May	0.557	0.560	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.510	0.514	150	600	600	600	0.0034	0.0034	0.0009	0.0009	0.0009	No	No	No
	July	0.614	0.619	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.601	0.620	150	600	600	600	0.0040	0.0041	0.0010	0.0010	0.0010	No	No	No
	September	0.722	0.740	150	600	600	600	0.0048	0.0049	0.0012	0.0012	0.0012	No	No	No
	October	0.572	0.589	150	600	600	600	0.0038	0.0039	0.0010	0.0010	0.0010	No	No	No
	November	0.564	0.578	150	600	600	600	0.0038	0.0039	0.0010	0.0010	0.0010	No	No	No
	December	0.635	0.667	150	600	600	600	0.0042	0.0044	0.0011	0.0011	0.0011	No	No	No
Operation 1 Phase (1-23)	January	0.632	0.717	150	600	600	600	0.0042	0.0048	0.0012	0.0012	0.0012	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.503	0.564	150	600	600	600	0.0034	0.0038	0.0009	0.0009	0.0009	No	No	No
	April	0.560	0.561	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	May	0.550	0.551	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.504	0.505	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.608	0.609	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.562	0.568	150	600	600	600	0.0037	0.0038	0.0009	0.0009	0.0009	No	No	No
	September	0.650	0.680	150	600	600	600	0.0043	0.0045	0.0011	0.0011	0.0011	No	No	No
	October	0.530	0.543	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	November	0.528	0.540	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	December	0.557	0.577	150	600	600	600	0.0037	0.0038	0.0010	0.0010	0.0010	No	No	No
Operations 2 Phase (24-28)	January	0.621	0.635	150	600	600	600	0.0041	0.0042	0.0011	0.0011	0.0011	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.561	0.561	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	May	0.550	0.550	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.504	0.505	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.609	0.610	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.564	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	September	0.646	0.654	150	600	600	600	0.0043	0.0044	0.0011	0.0011	0.0011	No	No	No
	October	0.529	0.532	150	600	600	600	0.0035	0.0035	0.0009	0.0009	0.0009	No	No	No
	November	0.528	0.530	150	600	600	600	0.0035	0.0035	0.0009	0.0009	0.0009	No	No	No
	December	0.561	0.565	150	600	600	600	0.0037	0.0038	0.0009	0.0009	0.0009	No	No	No
Closure Phase (29-35)	January	0.639	0.640	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.561	0.561	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	May	0.550	0.550	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.505	0.505	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.610	0.610	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.567	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	September	0.656	0.657	150	600	600	600	0.0044	0.0044	0.0011	0.0011	0.0011	No	No	No
	October	0.532	0.532	150	600	600	600	0.0035	0.0035	0.0009	0.0009	0.0009	No	No	No
	November	0.530	0.530	150	600	600	600	0.0035	0.0035	0.0009	0.0009	0.0009	No	No	No
	December	0.564	0.565	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
Post-Closure Phase (36-99)	January	0.620	0.638	150	600	600	600	0.0041	0.0043	0.0011	0.0011	0.0011	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.561	0.561	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	May	0.550	0.550	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.504	0.505	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.608	0.610	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.562	0.567	150	600	600	600	0.0037	0.0038	0.0009	0.0009	0.0009	No	No	No
	September	0.645	0.657	150	600	600	600	0.0043	0.0044	0.0011	0.0011	0.0011	No	No	No
	October	0.528	0.532	150	600	600	600	0.0035	0.0035	0.0009	0.0009	0.0009	No	No	No
	November	0.526	0.530	150	600	600	600	0.0035	0.0035	0.0009	0.0009	0.0009	No	No	No
	December	0.556	0.563	150	600	600	600	0.0037	0.0038	0.0009	0.0009	0.0009	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D11z. Lower Baker Creek (BK0) Hazard Quotients for Fluoride Concentrations, Expected Case

Project Phase		First Screening Step															
		Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		
		Mean	Maximum	BC MOE Maximum Guideline	BC 30-Day Mean	BC Maximum DWQG	30-Day Mean	Maximum	30-Day Mean	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Mean Predicted vs. BC 30-Day Mean DWQG	Maximum predicted vs. BC 30-Day Mean DWQG	Maximum predicted vs. BC 30-Day Maximum DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0496	0.0498	1.51	1	1.5	1	1.5	1	2	0.0331	0.0496	0.0498	0.0332	0.0496	0.0498	0.0332
	February	0.0525	0.0525	1.53	1	1.5	1	1.5	1	2	0.0343	0.0525	0.0525	0.0350	0.0525	0.0525	0.0350
	March	0.0502	0.0513	1.52	1	1.5	1	1.5	1	2	0.0338	0.0502	0.0513	0.0342	0.0502	0.0513	0.0342
	April	0.0409	0.0411	1.52	1	1.5	1	1.5	1	2	0.0270	0.0409	0.0411	0.0274	0.0409	0.0411	0.0274
	May	0.0266	0.0269	1.30	1	1.5	1	1.5	1	2	0.0206	0.0266	0.0269	0.0179	0.0266	0.0269	0.0179
	June	0.0258	0.0261	1.26	1	1.5	1	1.5	1	2	0.0208	0.0258	0.0261	0.0174	0.0258	0.0261	0.0174
	July	0.0266	0.0271	1.42	1	1.5	1	1.5	1	2	0.0190	0.0266	0.0271	0.0180	0.0266	0.0271	0.0180
	August	0.0363	0.0376	1.51	1	1.5	1	1.5	1	2	0.0250	0.0363	0.0376	0.0250	0.0363	0.0376	0.0250
	September	0.0403	0.0422	1.49	1	1.5	1	1.5	1	2	0.0283	0.0403	0.0422	0.0281	0.0403	0.0422	0.0281
	October	0.0323	0.0335	1.52	1	1.5	1	1.5	1	2	0.0220	0.0323	0.0335	0.0223	0.0323	0.0335	0.0223
	November	0.0329	0.0338	1.56	1	1.5	1	1.5	1	2	0.0216	0.0329	0.0338	0.0225	0.0329	0.0338	0.0225
	December	0.0389	0.0409	1.42	1	1.5	1	1.5	1	2	0.0288	0.0389	0.0409	0.0272	0.0389	0.0409	0.0272
Operation 1 Phase (1-23)	January	0.0388	0.0460	1.51	1	1.5	1	1.5	1	2	0.0305	0.0388	0.0460	0.0306	0.0388	0.0460	0.0306
	February	0.0408	0.0517	1.53	1	1.5	1	1.5	1	2	0.0338	0.0408	0.0517	0.0345	0.0408	0.0517	0.0345
	March	0.0450	0.0466	1.52	1	1.5	1	1.5	1	2	0.0307	0.0450	0.0466	0.0311	0.0450	0.0466	0.0311
	April	0.0405	0.0405	1.52	1	1.5	1	1.5	1	2	0.0266	0.0405	0.0405	0.0270	0.0405	0.0405	0.0270
	May	0.0259	0.0260	1.30	1	1.5	1	1.5	1	2	0.0200	0.0259	0.0260	0.0173	0.0259	0.0260	0.0173
	June	0.0253	0.0253	1.26	1	1.5	1	1.5	1	2	0.0202	0.0253	0.0253	0.0169	0.0253	0.0253	0.0169
	July	0.0257	0.0257	1.42	1	1.5	1	1.5	1	2	0.0181	0.0257	0.0257	0.0172	0.0257	0.0257	0.0172
	August	0.0338	0.0341	1.51	1	1.5	1	1.5	1	2	0.0227	0.0338	0.0341	0.0227	0.0338	0.0341	0.0227
	September	0.0335	0.0359	1.49	1	1.5	1	1.5	1	2	0.0241	0.0335	0.0359	0.0239	0.0335	0.0359	0.0239
	October	0.0294	0.0301	1.52	1	1.5	1	1.5	1	2	0.0198	0.0294	0.0301	0.0201	0.0294	0.0301	0.0201
	November	0.0306	0.0312	1.56	1	1.5	1	1.5	1	2	0.0200	0.0306	0.0312	0.0208	0.0306	0.0312	0.0208
	December	0.0331	0.0347	1.42	1	1.5	1	1.5	1	2	0.0245	0.0331	0.0347	0.0231	0.0331	0.0347	0.0231
Operations 2 Phase (24-28)	January	0.0377	0.0386	1.51	1	1.5	1	1.5	1	2	0.0257	0.0377	0.0386	0.0257	0.0377	0.0386	0.0257
	February	0.0390	0.0390	1.53	1	1.5	1	1.5	1	2	0.0255	0.0390	0.0390	0.0260	0.0390	0.0390	0.0260
	March	0.0449	0.0449	1.52	1	1.5	1	1.5	1	2	0.0296	0.0449	0.0449	0.0299	0.0449	0.0449	0.0299
	April	0.0405	0.0405	1.52	1	1.5	1	1.5	1	2	0.0266	0.0405	0.0405	0.0270	0.0405	0.0405	0.0270
	May	0.0259	0.0259	1.30	1	1.5	1	1.5	1	2	0.0199	0.0259	0.0259	0.0173	0.0259	0.0259	0.0173
	June	0.0253	0.0253	1.26	1	1.5	1	1.5	1	2	0.0202	0.0253	0.0253	0.0169	0.0253	0.0253	0.0169
	July	0.0257	0.0258	1.42	1	1.5	1	1.5	1	2	0.0181	0.0257	0.0258	0.0172	0.0257	0.0258	0.0172
	August	0.0341	0.0342	1.51	1	1.5	1	1.5	1	2	0.0227	0.0341	0.0342	0.0228	0.0341	0.0342	0.0228
	September	0.0333	0.0337	1.49	1	1.5	1	1.5	1	2	0.0226	0.0333	0.0337	0.0225	0.0333	0.0337	0.0225
	October	0.0295	0.0296	1.52	1	1.5	1	1.5	1	2	0.0194	0.0295	0.0296	0.0197	0.0295	0.0296	0.0197
	November	0.0307	0.0308	1.56	1	1.5	1	1.5	1	2	0.0197	0.0307	0.0308	0.0205	0.0307	0.0308	0.0205
	December	0.0332	0.0334	1.42	1	1.5	1	1.5	1	2	0.0236	0.0332	0.0334	0.0223	0.0332	0.0334	0.0223
Closure Phase (29-35)	January	0.0388	0.0389	1.51	1	1.5	1	1.5	1	2	0.0259	0.0388	0.0389	0.0260	0.0388	0.0389	0.0260
	February	0.0390	0.0390	1.53	1	1.5	1	1.5	1	2	0.0255	0.0390	0.0390	0.0260	0.0390	0.0390	0.0260
	March	0.0449	0.0449	1.52	1	1.5	1	1.5	1	2	0.0296	0.0449	0.0449	0.0299	0.0449	0.0449	0.0299
	April	0.0405	0.0405	1.52	1	1.5	1	1.5	1	2	0.0266	0.0405	0.0405	0.0270	0.0405	0.0405	0.0270
	May	0.0259	0.0259	1.30	1	1.5	1	1.5	1	2	0.0199	0.0259	0.0259	0.0173	0.0259	0.0259	0.0173
	June	0.0253	0.0253	1.26	1	1.5	1	1.5	1	2	0.0202	0.0253	0.0253	0.0169	0.0253	0.0253	0.0169
	July	0.0258	0.0258	1.42	1	1.5	1	1.5	1	2	0.0181	0.0258	0.0258	0.0172	0.0258	0.0258	0.0172
	August	0.0342	0.0342	1.51	1	1.5	1	1.5	1	2	0.0227	0.0342	0.0342	0.0228	0.0342	0.0342	0.0228
	September	0.0338	0.0339	1.49	1	1.5	1	1.5	1	2	0.0228	0.0338	0.0339	0.0226	0.0338	0.0339	0.0226
	October	0.0296	0.0296	1.52	1	1.5	1	1.5	1	2	0.0194	0.0296	0.0296	0.0197	0.0296	0.0296	0.0197
	November	0.0308	0.0308	1.56	1	1.5	1	1.5	1	2	0.0197	0.0308	0.0308	0.0205	0.0308	0.0308	0.0205
	December	0.0334	0.0334	1.42	1	1.5	1	1.5	1	2	0.0236	0.0334	0.0334	0.0223	0.0334	0.0334	0.0223
Post-Closure Phase (36-99)	January	0.0377	0.0389	1.51	1	1.5	1	1.5	1	2	0.0258	0.0377	0.0389	0.0259	0.0377	0.0389	0.0259
	February	0.0390	0.0390	1.53	1	1.5	1	1.5	1	2	0.0255	0.0390	0.0390	0.0260	0.0390	0.0390	0.0260
	March	0.0449	0.0449	1.52	1	1.5	1	1.5	1	2	0.0296	0.0449	0.0449	0.0299	0.0449	0.0449	0.0299
	April	0.0405	0.0405	1.52	1	1.5	1	1.5	1	2	0.0266	0.0405	0.0405	0.0270	0.0405	0.0405	0.0270
	May	0.0259	0.0259	1.30	1	1.5	1	1.5	1	2	0.0199	0.0259	0.0259	0.0173	0.0259	0.0259	0.0173
	June	0.0253	0.0253	1.26	1	1.5	1	1.5	1	2	0.0202	0.0253	0.0253	0.0169	0.0253	0.0253	0.0169
	July	0.0257	0.0258	1.42	1	1.5	1	1.5	1	2	0.0181	0.0257	0.0258	0.0172	0.0257	0.0258	0.0172
	August	0.0339	0.0341	1.51	1	1.5	1	1.5	1	2	0.0227	0.0339	0.0341	0.0228	0.0339	0.0341	0.0228
	September	0.0332	0.0339	1.49	1	1.5	1	1.5	1	2	0.0227	0.0332	0.0339	0.0226	0.0332	0.0339	0.0226
	October	0.0293	0.0296	1.52	1	1.5	1	1.5	1	2	0.0194	0.0293	0.0296	0.0197	0.0293	0.0296	0.0197
	November	0.0305	0.0307	1.56	1	1.5	1	1.5	1	2	0.0197	0.0305	0.0307	0.0205	0.0305	0.0307	0.0205
	December	0.0329	0.0333	1.42	1	1.5	1	1.5	1	2	0.0235	0.0329	0.0333	0.0222	0.0329	0.0333	0.0222

(continued)

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness

Appendix 13-D11z. Lower Baker Creek (BK0) Hazard Quotients for Fluoride Concentrations, Expected Case (completed)

		First Screening Step			Retained as COPC?			
		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline						
Project Phase	Months	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	0.0496	0.0498	0.0249	No	No	No	No
	February	0.0525	0.0525	0.0263	No	No	No	No
	March	0.0502	0.0513	0.0256	No	No	No	No
	April	0.0409	0.0411	0.0206	No	No	No	No
	May	0.0266	0.0269	0.0134	No	No	No	No
	June	0.0258	0.0261	0.0130	No	No	No	No
	July	0.0266	0.0271	0.0135	No	No	No	No
	August	0.0363	0.0376	0.0188	No	No	No	No
	September	0.0403	0.0422	0.0211	No	No	No	No
	October	0.0323	0.0335	0.0168	No	No	No	No
	November	0.0329	0.0338	0.0169	No	No	No	No
	December	0.0389	0.0409	0.0204	No	No	No	No
Operation 1 Phase (1-23)	January	0.0388	0.0460	0.0230	No	No	No	No
	February	0.0408	0.0517	0.0258	No	No	No	No
	March	0.0450	0.0466	0.0233	No	No	No	No
	April	0.0405	0.0405	0.0203	No	No	No	No
	May	0.0259	0.0260	0.0130	No	No	No	No
	June	0.0253	0.0253	0.0127	No	No	No	No
	July	0.0257	0.0257	0.0129	No	No	No	No
	August	0.0338	0.0341	0.0171	No	No	No	No
	September	0.0335	0.0359	0.0179	No	No	No	No
	October	0.0294	0.0301	0.0150	No	No	No	No
	November	0.0306	0.0312	0.0156	No	No	No	No
	December	0.0331	0.0347	0.0173	No	No	No	No
Operations 2 Phase (24-28)	January	0.0377	0.0386	0.0193	No	No	No	No
	February	0.0390	0.0390	0.0195	No	No	No	No
	March	0.0449	0.0449	0.0225	No	No	No	No
	April	0.0405	0.0405	0.0203	No	No	No	No
	May	0.0259	0.0259	0.0130	No	No	No	No
	June	0.0253	0.0253	0.0127	No	No	No	No
	July	0.0257	0.0258	0.0129	No	No	No	No
	August	0.0341	0.0342	0.0171	No	No	No	No
	September	0.0333	0.0337	0.0169	No	No	No	No
	October	0.0295	0.0296	0.0148	No	No	No	No
	November	0.0307	0.0308	0.0154	No	No	No	No
	December	0.0332	0.0334	0.0167	No	No	No	No
Closure Phase (29-35)	January	0.0388	0.0389	0.0195	No	No	No	No
	February	0.0390	0.0390	0.0195	No	No	No	No
	March	0.0449	0.0449	0.0225	No	No	No	No
	April	0.0405	0.0405	0.0203	No	No	No	No
	May	0.0259	0.0259	0.0130	No	No	No	No
	June	0.0253	0.0253	0.0127	No	No	No	No
	July	0.0258	0.0258	0.0129	No	No	No	No
	August	0.0342	0.0342	0.0171	No	No	No	No
	September	0.0338	0.0339	0.0170	No	No	No	No
	October	0.0296	0.0296	0.0148	No	No	No	No
	November	0.0308	0.0308	0.0154	No	No	No	No
	December	0.0334	0.0334	0.0167	No	No	No	No
Post-Closure Phase (36-99)	January	0.0377	0.0389	0.0194	No	No	No	No
	February	0.0390	0.0390	0.0195	No	No	No	No
	March	0.0449	0.0449	0.0225	No	No	No	No
	April	0.0405	0.0405	0.0203	No	No	No	No
	May	0.0259	0.0259	0.0130	No	No	No	No
	June	0.0253	0.0253	0.0127	No	No	No	No
	July	0.0257	0.0258	0.0129	No	No	No	No
	August	0.0339	0.0341	0.0171	No	No	No	No
	September	0.0332	0.0339	0.0169	No	No	No	No
	October	0.0293	0.0296	0.0148	No	No	No	No
	November	0.0305	0.0307	0.0154	No	No	No	No
	December	0.0329	0.0333	0.0167	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness

Appendix 13-D11aa. Lower Baker Creek (BK0) Hazard Quotients for Nitrate Concentrations, Expected Case

		First Screening Step											Retained as COPC?					
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				Mean Predicted vs BC MOE 30-Day Mean	Maximum Predicted vs BC MOE	Maximum Predicted vs BC MOE Maximum							
		BC DWQG	Maximum	BC MOE	Maximum	BC MOE	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum			
Construction (-2 to-1)	January	0.0617	0.0657	3	32.8	10	100	100	0.0206	0.0219	0.0020	0.0066	0.0007	0.0007	No	No	No	No
	February	0.0550	0.0552	3	32.8	10	100	100	0.0183	0.0184	0.0017	0.0055	0.0006	0.0006	No	No	No	No
	March	0.0420	0.0461	3	32.8	10	100	100	0.0140	0.0154	0.0014	0.0046	0.0005	0.0005	No	No	No	No
	April	0.0459	0.0461	3	32.8	10	100	100	0.0153	0.0154	0.0014	0.0046	0.0005	0.0005	No	No	No	No
	May	0.0247	0.0254	3	32.8	10	100	100	0.0082	0.0085	0.0008	0.0025	0.0003	0.0003	No	No	No	No
	June	0.0076	0.0082	3	32.8	10	100	100	0.0025	0.0027	0.0003	0.0008	0.0001	0.0001	No	No	No	No
	July	0.0121	0.0131	3	32.8	10	100	100	0.0040	0.0044	0.0004	0.0013	0.0001	0.0001	No	No	No	No
	August	0.0468	0.0485	3	32.8	10	100	100	0.0156	0.0162	0.0015	0.0049	0.0005	0.0005	No	No	No	No
	September	0.0676	0.0683	3	32.8	10	100	100	0.0225	0.0228	0.0021	0.0068	0.0007	0.0007	No	No	No	No
	October	0.0428	0.0446	3	32.8	10	100	100	0.0143	0.0149	0.0014	0.0045	0.0004	0.0004	No	No	No	No
	November	0.0707	0.0708	3	32.8	10	100	100	0.0236	0.0236	0.0022	0.0071	0.0007	0.0007	No	No	No	No
	December	0.0684	0.0685	3	32.8	10	100	100	0.0228	0.0228	0.0021	0.0068	0.0007	0.0007	No	No	No	No
Operation 1 Phase (1-23)	January	0.0706	0.0736	3	32.8	10	100	100	0.0235	0.0245	0.0022	0.0074	0.0007	0.0007	No	No	No	No
	February	0.102	0.109	3	32.8	10	100	100	0.0340	0.0363	0.0033	0.0109	0.0011	0.0011	No	No	No	No
	March	0.0217	0.0282	3	32.8	10	100	100	0.0072	0.0094	0.0009	0.0028	0.0003	0.0003	No	No	No	No
	April	0.0451	0.0456	3	32.8	10	100	100	0.0150	0.0152	0.0014	0.0046	0.0005	0.0005	No	No	No	No
	May	0.0237	0.0238	3	32.8	10	100	100	0.0079	0.0079	0.0007	0.0024	0.0002	0.0002	No	No	No	No
	June	0.0063	0.0066	3	32.8	10	100	100	0.0021	0.0022	0.0002	0.0007	0.0001	0.0001	No	No	No	No
	July	0.0099	0.0104	3	32.8	10	100	100	0.0033	0.0035	0.0003	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0421	0.0435	3	32.8	10	100	100	0.0140	0.0145	0.0013	0.0044	0.0004	0.0004	No	No	No	No
	September	0.0600	0.0659	3	32.8	10	100	100	0.0200	0.0220	0.0013	0.0066	0.0007	0.0007	No	No	No	No
	October	0.0368	0.0394	3	32.8	10	100	100	0.0123	0.0131	0.0012	0.0039	0.0004	0.0004	No	No	No	No
	November	0.0700	0.0708	3	32.8	10	100	100	0.0233	0.0236	0.0022	0.0071	0.0007	0.0007	No	No	No	No
	December	0.0721	0.0725	3	32.8	10	100	100	0.0240	0.0242	0.0022	0.0072	0.0007	0.0007	No	No	No	No
Operations 2 Phase (24-28)	January	0.0728	0.0734	3	32.8	10	100	100	0.0243	0.0245	0.0022	0.0073	0.0007	0.0007	No	No	No	No
	February	0.109	0.109	3	32.8	10	100	100	0.0363	0.0363	0.0033	0.0109	0.0011	0.0011	No	No	No	No
	March	0.0213	0.0214	3	32.8	10	100	100	0.0071	0.0071	0.0007	0.0021	0.0002	0.0002	No	No	No	No
	April	0.0450	0.0450	3	32.8	10	100	100	0.0150	0.0150	0.0014	0.0045	0.0004	0.0004	No	No	No	No
	May	0.0236	0.0237	3	32.8	10	100	100	0.0079	0.0079	0.0007	0.0024	0.0002	0.0002	No	No	No	No
	June	0.0062	0.0063	3	32.8	10	100	100	0.0021	0.0021	0.0002	0.0006	0.0001	0.0001	No	No	No	No
	July	0.0099	0.0100	3	32.8	10	100	100	0.0033	0.0033	0.0003	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0416	0.0418	3	32.8	10	100	100	0.0139	0.0139	0.0013	0.0042	0.0004	0.0004	No	No	No	No
	September	0.0574	0.0582	3	32.8	10	100	100	0.0191	0.0194	0.0018	0.0058	0.0006	0.0006	No	No	No	No
	October	0.0359	0.0361	3	32.8	10	100	100	0.0120	0.0120	0.0011	0.0036	0.0004	0.0004	No	No	No	No
	November	0.0697	0.0697	3	32.8	10	100	100	0.0232	0.0232	0.0021	0.0070	0.0007	0.0007	No	No	No	No
	December	0.0723	0.0724	3	32.8	10	100	100	0.0241	0.0241	0.0022	0.0072	0.0007	0.0007	No	No	No	No
Closure Phase (29-35)	January	0.0719	0.0721	3	32.8	10	100	100	0.0240	0.0240	0.0022	0.0072	0.0007	0.0007	No	No	No	No
	February	0.109	0.109	3	32.8	10	100	100	0.0363	0.0363	0.0033	0.0109	0.0011	0.0011	No	No	No	No
	March	0.0214	0.0214	3	32.8	10	100	100	0.0071	0.0071	0.0007	0.0021	0.0002	0.0002	No	No	No	No
	April	0.0450	0.0450	3	32.8	10	100	100	0.0150	0.0150	0.0014	0.0045	0.0005	0.0005	No	No	No	No
	May	0.0237	0.0237	3	32.8	10	100	100	0.0079	0.0079	0.0007	0.0024	0.0002	0.0002	No	No	No	No
	June	0.0063	0.0063	3	32.8	10	100	100	0.0021	0.0021	0.0002	0.0006	0.0001	0.0001	No	No	No	No
	July	0.0100	0.0101	3	32.8	10	100	100	0.0033	0.0034	0.0003	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0420	0.0421	3	32.8	10	100	100	0.0140	0.0140	0.0013	0.0042	0.0004	0.0004	No	No	No	No
	September	0.0588	0.0593	3	32.8	10	100	100	0.0196	0.0198	0.0018	0.0059	0.0006	0.0006	No	No	No	No
	October	0.0362	0.0364	3	32.8	10	100	100	0.0121	0.0121	0.0011	0.0036	0.0004	0.0004	No	No	No	No
	November	0.0698	0.0698	3	32.8	10	100	100	0.0233	0.0233	0.0021	0.0070	0.0007	0.0007	No	No	No	No
	December	0.0722	0.0722	3	32.8	10	100	100	0.0241	0.0241	0.0022	0.0072	0.0007	0.0007	No	No	No	No
Post-Closure Phase (36-99)	January	0.0722	0.0727	3	32.8	10	100	100	0.0241	0.0242	0.0022	0.0073	0.0007	0.0007	No	No	No	No
	February	0.109	0.109	3	32.8	10	100	100	0.0363	0.0363	0.0033	0.0109	0.0011	0.0011	No	No	No	No
	March	0.0214	0.0214	3	32.8	10	100	100	0.0071	0.0071	0.0007	0.0021	0.0002	0.0002	No	No	No	No
	April	0.0450	0.0450	3	32.8	10	100	100	0.0150	0.0150	0.0014	0.0045	0.0005	0.0005	No	No	No	No
	May	0.0237	0.0237	3	32.8	10	100	100	0.0079	0.0079	0.0007	0.0024	0.0002	0.0002	No	No	No	No
	June	0.0063	0.0063	3	32.8	10	100	100	0.0021	0.0021	0.0002	0.0006	0.0001	0.0001	No	No	No	No
	July	0.0100	0.0101	3	32.8	10	100	100	0.0033	0.0034	0.0003	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0419	0.0422	3	32.8	10	100	100	0.0140	0.0141	0.0013	0.0042	0.0004	0.0004	No	No	No	No
	September	0.0584	0.0594	3	32.8	10	100	100	0.0195	0.0198	0.0018	0.0059	0.0006	0.0006	No	No	No	No
	October	0.0361	0.0364	3	32.8	10	100	100	0.0120	0.0121	0.0011	0.0036	0.0004	0.0004	No	No	No	No
	November	0.0697	0.0698	3	32.8	10	100	100	0.0232	0.0233	0.0021	0.0070	0.0007	0.0007	No	No	No	No
	December	0.0723	0.0724	3	32.8	10	100	100	0.0241	0.0241	0.0022	0.0072	0.0007	0.0007	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D11ab. Lower Baker Creek (BK0) Hazard Quotients for Nitrite Concentrations, Expected Case

Project Phase		First Screening Step												Retained as COPC?				
		Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				BC MOE Maximum	Mean Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE 30-Day Mean Guideline							
Construction (-2 to-1)	Months																	
	January	0.0049	0.0050	0.02	0.06	1	10	10	0.243	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0038	0.0039	0.02	0.06	1	10	10	0.192	0.193	0.0643	0.0039	0.0004	0.0004	No	No	No	No
	May	0.0011	0.0012	0.02	0.06	1	10	10	0.0555	0.0583	0.0194	0.0012	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0012	0.02	0.06	1	10	10	0.0571	0.0592	0.0197	0.0012	0.0001	0.0001	No	No	No	No
	July	0.0013	0.0014	0.02	0.06	1	10	10	0.0653	0.0689	0.0230	0.0014	0.0001	0.0001	No	No	No	No
	August	0.0024	0.0026	0.02	0.06	1	10	10	0.119	0.130	0.0433	0.0026	0.0003	0.0003	No	No	No	No
	September	0.0035	0.0038	0.02	0.06	1	10	10	0.176	0.192	0.0640	0.0038	0.0004	0.0004	No	No	No	No
	October	0.0030	0.0031	0.02	0.06	1	10	10	0.149	0.156	0.0521	0.0031	0.0003	0.0003	No	No	No	No
	November	0.0019	0.0020	0.02	0.06	1	10	10	0.0929	0.102	0.0340	0.0020	0.0002	0.0002	No	No	No	No
	December	0.0034	0.0037	0.02	0.06	1	10	10	0.168	0.184	0.0612	0.0037	0.0004	0.0004	No	No	No	No
Operation 1 Phase (1-23)	January	0.0039	0.0044	0.02	0.06	1	10	10	0.194	0.222	0.0741	0.0044	0.0004	0.0004	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0038	0.0038	0.02	0.06	1	10	10	0.190	0.191	0.0635	0.0038	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0503	0.0511	0.0170	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0011	0.02	0.06	1	10	10	0.0528	0.0537	0.0179	0.0011	0.0001	0.0001	No	No	No	No
	July	0.0012	0.0012	0.02	0.06	1	10	10	0.0578	0.0592	0.0197	0.0012	0.0001	0.0001	No	No	No	No
	August	0.0018	0.0020	0.02	0.06	1	10	10	0.0917	0.0991	0.0330	0.0020	0.0002	0.0002	No	No	No	No
	September	0.0020	0.0028	0.02	0.06	1	10	10	0.100	0.139	0.0463	0.0028	0.0003	0.0003	No	No	No	No
	October	0.0026	0.0027	0.02	0.06	1	10	10	0.130	0.136	0.0453	0.0027	0.0003	0.0003	No	No	No	No
	November	0.0014	0.0015	0.02	0.06	1	10	10	0.0688	0.0769	0.0256	0.0015	0.0002	0.0002	No	No	No	No
	December	0.0026	0.0028	0.02	0.06	1	10	10	0.129	0.139	0.0462	0.0028	0.0003	0.0003	No	No	No	No
Operations 2 Phase (24-28)	January	0.0037	0.0038	0.02	0.06	1	10	10	0.187	0.188	0.0628	0.0038	0.0004	0.0004	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0038	0.0038	0.02	0.06	1	10	10	0.190	0.191	0.0635	0.0038	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0502	0.0502	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0011	0.02	0.06	1	10	10	0.0526	0.0527	0.0176	0.0011	0.0001	0.0001	No	No	No	No
	July	0.0012	0.0012	0.02	0.06	1	10	10	0.0577	0.0578	0.0193	0.0012	0.0001	0.0001	No	No	No	No
	August	0.0018	0.0018	0.02	0.06	1	10	10	0.0899	0.0905	0.0302	0.0018	0.0002	0.0002	No	No	No	No
	September	0.0018	0.0018	0.02	0.06	1	10	10	0.0884	0.0920	0.0307	0.0018	0.0002	0.0002	No	No	No	No
	October	0.0026	0.0026	0.02	0.06	1	10	10	0.128	0.129	0.0428	0.0026	0.0003	0.0003	No	No	No	No
	November	0.0013	0.0013	0.02	0.06	1	10	10	0.0667	0.0671	0.0224	0.0013	0.0001	0.0001	No	No	No	No
	December	0.0025	0.0025	0.02	0.06	1	10	10	0.127	0.127	0.0425	0.0025	0.0003	0.0003	No	No	No	No
Closure Phase (29-35)	January	0.0038	0.0038	0.02	0.06	1	10	10	0.189	0.190	0.0634	0.0038	0.0004	0.0004	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0038	0.0038	0.02	0.06	1	10	10	0.190	0.190	0.0635	0.0038	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0502	0.0502	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0011	0.02	0.06	1	10	10	0.0527	0.0528	0.0176	0.0011	0.0001	0.0001	No	No	No	No
	July	0.0012	0.0012	0.02	0.06	1	10	10	0.0580	0.0581	0.0194	0.0012	0.0001	0.0001	No	No	No	No
	August	0.0018	0.0018	0.02	0.06	1	10	10	0.0910	0.0914	0.0305	0.0018	0.0002	0.0002	No	No	No	No
	September	0.0019	0.0019	0.02	0.06	1	10	10	0.0948	0.0967	0.0322	0.0019	0.0002	0.0002	No	No	No	No
	October	0.0026	0.0026	0.02	0.06	1	10	10	0.129	0.129	0.0430	0.0026	0.0003	0.0003	No	No	No	No
	November	0.0013	0.0014	0.02	0.06	1	10	10	0.0675	0.0677	0.0226	0.0014	0.0001	0.0001	No	No	No	No
	December	0.0026	0.0026	0.02	0.06	1	10	10	0.128	0.128	0.0426	0.0026	0.0003	0.0003	No	No	No	No
Post-Closure Phase (36-99)	January	0.0038	0.0038	0.02	0.06	1	10	10	0.189	0.191	0.0635	0.0038	0.0004	0.0004	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0038	0.0038	0.02	0.06	1	10	10	0.190	0.190	0.0635	0.0038	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0502	0.0502	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0011	0.02	0.06	1	10	10	0.0527	0.0528	0.0176	0.0011	0.0001	0.0001	No	No	No	No
	July	0.0012	0.0012	0.02	0.06	1	10	10	0.0579	0.0581	0.0194	0.0012	0.0001	0.0001	No	No	No	No
	August	0.0018	0.0018	0.02	0.06	1	10	10	0.0906	0.0915	0.0305	0.0018	0.0002	0.0002	No	No	No	No
	September	0.0018	0.0019	0.02	0.06	1	10	10	0.0924	0.0975	0.0325	0.0019	0.0002	0.0002	No	No	No	No
	October	0.0026	0.0026	0.02	0.06	1	10	10	0.129	0.129	0.0431	0.0026	0.0003	0.0003	No	No	No	No
	November	0.0013	0.0014	0.02	0.06	1	10	10	0.0670	0.0678	0.0226	0.0014	0.0001	0.0001	No	No	No	No
	December	0.0025	0.0026	0.02	0.06	1	10	10	0.127	0.128	0.0427	0.0026	0.0003	0.0003	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are chloride

Appendix 13-D11ac. Lower Baker Creek (BK0) Hazard Quotients for Ammonia Concentrations, Expected Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Maximum Predicted			Aquatic Life
		Mean	Maximum			Mean Predicted vs. BC MOE Working 30-Day Guideline	vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Construction (-2 to-1)	January	0.0220	0.0225	0.636	3.27	0.0346	0.0354	0.0069	No
	February	0.0229	0.0229	0.508	2.64	0.0451	0.0451	0.0087	No
	March	0.0168	0.0191	0.620	3.22	0.0271	0.0308	0.0059	No
	April	0.0115	0.0117	0.759	3.15	0.0151	0.0155	0.0037	No
	May	0.0170	0.0171	1.18	6.14	0.0144	0.0145	0.0028	No
	June	0.0091	0.0092	0.914	4.75	0.0099	0.0101	0.0019	No
	July	0.0124	0.0127	0.714	3.71	0.0174	0.0177	0.0034	No
	August	0.0599	0.0623	0.571	2.97	0.105	0.109	0.0210	No
	September	0.0235	0.0236	0.575	2.99	0.0408	0.0411	0.0079	No
	October	0.0136	0.0142	0.594	3.09	0.0229	0.0239	0.0046	No
	November	0.0087	0.0095	0.636	3.31	0.0137	0.0150	0.0029	No
	December	0.0150	0.0164	0.628	3.27	0.0239	0.0262	0.0050	No
Operation 1 Phase (1-23)	January	0.0168	0.0199	0.636	3.27	0.0265	0.0314	0.0061	No
	February	0.0213	0.0228	0.508	2.64	0.0418	0.0449	0.0086	No
	March	0.0052	0.0089	0.620	3.22	0.0085	0.0144	0.0028	No
	April	0.0109	0.0110	0.759	3.15	0.0144	0.0146	0.0035	No
	May	0.0169	0.0169	1.18	6.14	0.0143	0.0143	0.0028	No
	June	0.0088	0.0088	0.914	4.75	0.0096	0.0096	0.0019	No
	July	0.0121	0.0121	0.714	3.71	0.0169	0.0169	0.0033	No
	August	0.0683	0.0694	0.571	2.97	0.120	0.122	0.0234	No
	September	0.0252	0.0258	0.575	2.99	0.0439	0.0449	0.0086	No
	October	0.0119	0.0124	0.594	3.09	0.0201	0.0209	0.0040	No
	November	0.0067	0.0073	0.636	3.31	0.0105	0.0116	0.0022	No
	December	0.0113	0.0123	0.628	3.27	0.0181	0.0195	0.0038	No
Operations 2 Phase (24-28)	January	0.0161	0.0162	0.636	3.27	0.0253	0.0255	0.0050	No
	February	0.0210	0.0210	0.508	2.64	0.0413	0.0413	0.0080	No
	March	0.0051	0.0051	0.620	3.22	0.0082	0.0082	0.0016	No
	April	0.0109	0.0109	0.759	3.15	0.0143	0.0143	0.0034	No
	May	0.0169	0.0169	1.18	6.14	0.0143	0.0143	0.0027	No
	June	0.0088	0.0088	0.914	4.75	0.0096	0.0096	0.0018	No
	July	0.0121	0.0121	0.714	3.71	0.0169	0.0169	0.0033	No
	August	0.0690	0.0692	0.571	2.97	0.121	0.121	0.0233	No
	September	0.0256	0.0257	0.575	2.99	0.0445	0.0447	0.0086	No
	October	0.0118	0.0118	0.594	3.09	0.0199	0.0199	0.0038	No
	November	0.0065	0.0066	0.636	3.31	0.0103	0.0103	0.0020	No
	December	0.0112	0.0112	0.628	3.27	0.0178	0.0179	0.0034	No
Closure Phase (29-35)	January	0.0164	0.0165	0.636	3.27	0.0257	0.0259	0.0050	No
	February	0.0210	0.0210	0.508	2.64	0.0413	0.0413	0.0080	No
	March	0.0051	0.0051	0.620	3.22	0.0082	0.0082	0.0016	No
	April	0.0109	0.0109	0.759	3.15	0.0143	0.0143	0.0035	No
	May	0.0169	0.0169	1.18	6.14	0.0143	0.0143	0.0027	No
	June	0.0088	0.0088	0.914	4.75	0.0096	0.0096	0.0018	No
	July	0.0121	0.0121	0.714	3.71	0.0169	0.0169	0.0033	No
	August	0.0686	0.0688	0.571	2.97	0.120	0.120	0.0232	No
	September	0.0254	0.0255	0.575	2.99	0.0442	0.0444	0.0085	No
	October	0.0119	0.0119	0.594	3.09	0.0200	0.0200	0.0038	No
	November	0.0066	0.0066	0.636	3.31	0.0104	0.0104	0.0020	No
	December	0.0112	0.0113	0.628	3.27	0.0179	0.0179	0.0034	No
Post-Closure Phase (36-99)	January	0.0163	0.0165	0.636	3.27	0.0256	0.0259	0.0050	No
	February	0.0210	0.0210	0.508	2.64	0.0413	0.0413	0.0080	No
	March	0.0051	0.0051	0.620	3.22	0.0082	0.0082	0.0016	No
	April	0.0109	0.0109	0.759	3.15	0.0143	0.0143	0.0035	No
	May	0.0169	0.0169	1.18	6.14	0.0143	0.0143	0.0027	No
	June	0.0088	0.0088	0.914	4.75	0.0096	0.0096	0.0018	No
	July	0.0121	0.0121	0.714	3.71	0.0169	0.0169	0.0033	No
	August	0.0687	0.0690	0.571	2.97	0.120	0.121	0.0232	No
	September	0.0255	0.0256	0.575	2.99	0.0443	0.0445	0.0086	No
	October	0.0118	0.0119	0.594	3.09	0.0199	0.0200	0.0038	No
	November	0.0065	0.0066	0.636	3.31	0.0103	0.0104	0.0020	No
	December	0.0112	0.0113	0.628	3.27	0.0178	0.0180	0.0034	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH and temperature dependent

Appendix 13-D11ad. Lower Baker Creek (BK0) Hazard Quotients for Sulphate Concentrations, Expected Case

		First Screening Step								Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				BC MOE 30-Day Mean Guideline	BC MOE Maximum						
		Mean	Maximum	BC DWQG	BC MOE Maximum	Maximum predicted vs. BC DWQG	BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Livestock				
Construction (-2 to-1)	January	18.4	18.9	309	500	1000	0.0597	0.0612	0.0378	0.0189	No	No	No	
	February	20.3	20.3	309	500	1000	0.0656	0.0657	0.0406	0.0203	No	No	No	
	March	20.2	20.4	309	500	1000	0.0654	0.0660	0.0408	0.0204	No	No	No	
	April	11.4	11.6	309	500	1000	0.0368	0.0374	0.0231	0.0116	No	No	No	
	May	5.14	5.32	309	500	1000	0.0166	0.0172	0.0106	0.0053	No	No	No	
	June	4.71	4.85	309	500	1000	0.0152	0.0157	0.0097	0.0049	No	No	No	
	July	6.11	6.35	309	500	1000	0.0198	0.0206	0.0127	0.0064	No	No	No	
	August	9.22	9.95	309	500	1000	0.0298	0.0322	0.0199	0.0099	No	No	No	
	September	12.6	13.6	309	500	1000	0.0408	0.0439	0.0272	0.0136	No	No	No	
	October	9.4	10.0	309	500	1000	0.0304	0.0323	0.0199	0.0100	No	No	No	
	November	10.1	10.6	309	500	1000	0.0328	0.0342	0.0211	0.0106	No	No	No	
	December	13.5	14.3	309	500	1000	0.0437	0.0462	0.0285	0.0143	No	No	No	
Operation 1 Phase (1-23)	January	13.8	17.3	309	500	1000	0.0447	0.0559	0.0346	0.0173	No	No	No	
	February	10.3	19.6	309	500	1000	0.0332	0.0634	0.0392	0.0196	No	No	No	
	March	19.3	19.6	309	500	1000	0.0624	0.0633	0.0391	0.0196	No	No	No	
	April	11.0	11.1	309	500	1000	0.0357	0.0358	0.0221	0.0111	No	No	No	
	May	4.79	4.85	309	500	1000	0.0155	0.0157	0.0097	0.0049	No	No	No	
	June	4.41	4.47	309	500	1000	0.0143	0.0145	0.0089	0.0045	No	No	No	
	July	5.63	5.72	309	500	1000	0.0182	0.0185	0.0114	0.0057	No	No	No	
	August	7.58	7.93	309	500	1000	0.0245	0.0257	0.0159	0.0079	No	No	No	
	September	9.37	10.39	309	500	1000	0.0303	0.0336	0.0208	0.0104	No	No	No	
	October	8.11	8.38	309	500	1000	0.0262	0.0271	0.0168	0.0084	No	No	No	
	November	9.24	9.41	309	500	1000	0.0299	0.0305	0.0188	0.0094	No	No	No	
	December	10.9	11.7	309	500	1000	0.0351	0.0377	0.0233	0.0117	No	No	No	
Operations 2 Phase (24-28)	January	13.3	13.8	309	500	1000	0.0429	0.0445	0.0275	0.0138	No	No	No	
	February	8.8	8.8	309	500	1000	0.0284	0.0284	0.0176	0.0088	No	No	No	
	March	19.3	19.3	309	500	1000	0.0624	0.0624	0.0386	0.0193	No	No	No	
	April	11.1	11.1	309	500	1000	0.0358	0.0358	0.0221	0.0111	No	No	No	
	May	4.78	4.78	309	500	1000	0.0155	0.0155	0.0096	0.0048	No	No	No	
	June	4.42	4.43	309	500	1000	0.0143	0.0143	0.0089	0.0044	No	No	No	
	July	5.66	5.69	309	500	1000	0.0183	0.0184	0.0114	0.0057	No	No	No	
	August	7.66	7.77	309	500	1000	0.0248	0.0251	0.0155	0.0078	No	No	No	
	September	9.41	9.65	309	500	1000	0.0304	0.0312	0.0193	0.0096	No	No	No	
	October	8.16	8.24	309	500	1000	0.0264	0.0267	0.0165	0.0082	No	No	No	
	November	9.32	9.39	309	500	1000	0.0302	0.0304	0.0188	0.0094	No	No	No	
	December	10.9	11.1	309	500	1000	0.0354	0.0359	0.0222	0.0111	No	No	No	
Closure Phase (29-35)	January	14.0	14.0	309	500	1000	0.0452	0.0453	0.0280	0.0140	No	No	No	
	February	8.8	8.8	309	500	1000	0.0284	0.0284	0.0176	0.0088	No	No	No	
	March	19.3	19.3	309	500	1000	0.0624	0.0624	0.0386	0.0193	No	No	No	
	April	11.1	11.1	309	500	1000	0.0358	0.0358	0.0221	0.0111	No	No	No	
	May	4.79	4.79	309	500	1000	0.0155	0.0155	0.0096	0.0048	No	No	No	
	June	4.43	4.43	309	500	1000	0.0143	0.0143	0.0089	0.0044	No	No	No	
	July	5.69	5.70	309	500	1000	0.0184	0.0184	0.0114	0.0057	No	No	No	
	August	7.76	7.78	309	500	1000	0.0251	0.0252	0.0156	0.0078	No	No	No	
	September	9.65	9.68	309	500	1000	0.0312	0.0313	0.0194	0.0097	No	No	No	
	October	8.23	8.25	309	500	1000	0.0266	0.0267	0.0165	0.0082	No	No	No	
	November	9.37	9.39	309	500	1000	0.0303	0.0304	0.0188	0.0094	No	No	No	
	December	11.1	11.1	309	500	1000	0.0358	0.0359	0.0222	0.0111	No	No	No	
Post-Closure Phase (36-99)	January	13.3	14.0	309	500	1000	0.0431	0.0452	0.0280	0.0140	No	No	No	
	February	8.8	8.8	309	500	1000	0.0284	0.0284	0.0176	0.0088	No	No	No	
	March	19.3	19.3	309	500	1000	0.0624	0.0624	0.0385	0.0193	No	No	No	
	April	11.0	11.1	309	500	1000	0.0358	0.0358	0.0221	0.0111	No	No	No	
	May	4.78	4.79	309	500	1000	0.0155	0.0155	0.0096	0.0048	No	No	No	
	June	4.41	4.43	309	500	1000	0.0143	0.0143	0.0089	0.0044	No	No	No	
	July	5.64	5.69	309	500	1000	0.0182	0.0184	0.0114	0.0057	No	No	No	
	August	7.57	7.74	309	500	1000	0.0245	0.0251	0.0155	0.0077	No	No	No	
	September	9.30	9.66	309	500	1000	0.0301	0.0312	0.0193	0.0097	No	No	No	
	October	8.10	8.22	309	500	1000	0.0262	0.0266	0.0164	0.0082	No	No	No	
	November	9.25	9.35	309	500	1000	0.0299	0.0303	0.0187	0.0094	No	No	No	
	December	10.8	11.1	309	500	1000	0.0349	0.0358	0.0221	0.0111	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness

Appendix 13-D12a. P Creek Hazard Quotients for Dissolved and Total Aluminum Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step														
		Predicted Concentrations				Aquatic Life Guidelines for Dissolved Aluminum Concentrations ¹		Drinking Water Quality Guidelines for Dissolved Aluminum	BC MOE Working Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline for Dissolved Aluminum			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum
Project Phase	Months	Dissolved Aluminum		Total Aluminum		BC MOE 30-Day Mean	BC MOE Maximum	BC maximum DWQG	Maximum	Maximum	Mean	Maximum	Maximum	Maximum	Maximum	Maximum
		Mean	Maximum	Mean	Maximum											
Construction (-2 to-1)																
January	0.0026	0.0028	0.0042	0.0044	0.050	0.100	0.2	5	5	0.0525	0.0558	0.0279	0.0140	0.0009	0.0009	
February	0.0034	0.0036	0.0035	0.0037	0.050	0.100	0.2	5	5	0.0684	0.0722	0.0361	0.0180	0.0007	0.0007	
March	0.0036	0.0038	0.0039	0.0041	0.050	0.100	0.2	5	5	0.0721	0.0755	0.0378	0.0189	0.0008	0.0008	
April	0.0039	0.0040	0.0039	0.0040	0.050	0.100	0.2	5	5	0.0778	0.0801	0.0400	0.0200	0.0008	0.0008	
May	0.0159	0.0159	0.0860	0.0860	0.050	0.100	0.2	5	5	0.318	0.319	0.159	0.0797	0.0172	0.0172	
June	0.0178	0.0179	0.114	0.114	0.050	0.100	0.2	5	5	0.356	0.357	0.179	0.0893	0.0227	0.0227	
July	0.0087	0.0087	0.0137	0.0137	0.050	0.100	0.2	5	5	0.173	0.174	0.0871	0.0435	0.0027	0.0027	
August	0.0052	0.0053	0.0126	0.0127	0.050	0.100	0.2	5	5	0.105	0.107	0.0533	0.0267	0.0025	0.0025	
September	0.0052	0.0053	0.0088	0.0089	0.050	0.100	0.2	5	5	0.103	0.106	0.0531	0.0266	0.0018	0.0018	
October	0.0042	0.0045	0.0083	0.0087	0.050	0.100	0.2	5	5	0.0830	0.0908	0.0454	0.0227	0.0017	0.0017	
November	0.0047	0.0049	0.0054	0.0056	0.050	0.100	0.2	5	5	0.0938	0.0974	0.0487	0.0244	0.0011	0.0011	
December	0.0037	0.0038	0.0048	0.0050	0.050	0.100	0.2	5	5	0.0731	0.0765	0.0382	0.0191	0.0010	0.0010	
Operation 1 Phase (1-23)																
January	0.0025	0.0025	0.0041	0.0041	0.050	0.100	0.2	5	5	0.0500	0.0500	0.0250	0.0125	0.0008	0.0008	
February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007	0.0007	
March	0.0035	0.0035	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0700	0.0700	0.0350	0.0175	0.0008	0.0008	
April	0.0041	0.0097	0.0056	0.0449	0.050	0.100	0.2	5	5	0.0815	0.194	0.0971	0.0486	0.0090	0.0090	
May	0.0160	0.0160	0.0858	0.0860	0.050	0.100	0.2	5	5	0.320	0.320	0.160	0.0801	0.0172	0.0172	
June	0.0179	0.0179	0.113	0.114	0.050	0.100	0.2	5	5	0.357	0.358	0.179	0.0894	0.0227	0.0227	
July	0.0089	0.0089	0.0139	0.0139	0.050	0.100	0.2	5	5	0.178	0.178	0.0892	0.0446	0.0028	0.0028	
August	0.0060	0.0061	0.0131	0.0132	0.050	0.100	0.2	5	5	0.120	0.122	0.0608	0.0304	0.0026	0.0026	
September	0.0051	0.0051	0.0088	0.0088	0.050	0.100	0.2	5	5	0.102	0.102	0.0508	0.0254	0.0018	0.0018	
October	0.0038	0.0038	0.0080	0.0080	0.050	0.100	0.2	5	5	0.0765	0.0765	0.0383	0.0191	0.0016	0.0016	
November	0.0046	0.0046	0.0053	0.0053	0.050	0.100	0.2	5	5	0.0920	0.0920	0.0460	0.0230	0.0011	0.0011	
December	0.0036	0.0036	0.0047	0.0047	0.050	0.100	0.2	5	5	0.0710	0.0710	0.0355	0.0178	0.0009	0.0009	
Operations 2 Phase (24-28)																
January	0.0025	0.0025	0.0041	0.0041	0.050	0.100	0.2	5	5	0.0500	0.0500	0.0250	0.0125	0.0008	0.0008	
February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007	0.0007	
March	0.0035	0.0035	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0700	0.0700	0.0350	0.0175	0.0008	0.0008	
April	0.0038	0.0038	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0764	0.0764	0.0382	0.0191	0.0008	0.0008	
May	0.0160	0.0160	0.0857	0.0857	0.050	0.100	0.2	5	5	0.320	0.320	0.160	0.0801	0.0171	0.0171	
June	0.0179	0.0179	0.113	0.113	0.050	0.100	0.2	5	5	0.358	0.358	0.179	0.0894	0.0227	0.0227	
July	0.0089	0.0089	0.0140	0.0140	0.050	0.100	0.2	5	5	0.179	0.179	0.0894	0.0447	0.0028	0.0028	
August	0.0061	0.0061	0.0132	0.0132	0.050	0.100	0.2	5	5	0.122	0.122	0.0612	0.0306	0.0026	0.0026	
September	0.0051	0.0051	0.0088	0.0088	0.050	0.100	0.2	5	5	0.102	0.102	0.0508	0.0254	0.0018	0.0018	
October	0.0038	0.0038	0.0080	0.0080	0.050	0.100	0.2	5	5	0.0765	0.0765	0.0383	0.0191	0.0016	0.0016	
November	0.0046	0.0046	0.0053	0.0053	0.050	0.100	0.2	5	5	0.0920	0.0920	0.0460	0.0230	0.0011	0.0011	
December	0.0036	0.0036	0.0047	0.0047	0.050	0.100	0.2	5	5	0.0710	0.0710	0.0355	0.0178	0.0009	0.0009	
Closure Phase (29-35)																
January	0.0025	0.0025	0.0041	0.0041	0.050	0.100	0.2	5	5	0.0500	0.0500	0.0250	0.0125	0.0008	0.0008	
February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007	0.0007	
March	0.0035	0.0035	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0700	0.0700	0.0350	0.0175	0.0008	0.0008	
April	0.0038	0.0038	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0764	0.0764	0.0382	0.0191	0.0008	0.0008	
May	0.0160	0.0160	0.0857	0.0857	0.050	0.100	0.2	5	5	0.319	0.319	0.160	0.0798	0.0171	0.0171	
June	0.0179	0.0179	0.113	0.113	0.050	0.100	0.2	5	5	0.357	0.357	0.179	0.0893	0.0227	0.0227	
July	0.0088	0.0088	0.0138	0.0138	0.050	0.100	0.2	5	5	0.176	0.176	0.0882	0.0441	0.0028	0.0028	
August	0.0056	0.0056	0.0127	0.0127	0.050	0.100	0.2	5	5	0.112	0.112	0.0562	0.0281	0.0025	0.0025	
September	0.0051	0.0051	0.0088	0.0088	0.050	0.100	0.2	5	5	0.102	0.102	0.0508	0.0254	0.0018	0.0018	
October	0.0038	0.0038	0.0080	0.0080	0.050	0.100	0.2	5	5	0.0765	0.0765	0.0383	0.0191	0.0016	0.0016	
November	0.0046	0.0046	0.0053	0.0053	0.050	0.100	0.2	5	5	0.0920	0.0920	0.0460	0.0230	0.0011	0.0011	
December	0.0036	0.0036	0.0047	0.0047	0.050	0.100	0.2	5	5	0.0710	0.0710	0.0355	0.0178	0.0009	0.0009	
Post-Closure Phase (36-99)																
January	0.0025	0.0025	0.0041	0.0041	0.050	0.100	0.2	5	5	0.0500	0.0500	0.0250	0.0125	0.0008	0.0008	
February	0.0033	0.0033	0.0034	0.0034	0.050	0.100	0.2	5	5	0.0660	0.0660	0.0330	0.0165	0.0007	0.0007	
March	0.0035	0.0035	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0700	0.0700	0.0350	0.0175	0.0008	0.0008	
April	0.0038	0.0038	0.0038	0.0038	0.050	0.100	0.2	5	5	0.0764	0.0764	0.0382	0.0191	0.0008	0.0008	
May	0.0160	0.0160	0.0856	0.0857	0.050	0.100	0.2	5	5	0.319	0.319	0.160	0.0798	0.0171	0.0171	
June	0.0178	0.0178	0.113	0.113	0.050	0.100	0.2	5	5	0.357	0.357	0.178	0.0892	0.0226	0.0226	
July	0.0088	0.0088	0.0138	0.0138	0.050	0.100	0.2	5	5	0.176	0.176	0.0882	0.0441	0.0028	0.0028	
August	0.0056	0.0056	0.0127	0.0127	0.050	0.100	0.2	5	5	0.112	0.112	0.0562	0.0281	0.0025	0.0025	
September	0.0051	0.0051	0.0088	0.0088	0.050	0.100	0.2	5	5	0.102	0.102	0.0508	0.0254	0.0018	0.0018	
October	0.0038	0.0038	0.0080	0.0080	0.050	0.100	0.2	5	5	0.0765	0.0765	0.0383	0.0191	0.0016	0.0016	
November	0.0046	0.0046	0.0053	0.0053	0.050	0.100	0.2	5	5	0.0920	0.0920	0.0460	0.0230	0.0011	0.0011	
December	0.0036	0.0036	0.0047	0.0047	0.050	0.100	0.2	5	5	0.0710	0.0710	0.0355	0.0178	0.0009	0.0009	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH dependent

(continued)

Appendix 13-D12a. P Creek Hazard Quotients for Dissolved and Total Aluminum Concentrations, Unrecovered Seepage Sensitivity Case (completed)

		Retained as COPC?			
Project Phase	Months	Aquatic Life for	Drinking Water for	Wildlife for Total	Livestock for Total
		Dissolved Aluminum	Dissolved Aluminum		
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH dependent

Appendix 13-D12b. P Creek Hazard Quotients for Total Antimony Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step					Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water		
		Median	Maximum							Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG
Construction (-2 to-1)	January	0.00013	0.00016	0.020	0.014	0.00800	0.0114	No	No		
	February	0.00005	0.00009	0.020	0.014	0.00441	0.00630	No	No		
	March	0.00005	0.00008	0.020	0.014	0.00410	0.00586	No	No		
	April	0.00004	0.00006	0.020	0.014	0.00311	0.00445	No	No		
	May	0.00011	0.00011	0.020	0.014	0.00564	0.00805	No	No		
	June	0.00011	0.00012	0.020	0.014	0.00583	0.00833	No	No		
	July	0.00011	0.00012	0.020	0.014	0.00586	0.00838	No	No		
	August	0.00012	0.00014	0.020	0.014	0.00692	0.00988	No	No		
	September	0.00013	0.00016	0.020	0.014	0.00783	0.0112	No	No		
	October	0.00014	0.00020	0.020	0.014	0.0100	0.0143	No	No		
	November	0.00009	0.00012	0.020	0.014	0.00620	0.00885	No	No		
	December	0.00011	0.00014	0.020	0.014	0.00703	0.0100	No	No		
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No		
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	April	0.00002	0.00007	0.020	0.014	0.00331	0.00473	No	No		
	May	0.00024	0.00032	0.020	0.014	0.0162	0.0232	No	No		
	June	0.00023	0.00029	0.020	0.014	0.0143	0.0205	No	No		
	July	0.00032	0.00041	0.020	0.014	0.0204	0.0292	No	No		
	August	0.00081	0.00105	0.020	0.014	0.0526	0.0752	No	No		
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No		
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No		
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No		
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No		
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No		
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	May	0.00033	0.00033	0.020	0.014	0.0167	0.0238	No	No		
	June	0.00029	0.00029	0.020	0.014	0.0147	0.0210	No	No		
	July	0.00043	0.00044	0.020	0.014	0.0219	0.0314	No	No		
	August	0.00109	0.00111	0.020	0.014	0.0557	0.0796	No	No		
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No		
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No		
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No		
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No		
Closure Phase (29-35)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No		
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	May	0.00028	0.00028	0.020	0.014	0.0141	0.0202	No	No		
	June	0.00026	0.00026	0.020	0.014	0.0130	0.0186	No	No		
	July	0.00031	0.00031	0.020	0.014	0.0157	0.0225	No	No		
	August	0.00055	0.00055	0.020	0.014	0.0276	0.0394	No	No		
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No		
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No		
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No		
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No		
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No		
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No		
	May	0.00027	0.00028	0.020	0.014	0.0140	0.0199	No	No		
	June	0.00026	0.00026	0.020	0.014	0.0129	0.0185	No	No		
	July	0.00031	0.00031	0.020	0.014	0.0156	0.0224	No	No		
	August	0.00053	0.00054	0.020	0.014	0.0272	0.0388	No	No		
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No		
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No		
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No		
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D12c. P Creek Hazard Quotients for Total Arsenic Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step									Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum												
Construction (-2 to-1)	January	0.0002	0.0003	0.005	0.025	0.025	0.025	0.0525	0.0105	0.0105	0.0105	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0478	0.0096	0.0096	0.0096	No	No	No	No
	March	0.0002	0.0003	0.005	0.025	0.025	0.025	0.0526	0.0105	0.0105	0.0105	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0455	0.0091	0.0091	0.0091	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0728	0.0146	0.0146	0.0146	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.456	0.0912	0.0912	0.0912	No	No	No	No
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0603	0.0121	0.0121	0.0121	No	No	No	No
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.210	0.0420	0.0420	0.0420	No	No	No	No
	September	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0582	0.0116	0.0116	0.0116	No	No	No	No
	October	0.0007	0.0007	0.005	0.025	0.025	0.025	0.147	0.0294	0.0294	0.0294	No	No	No	No
	November	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0562	0.0112	0.0112	0.0112	No	No	No	No
	December	0.0002	0.0003	0.005	0.025	0.025	0.025	0.0540	0.0108	0.0108	0.0108	No	No	No	No
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No
	April	0.0002	0.0003	0.005	0.025	0.025	0.025	0.0567	0.0113	0.0113	0.0113	No	No	No	No
	May	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0989	0.0198	0.0198	0.0198	No	No	No	No
	June	0.0023	0.0024	0.005	0.025	0.025	0.025	0.475	0.0950	0.0950	0.0950	No	No	No	No
	July	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0978	0.0196	0.0196	0.0196	No	No	No	No
	August	0.0015	0.0016	0.005	0.025	0.025	0.025	0.324	0.0648	0.0648	0.0648	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No
	May	0.0005	0.0005	0.005	0.025	0.025	0.025	0.100	0.0200	0.0200	0.0200	No	No	No	No
	June	0.0024	0.0024	0.005	0.025	0.025	0.025	0.476	0.0952	0.0952	0.0952	No	No	No	No
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.102	0.0204	0.0204	0.0204	No	No	No	No
	August	0.0016	0.0017	0.005	0.025	0.025	0.025	0.332	0.0664	0.0664	0.0664	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No
Closure Phase (29-35)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No
	May	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0932	0.0186	0.0186	0.0186	No	No	No	No
	June	0.0024	0.0024	0.005	0.025	0.025	0.025	0.471	0.0942	0.0942	0.0942	No	No	No	No
	July	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0855	0.0171	0.0171	0.0171	No	No	No	No
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.257	0.0515	0.0515	0.0515	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No
	May	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0928	0.0186	0.0186	0.0186	No	No	No	No
	June	0.0024	0.0024	0.005	0.025	0.025	0.025	0.471	0.0942	0.0942	0.0942	No	No	No	No
	July	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0852	0.0170	0.0170	0.0170	No	No	No	No
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.256	0.0512	0.0512	0.0512	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D12d. P Creek Hazard Quotients for Total Barium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step									Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum		Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline			
Construction (-2 to-1)	January	0.0058	0.0061	1	5	1	0.0058	0.0061	0.0012	0.0061	No	No
	February	0.0065	0.0068	1	5	1	0.0065	0.0068	0.0014	0.0068	No	No
	March	0.0065	0.0068	1	5	1	0.0065	0.0068	0.0014	0.0068	No	No
	April	0.0065	0.0067	1	5	1	0.0065	0.0067	0.0013	0.0067	No	No
	May	0.0049	0.0050	1	5	1	0.0049	0.0050	0.0010	0.0050	No	No
	June	0.0050	0.0051	1	5	1	0.0050	0.0051	0.0010	0.0051	No	No
	July	0.0055	0.0056	1	5	1	0.0055	0.0056	0.0011	0.0056	No	No
	August	0.0063	0.0065	1	5	1	0.0063	0.0065	0.0013	0.0065	No	No
	September	0.0068	0.0071	1	5	1	0.0068	0.0071	0.0014	0.0071	No	No
	October	0.0068	0.0075	1	5	1	0.0068	0.0075	0.0015	0.0075	No	No
	November	0.0061	0.0064	1	5	1	0.0061	0.0064	0.0013	0.0064	No	No
	December	0.0059	0.0062	1	5	1	0.0059	0.0062	0.0012	0.0062	No	No
Operation 1 Phase (1-23)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0051	0.0053	1	5	1	0.0051	0.0053	0.0011	0.0053	No	No
	June	0.0051	0.0052	1	5	1	0.0051	0.0052	0.0010	0.0052	No	No
	July	0.0059	0.0060	1	5	1	0.0059	0.0060	0.0012	0.0060	No	No
	August	0.0076	0.0078	1	5	1	0.0076	0.0078	0.0016	0.0078	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Operations 2 Phase (24-28)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0053	0.0053	1	5	1	0.0053	0.0053	0.0011	0.0053	No	No
	June	0.0052	0.0052	1	5	1	0.0052	0.0052	0.0010	0.0052	No	No
	July	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	August	0.0079	0.0079	1	5	1	0.0079	0.0079	0.0016	0.0079	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Closure Phase (29-35)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0052	0.0052	1	5	1	0.0052	0.0052	0.0010	0.0052	No	No
	June	0.0052	0.0052	1	5	1	0.0052	0.0052	0.0010	0.0052	No	No
	July	0.0058	0.0058	1	5	1	0.0058	0.0058	0.0012	0.0058	No	No
	August	0.0069	0.0069	1	5	1	0.0069	0.0069	0.0014	0.0069	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Post-Closure Phase (36-99)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0062	0.0063	1	5	1	0.0062	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0052	0.0052	1	5	1	0.0052	0.0052	0.0010	0.0052	No	No
	June	0.0052	0.0052	1	5	1	0.0052	0.0052	0.0010	0.0052	No	No
	July	0.0058	0.0058	1	5	1	0.0058	0.0058	0.0012	0.0058	No	No
	August	0.0068	0.0069	1	5	1	0.0068	0.0069	0.0014	0.0069	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D12e. P Creek Hazard Quotients for Total Beryllium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step							Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines (Chronic, 30-day mean)	Drinking Water Quality Guidelines BC DWQG	BC MOE Livestock Watering Water Quality Guideline BC MOE Working	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline					
Construction (-2 to-1)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0186	0.0247	0.00099	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00190	0.00195	0.00259	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00190	0.00195	0.00258	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00190	0.00193	0.00255	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0186	0.0247	0.00099	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0131	0.0132	0.0175	0.00070	No	No	No
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0102	0.0103	0.0136	0.00054	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0144	0.0144	0.0191	0.00077	No	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00005	0.0053	0.004	0.1	0.00226	0.0104	0.0137	0.00055	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0184	0.0184	0.0244	0.00098	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00099	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0184	0.0184	0.0243	0.00097	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
Closure Phase (29-35)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0241	0.00096	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00099	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0241	0.00096	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D12f. P Creek Hazard Quotients for Total Boron Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0113	0.0128	1.2	5	5	5	0.0107	0.0026	0.0026	0.0026	No	No	No	No
	February	0.0506	0.0523	1.2	5	5	5	0.0436	0.0105	0.0105	0.0105	No	No	No	No
	March	0.0506	0.0521	1.2	5	5	5	0.0434	0.0104	0.0104	0.0104	No	No	No	No
	April	0.0504	0.0514	1.2	5	5	5	0.0429	0.0103	0.0103	0.0103	No	No	No	No
	May	0.0103	0.0107	1.2	5	5	5	0.0089	0.0021	0.0021	0.0021	No	No	No	No
	June	0.0104	0.0109	1.2	5	5	5	0.0091	0.0022	0.0022	0.0022	No	No	No	No
	July	0.0104	0.0108	1.2	5	5	5	0.0090	0.0022	0.0022	0.0022	No	No	No	No
	August	0.0108	0.0118	1.2	5	5	5	0.0098	0.0024	0.0024	0.0024	No	No	No	No
	September	0.0112	0.0126	1.2	5	5	5	0.0105	0.0025	0.0025	0.0025	No	No	No	No
	October	0.0264	0.0299	1.2	5	5	5	0.0249	0.0060	0.0060	0.0060	No	No	No	No
	November	0.0310	0.0326	1.2	5	5	5	0.0272	0.0065	0.0065	0.0065	No	No	No	No
	December	0.0211	0.0226	1.2	5	5	5	0.0189	0.0045	0.0045	0.0045	No	No	No	No
Operation 1 Phase (1-23)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0491	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0112	0.0118	1.2	5	5	5	0.0099	0.0024	0.0024	0.0024	No	No	No	No
	June	0.0111	0.0115	1.2	5	5	5	0.0096	0.0023	0.0023	0.0023	No	No	No	No
	July	0.0120	0.0124	1.2	5	5	5	0.0104	0.0025	0.0025	0.0025	No	No	No	No
	August	0.0167	0.0177	1.2	5	5	5	0.0147	0.0035	0.0035	0.0035	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No
Operations 2 Phase (24-28)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0119	0.0119	1.2	5	5	5	0.0099	0.0024	0.0024	0.0024	No	No	No	No
	June	0.0115	0.0116	1.2	5	5	5	0.0096	0.0023	0.0023	0.0023	No	No	No	No
	July	0.0126	0.0127	1.2	5	5	5	0.0106	0.0025	0.0025	0.0025	No	No	No	No
	August	0.0180	0.0182	1.2	5	5	5	0.0151	0.0036	0.0036	0.0036	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No
Closure Phase (29-35)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0114	0.0114	1.2	5	5	5	0.0095	0.0023	0.0023	0.0023	No	No	No	No
	June	0.0113	0.0113	1.2	5	5	5	0.0094	0.0023	0.0023	0.0023	No	No	No	No
	July	0.0116	0.0117	1.2	5	5	5	0.0097	0.0023	0.0023	0.0023	No	No	No	No
	August	0.0136	0.0136	1.2	5	5	5	0.0114	0.0027	0.0027	0.0027	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No
Post-Closure Phase (36-99)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0114	0.0114	1.2	5	5	5	0.0095	0.0023	0.0023	0.0023	No	No	No	No
	June	0.0112	0.0112	1.2	5	5	5	0.0094	0.0022	0.0022	0.0022	No	No	No	No
	July	0.0116	0.0117	1.2	5	5	5	0.0097	0.0023	0.0023	0.0023	No	No	No	No
	August	0.0135	0.0136	1.2	5	5	5	0.0113	0.0027	0.0027	0.0027	No	No	No	No
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D12g. P Creek Hazard Quotients for Dissolved Calcium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	Predicted Concentrations		First Screening Step		Retained as COPC?
		Mean	Maximum	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
				BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	Livestock
Construction (-2 to-1)	January	21.8	22.8	1000	0.0228	No
	February	22.6	23.7	1000	0.0237	No
	March	23.2	24.2	1000	0.0242	No
	April	23.0	23.7	1000	0.0237	No
	May	15.1	15.4	1000	0.0154	No
	June	14.0	14.3	1000	0.0143	No
	July	19.0	19.3	1000	0.0193	No
	August	21.1	21.7	1000	0.0217	No
	September	23.0	24.0	1000	0.0240	No
	October	23.6	25.8	1000	0.0258	No
	November	21.2	22.2	1000	0.0222	No
	December	21.5	22.5	1000	0.0225	No
Operation 1 Phase (1-23)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.4	22.6	1000	0.0226	No
	May	15.7	16.1	1000	0.0161	No
	June	14.4	14.6	1000	0.0146	No
	July	20.1	20.4	1000	0.0204	No
	August	24.4	25.1	1000	0.0251	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Operations 2 Phase (24-28)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	16.1	16.1	1000	0.0161	No
	June	14.7	14.7	1000	0.0147	No
	July	20.5	20.5	1000	0.0205	No
	August	25.3	25.4	1000	0.0254	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Closure Phase (29-35)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	15.8	15.8	1000	0.0158	No
	June	14.5	14.5	1000	0.0145	No
	July	19.9	19.9	1000	0.0199	No
	August	22.3	22.4	1000	0.0224	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Post-Closure Phase (36-99)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	15.8	15.8	1000	0.0158	No
	June	14.5	14.5	1000	0.0145	No
	July	19.8	19.9	1000	0.0199	No
	August	22.2	22.3	1000	0.0223	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D12i. P Creek Hazard Quotients for Total Chromium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline			Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline					
		Canadian DWQG	BC MOE Working	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs. BC MOE Working									
Construction (-2 to-1)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0301	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.149	0.0168	0.0030	0.0030	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.138	0.0156	0.0028	0.0028	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.179	0.0201	0.0036	0.0036	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.268	0.0301	0.0054	0.0054	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.113	0.0127	0.0023	0.0023	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0123	0.0022	0.0022	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.179	0.0201	0.0036	0.0036	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.268	0.0301	0.0054	0.0054	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.114	0.0128	0.0023	0.0023	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.178	0.0200	0.0036	0.0036	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.112	0.0126	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0115	0.0021	0.0021	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.178	0.0200	0.0036	0.0036	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.112	0.0126	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 CCME = Canadian Council of Ministers of the Environment

Appendix 13-D12j. P Creek Hazard Quotients for Total Cobalt Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step								Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline			
		Mean	Maximum	BC MOE Working	BC MOE Working		BC MOE Working	BC MOE Working	BC MOE Working			
Construction (-2 to-1)	January	0.00035	0.00060	0.004	0.110	1	0.0875	0.150	0.00547	0.00060	No	No
	February	0.00029	0.00057	0.004	0.110	1	0.0725	0.142	0.00518	0.00057	No	No
	March	0.00026	0.00052	0.004	0.110	1	0.0657	0.129	0.00469	0.00052	No	No
	April	0.00018	0.00036	0.004	0.110	1	0.0457	0.0890	0.00324	0.00036	No	No
	May	0.00012	0.00014	0.004	0.110	1	0.0296	0.0342	0.00124	0.00014	No	No
	June	0.00026	0.00028	0.004	0.110	1	0.0657	0.0707	0.00257	0.00028	No	No
	July	0.00017	0.00024	0.004	0.110	1	0.0418	0.0589	0.00214	0.00024	No	No
	August	0.00026	0.00042	0.004	0.110	1	0.0649	0.105	0.00382	0.00042	No	No
	September	0.00031	0.00054	0.004	0.110	1	0.0770	0.136	0.00495	0.00054	No	No
	October	0.00032	0.00058	0.004	0.110	1	0.0808	0.144	0.00523	0.00058	No	No
	November	0.00032	0.00058	0.004	0.110	1	0.0791	0.144	0.00523	0.00058	No	No
	December	0.00033	0.00058	0.004	0.110	1	0.0825	0.146	0.00529	0.00058	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No
	April	0.00001	0.00010	0.004	0.110	1	0.00343	0.0244	0.00089	0.00010	No	No
	May	0.00027	0.00031	0.004	0.110	1	0.0663	0.0781	0.00284	0.00031	No	No
	June	0.00037	0.00040	0.004	0.110	1	0.0928	0.100	0.00365	0.00040	No	No
	July	0.00048	0.00053	0.004	0.110	1	0.120	0.134	0.00486	0.00053	No	No
	August	0.00168	0.00182	0.004	0.110	1	0.421	0.456	0.0166	0.00182	No	No
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No
	May	0.00032	0.00032	0.004	0.110	1	0.0789	0.0794	0.00289	0.00032	No	No
	June	0.00040	0.00041	0.004	0.110	1	0.101	0.102	0.00370	0.00041	No	No
	July	0.00056	0.00057	0.004	0.110	1	0.139	0.143	0.00522	0.00057	No	No
	August	0.00187	0.00190	0.004	0.110	1	0.468	0.476	0.0173	0.00190	No	No
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No
Closure Phase (29-35)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No
	May	0.00014	0.00014	0.004	0.110	1	0.0361	0.0362	0.00132	0.00014	No	No
	June	0.00028	0.00028	0.004	0.110	1	0.0704	0.0704	0.00256	0.00028	No	No
	July	0.00015	0.00015	0.004	0.110	1	0.0379	0.0382	0.00139	0.00015	No	No
	August	0.00021	0.00021	0.004	0.110	1	0.0521	0.0523	0.00190	0.00021	No	No
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.004	0.110	1	0.0250	0.0250	0.00091	0.00010	No	No
	February	0.00001	0.00001	0.004	0.110	1	0.00275	0.00275	0.00010	0.00001	No	No
	March	0.00001	0.00001	0.004	0.110	1	0.00225	0.00225	0.00008	0.00001	No	No
	April	0.00001	0.00001	0.004	0.110	1	0.00248	0.00248	0.00009	0.00001	No	No
	May	0.00014	0.00014	0.004	0.110	1	0.03568	0.0360	0.00131	0.00014	No	No
	June	0.00028	0.00028	0.004	0.110	1	0.0701	0.0704	0.00256	0.00028	No	No
	July	0.00015	0.00015	0.004	0.110	1	0.0377	0.0380	0.00138	0.00015	No	No
	August	0.00020	0.00021	0.004	0.110	1	0.0509	0.0518	0.00188	0.00021	No	No
	September	0.00007	0.00007	0.004	0.110	1	0.0181	0.0181	0.00066	0.00007	No	No
	October	0.00007	0.00007	0.004	0.110	1	0.0179	0.0179	0.00065	0.00007	No	No
	November	0.00006	0.00006	0.004	0.110	1	0.0146	0.0146	0.00053	0.00006	No	No
	December	0.00008	0.00008	0.004	0.110	1	0.0198	0.0198	0.00072	0.00008	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D12L P Creek Hazard Quotients for Dissolved and Total Iron Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step										Retained as COPC?	
		Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life			
		Dissolved Iron		Total Iron		BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron		
Months	Mean	Maximum	Mean	Maximum									
Construction (-2 to-1)	January	0.0098	0.0099	0.0098	0.0099	0.35	1	0.0282	0.0099	No	No		
	February	0.0079	0.0079	0.0079	0.0079	0.35	1	0.0226	0.0079	No	No		
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No		
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No		
	May	0.0166	0.0166	0.0758	0.0758	0.35	1	0.0475	0.0758	No	No		
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0285	0.191	No	No		
	July	0.0099	0.0099	0.0159	0.0159	0.35	1	0.0283	0.0159	No	No		
	August	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0283	0.0099	No	No		
	September	0.0076	0.0076	0.0108	0.0109	0.35	1	0.0217	0.0109	No	No		
	October	0.0079	0.0080	0.0089	0.0090	0.35	1	0.0228	0.0090	No	No		
	November	0.0059	0.0059	0.0069	0.0069	0.35	1	0.0170	0.0069	No	No		
	December	0.0079	0.0079	0.0084	0.0084	0.35	1	0.0226	0.0084	No	No		
Operation 1 Phase (1-23)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No		
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No		
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No		
	April	0.0036	0.0088	0.0049	0.0389	0.35	1	0.0252	0.0389	No	No		
	May	0.0166	0.0166	0.0756	0.0758	0.35	1	0.0475	0.0758	No	No		
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0285	0.191	No	No		
	July	0.0100	0.0100	0.0159	0.0159	0.35	1	0.0285	0.0159	No	No		
	August	0.0098	0.0098	0.0098	0.0098	0.35	1	0.0280	0.0098	No	No		
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No		
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No		
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No		
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No		
Operations 2 Phase (24-28)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No		
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No		
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No		
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No		
	May	0.0166	0.0166	0.0755	0.0755	0.35	1	0.0474	0.0755	No	No		
	June	0.0100	0.0100	0.190	0.190	0.35	1	0.0285	0.190	No	No		
	July	0.0099	0.0100	0.0159	0.0159	0.35	1	0.0284	0.0159	No	No		
	August	0.0098	0.0098	0.0098	0.0098	0.35	1	0.0280	0.0098	No	No		
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No		
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No		
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No		
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No		
Closure Phase (29-35)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No		
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No		
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No		
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No		
	May	0.0166	0.0166	0.0754	0.0755	0.35	1	0.0473	0.0755	No	No		
	June	0.0100	0.0100	0.190	0.190	0.35	1	0.0285	0.190	No	No		
	July	0.0099	0.0099	0.0159	0.0159	0.35	1	0.0284	0.0159	No	No		
	August	0.0097	0.0097	0.0097	0.0097	0.35	1	0.0277	0.0097	No	No		
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No		
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No		
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No		
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No		
Post-Closure Phase (36-99)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No		
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No		
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No		
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No		
	May	0.0166	0.0166	0.0754	0.0754	0.35	1	0.0473	0.0754	No	No		
	June	0.0100	0.0100	0.190	0.190	0.35	1	0.0285	0.190	No	No		
	July	0.0099	0.0099	0.0159	0.0159	0.35	1	0.0283	0.0159	No	No		
	August	0.0097	0.0097	0.0097	0.0097	0.35	1	0.0277	0.0097	No	No		
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No		
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No		
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No		
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D12n. P Creek Hazard Quotients for Total Lithium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.0006	0.0007	0.096	0.87	0.0061	0.0070	0.0008	No
	February	0.0006	0.0007	0.096	0.87	0.0062	0.0072	0.0008	No
	March	0.0006	0.0007	0.096	0.87	0.0061	0.0071	0.0008	No
	April	0.0006	0.0006	0.096	0.87	0.0058	0.0065	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0054	0.0056	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0057	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0054	0.0057	0.0006	No
	August	0.0006	0.0006	0.096	0.87	0.0058	0.0064	0.0007	No
	September	0.0006	0.0007	0.096	0.87	0.0060	0.0069	0.0008	No
	October	0.0011	0.0012	0.096	0.87	0.0110	0.0130	0.0014	No
	November	0.0006	0.0007	0.096	0.87	0.0061	0.0071	0.0008	No
	December	0.0006	0.0007	0.096	0.87	0.0061	0.0070	0.0008	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0054	0.0006	No
	May	0.0007	0.0009	0.096	0.87	0.0077	0.0091	0.0010	No
	June	0.0007	0.0008	0.096	0.87	0.0075	0.0084	0.0009	No
	July	0.0009	0.0010	0.096	0.87	0.0093	0.0105	0.0012	No
	August	0.0018	0.0021	0.096	0.87	0.0188	0.0214	0.0024	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0009	0.0009	0.096	0.87	0.0091	0.0092	0.0010	No
	June	0.0008	0.0008	0.096	0.87	0.0085	0.0085	0.0009	No
	July	0.0010	0.0011	0.096	0.87	0.0108	0.0110	0.0012	No
	August	0.0021	0.0022	0.096	0.87	0.0221	0.0225	0.0025	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Closure Phase (29-35)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0008	0.0008	0.096	0.87	0.0083	0.0083	0.0009	No
	June	0.0008	0.0008	0.096	0.87	0.0079	0.0079	0.0009	No
	July	0.0008	0.0009	0.096	0.87	0.0088	0.0089	0.0010	No
	August	0.0012	0.0012	0.096	0.87	0.0128	0.0129	0.0014	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0008	0.0008	0.096	0.87	0.0082	0.0083	0.0009	No
	June	0.0008	0.0008	0.096	0.87	0.0079	0.0079	0.0009	No
	July	0.0008	0.0008	0.096	0.87	0.0087	0.0088	0.0010	No
	August	0.0012	0.0012	0.096	0.87	0.0125	0.0127	0.0014	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D12o. P Creek Hazard Quotients for Total Manganese Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.0018	0.0033	0.921	1.33	0.0020	0.0036	0.0025	No
	February	0.0019	0.0036	0.941	1.38	0.0020	0.0038	0.0026	No
	March	0.0018	0.0033	0.948	1.40	0.0019	0.0035	0.0023	No
	April	0.0014	0.0024	0.944	1.39	0.0015	0.0026	0.0018	No
	May	0.0035	0.0036	0.816	1.07	0.0042	0.0044	0.0034	No
	June	0.0084	0.0085	0.786	0.993	0.0106	0.0109	0.0086	No
	July	0.0011	0.0015	0.876	1.22	0.0012	0.0017	0.0012	No
	August	0.0016	0.0025	0.916	1.32	0.0017	0.0027	0.0019	No
	September	0.0020	0.0034	0.944	1.39	0.0021	0.0036	0.0024	No
	October	0.0024	0.0042	0.928	1.35	0.0026	0.0045	0.0031	No
	November	0.0021	0.0036	0.909	1.30	0.0023	0.0040	0.0028	No
	December	0.0019	0.0034	0.915	1.32	0.0021	0.0037	0.0026	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0005	0.0020	0.944	1.39	0.0005	0.0021	0.0014	No
	May	0.0049	0.0059	0.816	1.07	0.0060	0.0072	0.0055	No
	June	0.0096	0.0103	0.786	0.993	0.0123	0.0131	0.0104	No
	July	0.0033	0.0042	0.876	1.22	0.0038	0.0048	0.0034	No
	August	0.0095	0.0115	0.916	1.32	0.0103	0.0126	0.0087	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0059	0.0060	0.816	1.07	0.0073	0.0073	0.0056	No
	June	0.0104	0.0104	0.786	0.993	0.0132	0.0132	0.0105	No
	July	0.0044	0.0046	0.876	1.22	0.0050	0.0052	0.0037	No
	August	0.0120	0.0122	0.916	1.32	0.0131	0.0133	0.0093	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Closure Phase (29-35)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0053	0.0053	0.816	1.07	0.0065	0.0065	0.0049	No
	June	0.0099	0.0099	0.786	0.993	0.0126	0.0126	0.0100	No
	July	0.0030	0.0030	0.876	1.22	0.0034	0.0035	0.0025	No
	August	0.0055	0.0056	0.916	1.32	0.0060	0.0061	0.0042	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0052	0.0052	0.816	1.07	0.0064	0.0064	0.0049	No
	June	0.0099	0.0099	0.786	0.993	0.0125	0.0126	0.0100	No
	July	0.0029	0.0030	0.876	1.22	0.0034	0.0034	0.0025	No
	August	0.0053	0.0055	0.916	1.32	0.0058	0.0060	0.0042	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D12r. P Creek Hazard Quotients for Total Nickel Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
		Construction (-2 to-1)	January	0.0006	0.0007	0.065	1		
	February	0.0002	0.0003	0.065	1	0.0042	0.0003	No	No
	March	0.0002	0.0003	0.065	1	0.0041	0.0003	No	No
	April	0.0001	0.0002	0.065	1	0.0033	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0210	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0377	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0085	0.0005	No	No
	August	0.0006	0.0007	0.065	1	0.0100	0.0007	No	No
	September	0.0005	0.0005	0.065	1	0.0084	0.0005	No	No
	October	0.0005	0.0007	0.065	1	0.0101	0.0007	No	No
	November	0.0004	0.0005	0.065	1	0.0085	0.0005	No	No
	December	0.0005	0.0006	0.065	1	0.0094	0.0006	No	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0003	0.065	1	0.0046	0.0003	No	No
	May	0.0006	0.0007	0.025	1	0.0262	0.0007	No	No
	June	0.0010	0.0010	0.025	1	0.0415	0.0010	No	No
	July	0.0007	0.0007	0.065	1	0.0109	0.0007	No	No
	August	0.0011	0.0012	0.065	1	0.0182	0.0012	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0007	0.0007	0.025	1	0.0264	0.0007	No	No
	June	0.0010	0.0010	0.025	1	0.0417	0.0010	No	No
	July	0.0007	0.0007	0.065	1	0.0113	0.0007	No	No
	August	0.0012	0.0012	0.065	1	0.0188	0.0012	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Closure Phase (29-35)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0006	0.0006	0.025	1	0.0250	0.0006	No	No
	June	0.0010	0.0010	0.025	1	0.0408	0.0010	No	No
	July	0.0006	0.0006	0.065	1	0.0099	0.0006	No	No
	August	0.0008	0.0008	0.065	1	0.0128	0.0008	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No
	May	0.0006	0.0006	0.025	1	0.0249	0.0006	No	No
	June	0.0010	0.0010	0.025	1	0.0407	0.0010	No	No
	July	0.0006	0.0006	0.065	1	0.0099	0.0006	No	No
	August	0.0008	0.0008	0.065	1	0.0127	0.0008	No	No
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix 13-D12s. P Creek Hazard Quotients for Total Selenium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step											Second Screening Step				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guideline	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline	
		Mean	Maximum					BC MOE 30-Day Mean	BC DWQG		30-Day Mean	BC MOE Maximum		Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline
Construction (-2 to-1)	January	0.0003	0.0005	0.002	0.01	0.002	0.03	0.156	0.234	0.0469	0.156	0.234	0.0156				
	February	0.0004	0.0005	0.002	0.01	0.002	0.03	0.184	0.271	0.0542	0.184	0.271	0.0181				
	March	0.0004	0.0005	0.002	0.01	0.002	0.03	0.177	0.255	0.0511	0.177	0.255	0.0170				
	April	0.0003	0.0004	0.002	0.01	0.002	0.03	0.158	0.211	0.0423	0.158	0.211	0.0141				
	May	0.0001	0.0002	0.002	0.01	0.002	0.03	0.0633	0.0751	0.0150	0.0633	0.0751	0.0050				
	June	0.0001	0.0002	0.002	0.01	0.002	0.03	0.0659	0.0806	0.0161	0.0659	0.0806	0.0054				
	July	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0801	0.102	0.0205	0.0801	0.102	0.0068				
	August	0.0002	0.0003	0.002	0.01	0.002	0.03	0.116	0.165	0.0331	0.116	0.165	0.0110				
	September	0.0003	0.0004	0.002	0.01	0.002	0.03	0.148	0.222	0.0443	0.148	0.222	0.0148				
	October	0.0004	0.0006	0.002	0.01	0.002	0.03	0.198	0.324	0.0647	0.198	0.324	0.0216				
	November	0.0003	0.0005	0.002	0.01	0.002	0.03	0.152	0.234	0.0467	0.152	0.234	0.0156				
	December	0.0003	0.0005	0.002	0.01	0.002	0.03	0.151	0.229	0.0457	0.151	0.229	0.0152				
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0800	0.0800	0.0160	0.0800	0.0800	0.0053				
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067				
	March	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067				
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.105	0.106	0.0211	0.105	0.106	0.0070				
	May	0.0007	0.0012	0.002	0.01	0.002	0.03	0.365	0.596	0.119	0.365	0.596	0.0397				
	June	0.0006	0.0010	0.002	0.01	0.002	0.03	0.324	0.492	0.0984	0.324	0.492	0.0328				
	July	0.0012	0.0018	0.002	0.01	0.002	0.03	0.612	0.899	0.180	0.612	0.899	0.0599				
	August	0.0041	0.0058	0.002	0.01	0.002	0.03	2.03	2.92	0.584	2.03	2.92	0.195	0.0001	0.0002	30.4	38.9
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0763	0.0763	0.0153	0.0763	0.0763	0.0051				
	October	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0733	0.0733	0.0147	0.0733	0.0733	0.0049				
	November	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0725	0.0725	0.0145	0.0725	0.0725	0.0048				
	December	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0738	0.0738	0.0148	0.0738	0.0738	0.0049				
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0800	0.0800	0.0160	0.0800	0.0800	0.0053				
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067				
	March	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067				
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.106	0.106	0.0211	0.106	0.106	0.0070				
	May	0.0012	0.0012	0.002	0.01	0.002	0.03	0.594	0.612	0.122	0.594	0.612	0.0408				
	June	0.0010	0.0010	0.002	0.01	0.002	0.03	0.493	0.507	0.101	0.493	0.507	0.0338				
	July	0.0018	0.0020	0.002	0.01	0.002	0.03	0.918	0.978	0.196	0.918	0.978	0.0652				
	August	0.0058	0.0062	0.002	0.01	0.002	0.03	2.90	3.08	0.615	2.90	3.08	0.205	0.0001	0.0002	43.5	41.0
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0763	0.0763	0.0153	0.0763	0.0763	0.0051				
	October	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0733	0.0733	0.0147	0.0733	0.0733	0.0049				
	November	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0725	0.0725	0.0145	0.0725	0.0725	0.0048				
	December	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0738	0.0738	0.0148	0.0738	0.0738	0.0049				
Closure Phase (29-35)	January	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0800	0.0800	0.0160	0.0800	0.0800	0.0053				
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067				
	March	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067				
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.106	0.106	0.0211	0.106	0.106	0.0070				
	May	0.0006	0.0006	0.002	0.01	0.002	0.03	0.318	0.319	0.0639	0.318	0.319	0.0213				
	June	0.0006	0.0006	0.002	0.01	0.002	0.03	0.285	0.286	0.0572	0.285	0.286	0.0191				
	July	0.0007	0.0007	0.002	0.01	0.002	0.03	0.367	0.374	0.0748	0.367	0.374	0.0249				
	August	0.0015	0.0015	0.002	0.01	0.002	0.03	0.728	0.731	0.146	0.728	0.731	0.0487				
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0763	0.0763	0.0153	0.0763	0.0763	0.0051				
	October	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0733	0.0733	0.0147	0.0733	0.0733	0.0049				
	November	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0725	0.0725	0.0145	0.0725	0.0725	0.0048				
	December	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0738	0.0738	0.0148	0.0738	0.0738	0.0049				
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0800	0.0800	0.0160	0.0800	0.0800	0.0053				
	February	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067				
	March	0.0002	0.0002	0.002	0.01	0.002	0.03	0.100	0.100	0.0200	0.100	0.100	0.0067				
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.106	0.106	0.0211	0.106	0.106	0.0070				
	May	0.0006	0.0006	0.002	0.01	0.002	0.03	0.307	0.315	0.0630	0.307	0.315	0.0210				
	June	0.0006	0.0006	0.002	0.01	0.002	0.03	0.279	0.284	0.0568	0.279	0.284	0.0189				
	July	0.0007	0.0007	0.002	0.01	0.002	0.03	0.363	0.371	0.0743	0.363	0.371	0.0248				
	August	0.0014	0.0014	0.002	0.01	0.002	0.03	0.699	0.720	0.144	0.699	0.720	0.0480				
	September	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0763	0.0763	0.0153	0.0763	0.0763	0.0051				
	October	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0733	0.0733	0.0147	0.0733	0.0733	0.0049				
	November	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0725	0.0725	0.0145	0.0725	0.0725	0.0048				
	December	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0738	0.0738	0.0148	0.0738	0.0738	0.0049				

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

(continued)

Appendix 13-D12s. P Creek Hazard Quotients for Total Selenium Concentrations, Unrecovered Seepage Sensitivity Case (completed)

		Retained as COPC?			
Project Phase	Months	Drinking			
		Aquatic Life	Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	Yes	No	Yes	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	Yes	No	Yes	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D12t. P Creek Hazard Quotients for Total Silver Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.00002	0.00002	0.00005	0.00010	0.350	0.367	0.183	No
	February	0.00001	0.00001	0.00005	0.00010	0.116	0.135	0.0673	No
	March	0.00001	0.00001	0.00005	0.00010	0.115	0.131	0.0657	No
	April	0.00001	0.00001	0.00005	0.00010	0.110	0.121	0.0607	No
	May	0.00001	0.00001	0.00005	0.00010	0.203	0.207	0.103	No
	June	0.00001	0.00001	0.00005	0.00010	0.238	0.243	0.121	No
	July	0.00001	0.00001	0.00005	0.00010	0.203	0.208	0.104	No
	August	0.00001	0.00001	0.00005	0.00010	0.208	0.219	0.109	No
	September	0.00001	0.00001	0.00005	0.00010	0.212	0.228	0.114	No
	October	0.00001	0.00002	0.00005	0.00010	0.292	0.329	0.164	No
	November	0.00001	0.00001	0.00005	0.00010	0.165	0.182	0.0910	No
	December	0.00001	0.00001	0.00005	0.00010	0.257	0.274	0.137	No
Operation 1 Phase (1-23)	January	0.00002	0.00002	0.00005	0.00010	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.00010	0.102	0.152	0.0760	No
	May	0.00001	0.00001	0.00005	0.00010	0.214	0.222	0.111	No
	June	0.00001	0.00001	0.00005	0.00010	0.246	0.251	0.126	No
	July	0.00001	0.00001	0.00005	0.00010	0.223	0.229	0.115	No
	August	0.00001	0.00001	0.00005	0.00010	0.276	0.288	0.144	No
	September	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.00010	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.00010	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.00010	0.245	0.245	0.123	No
Operations 2 Phase (24-28)	January	0.00002	0.00002	0.00005	0.00010	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.00010	0.222	0.222	0.111	No
	June	0.00001	0.00001	0.00005	0.00010	0.251	0.252	0.126	No
	July	0.00001	0.00001	0.00005	0.00010	0.231	0.232	0.116	No
	August	0.00001	0.00001	0.00005	0.00010	0.292	0.294	0.147	No
	September	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.00010	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.00010	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.00010	0.245	0.245	0.123	No
Closure Phase (29-35)	January	0.00002	0.00002	0.00005	0.00010	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.00010	0.217	0.217	0.108	No
	June	0.00001	0.00001	0.00005	0.00010	0.248	0.248	0.124	No
	July	0.00001	0.00001	0.00005	0.00010	0.219	0.220	0.110	No
	August	0.00001	0.00001	0.00005	0.00010	0.238	0.238	0.119	No
	September	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.00010	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.00010	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.00010	0.245	0.245	0.123	No
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.00005	0.00010	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.00010	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.00010	0.216	0.217	0.108	No
	June	0.00001	0.00001	0.00005	0.00010	0.248	0.248	0.124	No
	July	0.00001	0.00001	0.00005	0.00010	0.219	0.219	0.110	No
	August	0.00001	0.00001	0.00005	0.00010	0.236	0.237	0.119	No
	September	0.00001	0.00001	0.00005	0.00010	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.00010	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.00010	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.00010	0.245	0.245	0.123	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D12u. P Creek Hazard Quotients for Total Thallium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000011	0.000012	0.0003	0.002	0.0396	0.00594	No	No
	February	0.000003	0.000004	0.0003	0.002	0.0141	0.00212	No	No
	March	0.000003	0.000004	0.0003	0.002	0.0135	0.00202	No	No
	April	0.000003	0.000003	0.0003	0.002	0.0113	0.00170	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0344	0.00516	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0347	0.00521	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0350	0.00524	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0373	0.00560	No	No
	September	0.000011	0.000012	0.0003	0.002	0.0392	0.00588	No	No
	October	0.000009	0.000011	0.0003	0.002	0.0362	0.00543	No	No
	November	0.000007	0.000008	0.0003	0.002	0.0268	0.00402	No	No
	December	0.000009	0.000010	0.0003	0.002	0.0331	0.00496	No	No
Operation 1 Phase (1-23)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000006	0.0003	0.002	0.0204	0.00306	No	No
	May	0.000011	0.000012	0.0003	0.002	0.0384	0.00576	No	No
	June	0.000011	0.000011	0.0003	0.002	0.0375	0.00563	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0402	0.00603	No	No
	August	0.000015	0.000016	0.0003	0.002	0.0543	0.00814	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operations 2 Phase (24-28)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0386	0.00579	No	No
	June	0.000011	0.000011	0.0003	0.002	0.0377	0.00565	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0409	0.00614	No	No
	August	0.000017	0.000017	0.0003	0.002	0.0557	0.00835	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Closure Phase (29-35)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000011	0.000011	0.0003	0.002	0.0374	0.00560	No	No
	June	0.000011	0.000011	0.0003	0.002	0.0369	0.00553	No	No
	July	0.000011	0.000011	0.0003	0.002	0.0380	0.00570	No	No
	August	0.000013	0.000013	0.0003	0.002	0.0426	0.00639	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Post-Closure Phase (36-99)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000011	0.000011	0.0003	0.002	0.0373	0.00559	No	No
	June	0.000011	0.000011	0.0003	0.002	0.0369	0.00553	No	No
	July	0.000011	0.000011	0.0003	0.002	0.0380	0.00569	No	No
	August	0.000013	0.000013	0.0003	0.002	0.0424	0.00636	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D12v. P Creek Hazard Quotients for Total Uranium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step							Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0001	0.0002	0.3	0.02	0.2	0.0005	0.0079	0.0008	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0109	0.0011	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0030	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0033	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0048	0.0005	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0065	0.0006	No	No	No
	September	0.0001	0.0002	0.3	0.02	0.2	0.0005	0.0077	0.0008	No	No	No
	October	0.0001	0.0002	0.3	0.02	0.2	0.0006	0.0091	0.0009	No	No	No
	November	0.0001	0.0002	0.3	0.02	0.2	0.0005	0.0079	0.0008	No	No	No
	December	0.0001	0.0002	0.3	0.02	0.2	0.0005	0.0079	0.0008	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0002	0.3	0.02	0.2	0.0007	0.0106	0.0011	No	No	No
	June	0.0001	0.0002	0.3	0.02	0.2	0.0006	0.0095	0.0009	No	No	No
	July	0.0002	0.0003	0.3	0.02	0.2	0.0010	0.0151	0.0015	No	No	No
	August	0.0005	0.0008	0.3	0.02	0.2	0.0026	0.0387	0.0039	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0109	0.0011	No	No	No
	June	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0097	0.0010	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0162	0.0016	No	No	No
	August	0.0008	0.0008	0.3	0.02	0.2	0.0027	0.0411	0.0041	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0005	0.0074	0.0007	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0005	0.0070	0.0007	No	No	No
	July	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0099	0.0010	No	No	No
	August	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0172	0.0017	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0005	0.0073	0.0007	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0005	0.0070	0.0007	No	No	No
	July	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0098	0.0010	No	No	No
	August	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0170	0.0017	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D12w. P Creek Hazard Quotients for Total Vanadium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step							Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline				
		BC MOE Working	BC MOE Working Secondary Chronic Value	BC MOE Working								
Construction (-2 to-1)	January	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0496	0.0099	No	No	
	February	0.0002	0.0002	0.006	0.02	0.1	0.0345	0.0103	0.0021	No	No	
	March	0.0002	0.0002	0.006	0.02	0.1	0.0344	0.0103	0.0021	No	No	
	April	0.0002	0.0002	0.006	0.02	0.1	0.0341	0.0102	0.0020	No	No	
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	July	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0496	0.0099	No	No	
	August	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0497	0.0099	No	No	
	September	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0496	0.0099	No	No	
	October	0.0007	0.0007	0.006	0.02	0.1	0.124	0.0372	0.0074	No	No	
	November	0.0006	0.0006	0.006	0.02	0.1	0.0999	0.0300	0.0060	No	No	
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0398	0.0080	No	No	
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	April	0.0002	0.0006	0.006	0.02	0.1	0.0999	0.0300	0.0060	No	No	
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	August	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0494	0.0099	No	No	
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No	
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No	
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No	
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	August	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0494	0.0099	No	No	
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No	
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No	
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No	
Closure Phase (29-35)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	May	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No	
	June	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No	
	July	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No	
	August	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0486	0.0097	No	No	
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No	
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No	
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No	
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No	
	May	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No	
	June	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No	
	July	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0497	0.0099	No	No	
	August	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0485	0.0097	No	No	
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No	
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No	
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No	
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DIWQG = Drinking water quality guideline

Appendix 13-D12x. P Creek Hazard Quotients for Total Zinc Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step								Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		Mean Predicted vs. BC MOE 30-Day Mean Guideline	BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline			
		Maximum	Maximum	Maximum	Maximum		Maximum	Maximum	Maximum			
Construction (-2 to-1)	January	0.0031	0.0033	0.008	0.033	2	0.415	0.437	0.0992	0.0016	No	No
	February	0.0006	0.0008	0.008	0.033	2	0.0766	0.101	0.0229	0.0004	No	No
	March	0.0011	0.0013	0.008	0.033	2	0.153	0.175	0.0398	0.0007	No	No
	April	0.0011	0.0012	0.008	0.033	2	0.141	0.157	0.0356	0.0006	No	No
	May	0.0031	0.0031	0.008	0.033	2	0.408	0.412	0.0937	0.0015	No	No
	June	0.0040	0.0041	0.008	0.033	2	0.538	0.544	0.124	0.0020	No	No
	July	0.0030	0.0031	0.008	0.033	2	0.403	0.409	0.0929	0.0015	No	No
	August	0.0031	0.0032	0.008	0.033	2	0.410	0.423	0.0962	0.0016	No	No
	September	0.0023	0.0024	0.008	0.033	2	0.305	0.325	0.0739	0.0012	No	No
	October	0.0027	0.0030	0.008	0.033	2	0.359	0.405	0.0919	0.0015	No	No
	November	0.0020	0.0022	0.008	0.033	2	0.265	0.288	0.0655	0.0011	No	No
	December	0.0025	0.0027	0.008	0.033	2	0.339	0.361	0.0821	0.0014	No	No
Operation 1 Phase (1-23)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No
	April	0.0010	0.0020	0.008	0.033	2	0.134	0.271	0.0617	0.0010	No	No
	May	0.0032	0.0032	0.008	0.033	2	0.423	0.433	0.0985	0.0016	No	No
	June	0.0041	0.0042	0.008	0.033	2	0.550	0.556	0.126	0.0021	No	No
	July	0.0032	0.0033	0.008	0.033	2	0.431	0.439	0.0998	0.0016	No	No
	August	0.0037	0.0039	0.008	0.033	2	0.499	0.517	0.117	0.0019	No	No
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No
Operations 2 Phase (24-28)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No
	May	0.0033	0.0033	0.008	0.033	2	0.434	0.434	0.0987	0.0016	No	No
	June	0.0042	0.0042	0.008	0.033	2	0.557	0.557	0.127	0.0021	No	No
	July	0.0033	0.0033	0.008	0.033	2	0.441	0.443	0.101	0.0017	No	No
	August	0.0039	0.0039	0.008	0.033	2	0.522	0.525	0.119	0.0020	No	No
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No
Closure Phase (29-35)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No
	May	0.0032	0.0032	0.008	0.033	2	0.427	0.427	0.0970	0.0016	No	No
	June	0.0041	0.0041	0.008	0.033	2	0.552	0.552	0.126	0.0021	No	No
	July	0.0032	0.0032	0.008	0.033	2	0.425	0.426	0.0967	0.0016	No	No
	August	0.0033	0.0034	0.008	0.033	2	0.446	0.447	0.102	0.0017	No	No
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No
Post-Closure Phase (36-99)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No
	May	0.0032	0.0032	0.008	0.033	2	0.426	0.426	0.0969	0.0016	No	No
	June	0.0041	0.0041	0.008	0.033	2	0.552	0.552	0.126	0.0021	No	No
	July	0.0032	0.0032	0.008	0.033	2	0.424	0.425	0.0966	0.0016	No	No
	August	0.0033	0.0033	0.008	0.033	2	0.443	0.445	0.101	0.0017	No	No
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D12y. P Creek Hazard Quotients for Chloride Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
		Mean	Maximum	Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
Construction (-2 to-1)	January	0.588	0.684	150	600	600	600	0.0039	0.0046	0.0011	0.0011	0.0011	No	No	No
	February	0.597	0.704	150	600	600	600	0.0040	0.0047	0.0012	0.0012	0.0012	No	No	No
	March	0.588	0.686	150	600	600	600	0.0039	0.0046	0.0011	0.0011	0.0011	No	No	No
	April	0.560	0.627	150	600	600	600	0.0037	0.0042	0.0010	0.0010	0.0010	No	No	No
	May	0.520	0.541	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	June	0.526	0.554	150	600	600	600	0.0035	0.0037	0.0009	0.0009	0.0009	No	No	No
	July	0.524	0.552	150	600	600	600	0.0035	0.0037	0.0009	0.0009	0.0009	No	No	No
	August	0.556	0.618	150	600	600	600	0.0037	0.0041	0.0010	0.0010	0.0010	No	No	No
	September	0.615	0.706	150	600	600	600	0.0041	0.0047	0.0012	0.0012	0.0012	No	No	No
	October	0.765	0.973	150	600	600	600	0.0051	0.0065	0.0016	0.0016	0.0016	No	No	No
	November	0.593	0.694	150	600	600	600	0.0040	0.0046	0.0012	0.0012	0.0012	No	No	No
	December	0.588	0.685	150	600	600	600	0.0039	0.0046	0.0011	0.0011	0.0011	No	No	No
Operation 1 Phase (1-23)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.501	0.519	150	600	600	600	0.0033	0.0035	0.0009	0.0009	0.0009	No	No	No
	May	0.665	0.751	150	600	600	600	0.0044	0.0050	0.0013	0.0013	0.0013	No	No	No
	June	0.652	0.708	150	600	600	600	0.0043	0.0047	0.0012	0.0012	0.0012	No	No	No
	July	0.772	0.842	150	600	600	600	0.0051	0.0056	0.0014	0.0014	0.0014	No	No	No
	August	1.40	1.56	150	600	600	600	0.0093	0.0104	0.0026	0.0026	0.0026	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Operations 2 Phase (24-28)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.757	0.761	150	600	600	600	0.0050	0.0051	0.0013	0.0013	0.0013	No	No	No
	June	0.713	0.717	150	600	600	600	0.0048	0.0048	0.0012	0.0012	0.0012	No	No	No
	July	0.862	0.876	150	600	600	600	0.0057	0.0058	0.0015	0.0015	0.0015	No	No	No
	August	1.60	1.63	150	600	600	600	0.0107	0.0108	0.0027	0.0027	0.0027	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Closure Phase (29-35)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.702	0.703	150	600	600	600	0.0047	0.0047	0.0012	0.0012	0.0012	No	No	No
	June	0.677	0.678	150	600	600	600	0.0045	0.0045	0.0011	0.0011	0.0011	No	No	No
	July	0.733	0.738	150	600	600	600	0.0049	0.0049	0.0012	0.0012	0.0012	No	No	No
	August	0.997	0.999	150	600	600	600	0.0066	0.0067	0.0017	0.0017	0.0017	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Post-Closure Phase (36-99)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.694	0.699	150	600	600	600	0.0046	0.0047	0.0012	0.0012	0.0012	No	No	No
	June	0.673	0.676	150	600	600	600	0.0045	0.0045	0.0011	0.0011	0.0011	No	No	No
	July	0.729	0.736	150	600	600	600	0.0049	0.0049	0.0012	0.0012	0.0012	No	No	No
	August	0.975	0.991	150	600	600	600	0.0065	0.0066	0.0017	0.0017	0.0017	No	No	No
	September	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	October	0.568	0.568	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D12z. P Creek Hazard Quotients for Fluoride Concentrations, Unrecovered Seepage Sensitivity Case (completed)

		First Screening Step			Retained as COPC?			
		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline						
Project Phase	Months	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE	Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	0.0320	0.0346	0.0173	No	No	No	No
	February	0.0440	0.0468	0.0234	No	No	No	No
	March	0.0124	0.0150	0.0075	No	No	No	No
	April	0.0383	0.0401	0.0200	No	No	No	No
	May	0.0218	0.0223	0.0111	No	No	No	No
	June	0.0218	0.0224	0.0112	No	No	No	No
	July	0.0263	0.0270	0.0135	No	No	No	No
	August	0.0368	0.0384	0.0192	No	No	No	No
	September	0.0358	0.0382	0.0191	No	No	No	No
	October	0.0397	0.0446	0.0223	No	No	No	No
	November	0.0356	0.0382	0.0191	No	No	No	No
	December	0.0337	0.0363	0.0181	No	No	No	No
Operation 1 Phase (1-23)	January	0.0300	0.0300	0.0150	No	No	No	No
	February	0.0420	0.0420	0.0210	No	No	No	No
	March	0.0100	0.0100	0.0050	No	No	No	No
	April	0.0361	0.0370	0.0185	No	No	No	No
	May	0.0247	0.0265	0.0132	No	No	No	No
	June	0.0243	0.0255	0.0127	No	No	No	No
	July	0.0313	0.0327	0.0164	No	No	No	No
	August	0.0535	0.0567	0.0283	No	No	No	No
	September	0.0340	0.0340	0.0170	No	No	No	No
	October	0.0353	0.0353	0.0177	No	No	No	No
	November	0.0335	0.0335	0.0168	No	No	No	No
	December	0.0318	0.0318	0.0159	No	No	No	No
Operations 2 Phase (24-28)	January	0.0300	0.0300	0.0150	No	No	No	No
	February	0.0420	0.0420	0.0210	No	No	No	No
	March	0.0100	0.0100	0.0050	No	No	No	No
	April	0.0370	0.0370	0.0185	No	No	No	No
	May	0.0266	0.0267	0.0133	No	No	No	No
	June	0.0256	0.0256	0.0128	No	No	No	No
	July	0.0331	0.0334	0.0167	No	No	No	No
	August	0.0576	0.0581	0.0290	No	No	No	No
	September	0.0340	0.0340	0.0170	No	No	No	No
	October	0.0353	0.0353	0.0177	No	No	No	No
	November	0.0335	0.0335	0.0168	No	No	No	No
	December	0.0318	0.0318	0.0159	No	No	No	No
Closure Phase (29-35)	January	0.0300	0.0300	0.0150	No	No	No	No
	February	0.0420	0.0420	0.0210	No	No	No	No
	March	0.0100	0.0100	0.0050	No	No	No	No
	April	0.0370	0.0370	0.0185	No	No	No	No
	May	0.0255	0.0255	0.0127	No	No	No	No
	June	0.0248	0.0248	0.0124	No	No	No	No
	July	0.0304	0.0305	0.0153	No	No	No	No
	August	0.0450	0.0450	0.0225	No	No	No	No
	September	0.0340	0.0340	0.0170	No	No	No	No
	October	0.0353	0.0353	0.0177	No	No	No	No
	November	0.0335	0.0335	0.0168	No	No	No	No
	December	0.0318	0.0318	0.0159	No	No	No	No
Post-Closure Phase (36-99)	January	0.0300	0.0300	0.0150	No	No	No	No
	February	0.0420	0.0420	0.0210	No	No	No	No
	March	0.0100	0.0100	0.0050	No	No	No	No
	April	0.0370	0.0370	0.0185	No	No	No	No
	May	0.0253	0.0254	0.0127	No	No	No	No
	June	0.0247	0.0248	0.0124	No	No	No	No
	July	0.0304	0.0305	0.0152	No	No	No	No
	August	0.0445	0.0448	0.0224	No	No	No	No
	September	0.0340	0.0340	0.0170	No	No	No	No
	October	0.0353	0.0353	0.0177	No	No	No	No
	November	0.0335	0.0335	0.0168	No	No	No	No
	December	0.0318	0.0318	0.0159	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D12aa. P Creek Hazard Quotients for Nitrate Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step											Retained as COPC?					
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				BC DWQG	Maximum	BC MOE Maximum							
		Month	Mean	Maximum	Day Mean	Maximum	BC DWQG	Maximum	BC MOE Maximum	Day Mean	Mean	Maximum	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	0.520	0.739	3	32.8	10	100	100	0.173	0.246	0.0225	0.0739	0.0074	0.0074	No	No	No	No
	February	0.538	0.782	3	32.8	10	100	100	0.179	0.261	0.0238	0.0782	0.0078	0.0078	No	No	No	No
	March	0.513	0.734	3	32.8	10	100	100	0.171	0.245	0.0224	0.0734	0.0073	0.0073	No	No	No	No
	April	0.548	0.699	3	32.8	10	100	100	0.183	0.233	0.0213	0.0699	0.0070	0.0070	No	No	No	No
	May	0.590	0.637	3	32.8	10	100	100	0.197	0.212	0.0194	0.0637	0.0064	0.0064	No	No	No	No
	June	0.201	0.262	3	32.8	10	100	100	0.0670	0.0875	0.0080	0.0262	0.0026	0.0026	No	No	No	No
	July	0.165	0.230	3	32.8	10	100	100	0.0550	0.0767	0.0070	0.0230	0.0023	0.0023	No	No	No	No
	August	0.269	0.409	3	32.8	10	100	100	0.0897	0.136	0.0125	0.0409	0.0041	0.0041	No	No	No	No
	September	0.376	0.583	3	32.8	10	100	100	0.125	0.194	0.0178	0.0583	0.0058	0.0058	No	No	No	No
	October	0.635	1.099	3	32.8	10	100	100	0.212	0.366	0.0335	0.110	0.0110	0.0110	No	No	No	No
	November	0.451	0.682	3	32.8	10	100	100	0.150	0.227	0.0208	0.0682	0.0068	0.0068	No	No	No	No
	December	0.480	0.700	3	32.8	10	100	100	0.160	0.233	0.0213	0.0700	0.0070	0.0070	No	No	No	No
Operation 1 Phase (1-23)	January	0.306	0.306	3	32.8	10	100	100	0.102	0.102	0.0093	0.0306	0.0031	0.0031	No	No	No	No
	February	0.301	0.301	3	32.8	10	100	100	0.100	0.100	0.0092	0.0301	0.0030	0.0030	No	No	No	No
	March	0.297	0.297	3	32.8	10	100	100	0.0990	0.0990	0.0091	0.0297	0.0030	0.0030	No	No	No	No
	April	0.404	0.443	3	32.8	10	100	100	0.135	0.148	0.0135	0.0443	0.0044	0.0044	No	No	No	No
	May	0.625	0.730	3	32.8	10	100	100	0.208	0.243	0.0223	0.0730	0.0073	0.0073	No	No	No	No
	June	0.225	0.330	3	32.8	10	100	100	0.0750	0.110	0.0101	0.0330	0.0033	0.0033	No	No	No	No
	July	0.243	0.426	3	32.8	10	100	100	0.0809	0.142	0.0130	0.0426	0.0043	0.0043	No	No	No	No
	August	0.575	1.29	3	32.8	10	100	100	0.192	0.429	0.0392	0.129	0.0129	0.0129	No	No	No	No
	September	0.173	0.173	3	32.8	10	100	100	0.0575	0.0575	0.0053	0.0173	0.0017	0.0017	No	No	No	No
	October	0.173	0.173	3	32.8	10	100	100	0.0578	0.0578	0.0053	0.0173	0.0017	0.0017	No	No	No	No
	November	0.225	0.225	3	32.8	10	100	100	0.0748	0.0748	0.0068	0.0225	0.0022	0.0022	No	No	No	No
	December	0.265	0.265	3	32.8	10	100	100	0.0884	0.0884	0.0081	0.0265	0.0027	0.0027	No	No	No	No
Operations 2 Phase (24-28)	January	0.306	0.306	3	32.8	10	100	100	0.102	0.102	0.0093	0.0306	0.0031	0.0031	No	No	No	No
	February	0.301	0.301	3	32.8	10	100	100	0.100	0.100	0.0092	0.0301	0.0030	0.0030	No	No	No	No
	March	0.297	0.297	3	32.8	10	100	100	0.0990	0.0990	0.0091	0.0297	0.0030	0.0030	No	No	No	No
	April	0.402	0.402	3	32.8	10	100	100	0.134	0.134	0.0123	0.0402	0.0040	0.0040	No	No	No	No
	May	0.540	0.541	3	32.8	10	100	100	0.180	0.180	0.0165	0.0541	0.0054	0.0054	No	No	No	No
	June	0.139	0.139	3	32.8	10	100	100	0.0464	0.0464	0.0042	0.0139	0.0014	0.0014	No	No	No	No
	July	0.100	0.100	3	32.8	10	100	100	0.0332	0.0332	0.0030	0.0100	0.0010	0.0010	No	No	No	No
	August	0.127	0.128	3	32.8	10	100	100	0.0424	0.0427	0.0039	0.0128	0.0013	0.0013	No	No	No	No
	September	0.173	0.173	3	32.8	10	100	100	0.0575	0.0575	0.0053	0.0173	0.0017	0.0017	No	No	No	No
	October	0.173	0.173	3	32.8	10	100	100	0.0578	0.0578	0.0053	0.0173	0.0017	0.0017	No	No	No	No
	November	0.225	0.225	3	32.8	10	100	100	0.0748	0.0748	0.0068	0.0225	0.0022	0.0022	No	No	No	No
	December	0.265	0.265	3	32.8	10	100	100	0.0884	0.0884	0.0081	0.0265	0.0027	0.0027	No	No	No	No
Closure Phase (29-35)	January	0.306	0.306	3	32.8	10	100	100	0.102	0.102	0.0093	0.0306	0.0031	0.0031	No	No	No	No
	February	0.301	0.301	3	32.8	10	100	100	0.100	0.100	0.0092	0.0301	0.0030	0.0030	No	No	No	No
	March	0.297	0.297	3	32.8	10	100	100	0.0990	0.0990	0.0091	0.0297	0.0030	0.0030	No	No	No	No
	April	0.402	0.402	3	32.8	10	100	100	0.134	0.134	0.0123	0.0402	0.0040	0.0040	No	No	No	No
	May	0.540	0.540	3	32.8	10	100	100	0.180	0.180	0.0165	0.0540	0.0054	0.0054	No	No	No	No
	June	0.139	0.139	3	32.8	10	100	100	0.0464	0.0464	0.0042	0.0139	0.0014	0.0014	No	No	No	No
	July	0.100	0.100	3	32.8	10	100	100	0.0332	0.0332	0.0030	0.0100	0.0010	0.0010	No	No	No	No
	August	0.126	0.126	3	32.8	10	100	100	0.0421	0.0421	0.0039	0.0126	0.0013	0.0013	No	No	No	No
	September	0.173	0.173	3	32.8	10	100	100	0.0575	0.0575	0.0053	0.0173	0.0017	0.0017	No	No	No	No
	October	0.173	0.173	3	32.8	10	100	100	0.0578	0.0578	0.0053	0.0173	0.0017	0.0017	No	No	No	No
	November	0.225	0.225	3	32.8	10	100	100	0.0748	0.0748	0.0068	0.0225	0.0022	0.0022	No	No	No	No
	December	0.265	0.265	3	32.8	10	100	100	0.0884	0.0884	0.0081	0.0265	0.0027	0.0027	No	No	No	No
Post-Closure Phase (36-99)	January	0.306	0.306	3	32.8	10	100	100	0.102	0.102	0.0093	0.0306	0.0031	0.0031	No	No	No	No
	February	0.301	0.301	3	32.8	10	100	100	0.100	0.100	0.0092	0.0301	0.0030	0.0030	No	No	No	No
	March	0.297	0.297	3	32.8	10	100	100	0.0990	0.0990	0.0091	0.0297	0.0030	0.0030	No	No	No	No
	April	0.402	0.402	3	32.8	10	100	100	0.134	0.134	0.0123	0.0402	0.0040	0.0040	No	No	No	No
	May	0.540	0.540	3	32.8	10	100	100	0.180	0.180	0.0165	0.0540	0.0054	0.0054	No	No	No	No
	June	0.139	0.139	3	32.8	10	100	100	0.0464	0.0464	0.0042	0.0139	0.0014	0.0014	No	No	No	No
	July	0.100	0.100	3	32.8	10	100	100	0.0332	0.0332	0.0030	0.0100	0.0010	0.0010	No	No	No	No
	August	0.126	0.126	3	32.8	10	100	100	0.0421	0.0421	0.0039	0.0126	0.0013	0.0013	No	No	No	No
	September	0.173	0.173	3	32.8	10	100	100	0.0575	0.0575	0.0053	0.0173	0.0017	0.0017	No	No	No	No
	October	0.173	0.173	3	32.8	10	100	100	0.0578	0.0578	0.0053	0.0173	0.0017	0.0017	No	No	No	No
	November	0.225	0.225	3	32.8	10	100	100	0.0748	0.0748	0.0068	0.0225	0.0022	0.0022	No	No	No	No
	December	0.265	0.265	3	32.8	10	100	100	0.0884	0.0884	0.0081	0.0265	0.0027	0.0027	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D12ab. P Creek Hazard Quotients for Nitrite Concentrations, Unrecovered Seepage Sensitivity Case (completed)

		Retained as COPC?			
Project Phase	Months	Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	Yes	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	Yes	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are chloride dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D12ac. P Creek Hazard Quotients for Ammonia Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step					Second Screening Step				Retained as COPC?		
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life		
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Mean	95%ile	Mean	95%ile	
		Mean	Maximum										
Construction (-2 to-1)	January	0.0327	0.0604	1.23	6.37	0.0265	0.0491	0.0095					No
	February	0.0808	0.112	1.00	5.21	0.0808	0.112	0.0214					No
	March	0.0368	0.0648	1.48	7.71	0.0249	0.0438	0.0084					No
	April	0.0258	0.0449	0.976	5.07	0.0264	0.0460	0.0089					No
	May	0.0110	0.0169	2.03	10.5	0.0054	0.0083	0.0016					No
	June	0.0143	0.0220	1.69	8.77	0.0084	0.0130	0.0025					No
	July	0.0185	0.0267	1.16	6.02	0.0159	0.0231	0.0044					No
	August	1.31	1.32	1.15	5.96	1.14	1.15	0.222	1.30	4.42	1.00	0.300	No
	September	0.0814	0.108	0.922	4.80	0.0883	0.117	0.0224					No
	October	0.0676	0.126	1.41	7.33	0.0479	0.0896	0.0172					No
	November	0.0366	0.0658	1.26	6.55	0.0290	0.0522	0.0100					No
	December	0.0339	0.0617	1.24	6.46	0.0274	0.0498	0.0096					No
Operation 1 Phase (1-23)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008					No
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No
	April	0.0069	0.0098	0.976	5.07	0.0071	0.0101	0.0019					No
	May	0.0156	0.0290	2.03	10.5	0.0077	0.0143	0.0028					No
	June	0.0173	0.0306	1.69	8.77	0.0102	0.0181	0.0035					No
	July	0.0283	0.0516	1.16	6.02	0.0244	0.0445	0.0086					No
	August	1.31	1.41	1.15	5.96	1.14	1.22	0.236	1.30	4.42	1.01	0.318	Yes
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117					No
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No
Operations 2 Phase (24-28)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008					No
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No
	July	0.0103	0.0103	1.16	6.02	0.0088	0.0089	0.0017					No
	August	1.25	1.25	1.15	5.96	1.09	1.09	0.210	1.30	4.42	0.959	0.283	No
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117					No
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No
Closure Phase (29-35)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008					No
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No
	July	0.0102	0.0102	1.16	6.02	0.0088	0.0088	0.0017					No
	August	1.25	1.25	1.15	5.96	1.09	1.09	0.210	1.30	4.42	0.957	0.283	No
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117					No
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No
Post-Closure Phase (36-99)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008					No
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No
	July	0.0102	0.0102	1.16	6.02	0.0088	0.0088	0.0017					No
	August	1.25	1.25	1.15	5.96	1.09	1.09	0.209	1.30	4.42	0.956	0.282	No
	September	0.0562	0.0563	0.922	4.80	0.0610	0.0610	0.0117					No
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No
	December	0.0062	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D12ad. P Creek Hazard Quotients for Sulphate Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step								Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	16.3	21.0	218	500	1000	0.0748	0.0965	0.0421	0.0210	No	No	No
	February	18.5	23.7	309	500	1000	0.0598	0.0767	0.0474	0.0237	No	No	No
	March	20.3	25.0	309	500	1000	0.0656	0.0810	0.0501	0.0250	No	No	No
	April	14.6	17.9	309	500	1000	0.0473	0.0578	0.0357	0.0179	No	No	No
	May	6.38	7.10	218	500	1000	0.0293	0.0326	0.0142	0.0071	No	No	No
	June	6.02	6.93	218	500	1000	0.0276	0.0318	0.0139	0.0069	No	No	No
	July	9.24	10.6	218	500	1000	0.0424	0.0485	0.0212	0.0106	No	No	No
	August	13.1	16.1	218	500	1000	0.0599	0.0737	0.0321	0.0161	No	No	No
	September	17.3	21.7	309	500	1000	0.0558	0.0702	0.0434	0.0217	No	No	No
	October	19.5	27.2	218	500	1000	0.0895	0.125	0.0544	0.0272	No	No	No
	November	16.2	21.1	218	500	1000	0.0743	0.0969	0.0422	0.0211	No	No	No
	December	16.2	20.9	218	500	1000	0.0741	0.0959	0.0418	0.0209	No	No	No
Operation 1 Phase (1-23)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No
	April	11.5	11.7	309	500	1000	0.0372	0.0379	0.0234	0.0117	No	No	No
	May	17.2	23.8	218	500	1000	0.0791	0.109	0.0476	0.0238	No	No	No
	June	15.7	20.2	218	500	1000	0.0721	0.0927	0.0404	0.0202	No	No	No
	July	27.0	32.8	218	500	1000	0.124	0.150	0.0656	0.0328	No	No	No
	August	73.0	86.8	218	500	1000	0.335	0.398	0.174	0.0868	No	No	No
	September	12.5	13.0	309	500	1000	0.0403	0.0422	0.0261	0.0130	No	No	No
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No
Operations 2 Phase (24-28)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No
	May	24.3	24.5	218	500	1000	0.111	0.112	0.0489	0.0245	No	No	No
	June	20.6	20.8	218	500	1000	0.0945	0.0955	0.0416	0.0208	No	No	No
	July	34.3	35.3	218	500	1000	0.157	0.162	0.0705	0.0353	No	No	No
	August	90.0	91.8	218	500	1000	0.413	0.421	0.184	0.0918	No	No	No
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No
Closure Phase (29-35)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No
	May	20.4	20.4	218	500	1000	0.0935	0.0938	0.0409	0.0204	No	No	No
	June	18.0	18.1	218	500	1000	0.0827	0.0829	0.0362	0.0181	No	No	No
	July	25.0	25.4	218	500	1000	0.114	0.116	0.0507	0.0254	No	No	No
	August	46.5	46.6	218	500	1000	0.213	0.214	0.0932	0.0466	No	No	No
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No
Post-Closure Phase (36-99)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No
	May	19.8	20.2	218	500	1000	0.0907	0.0927	0.0404	0.0202	No	No	No
	June	17.7	18.0	218	500	1000	0.0812	0.0825	0.0360	0.0180	No	No	No
	July	24.7	25.2	218	500	1000	0.113	0.116	0.0504	0.0252	No	No	No
	August	44.8	46.0	218	500	1000	0.206	0.211	0.0920	0.0460	No	No	No
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent

Appendix 13-D13a. Harper Creek downstream of P Creek (HP) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Unrecovered Seepage Sensitivity Case (completed)

		Retained as COPC?			
Project Phase	Months	Aquatic Life for Dissolved Aluminum	Drinking Water for Dissolved Aluminum	Wildlife for Total Aluminum	Livestock for Total Aluminum
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

Appendix 13-D13b. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Antimony Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00012	0.00014	0.020	0.014	0.00713	0.0102	No	No
	February	0.00005	0.00007	0.020	0.014	0.00360	0.00514	No	No
	March	0.00005	0.00007	0.020	0.014	0.00355	0.00507	No	No
	April	0.00003	0.00003	0.020	0.014	0.00171	0.00244	No	No
	May	0.00010	0.00011	0.020	0.014	0.00528	0.00754	No	No
	June	0.00010	0.00011	0.020	0.014	0.00550	0.00786	No	No
	July	0.00011	0.00011	0.020	0.014	0.00566	0.00808	No	No
	August	0.00011	0.00013	0.020	0.014	0.00643	0.00918	No	No
	September	0.00012	0.00014	0.020	0.014	0.00689	0.00984	No	No
	October	0.00010	0.00013	0.020	0.014	0.00662	0.00946	No	No
	November	0.00008	0.00009	0.020	0.014	0.00470	0.00671	No	No
	December	0.00010	0.00012	0.020	0.014	0.00603	0.00861	No	No
Operation 1 Phase (1-23)	January	0.00058	0.00066	0.020	0.014	0.0332	0.0475	No	No
	February	0.00068	0.00086	0.020	0.014	0.0429	0.0613	No	No
	March	0.00073	0.00092	0.020	0.014	0.0462	0.0660	No	No
	April	0.00012	0.00015	0.020	0.014	0.00740	0.0106	No	No
	May	0.00013	0.00014	0.020	0.014	0.00716	0.0102	No	No
	June	0.00015	0.00018	0.020	0.014	0.00882	0.0126	No	No
	July	0.00021	0.00025	0.020	0.014	0.0124	0.0177	No	No
	August	0.00034	0.00041	0.020	0.014	0.0204	0.0292	No	No
	September	0.00045	0.00052	0.020	0.014	0.0258	0.0369	No	No
	October	0.00034	0.00039	0.020	0.014	0.0194	0.0278	No	No
	November	0.00034	0.00039	0.020	0.014	0.0193	0.0275	No	No
	December	0.00048	0.00055	0.020	0.014	0.0277	0.0395	No	No
Operations 2 Phase (24-28)	January	0.00066	0.00066	0.020	0.014	0.0332	0.0475	No	No
	February	0.00087	0.00088	0.020	0.014	0.0438	0.0626	No	No
	March	0.00093	0.00094	0.020	0.014	0.0472	0.0674	No	No
	April	0.00015	0.00015	0.020	0.014	0.00753	0.0108	No	No
	May	0.00014	0.00014	0.020	0.014	0.00720	0.0103	No	No
	June	0.00018	0.00018	0.020	0.014	0.00889	0.0127	No	No
	July	0.00025	0.00025	0.020	0.014	0.0127	0.0181	No	No
	August	0.00041	0.00042	0.020	0.014	0.0208	0.0298	No	No
	September	0.00052	0.00052	0.020	0.014	0.0259	0.0370	No	No
	October	0.00039	0.00039	0.020	0.014	0.0195	0.0278	No	No
	November	0.00039	0.00039	0.020	0.014	0.0193	0.0275	No	No
	December	0.00055	0.00055	0.020	0.014	0.0277	0.0395	No	No
Closure Phase (29-35)	January	0.00024	0.00024	0.020	0.014	0.0120	0.0171	No	No
	February	0.00032	0.00033	0.020	0.014	0.0163	0.0233	No	No
	March	0.00033	0.00034	0.020	0.014	0.0170	0.0243	No	No
	April	0.00007	0.00007	0.020	0.014	0.00342	0.00488	No	No
	May	0.00013	0.00013	0.020	0.014	0.00653	0.00933	No	No
	June	0.00016	0.00016	0.020	0.014	0.00787	0.0112	No	No
	July	0.00018	0.00018	0.020	0.014	0.00877	0.0125	No	No
	August	0.00021	0.00021	0.020	0.014	0.0104	0.0149	No	No
	September	0.00020	0.00020	0.020	0.014	0.0102	0.0146	No	No
	October	0.00015	0.00015	0.020	0.014	0.00761	0.0109	No	No
	November	0.00014	0.00014	0.020	0.014	0.00703	0.0100	No	No
	December	0.00020	0.00020	0.020	0.014	0.00985	0.0141	No	No
Post-Closure Phase (36-99)	January	0.00024	0.00024	0.020	0.014	0.0120	0.0171	No	No
	February	0.00030	0.00031	0.020	0.014	0.0154	0.0220	No	No
	March	0.00031	0.00032	0.020	0.014	0.0161	0.0231	No	No
	April	0.00006	0.00007	0.020	0.014	0.00327	0.00467	No	No
	May	0.00013	0.00013	0.020	0.014	0.00648	0.00925	No	No
	June	0.00016	0.00016	0.020	0.014	0.00781	0.0112	No	No
	July	0.00017	0.00017	0.020	0.014	0.00872	0.0125	No	No
	August	0.00020	0.00020	0.020	0.014	0.0101	0.0145	No	No
	September	0.00020	0.00020	0.020	0.014	0.0102	0.0146	No	No
	October	0.00015	0.00015	0.020	0.014	0.00761	0.0109	No	No
	November	0.00014	0.00014	0.020	0.014	0.00703	0.0100	No	No
	December	0.00020	0.00020	0.020	0.014	0.00985	0.0141	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-13Dc. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Arsenic Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE	Drinking Water Quality Guidelines BC DWQG	BC MOE Working Water Quality Guidelines for Wildlife Water Supply Maximum	BC MOE Livestock Watering Water Quality Guideline BC MOE Interim	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE	Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply Maximum Predicted vs. BC MOE Maximum Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs. BC MOE Interim Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum												
				Mean	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum
Construction (-2 to-1)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0490	0.0098	0.0098	0.0098	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0444	0.0089	0.0089	0.0089	No	No	No	No
	March	0.0002	0.0003	0.005	0.025	0.025	0.025	0.0502	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0405	0.0081	0.0081	0.0081	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0708	0.0142	0.0142	0.0142	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.455	0.0909	0.0909	0.0909	No	No	No	No
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0595	0.0119	0.0119	0.0119	No	No	No	No
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.2085	0.0417	0.0417	0.0417	No	No	No	No
	September	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0545	0.0109	0.0109	0.0109	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.129	0.0258	0.0258	0.0258	No	No	No	No
	November	0.0002	0.0003	0.005	0.025	0.025	0.025	0.0506	0.0101	0.0101	0.0101	No	No	No	No
	December	0.0002	0.0003	0.005	0.025	0.025	0.025	0.0501	0.0100	0.0100	0.0100	No	No	No	No
Operation 1 Phase (1-23)	January	0.0005	0.0006	0.005	0.025	0.025	0.025	0.116	0.0233	0.0233	0.0233	No	No	No	No
	February	0.0006	0.0007	0.005	0.025	0.025	0.025	0.146	0.0293	0.0293	0.0293	No	No	No	No
	March	0.0007	0.0008	0.005	0.025	0.025	0.025	0.161	0.0321	0.0321	0.0321	No	No	No	No
	April	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0551	0.0110	0.0110	0.0110	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0750	0.0150	0.0150	0.0150	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.462	0.0923	0.0923	0.0923	No	No	No	No
	July	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0768	0.0154	0.0154	0.0154	No	No	No	No
	August	0.0012	0.0012	0.005	0.025	0.025	0.025	0.244	0.0487	0.0487	0.0487	No	No	No	No
	September	0.0005	0.0005	0.005	0.025	0.025	0.025	0.103	0.0207	0.0207	0.0207	No	No	No	No
	October	0.0008	0.0008	0.005	0.025	0.025	0.025	0.156	0.0313	0.0313	0.0313	No	No	No	No
	November	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0878	0.0176	0.0176	0.0176	No	No	No	No
	December	0.0005	0.0005	0.005	0.025	0.025	0.025	0.106	0.0212	0.0212	0.0212	No	No	No	No
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0233	0.0233	0.0233	No	No	No	No
	February	0.0007	0.0007	0.005	0.025	0.025	0.025	0.149	0.0298	0.0298	0.0298	No	No	No	No
	March	0.0008	0.0008	0.005	0.025	0.025	0.025	0.163	0.0326	0.0326	0.0326	No	No	No	No
	April	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0554	0.0111	0.0111	0.0111	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0751	0.0150	0.0150	0.0150	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.462	0.0924	0.0924	0.0924	No	No	No	No
	July	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0775	0.0155	0.0155	0.0155	No	No	No	No
	August	0.0012	0.0012	0.005	0.025	0.025	0.025	0.245	0.0490	0.0490	0.0490	No	No	No	No
	September	0.0005	0.0005	0.005	0.025	0.025	0.025	0.103	0.0207	0.0207	0.0207	No	No	No	No
	October	0.0008	0.0008	0.005	0.025	0.025	0.025	0.157	0.0313	0.0313	0.0313	No	No	No	No
	November	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0878	0.0176	0.0176	0.0176	No	No	No	No
	December	0.0005	0.0005	0.005	0.025	0.025	0.025	0.106	0.0212	0.0212	0.0212	No	No	No	No
Closure Phase (29-35)	January	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0601	0.0120	0.0120	0.0120	No	No	No	No
	February	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0759	0.0152	0.0152	0.0152	No	No	No	No
	March	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0835	0.0167	0.0167	0.0167	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0445	0.0089	0.0089	0.0089	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0733	0.0147	0.0147	0.0147	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.459	0.0918	0.0918	0.0918	No	No	No	No
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0672	0.0134	0.0134	0.0134	No	No	No	No
	August	0.0011	0.0011	0.005	0.025	0.025	0.025	0.217	0.0434	0.0434	0.0434	No	No	No	No
	September	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0618	0.0124	0.0124	0.0124	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.125	0.0250	0.0250	0.0250	No	No	No	No
	November	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0554	0.0111	0.0111	0.0111	No	No	No	No
	December	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0587	0.0117	0.0117	0.0117	No	No	No	No
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0601	0.0120	0.0120	0.0120	No	No	No	No
	February	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0734	0.0147	0.0147	0.0147	No	No	No	No
	March	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0812	0.0162	0.0162	0.0162	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0441	0.0088	0.0088	0.0088	No	No	No	No
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0732	0.0146	0.0146	0.0146	No	No	No	No
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.459	0.0918	0.0918	0.0918	No	No	No	No
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0671	0.0134	0.0134	0.0134	No	No	No	No
	August	0.0011	0.0011	0.005	0.025	0.025	0.025	0.216	0.0433	0.0433	0.0433	No	No	No	No
	September	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0618	0.0124	0.0124	0.0124	No	No	No	No
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.125	0.0250	0.0250	0.0250	No	No	No	No
	November	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0554	0.0111	0.0111	0.0111	No	No	No	No
	December	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0587	0.0117	0.0117	0.0117	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-13Dd. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Barium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step									Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum		Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline			
Construction (-2 to-1)	January	0.0057	0.0059	1	5	1	0.0057	0.0059	0.0012	0.0059	No	No
	February	0.0064	0.0067	1	5	1	0.0064	0.0067	0.0013	0.0067	No	No
	March	0.0064	0.0067	1	5	1	0.0064	0.0067	0.0013	0.0067	No	No
	April	0.0064	0.0065	1	5	1	0.0064	0.0065	0.0013	0.0065	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0050	1	5	1	0.0049	0.0050	0.0010	0.0050	No	No
	July	0.0055	0.0056	1	5	1	0.0055	0.0056	0.0011	0.0056	No	No
	August	0.0062	0.0064	1	5	1	0.0062	0.0064	0.0013	0.0064	No	No
	September	0.0067	0.0069	1	5	1	0.0067	0.0069	0.0014	0.0069	No	No
	October	0.0065	0.0068	1	5	1	0.0065	0.0068	0.0014	0.0068	No	No
	November	0.0060	0.0062	1	5	1	0.0060	0.0062	0.0012	0.0062	No	No
	December	0.0058	0.0061	1	5	1	0.0058	0.0061	0.0012	0.0061	No	No
Operation 1 Phase (1-23)	January	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No
	February	0.0076	0.0077	1	5	1	0.0076	0.0077	0.0015	0.0077	No	No
	March	0.0077	0.0078	1	5	1	0.0077	0.0078	0.0016	0.0078	No	No
	April	0.0065	0.0066	1	5	1	0.0065	0.0066	0.0013	0.0066	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0050	0.0050	1	5	1	0.0050	0.0050	0.0010	0.0050	No	No
	July	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
	August	0.0066	0.0067	1	5	1	0.0066	0.0067	0.0013	0.0067	No	No
	September	0.0073	0.0073	1	5	1	0.0073	0.0073	0.0015	0.0073	No	No
	October	0.0068	0.0068	1	5	1	0.0068	0.0068	0.0014	0.0068	No	No
	November	0.0064	0.0064	1	5	1	0.0064	0.0064	0.0013	0.0064	No	No
	December	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No
Operations 2 Phase (24-28)	January	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No
	February	0.0077	0.0077	1	5	1	0.0077	0.0077	0.0015	0.0077	No	No
	March	0.0079	0.0079	1	5	1	0.0079	0.0079	0.0016	0.0079	No	No
	April	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0050	0.0050	1	5	1	0.0050	0.0050	0.0010	0.0050	No	No
	July	0.0058	0.0058	1	5	1	0.0058	0.0058	0.0012	0.0058	No	No
	August	0.0067	0.0067	1	5	1	0.0067	0.0067	0.0013	0.0067	No	No
	September	0.0073	0.0073	1	5	1	0.0073	0.0073	0.0015	0.0073	No	No
	October	0.0068	0.0068	1	5	1	0.0068	0.0068	0.0014	0.0068	No	No
	November	0.0064	0.0064	1	5	1	0.0064	0.0064	0.0013	0.0064	No	No
	December	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No
Closure Phase (29-35)	January	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
	February	0.0067	0.0067	1	5	1	0.0067	0.0067	0.0013	0.0067	No	No
	March	0.0067	0.0067	1	5	1	0.0067	0.0067	0.0013	0.0067	No	No
	April	0.0064	0.0064	1	5	1	0.0064	0.0064	0.0013	0.0064	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0050	0.0050	1	5	1	0.0050	0.0050	0.0010	0.0050	No	No
	July	0.0056	0.0056	1	5	1	0.0056	0.0056	0.0011	0.0056	No	No
	August	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	September	0.0067	0.0067	1	5	1	0.0067	0.0067	0.0013	0.0067	No	No
	October	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	November	0.0060	0.0060	1	5	1	0.0060	0.0060	0.0012	0.0060	No	No
	December	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
Post-Closure Phase (36-99)	January	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
	February	0.0066	0.0067	1	5	1	0.0066	0.0067	0.0013	0.0067	No	No
	March	0.0067	0.0067	1	5	1	0.0067	0.0067	0.0013	0.0067	No	No
	April	0.0064	0.0064	1	5	1	0.0064	0.0064	0.0013	0.0064	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0050	0.0050	1	5	1	0.0050	0.0050	0.0010	0.0050	No	No
	July	0.0056	0.0056	1	5	1	0.0056	0.0056	0.0011	0.0056	No	No
	August	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	September	0.0067	0.0067	1	5	1	0.0067	0.0067	0.0013	0.0067	No	No
	October	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	November	0.0060	0.0060	1	5	1	0.0060	0.0060	0.0012	0.0060	No	No
	December	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-13De. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Beryllium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step								Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines (Chronic, 30-day mean)	Drinking Water Quality Guidelines BC DWQG	BC MOE Livestock Watering Water Quality Guideline BC MOE Working	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline					
		Months											
Construction (-2 to-1)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00190	0.00194	0.00257	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00190	0.00194	0.00257	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00190	0.00252	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0189	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00099	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00099	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0131	0.0132	0.0175	0.00070	No	No	No
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0103	0.0103	0.0137	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0145	0.0145	0.0193	0.00077	No	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00203	0.00205	0.00271	0.00011	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00204	0.00206	0.00273	0.00011	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00192	0.00210	0.00278	0.00011	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0189	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00099	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0104	0.0104	0.0137	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0193	0.00077	No	No	No
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00205	0.00205	0.00272	0.00011	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00206	0.00206	0.00274	0.00011	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00191	0.00253	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00099	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0104	0.0104	0.0137	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0193	0.00077	No	No	No
Closure Phase (29-35)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0186	0.0247	0.00099	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00191	0.00253	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00191	0.00253	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00251	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0247	0.00099	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0131	0.0131	0.0174	0.00070	No	No	No
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0103	0.0103	0.0137	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0145	0.0145	0.0192	0.00077	No	No	No
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0186	0.0247	0.00099	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00191	0.00253	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00191	0.00191	0.00253	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00251	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0247	0.00099	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0131	0.0131	0.0174	0.00070	No	No	No
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0103	0.0103	0.0137	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0145	0.0145	0.0192	0.00077	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-13Df. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Boron Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0109	0.0119	1.2	5	5	5	0.0099	0.0024	0.0024	0.0024	No	No	No	No
	February	0.0506	0.0518	1.2	5	5	5	0.0431	0.0104	0.0104	0.0104	No	No	No	No
	March	0.0506	0.0517	1.2	5	5	5	0.0431	0.0103	0.0103	0.0103	No	No	No	No
	April	0.0502	0.0505	1.2	5	5	5	0.0421	0.0101	0.0101	0.0101	No	No	No	No
	May	0.0101	0.0103	1.2	5	5	5	0.0086	0.0021	0.0021	0.0021	No	No	No	No
	June	0.0103	0.0105	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No
	July	0.0103	0.0106	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No
	August	0.0106	0.0113	1.2	5	5	5	0.0094	0.0023	0.0023	0.0023	No	No	No	No
	September	0.0108	0.0117	1.2	5	5	5	0.0098	0.0023	0.0023	0.0023	No	No	No	No
	October	0.0247	0.0263	1.2	5	5	5	0.0219	0.0053	0.0053	0.0053	No	No	No	No
	November	0.0306	0.0314	1.2	5	5	5	0.0261	0.0063	0.0063	0.0063	No	No	No	No
	December	0.0208	0.0217	1.2	5	5	5	0.0181	0.0043	0.0043	0.0043	No	No	No	No
Operation 1 Phase (1-23)	January	0.0144	0.0144	1.2	5	5	5	0.0120	0.0029	0.0029	0.0029	No	No	No	No
	February	0.0549	0.0554	1.2	5	5	5	0.0462	0.0111	0.0111	0.0111	No	No	No	No
	March	0.0553	0.0558	1.2	5	5	5	0.0465	0.0112	0.0112	0.0112	No	No	No	No
	April	0.0507	0.0508	1.2	5	5	5	0.0424	0.0102	0.0102	0.0102	No	No	No	No
	May	0.0103	0.0103	1.2	5	5	5	0.0086	0.0021	0.0021	0.0021	No	No	No	No
	June	0.0105	0.0106	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No
	July	0.0110	0.0112	1.2	5	5	5	0.0093	0.0022	0.0022	0.0022	No	No	No	No
	August	0.0123	0.0125	1.2	5	5	5	0.0104	0.0025	0.0025	0.0025	No	No	No	No
	September	0.0132	0.0133	1.2	5	5	5	0.0111	0.0027	0.0027	0.0027	No	No	No	No
	October	0.0257	0.0257	1.2	5	5	5	0.0214	0.0051	0.0051	0.0051	No	No	No	No
	November	0.0324	0.0324	1.2	5	5	5	0.0270	0.0065	0.0065	0.0065	No	No	No	No
	December	0.0236	0.0236	1.2	5	5	5	0.0196	0.0047	0.0047	0.0047	No	No	No	No
Operations 2 Phase (24-28)	January	0.0144	0.0144	1.2	5	5	5	0.0120	0.0029	0.0029	0.0029	No	No	No	No
	February	0.0555	0.0555	1.2	5	5	5	0.0463	0.0111	0.0111	0.0111	No	No	No	No
	March	0.0559	0.0560	1.2	5	5	5	0.0466	0.0112	0.0112	0.0112	No	No	No	No
	April	0.0509	0.0509	1.2	5	5	5	0.0424	0.0102	0.0102	0.0102	No	No	No	No
	May	0.0104	0.0104	1.2	5	5	5	0.0086	0.0021	0.0021	0.0021	No	No	No	No
	June	0.0106	0.0106	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No
	July	0.0112	0.0112	1.2	5	5	5	0.0093	0.0022	0.0022	0.0022	No	No	No	No
	August	0.0125	0.0125	1.2	5	5	5	0.0104	0.0025	0.0025	0.0025	No	No	No	No
	September	0.0133	0.0133	1.2	5	5	5	0.0111	0.0027	0.0027	0.0027	No	No	No	No
	October	0.0257	0.0257	1.2	5	5	5	0.0214	0.0051	0.0051	0.0051	No	No	No	No
	November	0.0324	0.0324	1.2	5	5	5	0.0270	0.0065	0.0065	0.0065	No	No	No	No
	December	0.0236	0.0236	1.2	5	5	5	0.0196	0.0047	0.0047	0.0047	No	No	No	No
Closure Phase (29-35)	January	0.0110	0.0110	1.2	5	5	5	0.0092	0.0022	0.0022	0.0022	No	No	No	No
	February	0.0510	0.0511	1.2	5	5	5	0.0426	0.0102	0.0102	0.0102	No	No	No	No
	March	0.0510	0.0511	1.2	5	5	5	0.0426	0.0102	0.0102	0.0102	No	No	No	No
	April	0.0502	0.0502	1.2	5	5	5	0.0418	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0102	0.0102	1.2	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0104	0.0104	1.2	5	5	5	0.0087	0.0021	0.0021	0.0021	No	No	No	No
	July	0.0106	0.0106	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No
	August	0.0108	0.0109	1.2	5	5	5	0.0090	0.0022	0.0022	0.0022	No	No	No	No
	September	0.0107	0.0107	1.2	5	5	5	0.0089	0.0021	0.0021	0.0021	No	No	No	No
	October	0.0238	0.0238	1.2	5	5	5	0.0198	0.0048	0.0048	0.0048	No	No	No	No
	November	0.0304	0.0304	1.2	5	5	5	0.0253	0.0061	0.0061	0.0061	No	No	No	No
	December	0.0207	0.0207	1.2	5	5	5	0.0173	0.0041	0.0041	0.0041	No	No	No	No
Post-Closure Phase (36-99)	January	0.0110	0.0110	1.2	5	5	5	0.0092	0.0022	0.0022	0.0022	No	No	No	No
	February	0.0509	0.0510	1.2	5	5	5	0.0425	0.0102	0.0102	0.0102	No	No	No	No
	March	0.0509	0.0510	1.2	5	5	5	0.0425	0.0102	0.0102	0.0102	No	No	No	No
	April	0.0501	0.0502	1.2	5	5	5	0.0418	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0102	0.0102	1.2	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No
	June	0.0104	0.0104	1.2	5	5	5	0.0087	0.0021	0.0021	0.0021	No	No	No	No
	July	0.0106	0.0106	1.2	5	5	5	0.0088	0.0021	0.0021	0.0021	No	No	No	No
	August	0.0108	0.0108	1.2	5	5	5	0.0090	0.0022	0.0022	0.0022	No	No	No	No
	September	0.0107	0.0107	1.2	5	5	5	0.0089	0.0021	0.0021	0.0021	No	No	No	No
	October	0.0238	0.0238	1.2	5	5	5	0.0198	0.0048	0.0048	0.0048	No	No	No	No
	November	0.0304	0.0304	1.2	5	5	5	0.0253	0.0061	0.0061	0.0061	No	No	No	No
	December	0.0207	0.0207	1.2	5	5	5	0.0173	0.0041	0.0041	0.0041	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-13Dg. Harper Creek downstream of P Creek (HP) Hazard Quotients for Dissolved Calcium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE Working		Maximum Predicted vs BC MOE Working Guideline
Construction (-2 to-1)	January	21.6	22.3	1000	0.0223	No
	February	22.5	23.3	1000	0.0233	No
	March	23.1	23.9	1000	0.0239	No
	April	22.7	23.0	1000	0.0230	No
	May	15.0	15.1	1000	0.0151	No
	June	13.9	14.0	1000	0.0140	No
	July	19.0	19.2	1000	0.0192	No
	August	21.0	21.4	1000	0.0214	No
	September	22.9	23.5	1000	0.0235	No
	October	22.5	23.5	1000	0.0235	No
	November	20.9	21.4	1000	0.0214	No
	December	21.3	21.9	1000	0.0219	No
Operation 1 Phase (1-23)	January	23.9	23.9	1000	0.0239	No
	February	25.5	25.8	1000	0.0258	No
	March	26.3	26.7	1000	0.0267	No
	April	23.1	23.2	1000	0.0232	No
	May	15.1	15.1	1000	0.0151	No
	June	14.0	14.1	1000	0.0141	No
	July	19.5	19.6	1000	0.0196	No
	August	22.0	22.1	1000	0.0221	No
	September	24.5	24.5	1000	0.0245	No
	October	23.1	23.1	1000	0.0231	No
	November	22.1	22.1	1000	0.0221	No
	December	23.1	23.1	1000	0.0231	No
Operations 2 Phase (24-28)	January	23.9	23.9	1000	0.0239	No
	February	25.9	25.9	1000	0.0259	No
	March	26.7	26.8	1000	0.0268	No
	April	23.2	23.2	1000	0.0232	No
	May	15.2	15.2	1000	0.0152	No
	June	14.1	14.1	1000	0.0141	No
	July	19.7	19.7	1000	0.0197	No
	August	22.2	22.2	1000	0.0222	No
	September	24.5	24.5	1000	0.0245	No
	October	23.1	23.1	1000	0.0231	No
	November	22.1	22.1	1000	0.0221	No
	December	23.1	23.1	1000	0.0231	No
Closure Phase (29-35)	January	21.6	21.6	1000	0.0216	No
	February	23.0	23.0	1000	0.0230	No
	March	23.6	23.6	1000	0.0236	No
	April	22.8	22.8	1000	0.0228	No
	May	15.1	15.1	1000	0.0151	No
	June	14.0	14.0	1000	0.0140	No
	July	19.2	19.2	1000	0.0192	No
	August	21.0	21.1	1000	0.0211	No
	September	22.8	22.8	1000	0.0228	No
	October	21.9	21.9	1000	0.0219	No
	November	20.8	20.8	1000	0.0208	No
	December	21.2	21.2	1000	0.0212	No
Post-Closure Phase (36-99)	January	21.6	21.6	1000	0.0216	No
	February	22.9	22.9	1000	0.0229	No
	March	23.5	23.5	1000	0.0235	No
	April	22.7	22.7	1000	0.0227	No
	May	15.1	15.1	1000	0.0151	No
	June	14.0	14.0	1000	0.0140	No
	July	19.2	19.2	1000	0.0192	No
	August	21.0	21.0	1000	0.0210	No
	September	22.8	22.8	1000	0.0228	No
	October	21.9	21.9	1000	0.0219	No
	November	20.8	20.8	1000	0.0208	No
	December	21.2	21.2	1000	0.0212	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-13Di. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Chromium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline			Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline					
		Canadian DWQG	BC MOE Working	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs. BC MOE Working									
Construction (-2 to-1)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0115	0.0021	0.0021	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0115	0.0021	0.0021	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0113	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0114	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.144	0.0162	0.0029	0.0029	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0114	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.106	0.0119	0.0021	0.0021	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.109	0.0122	0.0022	0.0022	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.109	0.0123	0.0022	0.0022	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.112	0.0125	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.105	0.0117	0.0021	0.0021	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.143	0.0161	0.0029	0.0029	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0116	0.0021	0.0021	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.105	0.0118	0.0021	0.0021	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.106	0.0119	0.0021	0.0021	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.109	0.0122	0.0022	0.0022	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.109	0.0123	0.0022	0.0022	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.112	0.0125	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.105	0.0117	0.0021	0.0021	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.143	0.0161	0.0029	0.0029	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0116	0.0021	0.0021	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.105	0.0118	0.0021	0.0021	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.111	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.111	0.0124	0.0022	0.0022	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 CCME = Canadian Council of Ministers of the Environment

Appendix 13-13Dj. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Cobalt Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step								Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE		Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline			
		Mean	Maximum	Mean	Maximum		BC MOE Working	Working Guideline	Working Guideline			
Construction (-2 to-1)	January	0.00029	0.00048	0.004	0.110	1	0.0727	0.121	0.00438	0.00048	No	No
	February	0.00024	0.00047	0.004	0.110	1	0.0601	0.118	0.00428	0.00047	No	No
	March	0.00023	0.00046	0.004	0.110	1	0.0585	0.115	0.00417	0.00046	No	No
	April	0.00007	0.00013	0.004	0.110	1	0.0180	0.0336	0.00122	0.00013	No	No
	May	0.00011	0.00012	0.004	0.110	1	0.0276	0.0303	0.00110	0.00012	No	No
	June	0.00026	0.00027	0.004	0.110	1	0.0647	0.0687	0.00250	0.00027	No	No
	July	0.00016	0.00021	0.004	0.110	1	0.0390	0.0531	0.00193	0.00021	No	No
	August	0.00023	0.00036	0.004	0.110	1	0.0569	0.0890	0.00324	0.00036	No	No
	September	0.00024	0.00041	0.004	0.110	1	0.0605	0.103	0.00374	0.00041	No	No
	October	0.00022	0.00037	0.004	0.110	1	0.0547	0.0916	0.00333	0.00037	No	No
	November	0.00021	0.00036	0.004	0.110	1	0.0518	0.0891	0.00324	0.00036	No	No
	December	0.00026	0.00044	0.004	0.110	1	0.0651	0.111	0.00402	0.00044	No	No
Operation 1 Phase (1-23)	January	0.00137	0.00139	0.004	0.110	1	0.343	0.347	0.0126	0.00139	No	No
	February	0.00167	0.00172	0.004	0.110	1	0.418	0.430	0.0156	0.00172	No	No
	March	0.00181	0.00187	0.004	0.110	1	0.452	0.468	0.0170	0.00187	No	No
	April	0.00025	0.00027	0.004	0.110	1	0.0630	0.0665	0.00242	0.00027	No	No
	May	0.00014	0.00015	0.004	0.110	1	0.0360	0.0375	0.00136	0.00015	No	No
	June	0.00031	0.00032	0.004	0.110	1	0.0781	0.0806	0.00293	0.00032	No	No
	July	0.00033	0.00035	0.004	0.110	1	0.0824	0.0867	0.00315	0.00035	No	No
	August	0.00071	0.00074	0.004	0.110	1	0.179	0.184	0.00671	0.00074	No	No
	September	0.00101	0.00102	0.004	0.110	1	0.252	0.256	0.00931	0.00102	No	No
	October	0.00078	0.00079	0.004	0.110	1	0.195	0.198	0.00719	0.00079	No	No
	November	0.00079	0.00080	0.004	0.110	1	0.198	0.200	0.00728	0.00080	No	No
	December	0.00115	0.00116	0.004	0.110	1	0.287	0.290	0.0105	0.00116	No	No
Operations 2 Phase (24-28)	January	0.00139	0.00139	0.004	0.110	1	0.347	0.347	0.0126	0.00139	No	No
	February	0.00172	0.00173	0.004	0.110	1	0.431	0.432	0.0157	0.00173	No	No
	March	0.00186	0.00188	0.004	0.110	1	0.466	0.469	0.0171	0.00188	No	No
	April	0.00027	0.00027	0.004	0.110	1	0.0666	0.0666	0.00242	0.00027	No	No
	May	0.00015	0.00015	0.004	0.110	1	0.0375	0.0375	0.00137	0.00015	No	No
	June	0.00032	0.00032	0.004	0.110	1	0.0807	0.0808	0.00294	0.00032	No	No
	July	0.00035	0.00036	0.004	0.110	1	0.0880	0.0889	0.00323	0.00036	No	No
	August	0.00074	0.00074	0.004	0.110	1	0.186	0.186	0.00677	0.00074	No	No
	September	0.00103	0.00103	0.004	0.110	1	0.256	0.257	0.00933	0.00103	No	No
	October	0.00079	0.00079	0.004	0.110	1	0.198	0.198	0.00721	0.00079	No	No
	November	0.00080	0.00080	0.004	0.110	1	0.200	0.200	0.00728	0.00080	No	No
	December	0.00116	0.00116	0.004	0.110	1	0.289	0.290	0.0105	0.00116	No	No
Closure Phase (29-35)	January	0.00013	0.00013	0.004	0.110	1	0.0334	0.0334	0.00121	0.00013	No	No
	February	0.00008	0.00009	0.004	0.110	1	0.0212	0.0217	0.00079	0.00009	No	No
	March	0.00009	0.00009	0.004	0.110	1	0.0215	0.0221	0.00081	0.00009	No	No
	April	0.00002	0.00002	0.004	0.110	1	0.00539	0.00548	0.00020	0.00002	No	No
	May	0.00011	0.00011	0.004	0.110	1	0.0268	0.0269	0.00098	0.00011	No	No
	June	0.00026	0.00026	0.004	0.110	1	0.0643	0.0643	0.00234	0.00026	No	No
	July	0.00012	0.00012	0.004	0.110	1	0.0296	0.0296	0.00108	0.00012	No	No
	August	0.00013	0.00013	0.004	0.110	1	0.0314	0.0315	0.00115	0.00013	No	No
	September	0.00010	0.00010	0.004	0.110	1	0.0244	0.0244	0.00089	0.00010	No	No
	October	0.00009	0.00009	0.004	0.110	1	0.0227	0.0227	0.00083	0.00009	No	No
	November	0.00008	0.00008	0.004	0.110	1	0.0195	0.0195	0.00071	0.00008	No	No
	December	0.00011	0.00011	0.004	0.110	1	0.0269	0.0269	0.00098	0.00011	No	No
Post-Closure Phase (36-99)	January	0.00013	0.00013	0.004	0.110	1	0.0334	0.0334	0.00121	0.00013	No	No
	February	0.00008	0.00008	0.004	0.110	1	0.0200	0.0206	0.00075	0.00008	No	No
	March	0.00008	0.00008	0.004	0.110	1	0.0203	0.0211	0.00077	0.00008	No	No
	April	0.00002	0.00002	0.004	0.110	1	0.00518	0.00529	0.00019	0.00002	No	No
	May	0.00011	0.00011	0.004	0.110	1	0.0268	0.0268	0.00097	0.00011	No	No
	June	0.00026	0.00026	0.004	0.110	1	0.0641	0.0642	0.00233	0.00026	No	No
	July	0.00012	0.00012	0.004	0.110	1	0.0294	0.0295	0.00107	0.00012	No	No
	August	0.00012	0.00012	0.004	0.110	1	0.0310	0.0312	0.00113	0.00012	No	No
	September	0.00010	0.00010	0.004	0.110	1	0.0244	0.0244	0.00089	0.00010	No	No
	October	0.00009	0.00009	0.004	0.110	1	0.0227	0.0227	0.00083	0.00009	No	No
	November	0.00008	0.00008	0.004	0.110	1	0.0195	0.0195	0.00071	0.00008	No	No
	December	0.00011	0.00011	0.004	0.110	1	0.0269	0.0269	0.00098	0.00011	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-13DI. Harper Creek downstream of P Creek (HP) Hazard Quotients for Dissolved and Total Iron Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step								Retained as COPC?	
		Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life	
		Dissolved Iron		Total Iron		BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron
Months	Mean	Maximum	Mean	Maximum							
Construction (-2 to-1)	January	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0284	0.0099	No	No
	February	0.0079	0.0079	0.0079	0.0079	0.35	1	0.0227	0.0079	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0759	0.0759	0.35	1	0.0476	0.0759	No	No
	June	0.0100	0.0100	0.1911	0.1911	0.35	1	0.0285	0.191	No	No
	July	0.0099	0.0099	0.0159	0.0159	0.35	1	0.0284	0.0159	No	No
	August	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0284	0.0099	No	No
	September	0.0076	0.0076	0.0109	0.0109	0.35	1	0.0218	0.0109	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0228	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0079	0.0079	0.0084	0.0084	0.35	1	0.0227	0.0084	No	No
Operation 1 Phase (1-23)	January	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0284	0.0099	No	No
	February	0.0079	0.0079	0.0079	0.0079	0.35	1	0.0226	0.0079	No	No
	March	0.0011	0.0011	0.0021	0.0021	0.35	1	0.0032	0.0021	No	No
	April	0.0034	0.0035	0.0034	0.0043	0.35	1	0.0101	0.0043	No	No
	May	0.0167	0.0167	0.0759	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.1910	0.1912	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0285	0.0160	No	No
	August	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0284	0.0099	No	No
	September	0.0076	0.0076	0.0109	0.0109	0.35	1	0.0218	0.0109	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0228	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0227	0.0085	No	No
Operations 2 Phase (24-28)	January	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0284	0.0099	No	No
	February	0.0079	0.0079	0.0079	0.0079	0.35	1	0.0226	0.0079	No	No
	March	0.0011	0.0011	0.0021	0.0021	0.35	1	0.0032	0.0021	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0759	0.0759	0.35	1	0.0476	0.0759	No	No
	June	0.0100	0.0100	0.1910	0.1910	0.35	1	0.0285	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0285	0.0160	No	No
	August	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0284	0.0099	No	No
	September	0.0076	0.0076	0.0109	0.0109	0.35	1	0.0218	0.0109	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0228	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0227	0.0085	No	No
Closure Phase (29-35)	January	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0282	0.0099	No	No
	February	0.0078	0.0078	0.0078	0.0078	0.35	1	0.0223	0.0078	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0030	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0166	0.0166	0.0759	0.0759	0.35	1	0.0476	0.0759	No	No
	June	0.0100	0.0100	0.1910	0.1910	0.35	1	0.0285	0.191	No	No
	July	0.0100	0.0100	0.0159	0.0159	0.35	1	0.0285	0.0159	No	No
	August	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0283	0.0099	No	No
	September	0.0076	0.0076	0.0109	0.0109	0.35	1	0.0217	0.0109	No	No
	October	0.0079	0.0079	0.0089	0.0089	0.35	1	0.0227	0.0089	No	No
	November	0.0060	0.0060	0.0069	0.0069	0.35	1	0.0170	0.0069	No	No
	December	0.0079	0.0079	0.0084	0.0084	0.35	1	0.0226	0.0084	No	No
Post-Closure Phase (36-99)	January	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0282	0.0099	No	No
	February	0.0078	0.0078	0.0078	0.0078	0.35	1	0.0223	0.0078	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0030	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0166	0.0166	0.0759	0.0759	0.35	1	0.0476	0.0759	No	No
	June	0.0100	0.0100	0.1910	0.1910	0.35	1	0.0285	0.191	No	No
	July	0.0100	0.0100	0.0159	0.0159	0.35	1	0.0285	0.0159	No	No
	August	0.0099	0.0099	0.0099	0.0099	0.35	1	0.0283	0.0099	No	No
	September	0.0076	0.0076	0.0109	0.0109	0.35	1	0.0217	0.0109	No	No
	October	0.0079	0.0079	0.0089	0.0089	0.35	1	0.0227	0.0089	No	No
	November	0.0060	0.0060	0.0069	0.0069	0.35	1	0.0170	0.0069	No	No
	December	0.0079	0.0079	0.0084	0.0084	0.35	1	0.0226	0.0084	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-13Dn. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Lithium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.0006	0.0006	0.096	0.87	0.0058	0.0065	0.0007	No
	February	0.0006	0.0006	0.096	0.87	0.0060	0.0068	0.0007	No
	March	0.0006	0.0006	0.096	0.87	0.0059	0.0067	0.0007	No
	April	0.0005	0.0005	0.096	0.87	0.0054	0.0056	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0054	0.0056	0.0006	No
	August	0.0005	0.0006	0.096	0.87	0.0056	0.0061	0.0007	No
	September	0.0006	0.0006	0.096	0.87	0.0058	0.0064	0.0007	No
	October	0.0010	0.0010	0.096	0.87	0.0100	0.0109	0.0012	No
	November	0.0005	0.0006	0.096	0.87	0.0057	0.0062	0.0007	No
	December	0.0006	0.0006	0.096	0.87	0.0058	0.0064	0.0007	No
Operation 1 Phase (1-23)	January	0.0014	0.0014	0.096	0.87	0.0145	0.0148	0.0016	No
	February	0.0017	0.0019	0.096	0.87	0.0179	0.0194	0.0021	No
	March	0.0018	0.0020	0.096	0.87	0.0189	0.0206	0.0023	No
	April	0.0007	0.0007	0.096	0.87	0.0071	0.0074	0.0008	No
	May	0.0006	0.0006	0.096	0.87	0.0057	0.0059	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0062	0.0065	0.0007	No
	July	0.0007	0.0007	0.096	0.87	0.0073	0.0077	0.0009	No
	August	0.0009	0.0010	0.096	0.87	0.0099	0.0105	0.0012	No
	September	0.0012	0.0012	0.096	0.87	0.0121	0.0123	0.0014	No
	October	0.0014	0.0014	0.096	0.87	0.0143	0.0145	0.0016	No
	November	0.0010	0.0010	0.096	0.87	0.0106	0.0107	0.0012	No
	December	0.0012	0.0013	0.096	0.87	0.0130	0.0133	0.0015	No
Operations 2 Phase (24-28)	January	0.0014	0.0014	0.096	0.87	0.0148	0.0148	0.0016	No
	February	0.0019	0.0019	0.096	0.87	0.0197	0.0198	0.0022	No
	March	0.0020	0.0020	0.096	0.87	0.0207	0.0209	0.0023	No
	April	0.0007	0.0007	0.096	0.87	0.0074	0.0074	0.0008	No
	May	0.0006	0.0006	0.096	0.87	0.0060	0.0060	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	July	0.0007	0.0008	0.096	0.87	0.0078	0.0078	0.0009	No
	August	0.0010	0.0010	0.096	0.87	0.0106	0.0106	0.0012	No
	September	0.0012	0.0012	0.096	0.87	0.0123	0.0123	0.0014	No
	October	0.0014	0.0014	0.096	0.87	0.0145	0.0145	0.0016	No
	November	0.0010	0.0010	0.096	0.87	0.0107	0.0107	0.0012	No
	December	0.0013	0.0013	0.096	0.87	0.0133	0.0133	0.0015	No
Closure Phase (29-35)	January	0.0007	0.0007	0.096	0.87	0.0076	0.0076	0.0008	No
	February	0.0010	0.0010	0.096	0.87	0.0102	0.0103	0.0011	No
	March	0.0010	0.0010	0.096	0.87	0.0104	0.0106	0.0012	No
	April	0.0006	0.0006	0.096	0.87	0.0060	0.0060	0.0007	No
	May	0.0005	0.0006	0.096	0.87	0.0057	0.0057	0.0006	No
	June	0.0006	0.0006	0.096	0.87	0.0062	0.0062	0.0007	No
	July	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	August	0.0007	0.0007	0.096	0.87	0.0070	0.0070	0.0008	No
	September	0.0007	0.0007	0.096	0.87	0.0070	0.0070	0.0008	No
	October	0.0010	0.0010	0.096	0.87	0.0104	0.0104	0.0011	No
	November	0.0006	0.0006	0.096	0.87	0.0066	0.0066	0.0007	No
	December	0.0007	0.0007	0.096	0.87	0.0072	0.0072	0.0008	No
Post-Closure Phase (36-99)	January	0.0007	0.0007	0.096	0.87	0.0076	0.0076	0.0008	No
	February	0.0009	0.0010	0.096	0.87	0.0099	0.0100	0.0011	No
	March	0.0010	0.0010	0.096	0.87	0.0101	0.0103	0.0011	No
	April	0.0006	0.0006	0.096	0.87	0.0059	0.0060	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0057	0.0057	0.0006	No
	June	0.0006	0.0006	0.096	0.87	0.0061	0.0062	0.0007	No
	July	0.0006	0.0006	0.096	0.87	0.0064	0.0065	0.0007	No
	August	0.0007	0.0007	0.096	0.87	0.0069	0.0069	0.0008	No
	September	0.0007	0.0007	0.096	0.87	0.0070	0.0070	0.0008	No
	October	0.0010	0.0010	0.096	0.87	0.0104	0.0104	0.0011	No
	November	0.0006	0.0006	0.096	0.87	0.0066	0.0066	0.0007	No
	December	0.0007	0.0007	0.096	0.87	0.0072	0.0072	0.0008	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-13Do. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Manganese Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline		Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0014	0.0026	0.921	1.33	0.0016	0.0028	0.0019	No
	February	0.0016	0.0029	0.941	1.38	0.0017	0.0031	0.0021	No
	March	0.0016	0.0029	0.948	1.40	0.0017	0.0031	0.0021	No
	April	0.0008	0.0011	0.944	1.39	0.0008	0.0012	0.0008	No
	May	0.0034	0.0035	0.816	1.07	0.0041	0.0042	0.0032	No
	June	0.0083	0.0084	0.786	0.993	0.0106	0.0107	0.0085	No
	July	0.0010	0.0013	0.876	1.22	0.0012	0.0015	0.0011	No
	August	0.0014	0.0021	0.916	1.32	0.0015	0.0023	0.0016	No
	September	0.0016	0.0026	0.944	1.39	0.0017	0.0027	0.0018	No
	October	0.0016	0.0025	0.928	1.35	0.0017	0.0027	0.0019	No
	November	0.0014	0.0023	0.909	1.30	0.0015	0.0025	0.0017	No
	December	0.0015	0.0025	0.915	1.32	0.0016	0.0028	0.0019	No
Operation 1 Phase (1-23)	January	0.0065	0.0068	0.921	1.33	0.0070	0.0074	0.0051	No
	February	0.0087	0.0098	0.941	1.38	0.0092	0.0105	0.0071	No
	March	0.0093	0.0106	0.948	1.40	0.0098	0.0112	0.0076	No
	April	0.0017	0.0019	0.944	1.39	0.0018	0.0020	0.0013	No
	May	0.0036	0.0038	0.816	1.07	0.0045	0.0047	0.0036	No
	June	0.0088	0.0091	0.786	0.993	0.0112	0.0115	0.0091	No
	July	0.0021	0.0024	0.876	1.22	0.0023	0.0025	0.0019	No
	August	0.0037	0.0041	0.916	1.32	0.0040	0.0045	0.0031	No
	September	0.0051	0.0054	0.944	1.39	0.0054	0.0057	0.0039	No
	October	0.0040	0.0042	0.928	1.35	0.0043	0.0045	0.0031	No
	November	0.0041	0.0043	0.909	1.30	0.0045	0.0047	0.0033	No
	December	0.0056	0.0058	0.915	1.32	0.0061	0.0064	0.0044	No
Operations 2 Phase (24-28)	January	0.0068	0.0068	0.921	1.33	0.0074	0.0074	0.0051	No
	February	0.0100	0.0101	0.941	1.38	0.0106	0.0107	0.0073	No
	March	0.0107	0.0108	0.948	1.40	0.0113	0.0114	0.0077	No
	April	0.0019	0.0019	0.944	1.39	0.0020	0.0020	0.0014	No
	May	0.0038	0.0038	0.816	1.07	0.0047	0.0047	0.0036	No
	June	0.0091	0.0091	0.786	0.993	0.0116	0.0116	0.0091	No
	July	0.0024	0.0024	0.876	1.22	0.0028	0.0028	0.0020	No
	August	0.0042	0.0042	0.916	1.32	0.0046	0.0046	0.0032	No
	September	0.0054	0.0054	0.944	1.39	0.0057	0.0057	0.0039	No
	October	0.0042	0.0042	0.928	1.35	0.0045	0.0045	0.0031	No
	November	0.0042	0.0043	0.909	1.30	0.0047	0.0047	0.0033	No
	December	0.0058	0.0058	0.915	1.32	0.0064	0.0064	0.0044	No
Closure Phase (29-35)	January	0.0019	0.0019	0.921	1.33	0.0020	0.0020	0.0014	No
	February	0.0035	0.0036	0.941	1.38	0.0038	0.0038	0.0026	No
	March	0.0037	0.0038	0.948	1.40	0.0039	0.0040	0.0027	No
	April	0.0009	0.0009	0.944	1.39	0.0010	0.0010	0.0007	No
	May	0.0036	0.0036	0.816	1.07	0.0045	0.0045	0.0034	No
	June	0.0088	0.0088	0.786	0.993	0.0112	0.0112	0.0089	No
	July	0.0015	0.0015	0.876	1.22	0.0017	0.0017	0.0012	No
	August	0.0018	0.0018	0.916	1.32	0.0019	0.0020	0.0014	No
	September	0.0017	0.0017	0.944	1.39	0.0018	0.0018	0.0013	No
	October	0.0014	0.0014	0.928	1.35	0.0016	0.0016	0.0011	No
	November	0.0014	0.0014	0.909	1.30	0.0016	0.0016	0.0011	No
	December	0.0017	0.0017	0.915	1.32	0.0019	0.0019	0.0013	No
Post-Closure Phase (36-99)	January	0.0019	0.0019	0.921	1.33	0.0020	0.0020	0.0014	No
	February	0.0033	0.0034	0.941	1.38	0.0035	0.0036	0.0025	No
	March	0.0035	0.0036	0.948	1.40	0.0037	0.0038	0.0026	No
	April	0.0009	0.0009	0.944	1.39	0.0009	0.0010	0.0007	No
	May	0.0036	0.0036	0.816	1.07	0.0044	0.0044	0.0034	No
	June	0.0088	0.0088	0.786	0.993	0.0112	0.0112	0.0089	No
	July	0.0015	0.0015	0.876	1.22	0.0017	0.0017	0.0012	No
	August	0.0017	0.0017	0.916	1.32	0.0019	0.0019	0.0013	No
	September	0.0017	0.0017	0.944	1.39	0.0018	0.0018	0.0013	No
	October	0.0014	0.0014	0.928	1.35	0.0016	0.0016	0.0011	No
	November	0.0014	0.0014	0.909	1.30	0.0016	0.0016	0.0011	No
	December	0.0017	0.0017	0.915	1.32	0.0019	0.0019	0.0013	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-13Dr. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Nickel Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
		Construction (-2 to-1)	January	0.0006	0.0006	0.065	1		
	February	0.0001	0.0002	0.065	1	0.0035	0.0002	No	No
	March	0.0002	0.0002	0.065	1	0.0036	0.0002	No	No
	April	0.0001	0.0001	0.065	1	0.0020	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0205	0.0005	No	No
	June	0.0009	0.0009	0.025	1	0.0373	0.0009	No	No
	July	0.0005	0.0005	0.065	1	0.0083	0.0005	No	No
	August	0.0006	0.0006	0.065	1	0.0096	0.0006	No	No
	September	0.0004	0.0005	0.065	1	0.0076	0.0005	No	No
	October	0.0004	0.0005	0.065	1	0.0079	0.0005	No	No
	November	0.0004	0.0005	0.065	1	0.0071	0.0005	No	No
	December	0.0005	0.0006	0.065	1	0.0086	0.0006	No	No
Operation 1 Phase (1-23)	January	0.0009	0.0009	0.065	1	0.0137	0.0009	No	No
	February	0.0006	0.0006	0.065	1	0.0099	0.0006	No	No
	March	0.0006	0.0007	0.065	1	0.0108	0.0007	No	No
	April	0.0002	0.0002	0.065	1	0.0026	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0212	0.0005	No	No
	June	0.0010	0.0010	0.025	1	0.0386	0.0010	No	No
	July	0.0006	0.0006	0.065	1	0.0093	0.0006	No	No
	August	0.0007	0.0007	0.065	1	0.0114	0.0007	No	No
	September	0.0007	0.0007	0.065	1	0.0101	0.0007	No	No
	October	0.0006	0.0006	0.065	1	0.0090	0.0006	No	No
	November	0.0006	0.0006	0.065	1	0.0089	0.0006	No	No
	December	0.0007	0.0008	0.065	1	0.0116	0.0008	No	No
Operations 2 Phase (24-28)	January	0.0009	0.0009	0.065	1	0.0137	0.0009	No	No
	February	0.0007	0.0007	0.065	1	0.0101	0.0007	No	No
	March	0.0007	0.0007	0.065	1	0.0110	0.0007	No	No
	April	0.0002	0.0002	0.065	1	0.0027	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0212	0.0005	No	No
	June	0.0010	0.0010	0.025	1	0.0386	0.0010	No	No
	July	0.0006	0.0006	0.065	1	0.0093	0.0006	No	No
	August	0.0007	0.0007	0.065	1	0.0115	0.0007	No	No
	September	0.0007	0.0007	0.065	1	0.0101	0.0007	No	No
	October	0.0006	0.0006	0.065	1	0.0090	0.0006	No	No
	November	0.0006	0.0006	0.065	1	0.0089	0.0006	No	No
	December	0.0008	0.0008	0.065	1	0.0116	0.0008	No	No
Closure Phase (29-35)	January	0.0006	0.0006	0.065	1	0.0091	0.0006	No	No
	February	0.0003	0.0003	0.065	1	0.0042	0.0003	No	No
	March	0.0003	0.0003	0.065	1	0.0045	0.0003	No	No
	April	0.0001	0.0001	0.065	1	0.0018	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0208	0.0005	No	No
	June	0.0010	0.0010	0.025	1	0.0380	0.0010	No	No
	July	0.0006	0.0006	0.065	1	0.0085	0.0006	No	No
	August	0.0006	0.0006	0.065	1	0.0093	0.0006	No	No
	September	0.0004	0.0004	0.065	1	0.0068	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0063	0.0004	No	No
	December	0.0005	0.0005	0.065	1	0.0078	0.0005	No	No
Post-Closure Phase (36-99)	January	0.0006	0.0006	0.065	1	0.0091	0.0006	No	No
	February	0.0003	0.0003	0.065	1	0.0040	0.0003	No	No
	March	0.0003	0.0003	0.065	1	0.0043	0.0003	No	No
	April	0.0001	0.0001	0.065	1	0.0017	0.0001	No	No
	May	0.0005	0.0005	0.025	1	0.0208	0.0005	No	No
	June	0.0009	0.0010	0.025	1	0.0380	0.0010	No	No
	July	0.0005	0.0006	0.065	1	0.0085	0.0006	No	No
	August	0.0006	0.0006	0.065	1	0.0092	0.0006	No	No
	September	0.0004	0.0004	0.065	1	0.0068	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
	November	0.0004	0.0004	0.065	1	0.0063	0.0004	No	No
	December	0.0005	0.0005	0.065	1	0.0078	0.0005	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix 13-13Ds. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Selenium Concentrations, Unrecovered Seepage Sensitivity Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	Yes	No	Yes	No
	February	Yes	No	Yes	No
	March	Yes	No	Yes	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	Yes	No	Yes	No
	September	Yes	No	Yes	No
	October	Yes	No	Yes	No
	November	Yes	No	Yes	No
	December	Yes	No	Yes	No
Operations 2 Phase (24-28)	January	Yes	No	Yes	No
	February	Yes	No	Yes	No
	March	Yes	No	Yes	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	Yes	No	Yes	No
	September	Yes	No	Yes	No
	October	Yes	No	Yes	No
	November	Yes	No	Yes	No
	December	Yes	No	Yes	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DIWQG = Drinking water quality guideline

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-13Dt. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Silver Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.00002	0.00002	0.00005	0.0001	0.348	0.359	0.180	No
	February	0.00001	0.00001	0.00005	0.0001	0.113	0.126	0.0632	No
	March	0.00001	0.00001	0.00005	0.0001	0.112	0.126	0.0629	No
	April	0.00001	0.00001	0.00005	0.0001	0.103	0.107	0.0536	No
	May	0.00001	0.00001	0.00005	0.0001	0.201	0.203	0.102	No
	June	0.00001	0.00001	0.00005	0.0001	0.236	0.239	0.119	No
	July	0.00001	0.00001	0.00005	0.0001	0.202	0.206	0.103	No
	August	0.00001	0.00001	0.00005	0.0001	0.206	0.214	0.107	No
	September	0.00001	0.00001	0.00005	0.0001	0.208	0.219	0.109	No
	October	0.00001	0.00001	0.00005	0.0001	0.275	0.291	0.146	No
	November	0.00001	0.00001	0.00005	0.0001	0.158	0.167	0.0835	No
	December	0.00001	0.00001	0.00005	0.0001	0.253	0.264	0.132	No
Operation 1 Phase (1-23)	January	0.00002	0.00002	0.00005	0.0001	0.391	0.391	0.196	No
	February	0.00001	0.00001	0.00005	0.0001	0.174	0.181	0.0906	No
	March	0.00001	0.00001	0.00005	0.0001	0.180	0.188	0.0938	No
	April	0.00001	0.00001	0.00005	0.0001	0.111	0.113	0.0563	No
	May	0.00001	0.00001	0.00005	0.0001	0.203	0.204	0.102	No
	June	0.00001	0.00001	0.00005	0.0001	0.239	0.241	0.120	No
	July	0.00001	0.00001	0.00005	0.0001	0.212	0.214	0.107	No
	August	0.00001	0.00001	0.00005	0.0001	0.226	0.229	0.114	No
	September	0.00001	0.00001	0.00005	0.0001	0.239	0.240	0.120	No
	October	0.00001	0.00001	0.00005	0.0001	0.289	0.289	0.145	No
	November	0.00001	0.00001	0.00005	0.0001	0.181	0.181	0.0907	No
	December	0.00001	0.00001	0.00005	0.0001	0.289	0.289	0.145	No
Operations 2 Phase (24-28)	January	0.00002	0.00002	0.00005	0.0001	0.391	0.391	0.196	No
	February	0.00001	0.00001	0.00005	0.0001	0.183	0.183	0.0915	No
	March	0.00001	0.00001	0.00005	0.0001	0.188	0.189	0.0947	No
	April	0.00001	0.00001	0.00005	0.0001	0.113	0.113	0.0564	No
	May	0.00001	0.00001	0.00005	0.0001	0.204	0.204	0.102	No
	June	0.00001	0.00001	0.00005	0.0001	0.241	0.241	0.120	No
	July	0.00001	0.00001	0.00005	0.0001	0.214	0.215	0.107	No
	August	0.00001	0.00001	0.00005	0.0001	0.229	0.230	0.115	No
	September	0.00001	0.00001	0.00005	0.0001	0.240	0.240	0.120	No
	October	0.00001	0.00001	0.00005	0.0001	0.289	0.290	0.145	No
	November	0.00001	0.00001	0.00005	0.0001	0.181	0.181	0.0907	No
	December	0.00001	0.00001	0.00005	0.0001	0.289	0.289	0.145	No
Closure Phase (29-35)	January	0.00002	0.00002	0.00005	0.0001	0.349	0.349	0.174	No
	February	0.00001	0.00001	0.00005	0.0001	0.127	0.128	0.0640	No
	March	0.00001	0.00001	0.00005	0.0001	0.128	0.129	0.0646	No
	April	0.00001	0.00001	0.00005	0.0001	0.104	0.104	0.0522	No
	May	0.00001	0.00001	0.00005	0.0001	0.203	0.203	0.101	No
	June	0.00001	0.00001	0.00005	0.0001	0.239	0.239	0.119	No
	July	0.00001	0.00001	0.00005	0.0001	0.207	0.207	0.103	No
	August	0.00001	0.00001	0.00005	0.0001	0.209	0.209	0.104	No
	September	0.00001	0.00001	0.00005	0.0001	0.208	0.208	0.104	No
	October	0.00001	0.00001	0.00005	0.0001	0.266	0.266	0.133	No
	November	0.00001	0.00001	0.00005	0.0001	0.157	0.157	0.0784	No
	December	0.00001	0.00001	0.00005	0.0001	0.254	0.254	0.127	No
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.00005	0.0001	0.349	0.349	0.174	No
	February	0.00001	0.00001	0.00005	0.0001	0.125	0.126	0.0631	No
	March	0.00001	0.00001	0.00005	0.0001	0.126	0.128	0.0638	No
	April	0.00001	0.00001	0.00005	0.0001	0.104	0.104	0.0521	No
	May	0.00001	0.00001	0.00005	0.0001	0.203	0.203	0.101	No
	June	0.00001	0.00001	0.00005	0.0001	0.238	0.238	0.119	No
	July	0.00001	0.00001	0.00005	0.0001	0.206	0.207	0.103	No
	August	0.00001	0.00001	0.00005	0.0001	0.208	0.208	0.104	No
	September	0.00001	0.00001	0.00005	0.0001	0.208	0.208	0.104	No
	October	0.00001	0.00001	0.00005	0.0001	0.266	0.266	0.133	No
	November	0.00001	0.00001	0.00005	0.0001	0.157	0.157	0.0784	No
	December	0.00001	0.00001	0.00005	0.0001	0.254	0.254	0.127	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-13Du. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Thallium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000011	0.000011	0.0003	0.002	0.0379	0.00569	No	No
	February	0.000003	0.000004	0.0003	0.002	0.0125	0.00188	No	No
	March	0.000003	0.000004	0.0003	0.002	0.0124	0.00186	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00825	0.00124	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0338	0.00508	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0342	0.00513	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0346	0.00520	No	No
	August	0.000010	0.000011	0.0003	0.002	0.0364	0.00546	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0374	0.00561	No	No
	October	0.000008	0.000009	0.0003	0.002	0.0301	0.00452	No	No
	November	0.000007	0.000007	0.0003	0.002	0.0237	0.00356	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0311	0.00466	No	No
Operation 1 Phase (1-23)	January	0.000014	0.000014	0.0003	0.002	0.0460	0.00690	No	No
	February	0.000007	0.000008	0.0003	0.002	0.0260	0.00390	No	No
	March	0.000008	0.000008	0.0003	0.002	0.0275	0.00412	No	No
	April	0.000003	0.000003	0.0003	0.002	0.00963	0.00144	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0343	0.00515	No	No
	June	0.000010	0.000011	0.0003	0.002	0.0350	0.00526	No	No
	July	0.000011	0.000011	0.0003	0.002	0.0366	0.00550	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0401	0.00602	No	No
	September	0.000013	0.000013	0.0003	0.002	0.0427	0.00640	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0316	0.00474	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0274	0.00411	No	No
	December	0.000011	0.000011	0.0003	0.002	0.0374	0.00560	No	No
Operations 2 Phase (24-28)	January	0.000014	0.000014	0.0003	0.002	0.0460	0.00690	No	No
	February	0.000008	0.000008	0.0003	0.002	0.0264	0.00396	No	No
	March	0.000008	0.000008	0.0003	0.002	0.0279	0.00419	No	No
	April	0.000003	0.000003	0.0003	0.002	0.00969	0.00145	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0343	0.00515	No	No
	June	0.000011	0.000011	0.0003	0.002	0.0351	0.00526	No	No
	July	0.000011	0.000011	0.0003	0.002	0.0368	0.00552	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0403	0.00605	No	No
	September	0.000013	0.000013	0.0003	0.002	0.0427	0.00641	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0316	0.00474	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0274	0.00411	No	No
	December	0.000011	0.000011	0.0003	0.002	0.0374	0.00560	No	No
Closure Phase (29-35)	January	0.000011	0.000011	0.0003	0.002	0.0361	0.00542	No	No
	February	0.000004	0.000004	0.0003	0.002	0.0136	0.00205	No	No
	March	0.000004	0.000004	0.0003	0.002	0.0140	0.00209	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00777	0.00117	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0340	0.00510	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0346	0.00519	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0350	0.00524	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0355	0.00532	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0354	0.00531	No	No
	October	0.000008	0.000008	0.0003	0.002	0.0261	0.00391	No	No
	November	0.000007	0.000007	0.0003	0.002	0.0217	0.00326	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0291	0.00436	No	No
Post-Closure Phase (36-99)	January	0.000011	0.000011	0.0003	0.002	0.0361	0.00542	No	No
	February	0.000004	0.000004	0.0003	0.002	0.0132	0.00198	No	No
	March	0.000004	0.000004	0.0003	0.002	0.0136	0.00203	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00770	0.00115	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0340	0.00510	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0346	0.00519	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0349	0.00524	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0354	0.00531	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0354	0.00531	No	No
	October	0.000008	0.000008	0.0003	0.002	0.0261	0.00391	No	No
	November	0.000007	0.000007	0.0003	0.002	0.0217	0.00326	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0291	0.00436	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-13Dv. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Uranium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step							Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.00014	0.00015	0.3	0.02	0.2	0.00050	0.00744	0.00074	No	No	No
	February	0.00020	0.00021	0.3	0.02	0.2	0.00070	0.0106	0.00106	No	No	No
	March	0.00019	0.00020	0.3	0.02	0.2	0.00067	0.0101	0.00101	No	No	No
	April	0.00016	0.00017	0.3	0.02	0.2	0.00055	0.00828	0.00083	No	No	No
	May	0.00006	0.00006	0.3	0.02	0.2	0.00019	0.00284	0.00028	No	No	No
	June	0.00006	0.00006	0.3	0.02	0.2	0.00021	0.00312	0.00031	No	No	No
	July	0.00009	0.00009	0.3	0.02	0.2	0.00031	0.00467	0.00047	No	No	No
	August	0.00012	0.00013	0.3	0.02	0.2	0.00042	0.00625	0.00063	No	No	No
	September	0.00013	0.00014	0.3	0.02	0.2	0.00048	0.00723	0.00072	No	No	No
	October	0.00013	0.00015	0.3	0.02	0.2	0.00050	0.00743	0.00074	No	No	No
	November	0.00014	0.00014	0.3	0.02	0.2	0.00048	0.00720	0.00072	No	No	No
	December	0.00014	0.00015	0.3	0.02	0.2	0.00049	0.00738	0.00074	No	No	No
Operation 1 Phase (1-23)	January	0.00041	0.00052	0.3	0.02	0.2	0.00173	0.0260	0.00260	No	No	No
	February	0.00058	0.00076	0.3	0.02	0.2	0.00255	0.0382	0.00382	No	No	No
	March	0.00060	0.00080	0.3	0.02	0.2	0.00266	0.0400	0.00400	No	No	No
	April	0.00022	0.00025	0.3	0.02	0.2	0.00082	0.0124	0.00124	No	No	No
	May	0.00007	0.00008	0.3	0.02	0.2	0.00028	0.00422	0.00042	No	No	No
	June	0.00009	0.00011	0.3	0.02	0.2	0.00037	0.00555	0.00056	No	No	No
	July	0.00015	0.00019	0.3	0.02	0.2	0.00063	0.00949	0.00095	No	No	No
	August	0.00026	0.00032	0.3	0.02	0.2	0.00108	0.0162	0.00162	No	No	No
	September	0.00034	0.00042	0.3	0.02	0.2	0.00138	0.0208	0.00208	No	No	No
	October	0.00028	0.00034	0.3	0.02	0.2	0.00113	0.0169	0.00169	No	No	No
	November	0.00029	0.00035	0.3	0.02	0.2	0.00118	0.0177	0.00177	No	No	No
	December	0.00037	0.00046	0.3	0.02	0.2	0.00152	0.0228	0.00228	No	No	No
Operations 2 Phase (24-28)	January	0.00050	0.00052	0.3	0.02	0.2	0.00174	0.0261	0.00261	No	No	No
	February	0.00075	0.00078	0.3	0.02	0.2	0.00261	0.0391	0.00391	No	No	No
	March	0.00078	0.00082	0.3	0.02	0.2	0.00273	0.0410	0.00410	No	No	No
	April	0.00025	0.00025	0.3	0.02	0.2	0.00083	0.0125	0.00125	No	No	No
	May	0.00008	0.00008	0.3	0.02	0.2	0.00028	0.00424	0.00042	No	No	No
	June	0.00011	0.00011	0.3	0.02	0.2	0.00037	0.00560	0.00056	No	No	No
	July	0.00019	0.00019	0.3	0.02	0.2	0.00065	0.00974	0.00097	No	No	No
	August	0.00032	0.00033	0.3	0.02	0.2	0.00111	0.0166	0.00166	No	No	No
	September	0.00040	0.00042	0.3	0.02	0.2	0.00139	0.0209	0.00209	No	No	No
	October	0.00033	0.00034	0.3	0.02	0.2	0.00113	0.0170	0.00170	No	No	No
	November	0.00034	0.00035	0.3	0.02	0.2	0.00118	0.0177	0.00177	No	No	No
	December	0.00044	0.00046	0.3	0.02	0.2	0.00152	0.0229	0.00229	No	No	No
Closure Phase (29-35)	January	0.00020	0.00020	0.3	0.02	0.2	0.00066	0.00993	0.00099	No	No	No
	February	0.00034	0.00034	0.3	0.02	0.2	0.00114	0.0170	0.00170	No	No	No
	March	0.00033	0.00034	0.3	0.02	0.2	0.00113	0.0170	0.00170	No	No	No
	April	0.00018	0.00018	0.3	0.02	0.2	0.00061	0.00917	0.00092	No	No	No
	May	0.00007	0.00007	0.3	0.02	0.2	0.00023	0.00349	0.00035	No	No	No
	June	0.00009	0.00009	0.3	0.02	0.2	0.00029	0.00435	0.00043	No	No	No
	July	0.00013	0.00013	0.3	0.02	0.2	0.00042	0.00629	0.00063	No	No	No
	August	0.00017	0.00017	0.3	0.02	0.2	0.00056	0.00833	0.00083	No	No	No
	September	0.00018	0.00018	0.3	0.02	0.2	0.00060	0.00893	0.00089	No	No	No
	October	0.00016	0.00016	0.3	0.02	0.2	0.00053	0.00794	0.00079	No	No	No
	November	0.00017	0.00017	0.3	0.02	0.2	0.00056	0.00841	0.00084	No	No	No
	December	0.00019	0.00019	0.3	0.02	0.2	0.00062	0.00935	0.00093	No	No	No
Post-Closure Phase (36-99)	January	0.00020	0.00020	0.3	0.02	0.2	0.00066	0.00993	0.00099	No	No	No
	February	0.00033	0.00033	0.3	0.02	0.2	0.00110	0.0166	0.00166	No	No	No
	March	0.00032	0.00033	0.3	0.02	0.2	0.00110	0.0165	0.00165	No	No	No
	April	0.00018	0.00018	0.3	0.02	0.2	0.00061	0.00910	0.00091	No	No	No
	May	0.00007	0.00007	0.3	0.02	0.2	0.00023	0.00346	0.00035	No	No	No
	June	0.00009	0.00009	0.3	0.02	0.2	0.00029	0.00432	0.00043	No	No	No
	July	0.00012	0.00013	0.3	0.02	0.2	0.00042	0.00627	0.00063	No	No	No
	August	0.00016	0.00016	0.3	0.02	0.2	0.00055	0.00820	0.00082	No	No	No
	September	0.00018	0.00018	0.3	0.02	0.2	0.00060	0.00893	0.00089	No	No	No
	October	0.00016	0.00016	0.3	0.02	0.2	0.00053	0.00794	0.00079	No	No	No
	November	0.00017	0.00017	0.3	0.02	0.2	0.00056	0.00841	0.00084	No	No	No
	December	0.00019	0.00019	0.3	0.02	0.2	0.00062	0.00935	0.00093	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-13Dw. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Vanadium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step							Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working	Maximum Predicted vs. BC MOE Working Secondary Chronic Value			
						BC MOE Working			Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0342	0.0103	0.0021	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0342	0.0103	0.0021	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0336	0.0101	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.123	0.0369	0.0074	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0399	0.0080	No	No
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0362	0.0109	0.0022	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0364	0.0109	0.0022	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0350	0.0105	0.0021	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.123	0.0368	0.0074	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.101	0.0302	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.134	0.0401	0.0080	No	No
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0363	0.0109	0.0022	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0365	0.0109	0.0022	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0338	0.0101	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.123	0.0368	0.0074	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.101	0.0302	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.134	0.0401	0.0080	No	No
Closure Phase (29-35)	January	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0494	0.0099	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0338	0.0101	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0338	0.0101	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0334	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0496	0.0099	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0496	0.0099	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0365	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.0995	0.0298	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.132	0.0396	0.0079	No	No
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0494	0.0099	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0337	0.0101	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0337	0.0101	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0334	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0496	0.0099	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0496	0.0099	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0365	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.0995	0.0298	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.132	0.0396	0.0079	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DIWQG = Drinking water quality guideline

Appendix 13-13Dz. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Zinc Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		Mean Predicted vs. BC MOE 30-Day Mean Guideline	BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
		Mean	Maximum	Day Mean	Maximum	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	0.0031	0.0032	0.008	0.033	2	0.411	0.427	0.0969	0.0016	No	No	
	February	0.0005	0.0007	0.008	0.033	2	0.0712	0.0897	0.0204	0.0003	No	No	
	March	0.0011	0.0013	0.008	0.033	2	0.150	0.168	0.0382	0.0006	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.133	0.138	0.0313	0.0005	No	No	
	May	0.0030	0.0031	0.008	0.033	2	0.406	0.408	0.0927	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.536	0.540	0.123	0.0020	No	No	
	July	0.0030	0.0031	0.008	0.033	2	0.403	0.407	0.0925	0.0015	No	No	
	August	0.0031	0.0031	0.008	0.033	2	0.408	0.418	0.0950	0.0016	No	No	
	September	0.0022	0.0024	0.008	0.033	2	0.300	0.314	0.0713	0.0012	No	No	
	October	0.0025	0.0027	0.008	0.033	2	0.338	0.359	0.0817	0.0013	No	No	
	November	0.0019	0.0020	0.008	0.033	2	0.257	0.269	0.0611	0.0010	No	No	
	December	0.0025	0.0026	0.008	0.033	2	0.335	0.349	0.0794	0.0013	No	No	
Operation 1 Phase (1-23)	January	0.0035	0.0035	0.008	0.033	2	0.472	0.472	0.107	0.0018	No	No	
	February	0.0012	0.0013	0.008	0.033	2	0.158	0.168	0.0382	0.0006	No	No	
	March	0.0018	0.0019	0.008	0.033	2	0.243	0.254	0.0577	0.0010	No	No	
	April	0.0011	0.0011	0.008	0.033	2	0.143	0.145	0.0330	0.0005	No	No	
	May	0.0031	0.0031	0.008	0.033	2	0.408	0.410	0.0932	0.0015	No	No	
	June	0.0041	0.0041	0.008	0.033	2	0.541	0.543	0.123	0.0020	No	No	
	July	0.0031	0.0031	0.008	0.033	2	0.416	0.419	0.0952	0.0016	No	No	
	August	0.0033	0.0033	0.008	0.033	2	0.435	0.438	0.0996	0.0016	No	No	
	September	0.0026	0.0026	0.008	0.033	2	0.343	0.343	0.0781	0.0013	No	No	
	October	0.0027	0.0027	0.008	0.033	2	0.361	0.361	0.0820	0.0014	No	No	
	November	0.0022	0.0022	0.008	0.033	2	0.289	0.290	0.0658	0.0011	No	No	
	December	0.0029	0.0029	0.008	0.033	2	0.385	0.385	0.0875	0.0014	No	No	
Operations 2 Phase (24-28)	January	0.0035	0.0035	0.008	0.033	2	0.472	0.472	0.107	0.0018	No	No	
	February	0.0013	0.0013	0.008	0.033	2	0.170	0.171	0.0388	0.0006	No	No	
	March	0.0019	0.0019	0.008	0.033	2	0.255	0.257	0.0583	0.0010	No	No	
	April	0.0011	0.0011	0.008	0.033	2	0.146	0.146	0.0331	0.0005	No	No	
	May	0.0031	0.0031	0.008	0.033	2	0.410	0.410	0.0932	0.0015	No	No	
	June	0.0041	0.0041	0.008	0.033	2	0.543	0.543	0.123	0.0020	No	No	
	July	0.0031	0.0031	0.008	0.033	2	0.419	0.420	0.0954	0.0016	No	No	
	August	0.0033	0.0033	0.008	0.033	2	0.439	0.439	0.0998	0.0016	No	No	
	September	0.0026	0.0026	0.008	0.033	2	0.344	0.344	0.0781	0.0013	No	No	
	October	0.0027	0.0027	0.008	0.033	2	0.361	0.361	0.0821	0.0014	No	No	
	November	0.0022	0.0022	0.008	0.033	2	0.290	0.290	0.0658	0.0011	No	No	
	December	0.0029	0.0029	0.008	0.033	2	0.385	0.385	0.0875	0.0014	No	No	
Closure Phase (29-35)	January	0.0031	0.0031	0.008	0.033	2	0.413	0.413	0.0940	0.0016	No	No	
	February	0.0007	0.0007	0.008	0.033	2	0.0934	0.0945	0.0215	0.0004	No	No	
	March	0.0013	0.0013	0.008	0.033	2	0.172	0.174	0.0394	0.0007	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.134	0.134	0.0305	0.0005	No	No	
	May	0.0031	0.0031	0.008	0.033	2	0.408	0.408	0.0928	0.0015	No	No	
	June	0.0041	0.0041	0.008	0.033	2	0.540	0.540	0.123	0.0020	No	No	
	July	0.0031	0.0031	0.008	0.033	2	0.409	0.409	0.0929	0.0015	No	No	
	August	0.0031	0.0031	0.008	0.033	2	0.410	0.410	0.0933	0.0015	No	No	
	September	0.0023	0.0023	0.008	0.033	2	0.300	0.300	0.0682	0.0011	No	No	
	October	0.0025	0.0025	0.008	0.033	2	0.328	0.328	0.0746	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.256	0.256	0.0581	0.0010	No	No	
	December	0.0025	0.0025	0.008	0.033	2	0.336	0.336	0.0763	0.0013	No	No	
Post-Closure Phase (36-99)	January	0.0031	0.0031	0.008	0.033	2	0.413	0.413	0.0940	0.0016	No	No	
	February	0.0007	0.0007	0.008	0.033	2	0.0906	0.0919	0.0209	0.0003	No	No	
	March	0.0013	0.0013	0.008	0.033	2	0.169	0.171	0.0389	0.0006	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.133	0.134	0.0304	0.0005	No	No	
	May	0.0031	0.0031	0.008	0.033	2	0.408	0.408	0.0927	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.540	0.540	0.123	0.0020	No	No	
	July	0.0031	0.0031	0.008	0.033	2	0.408	0.409	0.0929	0.0015	No	No	
	August	0.0031	0.0031	0.008	0.033	2	0.409	0.410	0.0931	0.0015	No	No	
	September	0.0023	0.0023	0.008	0.033	2	0.300	0.300	0.0682	0.0011	No	No	
	October	0.0025	0.0025	0.008	0.033	2	0.328	0.328	0.0746	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.256	0.256	0.0581	0.0010	No	No	
	December	0.0025	0.0025	0.008	0.033	2	0.336	0.336	0.0763	0.0013	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-13Dy. Harper Creek downstream of P Creek (HP) Hazard Quotients for Chloride Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
		Mean	Maximum	Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
Construction (-2 to-1)	January	0.563	0.630	150	600	600	600	0.0038	0.0042	0.0011	0.0011	0.0011	No	No	No
	February	0.575	0.656	150	600	600	600	0.0038	0.0044	0.0011	0.0011	0.0011	No	No	No
	March	0.574	0.653	150	600	600	600	0.0038	0.0044	0.0011	0.0011	0.0011	No	No	No
	April	0.520	0.542	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	May	0.509	0.518	150	600	600	600	0.0034	0.0035	0.0009	0.0009	0.0009	No	No	No
	June	0.516	0.532	150	600	600	600	0.0034	0.0035	0.0009	0.0009	0.0009	No	No	No
	July	0.519	0.540	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	August	0.542	0.587	150	600	600	600	0.0036	0.0039	0.0010	0.0010	0.0010	No	No	No
	September	0.589	0.649	150	600	600	600	0.0039	0.0043	0.0011	0.0011	0.0011	No	No	No
	October	0.659	0.754	150	600	600	600	0.0044	0.0050	0.0013	0.0013	0.0013	No	No	No
	November	0.550	0.603	150	600	600	600	0.0037	0.0040	0.0010	0.0010	0.0010	No	No	No
	December	0.559	0.624	150	600	600	600	0.0037	0.0042	0.0010	0.0010	0.0010	No	No	No
Operation 1 Phase (1-23)	January	1.12	1.13	150	600	600	600	0.0074	0.0075	0.0019	0.0019	0.0019	No	No	No
	February	1.34	1.43	150	600	600	600	0.0089	0.0095	0.0024	0.0024	0.0024	No	No	No
	March	1.41	1.50	150	600	600	600	0.0094	0.0100	0.0025	0.0025	0.0025	No	No	No
	April	0.625	0.642	150	600	600	600	0.0042	0.0043	0.0011	0.0011	0.0011	No	No	No
	May	0.535	0.548	150	600	600	600	0.0036	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.566	0.585	150	600	600	600	0.0038	0.0039	0.0010	0.0010	0.0010	No	No	No
	July	0.639	0.664	150	600	600	600	0.0043	0.0044	0.0011	0.0011	0.0011	No	No	No
	August	0.810	0.843	150	600	600	600	0.0054	0.0056	0.0014	0.0014	0.0014	No	No	No
	September	0.987	0.995	150	600	600	600	0.0066	0.0066	0.0017	0.0017	0.0017	No	No	No
	October	0.911	0.916	150	600	600	600	0.0061	0.0061	0.0015	0.0015	0.0015	No	No	No
	November	0.855	0.860	150	600	600	600	0.0057	0.0057	0.0014	0.0014	0.0014	No	No	No
	December	1.02	1.02	150	600	600	600	0.0068	0.0068	0.0017	0.0017	0.0017	No	No	No
Operations 2 Phase (24-28)	January	1.13	1.13	150	600	600	600	0.0075	0.0075	0.0019	0.0019	0.0019	No	No	No
	February	1.44	1.45	150	600	600	600	0.0096	0.0097	0.0024	0.0024	0.0024	No	No	No
	March	1.51	1.52	150	600	600	600	0.0101	0.0101	0.0025	0.0025	0.0025	No	No	No
	April	0.644	0.645	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	May	0.549	0.549	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.586	0.587	150	600	600	600	0.0039	0.0039	0.0010	0.0010	0.0010	No	No	No
	July	0.668	0.671	150	600	600	600	0.0045	0.0045	0.0011	0.0011	0.0011	No	No	No
	August	0.849	0.852	150	600	600	600	0.0057	0.0057	0.0014	0.0014	0.0014	No	No	No
	September	0.996	0.996	150	600	600	600	0.0066	0.0066	0.0017	0.0017	0.0017	No	No	No
	October	0.917	0.917	150	600	600	600	0.0061	0.0061	0.0015	0.0015	0.0015	No	No	No
	November	0.860	0.860	150	600	600	600	0.0057	0.0057	0.0014	0.0014	0.0014	No	No	No
	December	1.02	1.02	150	600	600	600	0.0068	0.0068	0.0017	0.0017	0.0017	No	No	No
Closure Phase (29-35)	January	0.651	0.651	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	February	0.825	0.834	150	600	600	600	0.0055	0.0056	0.0014	0.0014	0.0014	No	No	No
	March	0.837	0.849	150	600	600	600	0.0056	0.0057	0.0014	0.0014	0.0014	No	No	No
	April	0.551	0.553	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	May	0.533	0.534	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	June	0.563	0.564	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	July	0.583	0.583	150	600	600	600	0.0039	0.0039	0.0010	0.0010	0.0010	No	No	No
	August	0.616	0.619	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	September	0.645	0.645	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	October	0.652	0.652	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	November	0.587	0.587	150	600	600	600	0.0039	0.0039	0.0010	0.0010	0.0010	No	No	No
	December	0.626	0.626	150	600	600	600	0.0042	0.0042	0.0010	0.0010	0.0010	No	No	No
Post-Closure Phase (36-99)	January	0.651	0.651	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	February	0.803	0.813	150	600	600	600	0.0054	0.0054	0.0014	0.0014	0.0014	No	No	No
	March	0.816	0.830	150	600	600	600	0.0054	0.0055	0.0014	0.0014	0.0014	No	No	No
	April	0.548	0.549	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	May	0.532	0.533	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	June	0.561	0.563	150	600	600	600	0.0037	0.0038	0.0009	0.0009	0.0009	No	No	No
	July	0.580	0.582	150	600	600	600	0.0039	0.0039	0.0010	0.0010	0.0010	No	No	No
	August	0.610	0.613	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	September	0.645	0.645	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	October	0.652	0.652	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	November	0.587	0.587	150	600	600	600	0.0039	0.0039	0.0010	0.0010	0.0010	No	No	No
	December	0.626	0.626	150	600	600	600	0.0042	0.0042	0.0010	0.0010	0.0010	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-13Dz. Harper Creek downstream of P Creek (HP) Hazard Quotients for Fluoride Concentrations, Unrecovered Seepage Sensitivity Case (completed)

		First Screening Step			Retained as COPC?			
		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline						
		Maximum Predicted						
		Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
Project Phase	Months							
Construction (-2 to-1)	January	0.0315	0.0333	0.0167	No	No	No	No
	February	0.0437	0.0458	0.0229	No	No	No	No
	March	0.0120	0.0142	0.0071	No	No	No	No
	April	0.0375	0.0381	0.0190	No	No	No	No
	May	0.0215	0.0217	0.0109	No	No	No	No
	June	0.0216	0.0219	0.0110	No	No	No	No
	July	0.0262	0.0267	0.0134	No	No	No	No
	August	0.0365	0.0377	0.0188	No	No	No	No
	September	0.0353	0.0369	0.0185	No	No	No	No
	October	0.0374	0.0397	0.0199	No	No	No	No
	November	0.0347	0.0361	0.0180	No	No	No	No
	December	0.0332	0.0349	0.0174	No	No	No	No
Operation 1 Phase (1-23)	January	0.0425	0.0427	0.0213	No	No	No	No
	February	0.0587	0.0604	0.0302	No	No	No	No
	March	0.0291	0.0310	0.0155	No	No	No	No
	April	0.0395	0.0398	0.0199	No	No	No	No
	May	0.0221	0.0223	0.0112	No	No	No	No
	June	0.0226	0.0229	0.0115	No	No	No	No
	July	0.0286	0.0291	0.0145	No	No	No	No
	August	0.0417	0.0424	0.0212	No	No	No	No
	September	0.0432	0.0433	0.0217	No	No	No	No
	October	0.0423	0.0424	0.0212	No	No	No	No
	November	0.0407	0.0408	0.0204	No	No	No	No
	December	0.0422	0.0424	0.0212	No	No	No	No
Operations 2 Phase (24-28)	January	0.0427	0.0427	0.0213	No	No	No	No
	February	0.0607	0.0608	0.0304	No	No	No	No
	March	0.0311	0.0314	0.0157	No	No	No	No
	April	0.0399	0.0399	0.0200	No	No	No	No
	May	0.0223	0.0223	0.0112	No	No	No	No
	June	0.0230	0.0230	0.0115	No	No	No	No
	July	0.0292	0.0292	0.0146	No	No	No	No
	August	0.0425	0.0426	0.0213	No	No	No	No
	September	0.0433	0.0434	0.0217	No	No	No	No
	October	0.0424	0.0424	0.0212	No	No	No	No
	November	0.0408	0.0408	0.0204	No	No	No	No
	December	0.0424	0.0424	0.0212	No	No	No	No
Closure Phase (29-35)	January	0.0328	0.0328	0.0164	No	No	No	No
	February	0.0479	0.0481	0.0240	No	No	No	No
	March	0.0172	0.0174	0.0087	No	No	No	No
	April	0.0380	0.0380	0.0190	No	No	No	No
	May	0.0220	0.0220	0.0110	No	No	No	No
	June	0.0225	0.0225	0.0113	No	No	No	No
	July	0.0274	0.0274	0.0137	No	No	No	No
	August	0.0377	0.0377	0.0189	No	No	No	No
	September	0.0361	0.0361	0.0180	No	No	No	No
	October	0.0369	0.0369	0.0184	No	No	No	No
	November	0.0351	0.0351	0.0175	No	No	No	No
	December	0.0341	0.0341	0.0171	No	No	No	No
Post-Closure Phase (36-99)	January	0.0328	0.0328	0.0164	No	No	No	No
	February	0.0474	0.0476	0.0238	No	No	No	No
	March	0.0167	0.0170	0.0085	No	No	No	No
	April	0.0379	0.0379	0.0190	No	No	No	No
	May	0.0220	0.0220	0.0110	No	No	No	No
	June	0.0224	0.0225	0.0112	No	No	No	No
	July	0.0273	0.0274	0.0137	No	No	No	No
	August	0.0375	0.0376	0.0188	No	No	No	No
	September	0.0361	0.0361	0.0180	No	No	No	No
	October	0.0369	0.0369	0.0184	No	No	No	No
	November	0.0351	0.0351	0.0175	No	No	No	No
	December	0.0341	0.0341	0.0171	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-13Dab. Harper Creek downstream of P Creek (HP) Hazard Quotients for Nitrite Concentrations, Unrecovered Seepage Sensitivity Case (completed)

Project Phase	Months	Retained as COPC?			
		Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operation 1 Phase (1-23)	January	Yes	No	No	No
	February	Yes	No	No	No
	March	Yes	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Operations 2 Phase (24-28)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Closure Phase (29-35)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No
Post-Closure Phase (36-99)	January	No	No	No	No
	February	No	No	No	No
	March	No	No	No	No
	April	No	No	No	No
	May	No	No	No	No
	June	No	No	No	No
	July	No	No	No	No
	August	No	No	No	No
	September	No	No	No	No
	October	No	No	No	No
	November	No	No	No	No
	December	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are chloride dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-13Dac. Harper Creek downstream of P Creek (HP) Hazard Quotients for Ammonia Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step						Second Screening Step				Retained as COPC?	
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline									
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life
		Mean	Maximum						Mean	95%ile	Mean	95%ile	
Construction (-2 to-1)	January	0.0245	0.0440	1.23	6.37	0.0199	0.0357	0.0069	0.0050	0.0050		No	
	February	0.0737	0.0971	1.00	5.21	0.0737	0.0971	0.0186	0.0510	0.0510		No	
	March	0.0318	0.0547	1.48	7.71	0.0215	0.0370	0.0071	0.0090	0.0090		No	
	April	0.0131	0.0195	0.976	5.07	0.0134	0.0199	0.0038	0.0068	0.0068		No	
	May	0.0076	0.0102	2.03	10.5	0.0037	0.0050	0.0010	0.0050	0.0050		No	
	June	0.0112	0.0158	1.69	8.77	0.0066	0.0094	0.0018	0.0065	0.0098		No	
	July	0.0164	0.0226	1.16	6.02	0.0142	0.0195	0.0038	0.0103	0.0186		No	
	August	1.31	1.32	1.15	5.96	1.14	1.15	0.222	1.30	4.42	1.00	0.299	No
	September	0.0731	0.0904	1.14	5.91	0.0641	0.0793	0.0153	0.0563	0.1233		No	
	October	0.0361	0.0632	1.41	7.33	0.0256	0.0449	0.0086	0.0090	0.0152		No	
	November	0.0229	0.0383	1.26	6.55	0.0182	0.0304	0.0058	0.0075	0.0098		No	
	December	0.0247	0.0432	1.24	6.46	0.0199	0.0348	0.0067	0.0063	0.0074		No	
Operation 1 Phase (1-23)	January	0.0423	0.111	1.23	6.37	0.0344	0.0903	0.0174	0.0050	0.0050		No	
	February	0.101	0.187	1.00	5.21	0.101	0.187	0.0359	0.0510	0.0510		No	
	March	0.0638	0.155	1.48	7.71	0.0431	0.1047	0.0201	0.0090	0.0090		No	
	April	0.0141	0.0274	0.976	5.07	0.0144	0.0281	0.0054	0.0068	0.0068		No	
	May	0.0073	0.0092	2.03	10.5	0.0036	0.0046	0.0009	0.0050	0.0050		No	
	June	0.0111	0.0156	1.69	8.77	0.0066	0.0093	0.0018	0.0065	0.0098		No	
	July	0.0192	0.0309	1.16	6.02	0.0165	0.0266	0.0051	0.0103	0.0186		No	
	August	1.31	1.34	1.15	6.0	1.14	1.17	0.225	1.30	4.42	1.00	0.303	No
	September	0.0832	0.134	1.14	5.91	0.0730	0.118	0.0227	0.0563	0.1233		No	
	October	0.0299	0.0687	1.41	7.33	0.0212	0.0488	0.0094	0.0090	0.0152		No	
	November	0.0290	0.0692	1.26	6.55	0.0231	0.0550	0.0106	0.0075	0.0098		No	
	December	0.0376	0.0961	1.24	6.46	0.0303	0.0775	0.0149	0.0063	0.0074		No	
Operations 2 Phase (24-28)	January	0.0049	0.0049	1.23	6.37	0.0040	0.0040	0.0008	0.0050	0.0050		No	
	February	0.0496	0.0497	1.00	5.21	0.0496	0.0497	0.0095	0.0510	0.0510		No	
	March	0.0089	0.0090	1.48	7.71	0.0060	0.0061	0.0012	0.0090	0.0090		No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013	0.0068	0.0068		No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005	0.0050	0.0050		No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007	0.0065	0.0098		No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017	0.0103	0.0186		No	
	August	1.29	1.29	1.15	6.0	1.12	1.12	0.216	1.30	4.42	0.988	0.292	No
	September	0.0556	0.0556	1.14	5.91	0.0488	0.0488	0.0094	0.0563	0.1233		No	
	October	0.0089	0.0089	1.41	7.33	0.0063	0.0063	0.0012	0.0090	0.0152		No	
	November	0.0074	0.0074	1.26	6.55	0.0059	0.0059	0.0011	0.0075	0.0098		No	
	December	0.0062	0.0062	1.24	6.46	0.0050	0.0050	0.0010	0.0063	0.0074		No	
Closure Phase (29-35)	January	0.0049	0.0049	1.23	6.37	0.0040	0.0040	0.0008	0.0050	0.0050		No	
	February	0.0495	0.0495	1.00	5.21	0.0495	0.0495	0.0095	0.0510	0.0510		No	
	March	0.0089	0.0089	1.48	7.71	0.0060	0.0060	0.0012	0.0090	0.0090		No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013	0.0068	0.0068		No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005	0.0050	0.0050		No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007	0.0065	0.0098		No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017	0.0103	0.0186		No	
	August	1.29	1.29	1.15	6.0	1.12	1.12	0.216	1.30	4.42	0.988	0.292	No
	September	0.0556	0.0556	1.14	5.91	0.0488	0.0488	0.0094	0.0563	0.1233		No	
	October	0.0089	0.0089	1.41	7.33	0.0063	0.0063	0.0012	0.0090	0.0152		No	
	November	0.0074	0.0074	1.26	6.55	0.0059	0.0059	0.0011	0.0075	0.0098		No	
	December	0.0062	0.0062	1.24	6.46	0.0050	0.0050	0.0010	0.0063	0.0074		No	
Post-Closure Phase (36-99)	January	0.0049	0.0049	1.23	6.37	0.0040	0.0040	0.0008	0.0050	0.0050		No	
	February	0.0496	0.0496	1.00	5.21	0.0496	0.0496	0.0095	0.0510	0.0510		No	
	March	0.0089	0.0089	1.48	7.71	0.0060	0.0060	0.0012	0.0090	0.0090		No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013	0.0068	0.0068		No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005	0.0050	0.0050		No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007	0.0065	0.0098		No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017	0.0103	0.0186		No	
	August	1.29	1.29	1.15	6.0	1.12	1.12	0.216	1.30	4.42	0.988	0.292	No
	September	0.0556	0.0556	1.14	5.91	0.0488	0.0488	0.0094	0.0563	0.1233		No	
	October	0.0089	0.0089	1.41	7.33	0.0063	0.0063	0.0012	0.0090	0.0152		No	
	November	0.0074	0.0074	1.26	6.55	0.0059	0.0059	0.0011	0.0075	0.0098		No	
	December	0.0062	0.0062	1.24	6.46	0.0050	0.0050	0.0010	0.0063	0.0074		No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH and temperature dependent

Appendix 13-13Dad. Harper Creek downstream of P Creek (HP) Hazard Quotients for Sulphate Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step								Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				BC MOE 30-Day Mean Guideline	BC MOE 30-Day Maximum					
Construction (-2 to-1)	January	15.1	18.6	218	500	1000	0.0694	0.0851	0.0371	0.0186	No	No	No
	February	17.5	21.6	309	500	1000	0.0565	0.0698	0.0432	0.0216	No	No	No
	March	19.6	23.7	309	500	1000	0.0636	0.0766	0.0474	0.0237	No	No	No
	April	12.6	13.7	309	500	1000	0.0407	0.0443	0.0274	0.0137	No	No	No
	May	6.00	6.34	218	500	1000	0.0275	0.0291	0.0127	0.0063	No	No	No
	June	5.70	6.27	218	500	1000	0.0261	0.0288	0.0125	0.0063	No	No	No
	July	8.97	10.0	218	500	1000	0.0411	0.0460	0.0200	0.0100	No	No	No
	August	12.4	14.7	218	500	1000	0.0568	0.0674	0.0294	0.0147	No	No	No
	September	16.0	19.0	309	500	1000	0.0517	0.0615	0.0380	0.0190	No	No	No
	October	15.7	19.6	218	500	1000	0.0722	0.0897	0.0391	0.0196	No	No	No
	November	14.1	16.8	218	500	1000	0.0646	0.0770	0.0336	0.0168	No	No	No
	December	14.8	18.1	218	500	1000	0.0678	0.0828	0.0361	0.0181	No	No	No
Operation 1 Phase (1-23)	January	55.1	57.2	218	500	1000	0.253	0.262	0.114	0.0572	No	No	No
	February	72.5	80.7	309	500	1000	0.235	0.261	0.161	0.0807	No	No	No
	March	79.3	88.1	309	500	1000	0.257	0.285	0.176	0.0881	No	No	No
	April	20.3	21.8	309	500	1000	0.0658	0.0705	0.0435	0.0218	No	No	No
	May	8.12	9.16	218	500	1000	0.0373	0.0420	0.0183	0.0092	No	No	No
	June	9.71	11.3	218	500	1000	0.0445	0.0518	0.0226	0.0113	No	No	No
	July	17.7	19.9	218	500	1000	0.0813	0.0911	0.0397	0.0199	No	No	No
	August	31.9	35.0	218	500	1000	0.146	0.160	0.0700	0.0350	No	No	No
	September	44.9	46.6	309	500	1000	0.145	0.151	0.0991	0.0466	No	No	No
	October	36.2	37.4	218	500	1000	0.166	0.171	0.0748	0.0374	No	No	No
	November	36.5	37.6	218	500	1000	0.167	0.173	0.0753	0.0376	No	No	No
	December	48.0	49.7	218	500	1000	0.220	0.228	0.0994	0.0497	No	No	No
Operations 2 Phase (24-28)	January	57.2	57.2	218	500	1000	0.262	0.262	0.114	0.0572	No	No	No
	February	81.8	82.2	309	500	1000	0.265	0.266	0.164	0.0822	No	No	No
	March	88.8	89.7	309	500	1000	0.287	0.290	0.179	0.0897	No	No	No
	April	21.9	22.0	309	500	1000	0.0710	0.0711	0.0439	0.0220	No	No	No
	May	9.20	9.21	218	500	1000	0.0422	0.0423	0.0184	0.0092	No	No	No
	June	11.4	11.4	218	500	1000	0.0522	0.0523	0.0228	0.0114	No	No	No
	July	20.2	20.4	218	500	1000	0.0926	0.0934	0.0407	0.0204	No	No	No
	August	35.5	35.6	218	500	1000	0.163	0.163	0.0713	0.0356	No	No	No
	September	46.6	46.6	309	500	1000	0.151	0.151	0.0933	0.0466	No	No	No
	October	37.4	37.5	218	500	1000	0.172	0.172	0.0749	0.0375	No	No	No
	November	37.6	37.6	218	500	1000	0.173	0.173	0.0753	0.0376	No	No	No
	December	49.7	49.7	218	500	1000	0.228	0.228	0.0994	0.0497	No	No	No
Closure Phase (29-35)	January	23.0	23.0	218	500	1000	0.106	0.106	0.046	0.0230	No	No	No
	February	37.2	37.9	309	500	1000	0.121	0.123	0.0758	0.0379	No	No	No
	March	40.4	41.2	309	500	1000	0.131	0.133	0.0825	0.0412	No	No	No
	April	15.3	15.4	309	500	1000	0.0494	0.0497	0.0307	0.0154	No	No	No
	May	8.11	8.15	218	500	1000	0.0372	0.0374	0.0163	0.0082	No	No	No
	June	9.75	9.79	218	500	1000	0.0447	0.0449	0.0196	0.0098	No	No	No
	July	14.0	14.1	218	500	1000	0.0644	0.0645	0.0281	0.0141	No	No	No
	August	18.7	18.9	218	500	1000	0.0858	0.0866	0.0377	0.0189	No	No	No
	September	21.4	21.4	309	500	1000	0.0691	0.0692	0.0428	0.0214	No	No	No
	October	18.3	18.4	218	500	1000	0.0841	0.0842	0.0367	0.0184	No	No	No
	November	17.9	17.9	218	500	1000	0.0823	0.0823	0.0359	0.0179	No	No	No
	December	21.0	21.0	218	500	1000	0.0965	0.0966	0.0421	0.0210	No	No	No
Post-Closure Phase (36-99)	January	23.0	23.0	218	500	1000	0.106	0.106	0.0460	0.0230	No	No	No
	February	35.6	36.4	309	500	1000	0.115	0.118	0.0728	0.0364	No	No	No
	March	38.8	39.8	309	500	1000	0.126	0.129	0.0797	0.0398	No	No	No
	April	15.0	15.1	309	500	1000	0.0485	0.0489	0.0302	0.0151	No	No	No
	May	7.99	8.06	218	500	1000	0.0367	0.0370	0.0161	0.0081	No	No	No
	June	9.59	9.69	218	500	1000	0.0440	0.0445	0.0194	0.0097	No	No	No
	July	13.8	14.0	218	500	1000	0.0634	0.0642	0.0280	0.0140	No	No	No
	August	18.2	18.5	218	500	1000	0.0835	0.0847	0.0369	0.0185	No	No	No
	September	21.4	21.4	309	500	1000	0.0691	0.0692	0.0428	0.0214	No	No	No
	October	18.4	18.4	218	500	1000	0.0842	0.0842	0.0367	0.0184	No	No	No
	November	17.9	17.9	218	500	1000	0.0823	0.0823	0.0359	0.0179	No	No	No
	December	21.0	21.0	218	500	1000	0.0965	0.0966	0.0421	0.0210	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent

Appendix 13-D14a. Mid Harper Creek (HM) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step											
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines for Dissolved Aluminum Concentrations ¹		Drinking Water Quality Guidelines for Dissolved Aluminum	BC MOE Working Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline for Dissolved Aluminum		
		Dissolved Aluminum		Total Aluminum		BC MOE 30-Day Mean	BC MOE Maximum	BC maximum DWQG	Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
		Mean	Maximum	Mean	Maximum								
Construction (-2 to-1)	January	0.0041	0.0056	0.0060	0.0080	0.050	0.100	0.2	5	5	0.0817	0.113	0.0564
	February	0.0050	0.0063	0.0054	0.0070	0.050	0.100	0.2	5	5	0.0990	0.125	0.0627
	March	0.0051	0.0065	0.0052	0.0066	0.050	0.100	0.2	5	5	0.101	0.130	0.0648
	April	0.0099	0.0103	0.0256	0.0268	0.050	0.100	0.2	5	5	0.198	0.205	0.103
	May	0.0352	0.0355	0.106	0.106	0.050	0.100	0.2	5	5	0.703	0.709	0.355
	June	0.0303	0.0305	0.111	0.111	0.050	0.100	0.2	5	5	0.605	0.610	0.305
	July	0.0164	0.0165	0.0264	0.0265	0.050	0.100	0.2	5	5	0.328	0.330	0.165
	August	0.0102	0.0104	0.0183	0.0185	0.050	0.100	0.2	5	5	0.204	0.207	0.104
	September	0.0095	0.0098	0.0173	0.0178	0.050	0.100	0.2	5	5	0.190	0.195	0.0976
	October	0.0119	0.0123	0.0222	0.0227	0.050	0.100	0.2	5	5	0.239	0.246	0.123
	November	0.0078	0.0080	0.0111	0.0114	0.050	0.100	0.2	5	5	0.156	0.160	0.0800
	December	0.0067	0.0069	0.0095	0.0098	0.050	0.100	0.2	5	5	0.133	0.138	0.0690
Operation 1 Phase (1-23)	January	0.0062	0.0062	0.0086	0.0087	0.050	0.100	0.2	5	5	0.123	0.123	0.0616
	February	0.0067	0.0067	0.0075	0.0076	0.050	0.100	0.2	5	5	0.134	0.134	0.0672
	March	0.0070	0.0070	0.0070	0.0071	0.050	0.100	0.2	5	5	0.141	0.141	0.0703
	April	0.0109	0.0109	0.0289	0.0290	0.050	0.100	0.2	5	5	0.217	0.218	0.109
	May	0.0364	0.0365	0.107	0.107	0.050	0.100	0.2	5	5	0.728	0.730	0.365
	June	0.0309	0.0309	0.110	0.110	0.050	0.100	0.2	5	5	0.618	0.618	0.309
	July	0.0166	0.0166	0.0268	0.0268	0.050	0.100	0.2	5	5	0.333	0.333	0.166
	August	0.0106	0.0106	0.0188	0.0188	0.050	0.100	0.2	5	5	0.213	0.213	0.106
	September	0.0102	0.0102	0.0187	0.0187	0.050	0.100	0.2	5	5	0.204	0.204	0.102
	October	0.0130	0.0131	0.0240	0.0241	0.050	0.100	0.2	5	5	0.261	0.261	0.131
	November	0.0083	0.0083	0.0119	0.0119	0.050	0.100	0.2	5	5	0.166	0.166	0.0830
	December	0.0073	0.0073	0.0104	0.0104	0.050	0.100	0.2	5	5	0.145	0.145	0.0726
Operations 2 Phase (24-28)	January	0.0062	0.0062	0.0086	0.0086	0.050	0.100	0.2	5	5	0.123	0.123	0.0616
	February	0.0067	0.0067	0.0076	0.0076	0.050	0.100	0.2	5	5	0.134	0.134	0.0672
	March	0.0070	0.0070	0.0071	0.0071	0.050	0.100	0.2	5	5	0.141	0.141	0.0703
	April	0.0109	0.0109	0.0289	0.0289	0.050	0.100	0.2	5	5	0.217	0.217	0.109
	May	0.0365	0.0365	0.107	0.107	0.050	0.100	0.2	5	5	0.730	0.730	0.365
	June	0.0309	0.0309	0.110	0.110	0.050	0.100	0.2	5	5	0.619	0.619	0.309
	July	0.0167	0.0167	0.0268	0.0268	0.050	0.100	0.2	5	5	0.333	0.333	0.167
	August	0.0106	0.0106	0.0188	0.0188	0.050	0.100	0.2	5	5	0.213	0.213	0.106
	September	0.0102	0.0102	0.0187	0.0187	0.050	0.100	0.2	5	5	0.204	0.204	0.102
	October	0.0130	0.0130	0.0240	0.0240	0.050	0.100	0.2	5	5	0.261	0.261	0.130
	November	0.0083	0.0083	0.0119	0.0119	0.050	0.100	0.2	5	5	0.166	0.166	0.0829
	December	0.0073	0.0073	0.0104	0.0104	0.050	0.100	0.2	5	5	0.145	0.145	0.0726
Closure Phase (29-35)	January	0.0061	0.0061	0.0085	0.0085	0.050	0.100	0.2	5	5	0.121	0.121	0.0606
	February	0.0066	0.0066	0.0074	0.0074	0.050	0.100	0.2	5	5	0.132	0.132	0.0661
	March	0.0069	0.0069	0.0069	0.0069	0.050	0.100	0.2	5	5	0.138	0.138	0.0691
	April	0.0108	0.0108	0.0289	0.0289	0.050	0.100	0.2	5	5	0.217	0.217	0.108
	May	0.0365	0.0365	0.107	0.107	0.050	0.100	0.2	5	5	0.730	0.730	0.365
	June	0.0309	0.0310	0.110	0.110	0.050	0.100	0.2	5	5	0.619	0.619	0.310
	July	0.0167	0.0167	0.0268	0.0268	0.050	0.100	0.2	5	5	0.333	0.334	0.167
	August	0.0106	0.0106	0.0188	0.0188	0.050	0.100	0.2	5	5	0.212	0.212	0.106
	September	0.0101	0.0101	0.0186	0.0186	0.050	0.100	0.2	5	5	0.203	0.203	0.101
	October	0.0130	0.0130	0.0240	0.0240	0.050	0.100	0.2	5	5	0.260	0.260	0.130
	November	0.0082	0.0082	0.0118	0.0118	0.050	0.100	0.2	5	5	0.164	0.164	0.0821
	December	0.0072	0.0072	0.0103	0.0103	0.050	0.100	0.2	5	5	0.143	0.143	0.0717
Post-Closure Phase (36-99)	January	0.0061	0.0061	0.0085	0.0085	0.050	0.100	0.2	5	5	0.121	0.121	0.0606
	February	0.0066	0.0066	0.0074	0.0074	0.050	0.100	0.2	5	5	0.132	0.132	0.0661
	March	0.0069	0.0069	0.0069	0.0069	0.050	0.100	0.2	5	5	0.138	0.138	0.0691
	April	0.0108	0.0108	0.0289	0.0289	0.050	0.100	0.2	5	5	0.216	0.216	0.108
	May	0.0365	0.0365	0.107	0.107	0.050	0.100	0.2	5	5	0.730	0.730	0.365
	June	0.0310	0.0310	0.110	0.110	0.050	0.100	0.2	5	5	0.619	0.619	0.310
	July	0.0167	0.0167	0.0268	0.0268	0.050	0.100	0.2	5	5	0.334	0.334	0.167
	August	0.0106	0.0106	0.0188	0.0188	0.050	0.100	0.2	5	5	0.212	0.212	0.106
	September	0.0101	0.0101	0.0186	0.0186	0.050	0.100	0.2	5	5	0.203	0.203	0.101
	October	0.0130	0.0130	0.0240	0.0240	0.050	0.100	0.2	5	5	0.259	0.260	0.130
	November	0.0082	0.0082	0.0118	0.0118	0.050	0.100	0.2	5	5	0.164	0.164	0.0821
	December	0.0072	0.0072	0.0103	0.0103	0.050	0.100	0.2	5	5	0.143	0.143	0.0717

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

(continued)

Appendix 13-D14a. Mid Harper Creek (HM) Hazard Quotients for Dissolved and Total Aluminum Concentrations, Unrecovered Seepage Sensitivity Case (completed)

		First Screening Step			Retained as COPC?			
		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum				
Project Phase	Months	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life for Dissolved Aluminum	Drinking Water for Dissolved Aluminum	Wildlife for Total Aluminum	Livestock for Total Aluminum
Construction (-2 to-1)	January	0.0282	0.0016	0.0016	No	No	No	No
	February	0.0313	0.0014	0.0014	No	No	No	No
	March	0.0324	0.0013	0.0013	No	No	No	No
	April	0.0513	0.0054	0.0054	No	No	No	No
	May	0.177	0.0212	0.0212	No	No	No	No
	June	0.153	0.0221	0.0221	No	No	No	No
	July	0.0824	0.0053	0.0053	No	No	No	No
	August	0.0518	0.0037	0.0037	No	No	No	No
	September	0.0488	0.0036	0.0036	No	No	No	No
	October	0.0616	0.0045	0.0045	No	No	No	No
	November	0.0400	0.0023	0.0023	No	No	No	No
	December	0.0345	0.0020	0.0020	No	No	No	No
Operation 1 Phase (1-23)	January	0.0308	0.0017	0.0017	No	No	No	No
	February	0.0336	0.0015	0.0015	No	No	No	No
	March	0.0352	0.0014	0.0014	No	No	No	No
	April	0.0544	0.0058	0.0058	No	No	No	No
	May	0.182	0.0214	0.0214	No	No	No	No
	June	0.155	0.0221	0.0221	No	No	No	No
	July	0.0832	0.0054	0.0054	No	No	No	No
	August	0.0532	0.0038	0.0038	No	No	No	No
	September	0.0510	0.0037	0.0037	No	No	No	No
	October	0.0653	0.0048	0.0048	No	No	No	No
	November	0.0415	0.0024	0.0024	No	No	No	No
	December	0.0363	0.0021	0.0021	No	No	No	No
Operations 2 Phase (24-28)	January	0.0308	0.0017	0.0017	No	No	No	No
	February	0.0336	0.0015	0.0015	No	No	No	No
	March	0.0352	0.0014	0.0014	No	No	No	No
	April	0.0543	0.0058	0.0058	No	No	No	No
	May	0.182	0.0214	0.0214	No	No	No	No
	June	0.155	0.0221	0.0221	No	No	No	No
	July	0.0833	0.0054	0.0054	No	No	No	No
	August	0.0532	0.0038	0.0038	No	No	No	No
	September	0.0510	0.0037	0.0037	No	No	No	No
	October	0.0652	0.0048	0.0048	No	No	No	No
	November	0.0415	0.0024	0.0024	No	No	No	No
	December	0.0363	0.0021	0.0021	No	No	No	No
Closure Phase (29-35)	January	0.0303	0.0017	0.0017	No	No	No	No
	February	0.0330	0.0015	0.0015	No	No	No	No
	March	0.0346	0.0014	0.0014	No	No	No	No
	April	0.0541	0.0058	0.0058	No	No	No	No
	May	0.183	0.0214	0.0214	No	No	No	No
	June	0.155	0.0221	0.0221	No	No	No	No
	July	0.0834	0.0054	0.0054	No	No	No	No
	August	0.0530	0.0038	0.0038	No	No	No	No
	September	0.0506	0.0037	0.0037	No	No	No	No
	October	0.0649	0.0048	0.0048	No	No	No	No
	November	0.0411	0.0024	0.0024	No	No	No	No
	December	0.0359	0.0021	0.0021	No	No	No	No
Post-Closure Phase (36-99)	January	0.0303	0.0017	0.0017	No	No	No	No
	February	0.0330	0.0015	0.0015	No	No	No	No
	March	0.0345	0.0014	0.0014	No	No	No	No
	April	0.0541	0.0058	0.0058	No	No	No	No
	May	0.183	0.0214	0.0214	No	No	No	No
	June	0.155	0.0221	0.0221	No	No	No	No
	July	0.0834	0.0054	0.0054	No	No	No	No
	August	0.0530	0.0038	0.0038	No	No	No	No
	September	0.0506	0.0037	0.0037	No	No	No	No
	October	0.0649	0.0048	0.0048	No	No	No	No
	November	0.0411	0.0024	0.0024	No	No	No	No
	December	0.0359	0.0021	0.0021	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

Appendix 13-D14b. Mid Harper Creek (HM) Hazard Quotients for Total Antimony Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00011	0.00012	0.020	0.014	0.0062	0.0088	No	No
	February	0.00005	0.00008	0.020	0.014	0.0039	0.0056	No	No
	March	0.00005	0.00008	0.020	0.014	0.0042	0.0060	No	No
	April	0.00003	0.00004	0.020	0.014	0.0020	0.0028	No	No
	May	0.00010	0.00010	0.020	0.014	0.0051	0.0073	No	No
	June	0.00010	0.00010	0.020	0.014	0.0052	0.0074	No	No
	July	0.00010	0.00011	0.020	0.014	0.0053	0.0075	No	No
	August	0.00014	0.00015	0.020	0.014	0.0073	0.0105	No	No
	September	0.00014	0.00016	0.020	0.014	0.0080	0.0115	No	No
	October	0.00012	0.00014	0.020	0.014	0.0068	0.0097	No	No
	November	0.00008	0.00009	0.020	0.014	0.0047	0.0066	No	No
	December	0.00008	0.00010	0.020	0.014	0.0052	0.0074	No	No
Operation 1 Phase (1-23)	January	0.00032	0.00037	0.020	0.014	0.0186	0.0266	No	No
	February	0.00031	0.00037	0.020	0.014	0.0183	0.0262	No	No
	March	0.00033	0.00040	0.020	0.014	0.0199	0.0285	No	No
	April	0.00013	0.00016	0.020	0.014	0.0078	0.0112	No	No
	May	0.00012	0.00012	0.020	0.014	0.0060	0.0086	No	No
	June	0.00012	0.00012	0.020	0.014	0.0061	0.0087	No	No
	July	0.00013	0.00014	0.020	0.014	0.0070	0.0100	No	No
	August	0.00024	0.00026	0.020	0.014	0.0129	0.0184	No	No
	September	0.00032	0.00036	0.020	0.014	0.0181	0.0258	No	No
	October	0.00029	0.00033	0.020	0.014	0.0167	0.0238	No	No
	November	0.00026	0.00030	0.020	0.014	0.0151	0.0216	No	No
	December	0.00030	0.00034	0.020	0.014	0.0171	0.0244	No	No
Operations 2 Phase (24-28)	January	0.00037	0.00037	0.020	0.014	0.0186	0.0266	No	No
	February	0.00037	0.00037	0.020	0.014	0.0184	0.0263	No	No
	March	0.00040	0.00040	0.020	0.014	0.0200	0.0286	No	No
	April	0.00016	0.00016	0.020	0.014	0.0078	0.0112	No	No
	May	0.00012	0.00012	0.020	0.014	0.0060	0.0086	No	No
	June	0.00012	0.00012	0.020	0.014	0.0061	0.0087	No	No
	July	0.00014	0.00014	0.020	0.014	0.0070	0.0100	No	No
	August	0.00026	0.00026	0.020	0.014	0.0129	0.0184	No	No
	September	0.00036	0.00036	0.020	0.014	0.0181	0.0258	No	No
	October	0.00033	0.00033	0.020	0.014	0.0167	0.0238	No	No
	November	0.00030	0.00030	0.020	0.014	0.0151	0.0216	No	No
	December	0.00034	0.00034	0.020	0.014	0.0171	0.0244	No	No
Closure Phase (29-35)	January	0.00026	0.00026	0.020	0.014	0.0130	0.0186	No	No
	February	0.00024	0.00024	0.020	0.014	0.0122	0.0175	No	No
	March	0.00026	0.00027	0.020	0.014	0.0133	0.0190	No	No
	April	0.00011	0.00011	0.020	0.014	0.0054	0.0077	No	No
	May	0.00011	0.00011	0.020	0.014	0.0057	0.0082	No	No
	June	0.00012	0.00012	0.020	0.014	0.0058	0.0083	No	No
	July	0.00013	0.00013	0.020	0.014	0.0063	0.0090	No	No
	August	0.00021	0.00021	0.020	0.014	0.0106	0.0151	No	No
	September	0.00028	0.00028	0.020	0.014	0.0139	0.0198	No	No
	October	0.00025	0.00025	0.020	0.014	0.0124	0.0178	No	No
	November	0.00021	0.00021	0.020	0.014	0.0107	0.0153	No	No
	December	0.00024	0.00024	0.020	0.014	0.0120	0.0172	No	No
Post-Closure Phase (36-99)	January	0.00026	0.00026	0.020	0.014	0.0131	0.0187	No	No
	February	0.00024	0.00024	0.020	0.014	0.0122	0.0175	No	No
	March	0.00026	0.00027	0.020	0.014	0.0133	0.0189	No	No
	April	0.00011	0.00011	0.020	0.014	0.0054	0.0077	No	No
	May	0.00011	0.00011	0.020	0.014	0.0057	0.0082	No	No
	June	0.00012	0.00012	0.020	0.014	0.0058	0.0082	No	No
	July	0.00013	0.00013	0.020	0.014	0.0063	0.0090	No	No
	August	0.00021	0.00021	0.020	0.014	0.0106	0.0151	No	No
	September	0.00028	0.00028	0.020	0.014	0.0139	0.0199	No	No
	October	0.00025	0.00025	0.020	0.014	0.0125	0.0178	No	No
	November	0.00021	0.00021	0.020	0.014	0.0107	0.0153	No	No
	December	0.00024	0.00024	0.020	0.014	0.0121	0.0172	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D14c. Mid Harper Creek (HM) Hazard Quotients for Total Arsenic Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step											Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Retained as COPC?				
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Interim Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
Construction (-2 to-1)	January	0.0003	0.0005	0.005	0.025	0.025	0.025	0.0949	0.0190	0.0190	0.0190	No	No	No	No	
	February	0.0003	0.0005	0.005	0.025	0.025	0.025	0.0959	0.0192	0.0192	0.0192	No	No	No	No	
	March	0.0003	0.0004	0.005	0.025	0.025	0.025	0.0880	0.0176	0.0176	0.0176	No	No	No	No	
	April	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0854	0.0171	0.0171	0.0171	No	No	No	No	
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0758	0.0152	0.0152	0.0152	No	No	No	No	
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.147	0.0293	0.0293	0.0293	No	No	No	No	
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.100	0.0200	0.0200	0.0200	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0411	0.0411	0.0411	No	No	No	No	
	September	0.0005	0.0006	0.005	0.025	0.025	0.025	0.113	0.0226	0.0226	0.0226	No	No	No	No	
	October	0.0007	0.0008	0.005	0.025	0.025	0.025	0.150	0.0300	0.0300	0.0300	No	No	No	No	
	November	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0993	0.0199	0.0199	0.0199	No	No	No	No	
	December	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0966	0.0193	0.0193	0.0193	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0006	0.0007	0.005	0.025	0.025	0.025	0.132	0.0263	0.0263	0.0263	No	No	No	No	
	February	0.0007	0.0007	0.005	0.025	0.025	0.025	0.137	0.0274	0.0274	0.0274	No	No	No	No	
	March	0.0006	0.0007	0.005	0.025	0.025	0.025	0.130	0.0261	0.0261	0.0261	No	No	No	No	
	April	0.0005	0.0005	0.005	0.025	0.025	0.025	0.103	0.0206	0.0206	0.0206	No	No	No	No	
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0780	0.0156	0.0156	0.0156	No	No	No	No	
	June	0.0006	0.0007	0.005	0.025	0.025	0.025	0.131	0.0261	0.0261	0.0261	No	No	No	No	
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.105	0.0210	0.0210	0.0210	No	No	No	No	
	August	0.0011	0.0011	0.005	0.025	0.025	0.025	0.218	0.0436	0.0436	0.0436	No	No	No	No	
	September	0.0007	0.0007	0.005	0.025	0.025	0.025	0.141	0.0283	0.0283	0.0283	No	No	No	No	
	October	0.0009	0.0009	0.005	0.025	0.025	0.025	0.174	0.0348	0.0348	0.0348	No	No	No	No	
	November	0.0006	0.0006	0.005	0.025	0.025	0.025	0.128	0.0255	0.0255	0.0255	No	No	No	No	
	December	0.0006	0.0006	0.005	0.025	0.025	0.025	0.129	0.0259	0.0259	0.0259	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0007	0.0007	0.005	0.025	0.025	0.025	0.132	0.0263	0.0263	0.0263	No	No	No	No	
	February	0.0007	0.0007	0.005	0.025	0.025	0.025	0.137	0.0274	0.0274	0.0274	No	No	No	No	
	March	0.0007	0.0007	0.005	0.025	0.025	0.025	0.131	0.0261	0.0261	0.0261	No	No	No	No	
	April	0.0005	0.0005	0.005	0.025	0.025	0.025	0.103	0.0206	0.0206	0.0206	No	No	No	No	
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0780	0.0156	0.0156	0.0156	No	No	No	No	
	June	0.0006	0.0006	0.005	0.025	0.025	0.025	0.1280	0.0256	0.0256	0.0256	No	No	No	No	
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.1050	0.0210	0.0210	0.0210	No	No	No	No	
	August	0.0011	0.0011	0.005	0.025	0.025	0.025	0.218	0.0436	0.0436	0.0436	No	No	No	No	
	September	0.0007	0.0007	0.005	0.025	0.025	0.025	0.141	0.0283	0.0283	0.0283	No	No	No	No	
	October	0.0009	0.0009	0.005	0.025	0.025	0.025	0.174	0.0348	0.0348	0.0348	No	No	No	No	
	November	0.0006	0.0006	0.005	0.025	0.025	0.025	0.128	0.0255	0.0255	0.0255	No	No	No	No	
	December	0.0006	0.0006	0.005	0.025	0.025	0.025	0.129	0.0259	0.0259	0.0259	No	No	No	No	
Closure Phase (29-35)	January	0.0006	0.0006	0.005	0.025	0.025	0.025	0.117	0.0234	0.0234	0.0234	No	No	No	No	
	February	0.0006	0.0006	0.005	0.025	0.025	0.025	0.121	0.0242	0.0242	0.0242	No	No	No	No	
	March	0.0006	0.0006	0.005	0.025	0.025	0.025	0.113	0.0226	0.0226	0.0226	No	No	No	No	
	April	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0967	0.0193	0.0193	0.0193	No	No	No	No	
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0772	0.0154	0.0154	0.0154	No	No	No	No	
	June	0.0006	0.0006	0.005	0.025	0.025	0.025	0.127	0.0253	0.0253	0.0253	No	No	No	No	
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.103	0.0207	0.0207	0.0207	No	No	No	No	
	August	0.0011	0.0011	0.005	0.025	0.025	0.025	0.212	0.0424	0.0424	0.0424	No	No	No	No	
	September	0.0007	0.0007	0.005	0.025	0.025	0.025	0.130	0.0261	0.0261	0.0261	No	No	No	No	
	October	0.0008	0.0008	0.005	0.025	0.025	0.025	0.163	0.0326	0.0326	0.0326	No	No	No	No	
	November	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0232	0.0232	0.0232	No	No	No	No	
	December	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0232	0.0232	0.0232	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0006	0.0006	0.005	0.025	0.025	0.025	0.117	0.0234	0.0234	0.0234	No	No	No	No	
	February	0.0006	0.0006	0.005	0.025	0.025	0.025	0.121	0.0241	0.0241	0.0241	No	No	No	No	
	March	0.0006	0.0006	0.005	0.025	0.025	0.025	0.113	0.0226	0.0226	0.0226	No	No	No	No	
	April	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0966	0.0193	0.0193	0.0193	No	No	No	No	
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0772	0.0154	0.0154	0.0154	No	No	No	No	
	June	0.0006	0.0006	0.005	0.025	0.025	0.025	0.126	0.0252	0.0252	0.0252	No	No	No	No	
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.103	0.0207	0.0207	0.0207	No	No	No	No	
	August	0.0011	0.0011	0.005	0.025	0.025	0.025	0.212	0.0424	0.0424	0.0424	No	No	No	No	
	September	0.0007	0.0007	0.005	0.025	0.025	0.025	0.130	0.0261	0.0261	0.0261	No	No	No	No	
	October	0.0008	0.0008	0.005	0.025	0.025	0.025	0.163	0.0326	0.0326	0.0326	No	No	No	No	
	November	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0232	0.0232	0.0232	No	No	No	No	
	December	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0232	0.0232	0.0232	No	No	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D14d. Mid Harper Creek (HM) Hazard Quotients for Total Barium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step										Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines		Aquatic Life	Drinking Water
				BC MOE Working 30-Day Mean	BC MOE Working Maximum		Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Maximum Predicted vs. Canadian DWQG			
		Mean	Maximum	Mean	Maximum	Canadian DWQG							
Construction (-2 to-1)	January	0.0075	0.0096	1	5	1	0.0075	0.0096	0.0019	0.0075	0.0096	No	No
	February	0.0087	0.0108	1	5	1	0.0087	0.0108	0.0022	0.0087	0.0108	No	No
	March	0.0084	0.0103	1	5	1	0.0084	0.0103	0.0021	0.0084	0.0103	No	No
	April	0.0093	0.0095	1	5	1	0.0093	0.0095	0.0019	0.0093	0.0095	No	No
	May	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	0.0063	No	No
	June	0.0060	0.0061	1	5	1	0.0060	0.0061	0.0012	0.0060	0.0061	No	No
	July	0.0071	0.0071	1	5	1	0.0071	0.0071	0.0014	0.0071	0.0071	No	No
	August	0.0094	0.0096	1	5	1	0.0094	0.0096	0.0019	0.0094	0.0096	No	No
	September	0.0097	0.0100	1	5	1	0.0097	0.0100	0.0020	0.0097	0.0100	No	No
	October	0.0090	0.0092	1	5	1	0.0090	0.0092	0.0018	0.0090	0.0092	No	No
	November	0.0088	0.0091	1	5	1	0.0088	0.0091	0.0018	0.0088	0.0091	No	No
	December	0.0090	0.0094	1	5	1	0.0090	0.0094	0.0019	0.0090	0.0094	No	No
Operation 1 Phase (1-23)	January	0.0103	0.0103	1	5	1	0.0103	0.0103	0.0021	0.0103	0.0103	No	No
	February	0.0116	0.0116	1	5	1	0.0116	0.0116	0.0023	0.0116	0.0116	No	No
	March	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022	0.0112	0.0112	No	No
	April	0.0098	0.0099	1	5	1	0.0098	0.0099	0.0020	0.0098	0.0099	No	No
	May	0.0064	0.0064	1	5	1	0.0064	0.0064	0.0013	0.0064	0.0064	No	No
	June	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	0.0061	No	No
	July	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	0.0072	No	No
	August	0.0098	0.0098	1	5	1	0.0098	0.0098	0.0020	0.0098	0.0098	No	No
	September	0.0104	0.0104	1	5	1	0.0104	0.0104	0.0021	0.0104	0.0104	No	No
	October	0.0095	0.0095	1	5	1	0.0095	0.0095	0.0019	0.0095	0.0095	No	No
	November	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	0.0094	No	No
	December	0.0099	0.0099	1	5	1	0.0099	0.0099	0.0020	0.0099	0.0099	No	No
Operations 2 Phase (24-28)	January	0.0103	0.0103	1	5	1	0.0103	0.0103	0.0021	0.0103	0.0103	No	No
	February	0.0116	0.0116	1	5	1	0.0116	0.0116	0.0023	0.0116	0.0116	No	No
	March	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022	0.0112	0.0112	No	No
	April	0.0099	0.0099	1	5	1	0.0099	0.0099	0.0020	0.0099	0.0099	No	No
	May	0.0064	0.0064	1	5	1	0.0064	0.0064	0.0013	0.0064	0.0064	No	No
	June	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	0.0061	No	No
	July	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	0.0072	No	No
	August	0.0098	0.0098	1	5	1	0.0098	0.0098	0.0020	0.0098	0.0098	No	No
	September	0.0104	0.0104	1	5	1	0.0104	0.0104	0.0021	0.0104	0.0104	No	No
	October	0.0095	0.0095	1	5	1	0.0095	0.0095	0.0019	0.0095	0.0095	No	No
	November	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	0.0094	No	No
	December	0.0099	0.0099	1	5	1	0.0099	0.0099	0.0020	0.0099	0.0099	No	No
Closure Phase (29-35)	January	0.0101	0.0101	1	5	1	0.0101	0.0101	0.0020	0.0101	0.0101	No	No
	February	0.0114	0.0114	1	5	1	0.0114	0.0114	0.0023	0.0114	0.0114	No	No
	March	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	0.0109	No	No
	April	0.0098	0.0098	1	5	1	0.0098	0.0098	0.0020	0.0098	0.0098	No	No
	May	0.0064	0.0064	1	5	1	0.0064	0.0064	0.0013	0.0064	0.0064	No	No
	June	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	0.0061	No	No
	July	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	0.0072	No	No
	August	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	0.0097	No	No
	September	0.0102	0.0102	1	5	1	0.0102	0.0102	0.0020	0.0102	0.0102	No	No
	October	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	0.0094	No	No
	November	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	0.0093	No	No
	December	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	0.0097	No	No
Post-Closure Phase (36-99)	January	0.0101	0.0101	1	5	1	0.0101	0.0101	0.0020	0.0101	0.0101	No	No
	February	0.0114	0.0114	1	5	1	0.0114	0.0114	0.0023	0.0114	0.0114	No	No
	March	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	0.0109	No	No
	April	0.0098	0.0098	1	5	1	0.0098	0.0098	0.0020	0.0098	0.0098	No	No
	May	0.0064	0.0064	1	5	1	0.0064	0.0064	0.0013	0.0064	0.0064	No	No
	June	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	0.0061	No	No
	July	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	0.0072	No	No
	August	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	0.0097	No	No
	September	0.0102	0.0102	1	5	1	0.0102	0.0102	0.0020	0.0102	0.0102	No	No
	October	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	0.0094	No	No
	November	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	0.0093	No	No
	December	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	0.0097	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D14e. Mid Harper Creek (HM) Hazard Quotients for Total Beryllium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step										Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines (Chronic, 30-day mean)	Drinking Water Quality Guidelines BC DWQG	BC MOE Livestock Watering Water Quality Guideline BC MOE Working	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Drinking Water	Livestock	
							Mean Predicted vs. BC MOE Working 30-Day	Maximum Predicted vs. BC MOE Working 30-Day						
							Mean Guideline	Mean Guideline						
Construction (-2 to-1)	Months	Mean	Maximum											
	January	0.00008	0.00009	0.0053	0.004	0.1	0.0151	0.0178	0.0236	0.0009	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0020	0.0026	0.0001	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0020	0.0026	0.0001	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0019	0.0025	0.0001	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0189	0.0250	0.0010	No	No	No	
	August	0.00013	0.00013	0.0053	0.004	0.1	0.0242	0.0244	0.0323	0.0013	No	No	No	
	September	0.00009	0.00009	0.0053	0.004	0.1	0.0172	0.0173	0.0229	0.0009	No	No	No	
	October	0.00006	0.00006	0.0053	0.004	0.1	0.0113	0.0113	0.0150	0.0006	No	No	No	
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0103	0.0104	0.0137	0.0005	No	No	No	
	December	0.00006	0.00006	0.0053	0.004	0.1	0.0112	0.0113	0.0149	0.0006	No	No	No	
Operation 1 Phase (1-23)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0111	0.0112	0.0148	0.0006	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.0020	0.0020	0.0026	0.0001	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.0020	0.0020	0.0026	0.0001	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0020	0.0026	0.0001	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	August	0.00013	0.00013	0.0053	0.004	0.1	0.0246	0.0247	0.0327	0.0013	No	No	No	
	September	0.00009	0.00009	0.0053	0.004	0.1	0.0171	0.0171	0.0227	0.0009	No	No	No	
	October	0.00006	0.00006	0.0053	0.004	0.1	0.0111	0.0111	0.0147	0.0006	No	No	No	
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0104	0.0104	0.0137	0.0005	No	No	No	
	December	0.00006	0.00006	0.0053	0.004	0.1	0.0108	0.0108	0.0143	0.0006	No	No	No	
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0111	0.0111	0.0147	0.0006	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.0020	0.0020	0.0026	0.0001	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.0020	0.0020	0.0026	0.0001	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0019	0.0025	0.0001	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	August	0.00013	0.00013	0.0053	0.004	0.1	0.0247	0.0247	0.0327	0.0013	No	No	No	
	September	0.00009	0.00009	0.0053	0.004	0.1	0.0171	0.0171	0.0227	0.0009	No	No	No	
	October	0.00006	0.00006	0.0053	0.004	0.1	0.0111	0.0111	0.0147	0.0006	No	No	No	
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0104	0.0104	0.0137	0.0005	No	No	No	
	December	0.00006	0.00006	0.0053	0.004	0.1	0.0108	0.0108	0.0143	0.0006	No	No	No	
Closure Phase (29-35)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0111	0.0111	0.0147	0.0006	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0019	0.0026	0.0001	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0019	0.0026	0.0001	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0019	0.0025	0.0001	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	August	0.00013	0.00013	0.0053	0.004	0.1	0.0247	0.0247	0.0327	0.0013	No	No	No	
	September	0.00009	0.00009	0.0053	0.004	0.1	0.0171	0.0171	0.0226	0.0009	No	No	No	
	October	0.00006	0.00006	0.0053	0.004	0.1	0.0111	0.0111	0.0147	0.0006	No	No	No	
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0103	0.0103	0.0137	0.0005	No	No	No	
	December	0.00006	0.00006	0.0053	0.004	0.1	0.0107	0.0107	0.0142	0.0006	No	No	No	
Post-Closure Phase (36-99)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0111	0.0111	0.0147	0.0006	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0019	0.0026	0.0001	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0019	0.0026	0.0001	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.0019	0.0019	0.0025	0.0001	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.0010	No	No	No	
	August	0.00013	0.00013	0.0053	0.004	0.1	0.0247	0.0247	0.0327	0.0013	No	No	No	
	September	0.00009	0.00009	0.0053	0.004	0.1	0.0171	0.0171	0.0226	0.0009	No	No	No	
	October	0.00006	0.00006	0.0053	0.004	0.1	0.0111	0.0111	0.0147	0.0006	No	No	No	
	November	0.00005	0.00005	0.0053	0.004	0.1	0.0103	0.0103	0.0137	0.0005	No	No	No	
	December	0.00006	0.00006	0.0053	0.004	0.1	0.0107	0.0107	0.0142	0.0006	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D14f. Mid Harper Creek (HM) Hazard Quotients for Total Boron Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline					
		Mean	Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
Construction (-2 to-1)	January	0.0192	0.0280	5	5	5	0.0233	0.0056	0.0056	0.0056	No	No	No	No	
	February	0.0503	0.0527	5	5	5	0.0439	0.0105	0.0105	0.0105	No	No	No	No	
	March	0.0504	0.0530	5	5	5	0.0441	0.0106	0.0106	0.0106	No	No	No	No	
	April	0.0503	0.0509	5	5	5	0.0424	0.0102	0.0102	0.0102	No	No	No	No	
	May	0.0101	0.0102	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0101	0.0102	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0101	0.0103	5	5	5	0.0086	0.0021	0.0021	0.0021	No	No	No	No	
	August	0.0105	0.0110	5	5	5	0.0091	0.0022	0.0022	0.0022	No	No	No	No	
	September	0.0109	0.0119	5	5	5	0.0099	0.0024	0.0024	0.0024	No	No	No	No	
	October	0.0216	0.0226	5	5	5	0.0189	0.0045	0.0045	0.0045	No	No	No	No	
	November	0.0307	0.0317	5	5	5	0.0264	0.0063	0.0063	0.0063	No	No	No	No	
	December	0.0287	0.0302	5	5	5	0.0251	0.0060	0.0060	0.0060	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0305	0.0305	5	5	5	0.0254	0.0061	0.0061	0.0061	No	No	No	No	
	February	0.0523	0.0524	5	5	5	0.0437	0.0105	0.0105	0.0105	No	No	No	No	
	March	0.0525	0.0526	5	5	5	0.0439	0.0105	0.0105	0.0105	No	No	No	No	
	April	0.0509	0.0509	5	5	5	0.0424	0.0102	0.0102	0.0102	No	No	No	No	
	May	0.0101	0.0102	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0102	0.0102	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0103	0.0103	5	5	5	0.0086	0.0021	0.0021	0.0021	No	No	No	No	
	August	0.0110	0.0110	5	5	5	0.0092	0.0022	0.0022	0.0022	No	No	No	No	
	September	0.0118	0.0118	5	5	5	0.0099	0.0024	0.0024	0.0024	No	No	No	No	
	October	0.0221	0.0221	5	5	5	0.0185	0.0044	0.0044	0.0044	No	No	No	No	
	November	0.0318	0.0318	5	5	5	0.0265	0.0064	0.0064	0.0064	No	No	No	No	
	December	0.0311	0.0311	5	5	5	0.0259	0.0062	0.0062	0.0062	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0305	0.0305	5	5	5	0.0254	0.0061	0.0061	0.0061	No	No	No	No	
	February	0.0523	0.0523	5	5	5	0.0436	0.0105	0.0105	0.0105	No	No	No	No	
	March	0.0525	0.0525	5	5	5	0.0438	0.0105	0.0105	0.0105	No	No	No	No	
	April	0.0509	0.0509	5	5	5	0.0424	0.0102	0.0102	0.0102	No	No	No	No	
	May	0.0102	0.0102	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0102	0.0102	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0103	0.0103	5	5	5	0.0086	0.0021	0.0021	0.0021	No	No	No	No	
	August	0.0110	0.0110	5	5	5	0.0092	0.0022	0.0022	0.0022	No	No	No	No	
	September	0.0118	0.0118	5	5	5	0.0098	0.0024	0.0024	0.0024	No	No	No	No	
	October	0.0221	0.0221	5	5	5	0.0185	0.0044	0.0044	0.0044	No	No	No	No	
	November	0.0318	0.0318	5	5	5	0.0265	0.0064	0.0064	0.0064	No	No	No	No	
	December	0.0311	0.0311	5	5	5	0.0259	0.0062	0.0062	0.0062	No	No	No	No	
Closure Phase (29-35)	January	0.0296	0.0296	5	5	5	0.0247	0.0059	0.0059	0.0059	No	No	No	No	
	February	0.0513	0.0513	5	5	5	0.0428	0.0103	0.0103	0.0103	No	No	No	No	
	March	0.0514	0.0515	5	5	5	0.0429	0.0103	0.0103	0.0103	No	No	No	No	
	April	0.0505	0.0505	5	5	5	0.0421	0.0101	0.0101	0.0101	No	No	No	No	
	May	0.0101	0.0101	5	5	5	0.0084	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0101	0.0101	5	5	5	0.0084	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0102	0.0102	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0106	0.0106	5	5	5	0.0089	0.0021	0.0021	0.0021	No	No	No	No	
	September	0.0111	0.0111	5	5	5	0.0093	0.0022	0.0022	0.0022	No	No	No	No	
	October	0.0215	0.0215	5	5	5	0.0179	0.0043	0.0043	0.0043	No	No	No	No	
	November	0.0311	0.0311	5	5	5	0.0259	0.0062	0.0062	0.0062	No	No	No	No	
	December	0.0303	0.0303	5	5	5	0.0252	0.0061	0.0061	0.0061	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0296	0.0296	5	5	5	0.0247	0.0059	0.0059	0.0059	No	No	No	No	
	February	0.0513	0.0513	5	5	5	0.0428	0.0103	0.0103	0.0103	No	No	No	No	
	March	0.0514	0.0515	5	5	5	0.0429	0.0103	0.0103	0.0103	No	No	No	No	
	April	0.0505	0.0505	5	5	5	0.0421	0.0101	0.0101	0.0101	No	No	No	No	
	May	0.0101	0.0101	5	5	5	0.0084	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0101	0.0101	5	5	5	0.0084	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0102	0.0102	5	5	5	0.0085	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0106	0.0106	5	5	5	0.0089	0.0021	0.0021	0.0021	No	No	No	No	
	September	0.0111	0.0111	5	5	5	0.0093	0.0022	0.0022	0.0022	No	No	No	No	
	October	0.0215	0.0215	5	5	5	0.0179	0.0043	0.0043	0.0043	No	No	No	No	
	November	0.0311	0.0311	5	5	5	0.0259	0.0062	0.0062	0.0062	No	No	No	No	
	December	0.0303	0.0303	5	5	5	0.0252	0.0061	0.0061	0.0061	No	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D14g. Mid Harper Creek (HM) Hazard Quotients for Dissolved Calcium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE Working		Maximum Predicted vs BC MOE Working Guideline
Construction (-2 to-1)	January	18.7	20.1	1000	0.0201	No
	February	18.6	19.9	1000	0.0199	No
	March	19.6	20.9	1000	0.0209	No
	April	16.5	16.5	1000	0.0165	No
	May	10.0	10.0	1000	0.0100	No
	June	8.69	8.72	1000	0.0087	No
	July	11.2	11.2	1000	0.0112	No
	August	14.1	14.3	1000	0.0143	No
	September	15.3	15.7	1000	0.0157	No
	October	14.4	14.9	1000	0.0149	No
	November	14.5	15.0	1000	0.0150	No
	December	15.2	15.8	1000	0.0158	No
Operation 1 Phase (1-23)	January	15.7	15.9	1000	0.0159	No
	February	15.7	15.9	1000	0.0159	No
	March	16.6	16.8	1000	0.0168	No
	April	15.9	15.9	1000	0.0159	No
	May	9.74	9.81	1000	0.0098	No
	June	8.50	8.54	1000	0.0085	No
	July	11.1	11.1	1000	0.0111	No
	August	14.0	14.0	1000	0.0140	No
	September	14.9	15.0	1000	0.0150	No
	October	14.0	14.0	1000	0.0140	No
	November	14.4	14.4	1000	0.0144	No
	December	15.0	15.1	1000	0.0151	No
Operations 2 Phase (24-28)	January	15.7	15.7	1000	0.0157	No
	February	15.7	15.7	1000	0.0157	No
	March	16.7	16.7	1000	0.0167	No
	April	15.9	15.9	1000	0.0159	No
	May	9.73	9.73	1000	0.0097	No
	June	8.49	8.49	1000	0.0085	No
	July	11.1	11.1	1000	0.0111	No
	August	14.0	14.0	1000	0.0140	No
	September	14.9	14.9	1000	0.0149	No
	October	14.0	14.0	1000	0.0140	No
	November	14.4	14.4	1000	0.0144	No
	December	15.0	15.0	1000	0.0150	No
Closure Phase (29-35)	January	15.1	15.2	1000	0.0152	No
	February	15.1	15.1	1000	0.0151	No
	March	16.0	16.0	1000	0.0160	No
	April	15.7	15.7	1000	0.0157	No
	May	9.69	9.69	1000	0.0097	No
	June	8.45	8.45	1000	0.0084	No
	July	11.0	11.0	1000	0.0110	No
	August	13.7	13.7	1000	0.0137	No
	September	14.5	14.5	1000	0.0145	No
	October	13.6	13.6	1000	0.0136	No
	November	14.0	14.0	1000	0.0140	No
	December	14.5	14.5	1000	0.0145	No
Post-Closure Phase (36-99)	January	15.2	15.2	1000	0.0152	No
	February	15.1	15.1	1000	0.0151	No
	March	16.0	16.0	1000	0.0160	No
	April	15.7	15.7	1000	0.0157	No
	May	9.69	9.69	1000	0.0097	No
	June	8.44	8.44	1000	0.0084	No
	July	11.0	11.0	1000	0.0110	No
	August	13.7	13.7	1000	0.0137	No
	September	14.5	14.5	1000	0.0145	No
	October	13.6	13.6	1000	0.0136	No
	November	14.0	14.0	1000	0.0140	No
	December	14.5	14.5	1000	0.0145	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D14h. Mid Harper Creek (HM) Hazard Quotients for Dissolved and Total Cadmium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		
		Dissolved Cadmium		Total Cadmium		BC MOE Draft Guideline for Mean Dissolved Cadmium	BC MOE Draft Guideline for Maximum Dissolved Cadmium	Canadian DWQG	BC MOE Working	Mean Predicted vs. BC MOE Draft Guideline for Mean Dissolved Cadmium	Maximum Predicted vs. BC MOE Draft Guideline for Mean Dissolved Cadmium	Maximum Predicted vs. BC MOE Draft Guideline for Maximum Dissolved Cadmium
		Mean	Maximum	Mean	Maximum							
Construction (-2 to-1)	January	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.287	0.336	0.0968
	February	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.165	0.210	0.0603
	March	0.00001	0.00001	0.00001	0.00001	0.00004	0.00015	0.005	0.08	0.178	0.201	0.0571
	April	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.205	0.216	0.0623
	May	0.00001	0.00001	0.00002	0.00002	0.00003	0.00009	0.005	0.08	0.457	0.461	0.150
	June	0.00001	0.00001	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.521	0.526	0.177
	July	0.00001	0.00001	0.00002	0.00002	0.00003	0.00011	0.005	0.08	0.317	0.321	0.0998
	August	0.00002	0.00002	0.00002	0.00002	0.00004	0.00013	0.005	0.08	0.454	0.469	0.137
	September	0.00001	0.00002	0.00001	0.00002	0.00004	0.00013	0.005	0.08	0.361	0.386	0.113
	October	0.00001	0.00001	0.00001	0.00001	0.00004	0.00012	0.005	0.08	0.290	0.315	0.0947
	November	0.00001	0.00001	0.00001	0.00001	0.00004	0.00013	0.005	0.08	0.275	0.297	0.0878
	December	0.00001	0.00001	0.00001	0.00001	0.00004	0.00013	0.005	0.08	0.288	0.314	0.0915
Operation 1 Phase (1-23)	January	0.00002	0.00002	0.00002	0.00002	0.00004	0.00014	0.005	0.08	0.370	0.373	0.107
	February	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.245	0.250	0.0719
	March	0.00001	0.00001	0.00001	0.00001	0.00004	0.00015	0.005	0.08	0.227	0.233	0.0661
	April	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.231	0.233	0.0673
	May	0.00001	0.00001	0.00002	0.00002	0.00003	0.00009	0.005	0.08	0.470	0.471	0.153
	June	0.00001	0.00001	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.534	0.535	0.180
	July	0.00001	0.00001	0.00002	0.00002	0.00003	0.00011	0.005	0.08	0.328	0.329	0.102
	August	0.00002	0.00002	0.00002	0.00002	0.00004	0.00013	0.005	0.08	0.495	0.497	0.145
	September	0.00002	0.00002	0.00002	0.00002	0.00004	0.00013	0.005	0.08	0.427	0.429	0.125
	October	0.00001	0.00001	0.00001	0.00001	0.00004	0.00012	0.005	0.08	0.346	0.349	0.105
	November	0.00001	0.00001	0.00001	0.00001	0.00004	0.00013	0.005	0.08	0.335	0.338	0.0997
	December	0.00001	0.00001	0.00001	0.00001	0.00004	0.00013	0.005	0.08	0.355	0.358	0.104
Operations 2 Phase (24-28)	January	0.00002	0.00002	0.00002	0.00002	0.00004	0.00014	0.005	0.08	0.373	0.373	0.107
	February	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.251	0.251	0.0721
	March	0.00001	0.00001	0.00001	0.00001	0.00004	0.00015	0.005	0.08	0.233	0.234	0.0662
	April	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.233	0.233	0.0673
	May	0.00001	0.00001	0.00002	0.00002	0.00003	0.00009	0.005	0.08	0.471	0.471	0.153
	June	0.00001	0.00001	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.535	0.535	0.180
	July	0.00001	0.00001	0.00002	0.00002	0.00003	0.00011	0.005	0.08	0.329	0.329	0.102
	August	0.00002	0.00002	0.00002	0.00002	0.00004	0.00013	0.005	0.08	0.497	0.497	0.145
	September	0.00002	0.00002	0.00002	0.00002	0.00004	0.00013	0.005	0.08	0.429	0.429	0.125
	October	0.00001	0.00001	0.00001	0.00001	0.00004	0.00012	0.005	0.08	0.349	0.349	0.105
	November	0.00001	0.00001	0.00001	0.00001	0.00004	0.00013	0.005	0.08	0.338	0.338	0.0996
	December	0.00001	0.00001	0.00001	0.00001	0.00004	0.00013	0.005	0.08	0.358	0.358	0.104
Closure Phase (29-35)	January	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.339	0.339	0.0976
	February	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.213	0.213	0.0613
	March	0.00001	0.00001	0.00001	0.00001	0.00004	0.00015	0.005	0.08	0.193	0.194	0.0550
	April	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.218	0.219	0.0630
	May	0.00001	0.00001	0.00002	0.00002	0.00003	0.00009	0.005	0.08	0.469	0.469	0.153
	June	0.00001	0.00001	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.533	0.533	0.179
	July	0.00001	0.00001	0.00002	0.00002	0.00003	0.00011	0.005	0.08	0.324	0.324	0.101
	August	0.00002	0.00002	0.00002	0.00002	0.00004	0.00013	0.005	0.08	0.483	0.483	0.141
	September	0.00002	0.00002	0.00002	0.00002	0.00004	0.00013	0.005	0.08	0.402	0.402	0.118
	October	0.00001	0.00001	0.00001	0.00001	0.00004	0.00012	0.005	0.08	0.319	0.320	0.0961
	November	0.00001	0.00001	0.00001	0.00001	0.00004	0.00013	0.005	0.08	0.309	0.309	0.0911
	December	0.00001	0.00001	0.00001	0.00001	0.00004	0.00013	0.005	0.08	0.326	0.326	0.0949
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.339	0.339	0.0976
	February	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.213	0.213	0.0612
	March	0.00001	0.00001	0.00001	0.00001	0.00004	0.00015	0.005	0.08	0.193	0.194	0.0550
	April	0.00001	0.00001	0.00001	0.00001	0.00004	0.00014	0.005	0.08	0.218	0.218	0.0630
	May	0.00001	0.00001	0.00002	0.00002	0.00003	0.00009	0.005	0.08	0.469	0.469	0.153
	June	0.00001	0.00001	0.00002	0.00002	0.00003	0.00008	0.005	0.08	0.533	0.533	0.179
	July	0.00001	0.00001	0.00002	0.00002	0.00003	0.00011	0.005	0.08	0.324	0.324	0.101
	August	0.00002	0.00002	0.00002	0.00002	0.00004	0.00013	0.005	0.08	0.483	0.483	0.141
	September	0.00002	0.00002	0.00002	0.00002	0.00004	0.00013	0.005	0.08	0.402	0.402	0.118
	October	0.00001	0.00001	0.00001	0.00001	0.00004	0.00012	0.005	0.08	0.320	0.320	0.0961
	November	0.00001	0.00001	0.00001	0.00001	0.00004	0.00013	0.005	0.08	0.309	0.309	0.0912
	December	0.00001	0.00001	0.00001	0.00001	0.00004	0.00013	0.005	0.08	0.326	0.326	0.0949

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guideline is hardness dependent

(continued)

Appendix 13-D14h. Mid Harper Creek (HM) Hazard Quotients for Dissolved and Total Cadmium Concentrations, Unrecovered Seepage Sensitivity Case (completed)

Project Phase	Months	First Screening Step		Retained as COPC?		
		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline	Dissolved Cadmium	Total Cadmium	Total Cadmium
Construction (-2 to-1)	January	0.0027	0.0002	No	No	No
	February	0.0024	0.0001	No	No	No
	March	0.0022	0.0001	No	No	No
	April	0.0027	0.0002	No	No	No
	May	0.0032	0.0002	No	No	No
	June	0.0039	0.0002	No	No	No
	July	0.0045	0.0003	No	No	No
	August	0.0036	0.0002	No	No	No
	September	0.0030	0.0002	No	No	No
	October	0.0023	0.0001	No	No	No
	November	0.0023	0.0001	No	No	No
	December	0.0025	0.0002	No	No	No
Operation 1 Phase (1-23)	January	0.0030	0.0002	No	No	No
	February	0.0027	0.0002	No	No	No
	March	0.0025	0.0002	No	No	No
	April	0.0029	0.0002	No	No	No
	May	0.0032	0.0002	No	No	No
	June	0.0038	0.0002	No	No	No
	July	0.0046	0.0003	No	No	No
	August	0.0039	0.0002	No	No	No
	September	0.0034	0.0002	No	No	No
	October	0.0026	0.0002	No	No	No
	November	0.0026	0.0002	No	No	No
	December	0.0028	0.0002	No	No	No
Operations 2 Phase (24-28)	January	0.0030	0.0002	No	No	No
	February	0.0027	0.0002	No	No	No
	March	0.0025	0.0002	No	No	No
	April	0.0029	0.0002	No	No	No
	May	0.0032	0.0002	No	No	No
	June	0.0038	0.0002	No	No	No
	July	0.0046	0.0003	No	No	No
	August	0.0039	0.0002	No	No	No
	September	0.0034	0.0002	No	No	No
	October	0.0026	0.0002	No	No	No
	November	0.0026	0.0002	No	No	No
	December	0.0028	0.0002	No	No	No
Closure Phase (29-35)	January	0.0028	0.0002	No	No	No
	February	0.0024	0.0001	No	No	No
	March	0.0022	0.0001	No	No	No
	April	0.0028	0.0002	No	No	No
	May	0.0032	0.0002	No	No	No
	June	0.0038	0.0002	No	No	No
	July	0.0046	0.0003	No	No	No
	August	0.0038	0.0002	No	No	No
	September	0.0031	0.0002	No	No	No
	October	0.0024	0.0001	No	No	No
	November	0.0024	0.0001	No	No	No
	December	0.0026	0.0002	No	No	No
Post-Closure Phase (36-99)	January	0.0028	0.0002	No	No	No
	February	0.0024	0.0001	No	No	No
	March	0.0022	0.0001	No	No	No
	April	0.0028	0.0002	No	No	No
	May	0.0032	0.0002	No	No	No
	June	0.0038	0.0002	No	No	No
	July	0.0046	0.0003	No	No	No
	August	0.0038	0.0002	No	No	No
	September	0.0031	0.0002	No	No	No
	October	0.0024	0.0001	No	No	No
	November	0.0024	0.0001	No	No	No
	December	0.0026	0.0002	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guideline is hardness dependent

Appendix 13-D14i. Mid Harper Creek (HM) Hazard Quotients for Total Chromium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step										Retained as COPC?					
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		Aquatic Life	Drinking Water	Livestock
				CCME Cr VI Guideline	CCME Cr III Guideline	Canadian DWQG	BC MOE Working	Maximum Predicted vs. CCME Cr VI Guideline	Predicted vs. CCME Cr III Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline						
		Mean	Maximum														
Construction (-2 to-1)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0117	0.0021	0.0021	No	No	No			
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0117	0.0021	0.0021	No	No	No			
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.105	0.0118	0.0021	0.0021	No	No	No			
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No			
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.198	0.0223	0.0040	0.0040	No	No	No			
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.208	0.0233	0.0042	0.0042	No	No	No			
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No			
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.134	0.0150	0.0027	0.0027	No	No	No			
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.174	0.0196	0.0035	0.0035	No	No	No			
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.131	0.0147	0.0026	0.0026	No	No	No			
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No			
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No			
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0116	0.0021	0.0021	No	No	No			
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0117	0.0021	0.0021	No	No	No			
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0117	0.0021	0.0021	No	No	No			
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No			
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.200	0.0224	0.0040	0.0040	No	No	No			
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.205	0.0230	0.0041	0.0041	No	No	No			
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No			
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.135	0.0152	0.0027	0.0027	No	No	No			
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.181	0.0203	0.0036	0.0036	No	No	No			
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.129	0.0145	0.0026	0.0026	No	No	No			
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0115	0.0021	0.0021	No	No	No			
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No			
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No			
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0117	0.0021	0.0021	No	No	No			
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.104	0.0117	0.0021	0.0021	No	No	No			
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No			
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.200	0.0224	0.0040	0.0040	No	No	No			
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.204	0.0229	0.0041	0.0041	No	No	No			
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No			
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.135	0.0152	0.0027	0.0027	No	No	No			
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.181	0.0203	0.0036	0.0036	No	No	No			
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.129	0.0145	0.0026	0.0026	No	No	No			
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0115	0.0021	0.0021	No	No	No			
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.103	0.0116	0.0021	0.0021	No	No	No			
Closure Phase (29-35)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0114	0.0020	0.0020	No	No	No			
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No			
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No			
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0113	0.0020	0.0020	No	No	No			
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.200	0.0224	0.0040	0.0040	No	No	No			
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.204	0.0229	0.0041	0.0041	No	No	No			
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No			
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.135	0.0151	0.0027	0.0027	No	No	No			
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.180	0.0202	0.0036	0.0036	No	No	No			
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.128	0.0144	0.0026	0.0026	No	No	No			
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No			
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0114	0.0020	0.0020	No	No	No			
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0114	0.0020	0.0020	No	No	No			
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No			
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0115	0.0020	0.0020	No	No	No			
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0113	0.0020	0.0020	No	No	No			
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.200	0.0224	0.0040	0.0040	No	No	No			
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.203	0.0229	0.0041	0.0041	No	No	No			
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No			
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.135	0.0151	0.0027	0.0027	No	No	No			
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.180	0.0202	0.0036	0.0036	No	No	No			
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.128	0.0144	0.0026	0.0026	No	No	No			
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.101	0.0114	0.0020	0.0020	No	No	No			
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.102	0.0114	0.0020	0.0020	No	No	No			

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 CCME = Canadian Council of Ministers of the Environment

Appendix 13-D14j. Mid Harper Creek (HM) Hazard Quotients for Total Cobalt Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step								Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE		Mean Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE Maximum Guideline			
		Mean	Maximum	Mean	Maximum	BC MOE Working	Guideline	Guideline	MOE Maximum Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.00022	0.00035	0.004	0.110	1.00	0.0556	0.0876	0.00318	0.00035	No	No
	February	0.00017	0.00032	0.004	0.110	1.00	0.0417	0.0806	0.00293	0.00032	No	No
	March	0.00018	0.00034	0.004	0.110	1.00	0.0442	0.0862	0.00313	0.00034	No	No
	April	0.00007	0.00012	0.004	0.110	1.00	0.0170	0.0297	0.00108	0.00012	No	No
	May	0.00011	0.00011	0.004	0.110	1.00	0.0271	0.0286	0.00104	0.00011	No	No
	June	0.00014	0.00014	0.004	0.110	1.00	0.0344	0.0355	0.00129	0.00014	No	No
	July	0.00011	0.00013	0.004	0.110	1.00	0.0284	0.0318	0.00116	0.00013	No	No
	August	0.00017	0.00022	0.004	0.110	1.00	0.0437	0.0554	0.00201	0.00022	No	No
	September	0.00017	0.00026	0.004	0.110	1.00	0.0420	0.0643	0.00234	0.00026	No	No
	October	0.00019	0.00028	0.004	0.110	1.00	0.0484	0.0700	0.00255	0.00028	No	No
	November	0.00014	0.00023	0.004	0.110	1.00	0.0359	0.0578	0.00210	0.00023	No	No
	December	0.00017	0.00027	0.004	0.110	1.00	0.0413	0.0674	0.00245	0.00027	No	No
Operation 1 Phase (1-23)	January	0.00043	0.00046	0.004	0.110	1.00	0.108	0.114	0.00414	0.00046	No	No
	February	0.00042	0.00045	0.004	0.110	1.00	0.106	0.112	0.00409	0.00045	No	No
	March	0.00046	0.00049	0.004	0.110	1.00	0.114	0.122	0.00443	0.00049	No	No
	April	0.00018	0.00019	0.004	0.110	1.00	0.0445	0.0474	0.00172	0.00019	No	No
	May	0.00012	0.00013	0.004	0.110	1.00	0.0308	0.0313	0.00114	0.00013	No	No
	June	0.00015	0.00015	0.004	0.110	1.00	0.0369	0.0374	0.00136	0.00015	No	No
	July	0.00015	0.00015	0.004	0.110	1.00	0.0364	0.0372	0.00135	0.00015	No	No
	August	0.00028	0.00029	0.004	0.110	1.00	0.0702	0.0727	0.00264	0.00029	No	No
	September	0.00036	0.00038	0.004	0.110	1.00	0.0900	0.0943	0.00343	0.00038	No	No
	October	0.00039	0.00041	0.004	0.110	1.00	0.0982	0.103	0.00374	0.00041	No	No
	November	0.00035	0.00037	0.004	0.110	1.00	0.0870	0.0918	0.00334	0.00037	No	No
	December	0.00040	0.00042	0.004	0.110	1.00	0.0988	0.104	0.00379	0.00042	No	No
Operations 2 Phase (24-28)	January	0.00045	0.00045	0.004	0.110	1.00	0.113	0.113	0.00411	0.00045	No	No
	February	0.00045	0.00045	0.004	0.110	1.00	0.112	0.112	0.00408	0.00045	No	No
	March	0.00048	0.00049	0.004	0.110	1.00	0.121	0.121	0.00442	0.00049	No	No
	April	0.00019	0.00019	0.004	0.110	1.00	0.0472	0.0472	0.00172	0.00019	No	No
	May	0.00013	0.00013	0.004	0.110	1.00	0.0313	0.0313	0.00114	0.00013	No	No
	June	0.00015	0.00015	0.004	0.110	1.00	0.0373	0.0373	0.00136	0.00015	No	No
	July	0.00015	0.00015	0.004	0.110	1.00	0.0370	0.0370	0.00135	0.00015	No	No
	August	0.00029	0.00029	0.004	0.110	1.00	0.0721	0.0723	0.00263	0.00029	No	No
	September	0.00037	0.00037	0.004	0.110	1.00	0.0936	0.0937	0.00341	0.00037	No	No
	October	0.00041	0.00041	0.004	0.110	1.00	0.102	0.102	0.00371	0.00041	No	No
	November	0.00036	0.00036	0.004	0.110	1.00	0.0910	0.0911	0.00331	0.00036	No	No
	December	0.00041	0.00041	0.004	0.110	1.00	0.1034	0.104	0.00376	0.00041	No	No
Closure Phase (29-35)	January	0.00011	0.00011	0.004	0.110	1.00	0.0271	0.0271	0.00099	0.00011	No	No
	February	0.00007	0.00007	0.004	0.110	1.00	0.0176	0.0176	0.00064	0.00007	No	No
	March	0.00007	0.00007	0.004	0.110	1.00	0.0178	0.0180	0.00065	0.00007	No	No
	April	0.00004	0.00004	0.004	0.110	1.00	0.0102	0.0103	0.00037	0.00004	No	No
	May	0.00011	0.00011	0.004	0.110	1.00	0.0266	0.0266	0.00097	0.00011	No	No
	June	0.00013	0.00013	0.004	0.110	1.00	0.0324	0.0324	0.00118	0.00013	No	No
	July	0.00011	0.00011	0.004	0.110	1.00	0.0266	0.0266	0.00097	0.00011	No	No
	August	0.00015	0.00015	0.004	0.110	1.00	0.0377	0.0377	0.00137	0.00015	No	No
	September	0.00012	0.00012	0.004	0.110	1.00	0.0292	0.0292	0.00106	0.00012	No	No
	October	0.00015	0.00015	0.004	0.110	1.00	0.0375	0.0375	0.00136	0.00015	No	No
	November	0.00009	0.00009	0.004	0.110	1.00	0.0236	0.0236	0.00086	0.00009	No	No
	December	0.00010	0.00010	0.004	0.110	1.00	0.0255	0.0255	0.00093	0.00010	No	No
Post-Closure Phase (36-99)	January	0.00011	0.00011	0.004	0.110	1.00	0.0272	0.0272	0.00099	0.00011	No	No
	February	0.00007	0.00007	0.004	0.110	1.00	0.0176	0.0176	0.00064	0.00007	No	No
	March	0.00007	0.00007	0.004	0.110	1.00	0.0178	0.0180	0.00065	0.00007	No	No
	April	0.00004	0.00004	0.004	0.110	1.00	0.0102	0.0102	0.00037	0.00004	No	No
	May	0.00011	0.00011	0.004	0.110	1.00	0.0266	0.0266	0.00097	0.00011	No	No
	June	0.00013	0.00013	0.004	0.110	1.00	0.0324	0.0324	0.00118	0.00013	No	No
	July	0.00011	0.00011	0.004	0.110	1.00	0.0266	0.0266	0.00097	0.00011	No	No
	August	0.00015	0.00015	0.004	0.110	1.00	0.0377	0.0377	0.00137	0.00015	No	No
	September	0.00012	0.00012	0.004	0.110	1.00	0.0292	0.0292	0.00106	0.00012	No	No
	October	0.00015	0.00015	0.004	0.110	1.00	0.0375	0.0375	0.00136	0.00015	No	No
	November	0.00009	0.00009	0.004	0.110	1.00	0.0236	0.0236	0.00086	0.00009	No	No
	December	0.00010	0.00010	0.004	0.110	1.00	0.0256	0.0256	0.00093	0.00010	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D14k. Mid Harper Creek (HM) Hazard Quotients for Total Copper Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE 30-Day	BC MOE			Maximum	Maximum	Hazard Quotient relative to Aquatic Life Guideline		
						Mean Predicted vs. BC MOE 30-Day	Maximum Predicted vs. BC MOE 30-Day			Maximum Predicted vs. BC Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0006	0.0007	0.0020	0.0060	0.3	0.3	0.295	0.351	0.116	0.0023	0.0023
	February	0.0005	0.0007	0.0020	0.0061	0.3	0.3	0.263	0.348	0.115	0.0023	0.0023
	March	0.0005	0.0007	0.0020	0.0063	0.3	0.3	0.273	0.360	0.115	0.0024	0.0024
	April	0.0007	0.0008	0.0020	0.0060	0.3	0.3	0.367	0.396	0.132	0.0026	0.0026
	May	0.0027	0.0028	0.0020	0.0046	0.3	0.3	1.37	1.39	0.603	0.0092	0.0092
	June	0.0029	0.0029	0.0020	0.0043	0.3	0.3	1.44	1.44	0.669	0.0096	0.0096
	July	0.0012	0.0013	0.0020	0.0051	0.3	0.3	0.620	0.626	0.247	0.0042	0.0042
	August	0.0008	0.0009	0.0020	0.0058	0.3	0.3	0.415	0.436	0.150	0.0029	0.0029
	September	0.0008	0.0009	0.0020	0.0058	0.3	0.3	0.388	0.428	0.147	0.0029	0.0029
	October	0.0011	0.0012	0.0020	0.0055	0.3	0.3	0.534	0.577	0.212	0.0038	0.0038
	November	0.0007	0.0008	0.0020	0.0057	0.3	0.3	0.360	0.397	0.139	0.0026	0.0026
	December	0.0006	0.0007	0.0020	0.0059	0.3	0.3	0.317	0.362	0.123	0.0024	0.0024
Operation 1 Phase (1-23)	January	0.0008	0.0009	0.0020	0.0060	0.3	0.3	0.419	0.427	0.142	0.0028	0.0028
	February	0.0009	0.0009	0.0020	0.0061	0.3	0.3	0.436	0.449	0.148	0.0030	0.0030
	March	0.0009	0.0009	0.0020	0.0063	0.3	0.3	0.455	0.471	0.150	0.0031	0.0031
	April	0.0009	0.0009	0.0020	0.0060	0.3	0.3	0.449	0.455	0.151	0.0030	0.0030
	May	0.0028	0.0028	0.0020	0.0046	0.3	0.3	1.42	1.42	0.619	0.0095	0.0095
	June	0.0029	0.0029	0.0020	0.0043	0.3	0.3	1.43	1.43	0.666	0.0095	0.0095
	July	0.0013	0.0013	0.0020	0.0051	0.3	0.3	0.638	0.640	0.253	0.0043	0.0043
	August	0.0010	0.0010	0.0020	0.0058	0.3	0.3	0.477	0.482	0.166	0.0032	0.0032
	September	0.0010	0.0010	0.0020	0.0058	0.3	0.3	0.499	0.505	0.174	0.0034	0.0034
	October	0.0013	0.0013	0.0020	0.0055	0.3	0.3	0.652	0.659	0.242	0.0044	0.0044
	November	0.0009	0.0010	0.0020	0.0057	0.3	0.3	0.468	0.475	0.167	0.0032	0.0032
	December	0.0009	0.0009	0.0020	0.0059	0.3	0.3	0.444	0.452	0.154	0.0030	0.0030
Operations 2 Phase (24-28)	January	0.0009	0.0009	0.0020	0.0060	0.3	0.3	0.427	0.428	0.142	0.0029	0.0029
	February	0.0009	0.0009	0.0020	0.0061	0.3	0.3	0.450	0.450	0.148	0.0030	0.0030
	March	0.0009	0.0009	0.0020	0.0063	0.3	0.3	0.470	0.472	0.151	0.0031	0.0031
	April	0.0009	0.0009	0.0020	0.0060	0.3	0.3	0.455	0.455	0.151	0.0030	0.0030
	May	0.0028	0.0028	0.0020	0.0046	0.3	0.3	1.42	1.42	0.619	0.0095	0.0095
	June	0.0029	0.0029	0.0020	0.0043	0.3	0.3	1.43	1.43	0.665	0.0095	0.0095
	July	0.0013	0.0013	0.0020	0.0051	0.3	0.3	0.640	0.640	0.253	0.0043	0.0043
	August	0.0010	0.0010	0.0020	0.0058	0.3	0.3	0.481	0.481	0.165	0.0032	0.0032
	September	0.0010	0.0010	0.0020	0.0058	0.3	0.3	0.505	0.505	0.174	0.0034	0.0034
	October	0.0013	0.0013	0.0020	0.0055	0.3	0.3	0.659	0.659	0.242	0.0044	0.0044
	November	0.0010	0.0010	0.0020	0.0057	0.3	0.3	0.475	0.475	0.167	0.0032	0.0032
	December	0.0009	0.0009	0.0020	0.0059	0.3	0.3	0.452	0.452	0.154	0.0030	0.0030
Closure Phase (29-35)	January	0.0007	0.0007	0.0020	0.0060	0.3	0.3	0.354	0.354	0.117	0.0024	0.0024
	February	0.0007	0.0007	0.0020	0.0061	0.3	0.3	0.369	0.369	0.122	0.0025	0.0025
	March	0.0008	0.0008	0.0020	0.0063	0.3	0.3	0.382	0.383	0.122	0.0026	0.0026
	April	0.0008	0.0008	0.0020	0.0060	0.3	0.3	0.423	0.423	0.141	0.0028	0.0028
	May	0.0028	0.0028	0.0020	0.0046	0.3	0.3	1.42	1.42	0.618	0.0095	0.0095
	June	0.0029	0.0029	0.0020	0.0043	0.3	0.3	1.43	1.43	0.663	0.0095	0.0095
	July	0.0013	0.0013	0.0020	0.0051	0.3	0.3	0.631	0.631	0.249	0.0042	0.0042
	August	0.0009	0.0009	0.0020	0.0058	0.3	0.3	0.451	0.451	0.155	0.0030	0.0030
	September	0.0009	0.0009	0.0020	0.0058	0.3	0.3	0.450	0.450	0.155	0.0030	0.0030
	October	0.0012	0.0012	0.0020	0.0055	0.3	0.3	0.604	0.604	0.221	0.0040	0.0040
	November	0.0008	0.0008	0.0020	0.0057	0.3	0.3	0.417	0.417	0.147	0.0028	0.0028
	December	0.0008	0.0008	0.0020	0.0059	0.3	0.3	0.385	0.385	0.131	0.0026	0.0026
Post-Closure Phase (36-99)	January	0.0007	0.0007	0.0020	0.0060	0.3	0.3	0.355	0.355	0.117	0.0024	0.0024
	February	0.0007	0.0007	0.0020	0.0061	0.3	0.3	0.369	0.369	0.122	0.0025	0.0025
	March	0.0008	0.0008	0.0020	0.0063	0.3	0.3	0.382	0.383	0.122	0.0026	0.0026
	April	0.0008	0.0008	0.0020	0.0060	0.3	0.3	0.423	0.423	0.141	0.0028	0.0028
	May	0.0028	0.0028	0.0020	0.0046	0.3	0.3	1.42	1.42	0.618	0.0095	0.0095
	June	0.0029	0.0029	0.0020	0.0043	0.3	0.3	1.43	1.43	0.663	0.0095	0.0095
	July	0.0013	0.0013	0.0020	0.0051	0.3	0.3	0.631	0.631	0.249	0.0042	0.0042
	August	0.0009	0.0009	0.0020	0.0058	0.3	0.3	0.451	0.451	0.155	0.0030	0.0030
	September	0.0009	0.0009	0.0020	0.0058	0.3	0.3	0.450	0.451	0.155	0.0030	0.0030
	October	0.0012	0.0012	0.0020	0.0055	0.3	0.3	0.604	0.604	0.221	0.0040	0.0040
	November	0.0008	0.0008	0.0020	0.0057	0.3	0.3	0.418	0.418	0.147	0.0028	0.0028
	December	0.0008	0.0008	0.0020	0.0059	0.3	0.3	0.386	0.386	0.132	0.0026	0.0026

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

(continued)

Appendix 13-D14k. Mid Harper Creek (HM) Hazard Quotients for Total Copper Concentrations, Unrecovered Seepage Sensitivity Case (completed)

Project Phase	Months	Second Screening Step				Retained as COPC?		
		Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Wildlife	Livestock
		Mean	95%ile	Mean	95%ile			
Construction (-2 to-1)	January					No	No	No
	February					No	No	No
	March					No	No	No
	April					No	No	No
	May	0.0030	0.0030	0.908	0.916	No	No	No
	June	0.0028	0.0028	1.04	1.04	Yes	No	No
	July					No	No	No
	August					No	No	No
	September					No	No	No
	October					No	No	No
	November					No	No	No
	December					No	No	No
Operation 1 Phase (1-23)	January					No	No	No
	February					No	No	No
	March					No	No	No
	April					No	No	No
	May	0.0030	0.0030	0.938	0.940	No	No	No
	June	0.0028	0.0028	1.04	1.04	Yes	No	No
	July					No	No	No
	August					No	No	No
	September					No	No	No
	October					No	No	No
	November					No	No	No
	December					No	No	No
Operations 2 Phase (24-28)	January					No	No	No
	February					No	No	No
	March					No	No	No
	April					No	No	No
	May	0.0030	0.0030	0.940	0.941	No	No	No
	June	0.0028	0.0028	1.04	1.04	Yes	No	No
	July					No	No	No
	August					No	No	No
	September					No	No	No
	October					No	No	No
	November					No	No	No
	December					No	No	No
Closure Phase (29-35)	January					No	No	No
	February					No	No	No
	March					No	No	No
	April					No	No	No
	May	0.0030	0.0030	0.938	0.938	No	No	No
	June	0.0028	0.0028	1.03	1.03	Yes	No	No
	July					No	No	No
	August					No	No	No
	September					No	No	No
	October					No	No	No
	November					No	No	No
	December					No	No	No
Post-Closure Phase (36-99)	January					No	No	No
	February					No	No	No
	March					No	No	No
	April					No	No	No
	May	0.0030	0.0030	0.938	0.938	No	No	No
	June	0.0028	0.0028	1.03	1.03	Yes	No	No
	July					No	No	No
	August					No	No	No
	September					No	No	No
	October					No	No	No
	November					No	No	No
	December					No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D141. Mid Harper Creek (HM) Hazard Quotients for Dissolved and Total Iron Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step										Retained as COPC?	
		Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life			
		Dissolved Iron		Total Iron		BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron		
		Mean	Maximum	Mean	Maximum	Iron	Iron	for Dissolved Iron	for Total Iron				
Construction (-2 to-1)	January	0.0094	0.0096	0.0096	0.0096	0.35	1	0.0273	0.0096	No	No		
	February	0.0060	0.0071	0.0074	0.0075	0.35	1	0.0203	0.0075	No	No		
	March	0.0023	0.0033	0.0036	0.0050	0.35	1	0.0094	0.0050	No	No		
	April	0.0118	0.0122	0.0396	0.0415	0.35	1	0.0349	0.0415	No	No		
	May	0.0188	0.0189	0.147	0.148	0.35	1	0.0539	0.148	No	No		
	June	0.0121	0.0122	0.141	0.142	0.35	1	0.0348	0.142	No	No		
	July	0.0121	0.0121	0.0369	0.0372	0.35	1	0.0347	0.0372	No	No		
	August	0.0141	0.0142	0.0182	0.0183	0.35	1	0.0405	0.0183	No	No		
	September	0.0088	0.0089	0.0230	0.0235	0.35	1	0.0255	0.0235	No	No		
	October	0.0109	0.0110	0.0177	0.0180	0.35	1	0.0314	0.0180	No	No		
	November	0.0075	0.0076	0.0128	0.0130	0.35	1	0.0217	0.0130	No	No		
	December	0.0083	0.0084	0.0112	0.0113	0.35	1	0.0239	0.0113	No	No		
Operation 1 Phase (1-23)	January	0.0091	0.0091	0.0095	0.0095	0.35	1	0.0259	0.0095	No	No		
	February	0.0043	0.0043	0.0071	0.0071	0.35	1	0.0124	0.0071	No	No		
	March	0.0038	0.0038	0.0057	0.0057	0.35	1	0.0109	0.0057	No	No		
	April	0.0130	0.0131	0.0451	0.0452	0.35	1	0.0374	0.0452	No	No		
	May	0.0190	0.0190	0.151	0.151	0.35	1	0.0543	0.151	No	No		
	June	0.0122	0.0122	0.139	0.139	0.35	1	0.0350	0.139	No	No		
	July	0.0122	0.0122	0.0376	0.0376	0.35	1	0.0348	0.0376	No	No		
	August	0.0144	0.0144	0.0188	0.0188	0.35	1	0.0411	0.0188	No	No		
	September	0.0090	0.0090	0.0247	0.0247	0.35	1	0.0258	0.0247	No	No		
	October	0.0113	0.0113	0.0188	0.0189	0.35	1	0.0322	0.0189	No	No		
	November	0.0077	0.0077	0.0136	0.0136	0.35	1	0.0221	0.0136	No	No		
	December	0.0084	0.0084	0.0116	0.0116	0.35	1	0.0241	0.0116	No	No		
Operations 2 Phase (24-28)	January	0.0091	0.0091	0.0095	0.0095	0.35	1	0.0259	0.0095	No	No		
	February	0.0043	0.0043	0.0071	0.0071	0.35	1	0.0123	0.0071	No	No		
	March	0.0038	0.0038	0.0057	0.0057	0.35	1	0.0108	0.0057	No	No		
	April	0.0130	0.0130	0.0451	0.0451	0.35	1	0.0373	0.0451	No	No		
	May	0.0190	0.0190	0.151	0.151	0.35	1	0.0543	0.151	No	No		
	June	0.0123	0.0123	0.139	0.139	0.35	1	0.0350	0.139	No	No		
	July	0.0122	0.0122	0.0377	0.0377	0.35	1	0.0348	0.0377	No	No		
	August	0.0144	0.0144	0.0188	0.0188	0.35	1	0.0411	0.0188	No	No		
	September	0.0090	0.0090	0.0247	0.0247	0.35	1	0.0258	0.0247	No	No		
	October	0.0113	0.0113	0.0188	0.0188	0.35	1	0.0322	0.0188	No	No		
	November	0.0077	0.0077	0.0136	0.0136	0.35	1	0.0221	0.0136	No	No		
	December	0.0084	0.0084	0.0116	0.0116	0.35	1	0.0241	0.0116	No	No		
Closure Phase (29-35)	January	0.0090	0.0090	0.0095	0.0095	0.35	1	0.0258	0.0095	No	No		
	February	0.0043	0.0043	0.0070	0.0070	0.35	1	0.0122	0.0070	No	No		
	March	0.0038	0.0038	0.0057	0.0057	0.35	1	0.0108	0.0057	No	No		
	April	0.0130	0.0130	0.0451	0.0451	0.35	1	0.0373	0.0451	No	No		
	May	0.0190	0.0190	0.151	0.151	0.35	1	0.0543	0.151	No	No		
	June	0.0123	0.0123	0.139	0.139	0.35	1	0.0350	0.139	No	No		
	July	0.0122	0.0122	0.0377	0.0377	0.35	1	0.0349	0.0377	No	No		
	August	0.0144	0.0144	0.0188	0.0188	0.35	1	0.0411	0.0188	No	No		
	September	0.0090	0.0090	0.0247	0.0247	0.35	1	0.0258	0.0247	No	No		
	October	0.0113	0.0113	0.0188	0.0188	0.35	1	0.0322	0.0188	No	No		
	November	0.0077	0.0077	0.0135	0.0135	0.35	1	0.0221	0.0135	No	No		
	December	0.0084	0.0084	0.0116	0.0116	0.35	1	0.0240	0.0116	No	No		
Post-Closure Phase (36-99)	January	0.0090	0.0090	0.0095	0.0095	0.35	1	0.0258	0.0095	No	No		
	February	0.0043	0.0043	0.0070	0.0070	0.35	1	0.0122	0.0070	No	No		
	March	0.0038	0.0038	0.0057	0.0057	0.35	1	0.0108	0.0057	No	No		
	April	0.0130	0.0130	0.0451	0.0451	0.35	1	0.0373	0.0451	No	No		
	May	0.0190	0.0190	0.151	0.151	0.35	1	0.0543	0.151	No	No		
	June	0.0123	0.0123	0.139	0.139	0.35	1	0.0350	0.139	No	No		
	July	0.0122	0.0122	0.0377	0.0377	0.35	1	0.0349	0.0377	No	No		
	August	0.0144	0.0144	0.0188	0.0188	0.35	1	0.0411	0.0188	No	No		
	September	0.0090	0.0090	0.0247	0.0247	0.35	1	0.0258	0.0247	No	No		
	October	0.0113	0.0113	0.0188	0.0188	0.35	1	0.0322	0.0188	No	No		
	November	0.0077	0.0077	0.0135	0.0135	0.35	1	0.0221	0.0135	No	No		
	December	0.0084	0.0084	0.0116	0.0116	0.35	1	0.0240	0.0116	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D14m. Mid Harper Creek (HM) Hazard Quotients for Total Lead Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs.			
									Mean Predicted vs. BC 30-Day Mean Guideline	BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.00005	0.00005	0.00440	0.0279	0.05	0.1	0.1	0.0105	0.0108	0.00170	
	February	0.00001	0.00001	0.00441	0.0281	0.05	0.1	0.1	0.00193	0.00275	0.00043	
	March	0.00001	0.00001	0.00447	0.0298	0.05	0.1	0.1	0.00248	0.00292	0.00044	
	April	0.00002	0.00002	0.00439	0.0276	0.05	0.1	0.1	0.00449	0.00471	0.00075	
	May	0.00013	0.00013	0.00393	0.0159	0.05	0.1	0.1	0.0320	0.0320	0.00792	
	June	0.00024	0.00024	0.00384	0.0136	0.05	0.1	0.1	0.0619	0.0634	0.0179	
	July	0.00007	0.00007	0.00407	0.0196	0.05	0.1	0.1	0.0167	0.0171	0.00355	
	August	0.00011	0.00011	0.00432	0.0259	0.05	0.1	0.1	0.0243	0.0244	0.00406	
	September	0.00012	0.00012	0.00432	0.0260	0.05	0.1	0.1	0.0272	0.0283	0.00470	
	October	0.00009	0.00009	0.00420	0.0228	0.05	0.1	0.1	0.0216	0.0224	0.00412	
	November	0.00003	0.00003	0.00428	0.0249	0.05	0.1	0.1	0.00728	0.00768	0.00132	
	December	0.00004	0.00004	0.00434	0.0264	0.05	0.1	0.1	0.00837	0.00883	0.00145	
Operation 1 Phase (1-23)	January	0.00004	0.00004	0.00440	0.0279	0.05	0.1	0.1	0.00958	0.00968	0.00153	
	February	0.00001	0.00001	0.00441	0.0281	0.05	0.1	0.1	0.00253	0.00260	0.00041	
	March	0.00001	0.00001	0.00447	0.0298	0.05	0.1	0.1	0.00247	0.00256	0.00038	
	April	0.00002	0.00002	0.00439	0.0276	0.05	0.1	0.1	0.00468	0.00469	0.00075	
	May	0.00013	0.00013	0.00393	0.0159	0.05	0.1	0.1	0.0320	0.0320	0.00792	
	June	0.00022	0.00022	0.00384	0.0136	0.05	0.1	0.1	0.0580	0.0589	0.0166	
	July	0.00006	0.00006	0.00407	0.0196	0.05	0.1	0.1	0.0154	0.0156	0.00324	
	August	0.00010	0.00010	0.00432	0.0259	0.05	0.1	0.1	0.0240	0.0241	0.00401	
	September	0.00013	0.00013	0.00432	0.0260	0.05	0.1	0.1	0.0300	0.0300	0.00499	
	October	0.00010	0.00010	0.00420	0.0228	0.05	0.1	0.1	0.0234	0.0234	0.00430	
	November	0.00003	0.00003	0.00428	0.0249	0.05	0.1	0.1	0.00762	0.00763	0.00131	
	December	0.00004	0.00004	0.00434	0.0264	0.05	0.1	0.1	0.00863	0.00864	0.00142	
Operations 2 Phase (24-28)	January	0.00004	0.00004	0.00440	0.0279	0.05	0.1	0.1	0.00958	0.00958	0.00151	
	February	0.00001	0.00001	0.00441	0.0281	0.05	0.1	0.1	0.00255	0.00255	0.00040	
	March	0.00001	0.00001	0.00447	0.0298	0.05	0.1	0.1	0.00249	0.00250	0.00038	
	April	0.00002	0.00002	0.00439	0.0276	0.05	0.1	0.1	0.00469	0.00469	0.00075	
	May	0.00013	0.00013	0.00393	0.0159	0.05	0.1	0.1	0.0320	0.0320	0.00792	
	June	0.00022	0.00022	0.00384	0.0136	0.05	0.1	0.1	0.0576	0.0577	0.0163	
	July	0.00006	0.00006	0.00407	0.0196	0.05	0.1	0.1	0.0152	0.0153	0.00318	
	August	0.00010	0.00010	0.00432	0.0259	0.05	0.1	0.1	0.0240	0.0240	0.00401	
	September	0.00013	0.00013	0.00432	0.0260	0.05	0.1	0.1	0.0300	0.0300	0.00499	
	October	0.00010	0.00010	0.00420	0.0228	0.05	0.1	0.1	0.0234	0.0234	0.00430	
	November	0.00003	0.00003	0.00428	0.0249	0.05	0.1	0.1	0.00763	0.00763	0.00131	
	December	0.00004	0.00004	0.00434	0.0264	0.05	0.1	0.1	0.00863	0.00863	0.00142	
Closure Phase (29-35)	January	0.00004	0.00004	0.00440	0.0279	0.05	0.1	0.1	0.00919	0.00919	0.00145	
	February	0.00001	0.00001	0.00441	0.0281	0.05	0.1	0.1	0.00212	0.00213	0.00033	
	March	0.00001	0.00001	0.00447	0.0298	0.05	0.1	0.1	0.00203	0.00204	0.00031	
	April	0.00002	0.00002	0.00439	0.0276	0.05	0.1	0.1	0.00452	0.00453	0.00072	
	May	0.00013	0.00013	0.00393	0.0159	0.05	0.1	0.1	0.0320	0.0320	0.00791	
	June	0.00022	0.00022	0.00384	0.0136	0.05	0.1	0.1	0.0575	0.0575	0.0162	
	July	0.00006	0.00006	0.00407	0.0196	0.05	0.1	0.1	0.0151	0.0151	0.00314	
	August	0.00010	0.00010	0.00432	0.0259	0.05	0.1	0.1	0.0239	0.0239	0.00398	
	September	0.00013	0.00013	0.00432	0.0260	0.05	0.1	0.1	0.0297	0.0297	0.00494	
	October	0.00010	0.00010	0.00420	0.0228	0.05	0.1	0.1	0.0231	0.0231	0.00424	
	November	0.00003	0.00003	0.00428	0.0249	0.05	0.1	0.1	0.00731	0.00732	0.00126	
	December	0.00004	0.00004	0.00434	0.0264	0.05	0.1	0.1	0.00827	0.00828	0.00136	
Post-Closure Phase (36-99)	January	0.00004	0.00004	0.00440	0.0279	0.05	0.1	0.1	0.00920	0.00920	0.00145	
	February	0.00001	0.00001	0.00441	0.0281	0.05	0.1	0.1	0.00212	0.00212	0.00033	
	March	0.00001	0.00001	0.00447	0.0298	0.05	0.1	0.1	0.00203	0.00204	0.00031	
	April	0.00002	0.00002	0.00439	0.0276	0.05	0.1	0.1	0.00452	0.00452	0.00072	
	May	0.00013	0.00013	0.00393	0.0159	0.05	0.1	0.1	0.0320	0.0320	0.00791	
	June	0.00022	0.00022	0.00384	0.0136	0.05	0.1	0.1	0.0574	0.0574	0.0162	
	July	0.00006	0.00006	0.00407	0.0196	0.05	0.1	0.1	0.0150	0.0150	0.00313	
	August	0.00010	0.00010	0.00432	0.0259	0.05	0.1	0.1	0.0239	0.0239	0.00398	
	September	0.00013	0.00013	0.00432	0.0260	0.05	0.1	0.1	0.0297	0.0297	0.00494	
	October	0.00010	0.00010	0.00420	0.0228	0.05	0.1	0.1	0.0231	0.0231	0.00424	
	November	0.00003	0.00003	0.00428	0.0249	0.05	0.1	0.1	0.00732	0.00732	0.00126	
	December	0.00004	0.00004	0.00434	0.0264	0.05	0.1	0.1	0.00828	0.00828	0.00136	

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

(continued)

Appendix 13-D14m. Mid Harper Creek (HM) Hazard Quotients for Total Lead Concentrations, Unrecovered Seepage Sensitivity Case (completed)

Project Phase	Months	First Screening Step			Retained as COPC?			
		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.00095	0.00048	0.00048	No	No	No	No
	February	0.00024	0.00012	0.00012	No	No	No	No
	March	0.00026	0.00013	0.00013	No	No	No	No
	April	0.00041	0.00021	0.00021	No	No	No	No
	May	0.00252	0.00126	0.00126	No	No	No	No
	June	0.00487	0.00243	0.00243	No	No	No	No
	July	0.00139	0.00070	0.00070	No	No	No	No
	August	0.00211	0.00105	0.00105	No	No	No	No
	September	0.00244	0.00122	0.00122	No	No	No	No
	October	0.00188	0.00094	0.00094	No	No	No	No
	November	0.00066	0.00033	0.00033	No	No	No	No
	December	0.00077	0.00038	0.00038	No	No	No	No
Operation 1 Phase (1-23)	January	0.00085	0.00043	0.00043	No	No	No	No
	February	0.00023	0.00011	0.00011	No	No	No	No
	March	0.00023	0.00011	0.00011	No	No	No	No
	April	0.00041	0.00021	0.00021	No	No	No	No
	May	0.00252	0.00126	0.00126	No	No	No	No
	June	0.00453	0.00226	0.00226	No	No	No	No
	July	0.00127	0.00063	0.00063	No	No	No	No
	August	0.00208	0.00104	0.00104	No	No	No	No
	September	0.00259	0.00130	0.00130	No	No	No	No
	October	0.00196	0.00098	0.00098	No	No	No	No
	November	0.00065	0.00033	0.00033	No	No	No	No
	December	0.00075	0.00038	0.00038	No	No	No	No
Operations 2 Phase (24-28)	January	0.00084	0.00042	0.00042	No	No	No	No
	February	0.00023	0.00011	0.00011	No	No	No	No
	March	0.00022	0.00011	0.00011	No	No	No	No
	April	0.00041	0.00021	0.00021	No	No	No	No
	May	0.00252	0.00126	0.00126	No	No	No	No
	June	0.00443	0.00222	0.00222	No	No	No	No
	July	0.00125	0.00062	0.00062	No	No	No	No
	August	0.00208	0.00104	0.00104	No	No	No	No
	September	0.00259	0.00130	0.00130	No	No	No	No
	October	0.00196	0.00098	0.00098	No	No	No	No
	November	0.00065	0.00033	0.00033	No	No	No	No
	December	0.00075	0.00037	0.00037	No	No	No	No
Closure Phase (29-35)	January	0.00081	0.00040	0.00040	No	No	No	No
	February	0.00019	0.00009	0.00009	No	No	No	No
	March	0.00018	0.00009	0.00009	No	No	No	No
	April	0.00040	0.00020	0.00020	No	No	No	No
	May	0.00251	0.00126	0.00126	No	No	No	No
	June	0.00442	0.00221	0.00221	No	No	No	No
	July	0.00123	0.00062	0.00062	No	No	No	No
	August	0.00206	0.00103	0.00103	No	No	No	No
	September	0.00257	0.00128	0.00128	No	No	No	No
	October	0.00194	0.00097	0.00097	No	No	No	No
	November	0.00063	0.00031	0.00031	No	No	No	No
	December	0.00072	0.00036	0.00036	No	No	No	No
Post-Closure Phase (36-99)	January	0.00081	0.00040	0.00040	No	No	No	No
	February	0.00019	0.00009	0.00009	No	No	No	No
	March	0.00018	0.00009	0.00009	No	No	No	No
	April	0.00040	0.00020	0.00020	No	No	No	No
	May	0.00251	0.00126	0.00126	No	No	No	No
	June	0.00441	0.00221	0.00221	No	No	No	No
	July	0.00122	0.00061	0.00061	No	No	No	No
	August	0.00206	0.00103	0.00103	No	No	No	No
	September	0.00257	0.00128	0.00128	No	No	No	No
	October	0.00194	0.00097	0.00097	No	No	No	No
	November	0.00063	0.00031	0.00031	No	No	No	No
	December	0.00072	0.00036	0.00036	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D14n. Mid Harper Creek (HM) Hazard Quotients for Total Lithium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
				BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC	Maximum Predicted vs. BC	Maximum Predicted vs. BC	
						MOE Working Final Chronic Value Guideline	MOE Working Final Chronic Value Guideline	MOE Working Maximum Guideline	
Months	Mean	Maximum	Chronic Value Guideline	Maximum Guideline	MOE Working Final Chronic Value Guideline	MOE Working Final Chronic Value Guideline	MOE Working Maximum Guideline	Aquatic Life	
Construction (-2 to-1)	January	0.0007	0.0008	0.096	0.87	0.0068	0.0086	0.0010	No
	February	0.0008	0.0010	0.096	0.87	0.0079	0.0102	0.0011	No
	March	0.0007	0.0008	0.096	0.87	0.0069	0.0087	0.0010	No
	April	0.0005	0.0006	0.096	0.87	0.0055	0.0058	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	July	0.0005	0.0006	0.096	0.87	0.0057	0.0058	0.0006	No
	August	0.0008	0.0008	0.096	0.87	0.0078	0.0082	0.0009	No
	September	0.0007	0.0008	0.096	0.87	0.0072	0.0078	0.0009	No
	October	0.0008	0.0009	0.096	0.87	0.0085	0.0090	0.0010	No
	November	0.0006	0.0006	0.096	0.87	0.0061	0.0066	0.0007	No
	December	0.0007	0.0007	0.096	0.87	0.0069	0.0076	0.0008	No
Operation 1 Phase (1-23)	January	0.0012	0.0012	0.096	0.87	0.0123	0.0126	0.0014	No
	February	0.0014	0.0014	0.096	0.87	0.0146	0.0149	0.0016	No
	March	0.0013	0.0013	0.096	0.87	0.0131	0.0136	0.0015	No
	April	0.0007	0.0007	0.096	0.87	0.0074	0.0075	0.0008	No
	May	0.0005	0.0005	0.096	0.87	0.0055	0.0056	0.0006	No
	June	0.0005	0.0006	0.096	0.87	0.0057	0.0058	0.0006	No
	July	0.0006	0.0006	0.096	0.87	0.0063	0.0063	0.0007	No
	August	0.0009	0.0010	0.096	0.87	0.0098	0.0099	0.0011	No
	September	0.0010	0.0010	0.096	0.87	0.0107	0.0109	0.0012	No
	October	0.0011	0.0011	0.096	0.87	0.0115	0.0117	0.0013	No
	November	0.0009	0.0009	0.096	0.87	0.0096	0.0098	0.0011	No
	December	0.0011	0.0011	0.096	0.87	0.0110	0.0113	0.0012	No
Operations 2 Phase (24-28)	January	0.0012	0.0012	0.096	0.87	0.0126	0.0126	0.0014	No
	February	0.0014	0.0014	0.096	0.87	0.0149	0.0150	0.0017	No
	March	0.0013	0.0013	0.096	0.87	0.0135	0.0136	0.0015	No
	April	0.0007	0.0007	0.096	0.87	0.0075	0.0075	0.0008	No
	May	0.0005	0.0005	0.096	0.87	0.0056	0.0056	0.0006	No
	June	0.0006	0.0006	0.096	0.87	0.0058	0.0058	0.0006	No
	July	0.0006	0.0006	0.096	0.87	0.0063	0.0063	0.0007	No
	August	0.0010	0.0010	0.096	0.87	0.0099	0.0099	0.0011	No
	September	0.0010	0.0010	0.096	0.87	0.0109	0.0109	0.0012	No
	October	0.0011	0.0011	0.096	0.87	0.0117	0.0117	0.0013	No
	November	0.0009	0.0009	0.096	0.87	0.0098	0.0098	0.0011	No
	December	0.0011	0.0011	0.096	0.87	0.0113	0.0113	0.0012	No
Closure Phase (29-35)	January	0.0010	0.0010	0.096	0.87	0.0107	0.0107	0.0012	No
	February	0.0012	0.0012	0.096	0.87	0.0129	0.0129	0.0014	No
	March	0.0011	0.0011	0.096	0.87	0.0113	0.0113	0.0012	No
	April	0.0006	0.0006	0.096	0.87	0.0067	0.0067	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0057	0.0057	0.0006	No
	July	0.0006	0.0006	0.096	0.87	0.0061	0.0061	0.0007	No
	August	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	September	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0010	No
	October	0.0010	0.0010	0.096	0.87	0.0103	0.0103	0.0011	No
	November	0.0008	0.0008	0.096	0.87	0.0083	0.0083	0.0009	No
	December	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0011	No
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.096	0.87	0.0107	0.0107	0.0012	No
	February	0.0012	0.0012	0.096	0.87	0.0128	0.0129	0.0014	No
	March	0.0011	0.0011	0.096	0.87	0.0113	0.0113	0.0012	No
	April	0.0006	0.0006	0.096	0.87	0.0067	0.0067	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0054	0.0054	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0057	0.0057	0.0006	No
	July	0.0006	0.0006	0.096	0.87	0.0061	0.0061	0.0007	No
	August	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	September	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0010	No
	October	0.0010	0.0010	0.096	0.87	0.0103	0.0103	0.0011	No
	November	0.0008	0.0008	0.096	0.87	0.0083	0.0083	0.0009	No
	December	0.0009	0.0009	0.096	0.87	0.0095	0.0096	0.0011	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D14o. Mid Harper Creek (HM) Hazard Quotients for Total Manganese Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day	Maximum Predicted vs. BC 30-Day	Maximum Predicted vs. BC MOE	
						Mean Guideline	Mean Guideline	Maximum Guideline	
Aquatic Life									
Construction (-2 to-1)	January	0.0014	0.0025	0.794	1.01	0.0018	0.0031	0.0024	No
	February	0.0015	0.0027	0.796	1.02	0.0019	0.0034	0.0026	No
	March	0.0015	0.0027	0.804	1.04	0.0018	0.0033	0.0026	No
	April	0.0023	0.0027	0.793	1.01	0.0029	0.0034	0.0027	No
	May	0.0068	0.0069	0.727	0.845	0.0094	0.0095	0.0082	No
	June	0.0061	0.0061	0.713	0.810	0.0085	0.0086	0.0075	No
	July	0.0018	0.0019	0.748	0.899	0.0024	0.0025	0.0021	No
	August	0.0016	0.0020	0.784	0.988	0.0021	0.0025	0.0020	No
	September	0.0024	0.0030	0.784	0.989	0.0031	0.0039	0.0031	No
	October	0.0026	0.0032	0.767	0.945	0.0034	0.0042	0.0034	No
	November	0.0016	0.0022	0.778	0.973	0.0021	0.0028	0.0023	No
	December	0.0015	0.0022	0.786	0.993	0.0019	0.0028	0.0022	No
Operation 1 Phase (1-23)	January	0.0038	0.0042	0.794	1.01	0.0047	0.0053	0.0041	No
	February	0.0042	0.0047	0.796	1.02	0.0052	0.0059	0.0046	No
	March	0.0042	0.0048	0.804	1.04	0.0052	0.0060	0.0046	No
	April	0.0036	0.0038	0.793	1.01	0.0045	0.0048	0.0037	No
	May	0.0072	0.0072	0.727	0.845	0.0099	0.0099	0.0085	No
	June	0.0061	0.0062	0.713	0.810	0.0086	0.0087	0.0076	No
	July	0.0021	0.0022	0.748	0.899	0.0028	0.0029	0.0024	No
	August	0.0027	0.0029	0.784	0.988	0.0034	0.0036	0.0029	No
	September	0.0043	0.0046	0.784	0.989	0.0055	0.0059	0.0047	No
	October	0.0045	0.0048	0.767	0.945	0.0059	0.0063	0.0051	No
	November	0.0035	0.0039	0.778	0.973	0.0045	0.0050	0.0040	No
	December	0.0037	0.0041	0.786	0.993	0.0047	0.0052	0.0041	No
Operations 2 Phase (24-28)	January	0.0042	0.0042	0.794	1.01	0.0053	0.0053	0.0041	No
	February	0.0047	0.0047	0.796	1.02	0.0059	0.0059	0.0046	No
	March	0.0048	0.0048	0.804	1.04	0.0060	0.0060	0.0047	No
	April	0.0038	0.0038	0.793	1.01	0.0048	0.0048	0.0037	No
	May	0.0072	0.0072	0.727	0.845	0.0099	0.0099	0.0086	No
	June	0.0062	0.0062	0.713	0.810	0.0087	0.0087	0.0076	No
	July	0.0022	0.0022	0.748	0.899	0.0029	0.0029	0.0024	No
	August	0.0028	0.0029	0.784	0.988	0.0036	0.0036	0.0029	No
	September	0.0046	0.0046	0.784	0.989	0.0059	0.0059	0.0047	No
	October	0.0048	0.0048	0.767	0.945	0.0063	0.0063	0.0051	No
	November	0.0039	0.0039	0.778	0.973	0.0050	0.0050	0.0040	No
	December	0.0041	0.0041	0.786	0.993	0.0052	0.0052	0.0041	No
Closure Phase (29-35)	January	0.0028	0.0028	0.794	1.01	0.0036	0.0036	0.0028	No
	February	0.0032	0.0032	0.796	1.02	0.0040	0.0040	0.0031	No
	March	0.0032	0.0032	0.804	1.04	0.0039	0.0040	0.0031	No
	April	0.0032	0.0032	0.793	1.01	0.0040	0.0040	0.0031	No
	May	0.0072	0.0072	0.727	0.845	0.0098	0.0098	0.0085	No
	June	0.0061	0.0061	0.713	0.810	0.0086	0.0086	0.0075	No
	July	0.0020	0.0020	0.748	0.899	0.0027	0.0027	0.0022	No
	August	0.0023	0.0023	0.784	0.988	0.0029	0.0029	0.0023	No
	September	0.0036	0.0036	0.784	0.989	0.0046	0.0046	0.0037	No
	October	0.0038	0.0038	0.767	0.945	0.0050	0.0050	0.0040	No
	November	0.0028	0.0028	0.778	0.973	0.0036	0.0036	0.0029	No
	December	0.0028	0.0028	0.786	0.993	0.0036	0.0036	0.0029	No
Post-Closure Phase (36-99)	January	0.0028	0.0028	0.794	1.01	0.0036	0.0036	0.0028	No
	February	0.0032	0.0032	0.796	1.02	0.0040	0.0040	0.0031	No
	March	0.0032	0.0032	0.804	1.04	0.0039	0.0040	0.0031	No
	April	0.0032	0.0032	0.793	1.01	0.0040	0.0040	0.0031	No
	May	0.0071	0.0072	0.727	0.845	0.0098	0.0098	0.0085	No
	June	0.0061	0.0061	0.713	0.810	0.0086	0.0086	0.0075	No
	July	0.0020	0.0020	0.748	0.899	0.0027	0.0027	0.0022	No
	August	0.0023	0.0023	0.784	0.988	0.0029	0.0029	0.0023	No
	September	0.0036	0.0036	0.784	0.989	0.0046	0.0046	0.0037	No
	October	0.0038	0.0038	0.767	0.945	0.0050	0.0050	0.0040	No
	November	0.0028	0.0028	0.778	0.973	0.0036	0.0036	0.0029	No
	December	0.0029	0.0029	0.786	0.993	0.0036	0.0036	0.0029	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D14p. Mid Harper Creek (HM) Hazard Quotients for Total Mercury Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step							
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	
		Mean	Maximum	BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	BC DWQG	BC MOE 30-Day Mean if MeHg is 0.5% of THg	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg
		Construction (-2 to-1)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.486	0.494
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.486	0.493
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.628	0.634
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.594	0.597
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.497
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.496
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.648	0.648
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.607	0.607
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.497
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.648	0.648
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.607	0.607
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.497
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496
Closure Phase (29-35)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.648	0.648
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.607	0.607
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.497
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496
	February	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495
	March	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.495	0.495
	April	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498
	May	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500
	June	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.500	0.500
	July	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.499	0.499
	August	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.498	0.498
	September	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.648	0.648
	October	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.607	0.607
	November	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.497	0.497
	December	0.00001	0.00001	0.00002	0.001	0.00002	0.003	0.496	0.496

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

(continued)

Appendix 13-D14p. Mid Harper Creek (HM) Hazard Quotients for Total Mercury Concentrations, Unrecovered Seepage Sensitivity Case (completed)

Project Phase	Months	First Screening Step				Retained as COPC?			
		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
			Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg					
Construction (-2 to-1)	January	0.00989	0.487	0.494	0.00330	No	No	No	No
	February	0.00988	0.486	0.494	0.00329	No	No	No	No
	March	0.00987	0.486	0.493	0.00329	No	No	No	No
	April	0.00996	0.498	0.498	0.00332	No	No	No	No
	May	0.00999	0.500	0.500	0.00333	No	No	No	No
	June	0.00999	0.500	0.500	0.00333	No	No	No	No
	July	0.00999	0.499	0.499	0.00333	No	No	No	No
	August	0.00996	0.498	0.498	0.00332	No	No	No	No
	September	0.0127	0.628	0.634	0.00423	No	No	No	No
	October	0.0119	0.594	0.597	0.00398	No	No	No	No
	November	0.00993	0.496	0.497	0.00331	No	No	No	No
	December	0.00992	0.495	0.496	0.00331	No	No	No	No
Operation 1 Phase (1-23)	January	0.00992	0.496	0.496	0.00331	No	No	No	No
	February	0.00991	0.495	0.495	0.00330	No	No	No	No
	March	0.00990	0.495	0.495	0.00330	No	No	No	No
	April	0.00997	0.498	0.498	0.00332	No	No	No	No
	May	0.0100	0.500	0.500	0.00333	No	No	No	No
	June	0.0100	0.500	0.500	0.00333	No	No	No	No
	July	0.00999	0.499	0.499	0.00333	No	No	No	No
	August	0.00997	0.498	0.498	0.00332	No	No	No	No
	September	0.0130	0.648	0.648	0.00432	No	No	No	No
	October	0.0121	0.607	0.607	0.00405	No	No	No	No
	November	0.00994	0.497	0.497	0.00331	No	No	No	No
	December	0.00993	0.496	0.496	0.00331	No	No	No	No
Operations 2 Phase (24-28)	January	0.00992	0.496	0.496	0.00331	No	No	No	No
	February	0.00990	0.495	0.495	0.00330	No	No	No	No
	March	0.00990	0.495	0.495	0.00330	No	No	No	No
	April	0.00996	0.498	0.498	0.00332	No	No	No	No
	May	0.00999	0.500	0.500	0.00333	No	No	No	No
	June	0.00999	0.500	0.500	0.00333	No	No	No	No
	July	0.00999	0.499	0.499	0.00333	No	No	No	No
	August	0.00996	0.498	0.498	0.00332	No	No	No	No
	September	0.0130	0.648	0.648	0.00432	No	No	No	No
	October	0.0121	0.607	0.607	0.00404	No	No	No	No
	November	0.00993	0.497	0.497	0.00331	No	No	No	No
	December	0.00992	0.496	0.496	0.00331	No	No	No	No
Closure Phase (29-35)	January	0.00992	0.496	0.496	0.00331	No	No	No	No
	February	0.00990	0.495	0.495	0.00330	No	No	No	No
	March	0.00990	0.495	0.495	0.00330	No	No	No	No
	April	0.00996	0.498	0.498	0.00332	No	No	No	No
	May	0.00999	0.500	0.500	0.00333	No	No	No	No
	June	0.00999	0.500	0.500	0.00333	No	No	No	No
	July	0.00999	0.499	0.499	0.00333	No	No	No	No
	August	0.00996	0.498	0.498	0.00332	No	No	No	No
	September	0.0130	0.648	0.648	0.00432	No	No	No	No
	October	0.0121	0.607	0.607	0.00404	No	No	No	No
	November	0.00993	0.497	0.497	0.00331	No	No	No	No
	December	0.00992	0.496	0.496	0.00331	No	No	No	No
Post-Closure Phase (36-99)	January	0.00992	0.496	0.496	0.00331	No	No	No	No
	February	0.00990	0.495	0.495	0.00330	No	No	No	No
	March	0.00990	0.495	0.495	0.00330	No	No	No	No
	April	0.00996	0.498	0.498	0.00332	No	No	No	No
	May	0.00999	0.500	0.500	0.00333	No	No	No	No
	June	0.00999	0.500	0.500	0.00333	No	No	No	No
	July	0.00999	0.499	0.499	0.00333	No	No	No	No
	August	0.00996	0.498	0.498	0.00332	No	No	No	No
	September	0.0130	0.648	0.648	0.00432	No	No	No	No
	October	0.0121	0.607	0.607	0.00404	No	No	No	No
	November	0.00993	0.497	0.497	0.00331	No	No	No	No
	December	0.00992	0.496	0.496	0.00331	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D14q. Mid Harper Creek (HM) Hazard Quotients for Total Molybdenum Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step									
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC DWQG	Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0006	0.0009	1	2	0.25	0.05	0.05	0.0006	0.0009	0.0005
	February	0.0006	0.0010	1	2	0.25	0.05	0.05	0.0006	0.0010	0.0005
	March	0.0006	0.0010	1	2	0.25	0.05	0.05	0.0006	0.0010	0.0005
	April	0.0005	0.0005	1	2	0.25	0.05	0.05	0.0005	0.0005	0.0003
	May	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002
	June	0.0005	0.0005	1	2	0.25	0.05	0.05	0.0005	0.0005	0.0002
	July	0.0011	0.0011	1	2	0.25	0.05	0.05	0.0011	0.0011	0.0006
	August	0.0010	0.0011	1	2	0.25	0.05	0.05	0.0010	0.0011	0.0005
	September	0.0010	0.0011	1	2	0.25	0.05	0.05	0.0010	0.0011	0.0006
	October	0.0009	0.0010	1	2	0.25	0.05	0.05	0.0009	0.0010	0.0005
	November	0.0008	0.0009	1	2	0.25	0.05	0.05	0.0008	0.0009	0.0004
	December	0.0008	0.0009	1	2	0.25	0.05	0.05	0.0008	0.0009	0.0005
Operation 1 Phase (1-23)	January	0.0017	0.0018	1	2	0.25	0.05	0.05	0.0017	0.0018	0.0009
	February	0.0018	0.0019	1	2	0.25	0.05	0.05	0.0018	0.0019	0.0010
	March	0.0019	0.0020	1	2	0.25	0.05	0.05	0.0019	0.0020	0.0010
	April	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0005
	May	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002
	June	0.0005	0.0006	1	2	0.25	0.05	0.05	0.0005	0.0006	0.0003
	July	0.0012	0.0012	1	2	0.25	0.05	0.05	0.0012	0.0012	0.0006
	August	0.0014	0.0015	1	2	0.25	0.05	0.05	0.0014	0.0015	0.0007
	September	0.0017	0.0018	1	2	0.25	0.05	0.05	0.0017	0.0018	0.0009
	October	0.0016	0.0016	1	2	0.25	0.05	0.05	0.0016	0.0016	0.0008
	November	0.0015	0.0015	1	2	0.25	0.05	0.05	0.0015	0.0015	0.0008
	December	0.0016	0.0017	1	2	0.25	0.05	0.05	0.0016	0.0017	0.0008
Operations 2 Phase (24-28)	January	0.0018	0.0018	1	2	0.25	0.05	0.05	0.0018	0.0018	0.0009
	February	0.0019	0.0019	1	2	0.25	0.05	0.05	0.0019	0.0019	0.0010
	March	0.0020	0.0020	1	2	0.25	0.05	0.05	0.0020	0.0020	0.0010
	April	0.0009	0.0009	1	2	0.25	0.05	0.05	0.0009	0.0009	0.0005
	May	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002
	June	0.0006	0.0006	1	2	0.25	0.05	0.05	0.0006	0.0006	0.0003
	July	0.0013	0.0013	1	2	0.25	0.05	0.05	0.0013	0.0013	0.0006
	August	0.0015	0.0015	1	2	0.25	0.05	0.05	0.0015	0.0015	0.0007
	September	0.0018	0.0018	1	2	0.25	0.05	0.05	0.0018	0.0018	0.0009
	October	0.0016	0.0016	1	2	0.25	0.05	0.05	0.0016	0.0016	0.0008
	November	0.0015	0.0015	1	2	0.25	0.05	0.05	0.0015	0.0015	0.0008
	December	0.0017	0.0017	1	2	0.25	0.05	0.05	0.0017	0.0017	0.0008
Closure Phase (29-35)	January	0.0014	0.0014	1	2	0.25	0.05	0.05	0.0014	0.0014	0.0007
	February	0.0015	0.0015	1	2	0.25	0.05	0.05	0.0015	0.0015	0.0008
	March	0.0016	0.0016	1	2	0.25	0.05	0.05	0.0016	0.0016	0.0008
	April	0.0008	0.0008	1	2	0.25	0.05	0.05	0.0008	0.0008	0.0004
	May	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002
	June	0.0005	0.0005	1	2	0.25	0.05	0.05	0.0005	0.0005	0.0003
	July	0.0012	0.0012	1	2	0.25	0.05	0.05	0.0012	0.0012	0.0006
	August	0.0013	0.0013	1	2	0.25	0.05	0.05	0.0013	0.0013	0.0007
	September	0.0015	0.0015	1	2	0.25	0.05	0.05	0.0015	0.0015	0.0007
	October	0.0013	0.0013	1	2	0.25	0.05	0.05	0.0013	0.0013	0.0007
	November	0.0013	0.0013	1	2	0.25	0.05	0.05	0.0013	0.0013	0.0006
	December	0.0013	0.0013	1	2	0.25	0.05	0.05	0.0013	0.0013	0.0007
Post-Closure Phase (36-99)	January	0.0014	0.0014	1	2	0.25	0.05	0.05	0.0014	0.0014	0.0007
	February	0.0015	0.0015	1	2	0.25	0.05	0.05	0.0015	0.0015	0.0008
	March	0.0016	0.0016	1	2	0.25	0.05	0.05	0.0016	0.0016	0.0008
	April	0.0008	0.0008	1	2	0.25	0.05	0.05	0.0008	0.0008	0.0004
	May	0.0004	0.0004	1	2	0.25	0.05	0.05	0.0004	0.0004	0.0002
	June	0.0005	0.0005	1	2	0.25	0.05	0.05	0.0005	0.0005	0.0003
	July	0.0012	0.0012	1	2	0.25	0.05	0.05	0.0012	0.0012	0.0006
	August	0.0013	0.0013	1	2	0.25	0.05	0.05	0.0013	0.0013	0.0007
	September	0.0015	0.0015	1	2	0.25	0.05	0.05	0.0015	0.0015	0.0007
	October	0.0013	0.0013	1	2	0.25	0.05	0.05	0.0013	0.0013	0.0007
	November	0.0013	0.0013	1	2	0.25	0.05	0.05	0.0013	0.0013	0.0006
	December	0.0014	0.0014	1	2	0.25	0.05	0.05	0.0014	0.0014	0.0007

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

(continued)

Appendix 13-D14q. Mid Harper Creek (HM) Hazard Quotients for Total Molybdenum Concentrations, Unrecovered Seepage Sensitivity Case (completed)

Project Phase	Months	First Screening Step			Retained as COPC?			
		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0038	0.0189	0.0189	No	No	No	No
	February	0.0040	0.0202	0.0202	No	No	No	No
	March	0.0039	0.0197	0.0197	No	No	No	No
	April	0.0022	0.0110	0.0110	No	No	No	No
	May	0.0015	0.0077	0.0077	No	No	No	No
	June	0.0020	0.0098	0.0098	No	No	No	No
	July	0.0045	0.0225	0.0225	No	No	No	No
	August	0.0044	0.0219	0.0219	No	No	No	No
	September	0.0044	0.0221	0.0221	No	No	No	No
	October	0.0040	0.0200	0.0200	No	No	No	No
	November	0.0035	0.0177	0.0177	No	No	No	No
	December	0.0037	0.0183	0.0183	No	No	No	No
Operation 1 Phase (1-23)	January	0.0071	0.0354	0.0354	No	No	No	No
	February	0.0077	0.0387	0.0387	No	No	No	No
	March	0.0080	0.0398	0.0398	No	No	No	No
	April	0.0037	0.0183	0.0183	No	No	No	No
	May	0.0018	0.0090	0.0090	No	No	No	No
	June	0.0022	0.0111	0.0111	No	No	No	No
	July	0.0050	0.0250	0.0250	No	No	No	No
	August	0.0058	0.0292	0.0292	No	No	No	No
	September	0.0070	0.0351	0.0351	No	No	No	No
	October	0.0065	0.0323	0.0323	No	No	No	No
	November	0.0062	0.0309	0.0309	No	No	No	No
	December	0.0067	0.0335	0.0335	No	No	No	No
Operations 2 Phase (24-28)	January	0.0071	0.0354	0.0354	No	No	No	No
	February	0.0078	0.0388	0.0388	No	No	No	No
	March	0.0080	0.0399	0.0399	No	No	No	No
	April	0.0037	0.0184	0.0184	No	No	No	No
	May	0.0018	0.0090	0.0090	No	No	No	No
	June	0.0022	0.0111	0.0111	No	No	No	No
	July	0.0050	0.0250	0.0250	No	No	No	No
	August	0.0058	0.0292	0.0292	No	No	No	No
	September	0.0070	0.0351	0.0351	No	No	No	No
	October	0.0065	0.0323	0.0323	No	No	No	No
	November	0.0062	0.0309	0.0309	No	No	No	No
	December	0.0067	0.0335	0.0335	No	No	No	No
Closure Phase (29-35)	January	0.0056	0.0282	0.0282	No	No	No	No
	February	0.0062	0.0309	0.0309	No	No	No	No
	March	0.0063	0.0313	0.0313	No	No	No	No
	April	0.0031	0.0153	0.0153	No	No	No	No
	May	0.0017	0.0086	0.0086	No	No	No	No
	June	0.0021	0.0107	0.0107	No	No	No	No
	July	0.0048	0.0242	0.0242	No	No	No	No
	August	0.0052	0.0262	0.0262	No	No	No	No
	September	0.0059	0.0297	0.0297	No	No	No	No
	October	0.0054	0.0269	0.0269	No	No	No	No
	November	0.0050	0.0252	0.0252	No	No	No	No
	December	0.0054	0.0270	0.0270	No	No	No	No
Post-Closure Phase (36-99)	January	0.0056	0.0282	0.0282	No	No	No	No
	February	0.0062	0.0308	0.0308	No	No	No	No
	March	0.0063	0.0313	0.0313	No	No	No	No
	April	0.0030	0.0152	0.0152	No	No	No	No
	May	0.0017	0.0086	0.0086	No	No	No	No
	June	0.0021	0.0107	0.0107	No	No	No	No
	July	0.0048	0.0242	0.0242	No	No	No	No
	August	0.0052	0.0262	0.0262	No	No	No	No
	September	0.0059	0.0297	0.0297	No	No	No	No
	October	0.0054	0.0269	0.0269	No	No	No	No
	November	0.0051	0.0253	0.0253	No	No	No	No
	December	0.0054	0.0270	0.0270	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D14r. Mid Harper Creek (HM) Hazard Quotients for Total Nickel Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Aquatic Life
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0005	0.0005	0.025	1	0.0191	0.0005	No	No
	February	0.0001	0.0002	0.025	1	0.0093	0.0002	No	No
	March	0.0001	0.0002	0.025	1	0.0093	0.0002	No	No
	April	0.0001	0.0002	0.025	1	0.0066	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0203	0.0005	No	No
	June	0.0006	0.0006	0.025	1	0.0226	0.0006	No	No
	July	0.0005	0.0005	0.025	1	0.0205	0.0005	No	No
	August	0.0005	0.0005	0.025	1	0.0219	0.0005	No	No
	September	0.0004	0.0005	0.025	1	0.0183	0.0005	No	No
	October	0.0004	0.0004	0.025	1	0.0172	0.0004	No	No
	November	0.0003	0.0004	0.025	1	0.0156	0.0004	No	No
	December	0.0004	0.0004	0.025	1	0.0167	0.0004	No	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.025	1	0.0210	0.0005	No	No
	February	0.0003	0.0003	0.025	1	0.0132	0.0003	No	No
	March	0.0003	0.0003	0.025	1	0.0134	0.0003	No	No
	April	0.0002	0.0002	0.025	1	0.0085	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0206	0.0005	No	No
	June	0.0006	0.0006	0.025	1	0.0223	0.0006	No	No
	July	0.0005	0.0005	0.025	1	0.0211	0.0005	No	No
	August	0.0006	0.0006	0.025	1	0.0236	0.0006	No	No
	September	0.0005	0.0005	0.025	1	0.0213	0.0005	No	No
	October	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	November	0.0005	0.0005	0.025	1	0.0188	0.0005	No	No
	December	0.0005	0.0005	0.025	1	0.0199	0.0005	No	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.025	1	0.0210	0.0005	No	No
	February	0.0003	0.0003	0.025	1	0.0132	0.0003	No	No
	March	0.0003	0.0003	0.025	1	0.0134	0.0003	No	No
	April	0.0002	0.0002	0.025	1	0.0086	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0206	0.0005	No	No
	June	0.0006	0.0006	0.025	1	0.0222	0.0006	No	No
	July	0.0005	0.0005	0.025	1	0.0211	0.0005	No	No
	August	0.0006	0.0006	0.025	1	0.0236	0.0006	No	No
	September	0.0005	0.0005	0.025	1	0.0213	0.0005	No	No
	October	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No
	November	0.0005	0.0005	0.025	1	0.0188	0.0005	No	No
	December	0.0005	0.0005	0.025	1	0.0199	0.0005	No	No
Closure Phase (29-35)	January	0.0004	0.0004	0.025	1	0.0179	0.0004	No	No
	February	0.0002	0.0002	0.025	1	0.0098	0.0002	No	No
	March	0.0002	0.0002	0.025	1	0.0097	0.0002	No	No
	April	0.0002	0.0002	0.025	1	0.0072	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0204	0.0005	No	No
	June	0.0006	0.0006	0.025	1	0.0220	0.0006	No	No
	July	0.0005	0.0005	0.025	1	0.0207	0.0005	No	No
	August	0.0006	0.0006	0.025	1	0.0223	0.0006	No	No
	September	0.0005	0.0005	0.025	1	0.0190	0.0005	No	No
	October	0.0004	0.0004	0.025	1	0.0176	0.0004	No	No
	November	0.0004	0.0004	0.025	1	0.0163	0.0004	No	No
	December	0.0004	0.0004	0.025	1	0.0171	0.0004	No	No
Post-Closure Phase (36-99)	January	0.0004	0.0004	0.025	1	0.0180	0.0004	No	No
	February	0.0002	0.0002	0.025	1	0.0098	0.0002	No	No
	March	0.0002	0.0002	0.025	1	0.0097	0.0002	No	No
	April	0.0002	0.0002	0.025	1	0.0072	0.0002	No	No
	May	0.0005	0.0005	0.025	1	0.0204	0.0005	No	No
	June	0.0005	0.0006	0.025	1	0.0220	0.0006	No	No
	July	0.0005	0.0005	0.025	1	0.0207	0.0005	No	No
	August	0.0006	0.0006	0.025	1	0.0223	0.0006	No	No
	September	0.0005	0.0005	0.025	1	0.0190	0.0005	No	No
	October	0.0004	0.0004	0.025	1	0.0177	0.0004	No	No
	November	0.0004	0.0004	0.025	1	0.0164	0.0004	No	No
	December	0.0004	0.0004	0.025	1	0.0172	0.0004	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guideline is hardness dependent

Appendix 13-D14s. Mid Harper Creek (HM) Hazard Quotients for Total Selenium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step											
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guideline	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE 30-Day Mean	BC DWQG	30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC DWQG	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0003	0.0004	0.002	0.01	0.002	0.03	0.127	0.178	0.0356	0.127	0.178	0.0119
	February	0.0003	0.0004	0.002	0.01	0.002	0.03	0.139	0.189	0.0379	0.139	0.189	0.0126
	March	0.0003	0.0004	0.002	0.01	0.002	0.03	0.146	0.201	0.0402	0.146	0.201	0.0134
	April	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0923	0.111	0.0222	0.0923	0.111	0.0074
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0532	0.0560	0.0112	0.0532	0.0560	0.0037
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0532	0.0562	0.0112	0.0532	0.0562	0.0037
	July	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0562	0.0617	0.0123	0.0562	0.0617	0.0041
	August	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0852	0.104	0.0208	0.0852	0.104	0.0069
	September	0.0002	0.0003	0.002	0.01	0.002	0.03	0.0910	0.126	0.0253	0.0910	0.126	0.0084
	October	0.0002	0.0003	0.002	0.01	0.002	0.03	0.108	0.146	0.0293	0.108	0.146	0.0098
	November	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0862	0.121	0.0243	0.0862	0.121	0.0081
	December	0.0002	0.0003	0.002	0.01	0.002	0.03	0.0982	0.140	0.0281	0.0982	0.140	0.0094
Operation 1 Phase (1-23)	January	0.0013	0.0018	0.002	0.01	0.002	0.03	0.659	0.891	0.178	0.659	0.891	0.0594
	February	0.0014	0.0020	0.002	0.01	0.002	0.03	0.720	0.978	0.196	0.720	0.978	0.0652
	March	0.0016	0.0021	0.002	0.01	0.002	0.03	0.777	1.06	0.213	0.777	1.06	0.0709
	April	0.0007	0.0009	0.002	0.01	0.002	0.03	0.327	0.428	0.0857	0.327	0.428	0.0286
	May	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0860	0.101	0.0203	0.0860	0.101	0.0068
	June	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0886	0.105	0.0210	0.0886	0.105	0.0070
	July	0.0003	0.0003	0.002	0.01	0.002	0.03	0.126	0.156	0.0312	0.126	0.156	0.0104
	August	0.0006	0.0008	0.002	0.01	0.002	0.03	0.311	0.406	0.0812	0.311	0.406	0.0271
	September	0.0010	0.0014	0.002	0.01	0.002	0.03	0.503	0.677	0.135	0.503	0.677	0.0451
	October	0.0010	0.0014	0.002	0.01	0.002	0.03	0.521	0.697	0.139	0.521	0.697	0.0465
	November	0.0010	0.0014	0.002	0.01	0.002	0.03	0.519	0.702	0.140	0.519	0.702	0.0468
	December	0.0012	0.0016	0.002	0.01	0.002	0.03	0.597	0.808	0.162	0.597	0.808	0.0538
Operations 2 Phase (24-28)	January	0.0017	0.0017	0.002	0.01	0.002	0.03	0.847	0.870	0.174	0.847	0.870	0.0580
	February	0.0019	0.0019	0.002	0.01	0.002	0.03	0.939	0.965	0.193	0.939	0.965	0.0644
	March	0.0020	0.0021	0.002	0.01	0.002	0.03	1.02	1.05	0.210	1.02	1.05	0.0700
	April	0.0008	0.0008	0.002	0.01	0.002	0.03	0.412	0.422	0.0844	0.412	0.422	0.0281
	May	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0999	0.101	0.0202	0.0999	0.101	0.0067
	June	0.0002	0.0002	0.002	0.01	0.002	0.03	0.103	0.104	0.0209	0.103	0.104	0.0070
	July	0.0003	0.0003	0.002	0.01	0.002	0.03	0.151	0.153	0.0306	0.151	0.153	0.0102
	August	0.0008	0.0008	0.002	0.01	0.002	0.03	0.388	0.396	0.0792	0.388	0.396	0.0264
	September	0.0013	0.0013	0.002	0.01	0.002	0.03	0.643	0.660	0.132	0.643	0.660	0.0440
	October	0.0013	0.0014	0.002	0.01	0.002	0.03	0.662	0.679	0.136	0.662	0.679	0.0453
	November	0.0013	0.0014	0.002	0.01	0.002	0.03	0.666	0.684	0.137	0.666	0.684	0.0456
	December	0.0015	0.0016	0.002	0.01	0.002	0.03	0.768	0.788	0.158	0.768	0.788	0.0526
Closure Phase (29-35)	January	0.0007	0.0007	0.002	0.01	0.002	0.03	0.348	0.348	0.0696	0.348	0.348	0.0232
	February	0.0008	0.0008	0.002	0.01	0.002	0.03	0.387	0.387	0.0775	0.387	0.387	0.0258
	March	0.0008	0.0008	0.002	0.01	0.002	0.03	0.414	0.417	0.0835	0.414	0.417	0.0278
	April	0.0004	0.0004	0.002	0.01	0.002	0.03	0.196	0.196	0.0393	0.196	0.196	0.0131
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0711	0.0712	0.0142	0.0711	0.0712	0.0047
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0730	0.0731	0.0146	0.0730	0.0731	0.0049
	July	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0888	0.0888	0.0178	0.0888	0.0888	0.0059
	August	0.0004	0.0004	0.002	0.01	0.002	0.03	0.185	0.186	0.0371	0.185	0.186	0.0124
	September	0.0005	0.0005	0.002	0.01	0.002	0.03	0.268	0.269	0.0537	0.268	0.269	0.0179
	October	0.0006	0.0006	0.002	0.01	0.002	0.03	0.287	0.287	0.0574	0.287	0.287	0.0191
	November	0.0005	0.0005	0.002	0.01	0.002	0.03	0.274	0.274	0.0549	0.274	0.274	0.0183
	December	0.0006	0.0006	0.002	0.01	0.002	0.03	0.315	0.315	0.0630	0.315	0.315	0.0210
Post-Closure Phase (36-99)	January	0.0007	0.0007	0.002	0.01	0.002	0.03	0.349	0.350	0.0699	0.349	0.350	0.0233
	February	0.0008	0.0008	0.002	0.01	0.002	0.03	0.386	0.387	0.0774	0.386	0.387	0.0258
	March	0.0008	0.0008	0.002	0.01	0.002	0.03	0.414	0.417	0.0835	0.414	0.417	0.0278
	April	0.0004	0.0004	0.002	0.01	0.002	0.03	0.195	0.196	0.0391	0.195	0.196	0.0130
	May	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0708	0.0710	0.0142	0.0708	0.0710	0.0047
	June	0.0001	0.0001	0.002	0.01	0.002	0.03	0.0727	0.0729	0.0146	0.0727	0.0729	0.0049
	July	0.0002	0.0002	0.002	0.01	0.002	0.03	0.0885	0.0886	0.0177	0.0885	0.0886	0.0059
	August	0.0004	0.0004	0.002	0.01	0.002	0.03	0.185	0.185	0.0370	0.185	0.185	0.0123
	September	0.0005	0.0005	0.002	0.01	0.002	0.03	0.269	0.270	0.0539	0.269	0.270	0.0180
	October	0.0006	0.0006	0.002	0.01	0.002	0.03	0.288	0.288	0.0576	0.288	0.288	0.0192
	November	0.0005	0.0006	0.002	0.01	0.002	0.03	0.275	0.275	0.0551	0.275	0.275	0.0184
	December	0.0006	0.0006	0.002	0.01	0.002	0.03	0.316	0.316	0.0633	0.316	0.316	0.0211

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

(continued)

Appendix 13-D14s. Mid Harper Creek (HM) Hazard Quotients for Total Selenium Concentrations, Unrecovered Seepage Sensitivity Case (completed)

Project Phase	Months	Second Screening Step				Retained as COPC?			
		Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	95%ile	Mean	95%ile				
Construction (-2 to-1)	January	0.0001	0.0001			No	No	No	No
	February	0.0001	0.0001			No	No	No	No
	March	0.0001	0.0001			No	No	No	No
	April	0.0001	0.0001			No	No	No	No
	May	0.0001	0.0001			No	No	No	No
	June	0.0001	0.0001			No	No	No	No
	July	0.0001	0.0001			No	No	No	No
	August	0.0001	0.0001			No	No	No	No
	September	0.0001	0.0001			No	No	No	No
	October	0.0001	0.0001			No	No	No	No
	November	0.0001	0.0001			No	No	No	No
	December	0.0001	0.0001			No	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001			No	No	No	No
	February	0.0001	0.0001			No	No	No	No
	March	0.0001	0.0001	14.1	19.3	Yes	No	Yes	No
	April	0.0001	0.0001			No	No	No	No
	May	0.0001	0.0001			No	No	No	No
	June	0.0001	0.0001			No	No	No	No
	July	0.0001	0.0001			No	No	No	No
	August	0.0001	0.0001			No	No	No	No
	September	0.0001	0.0001			No	No	No	No
	October	0.0001	0.0001			No	No	No	No
	November	0.0001	0.0001			No	No	No	No
	December	0.0001	0.0001			No	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001			No	No	No	No
	February	0.0001	0.0001			No	No	No	No
	March	0.0001	0.0001	18.5	19.1	Yes	No	Yes	No
	April	0.0001	0.0001			No	No	No	No
	May	0.0001	0.0001			No	No	No	No
	June	0.0001	0.0001			No	No	No	No
	July	0.0001	0.0001			No	No	No	No
	August	0.0001	0.0001			No	No	No	No
	September	0.0001	0.0001			No	No	No	No
	October	0.0001	0.0001			No	No	No	No
	November	0.0001	0.0001			No	No	No	No
	December	0.0001	0.0001			No	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001			No	No	No	No
	February	0.0001	0.0001			No	No	No	No
	March	0.0001	0.0001			No	No	No	No
	April	0.0001	0.0001			No	No	No	No
	May	0.0001	0.0001			No	No	No	No
	June	0.0001	0.0001			No	No	No	No
	July	0.0001	0.0001			No	No	No	No
	August	0.0001	0.0001			No	No	No	No
	September	0.0001	0.0001			No	No	No	No
	October	0.0001	0.0001			No	No	No	No
	November	0.0001	0.0001			No	No	No	No
	December	0.0001	0.0001			No	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001			No	No	No	No
	February	0.0001	0.0001			No	No	No	No
	March	0.0001	0.0001			No	No	No	No
	April	0.0001	0.0001			No	No	No	No
	May	0.0001	0.0001			No	No	No	No
	June	0.0001	0.0001			No	No	No	No
	July	0.0001	0.0001			No	No	No	No
	August	0.0001	0.0001			No	No	No	No
	September	0.0001	0.0001			No	No	No	No
	October	0.0001	0.0001			No	No	No	No
	November	0.0001	0.0001			No	No	No	No
	December	0.0001	0.0001			No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DIWQG = Drinking water quality guideline
 Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D14t. Mid Harper Creek (HM) Hazard Quotients for Total Silver Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.00001	0.00002	0.00005	0.0001	0.299	0.322	0.161	No
	February	0.00001	0.00001	0.00005	0.0001	0.114	0.132	0.0658	No
	March	0.00001	0.00001	0.00005	0.0001	0.115	0.134	0.0672	No
	April	0.00001	0.00001	0.00005	0.0001	0.105	0.110	0.0552	No
	May	0.00001	0.00001	0.00005	0.0001	0.201	0.202	0.101	No
	June	0.00001	0.00001	0.00005	0.0001	0.206	0.206	0.103	No
	July	0.00002	0.00002	0.00005	0.0001	0.444	0.448	0.224	No
	August	0.00002	0.00002	0.00005	0.0001	0.434	0.444	0.222	No
	September	0.00002	0.00002	0.00005	0.0001	0.420	0.438	0.219	No
	October	0.00002	0.00002	0.00005	0.0001	0.362	0.376	0.188	No
	November	0.00001	0.00001	0.00005	0.0001	0.158	0.168	0.0838	No
	December	0.00001	0.00001	0.00005	0.0001	0.207	0.217	0.108	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00005	0.0001	0.259	0.260	0.130	No
	February	0.00001	0.00001	0.00005	0.0001	0.133	0.134	0.0669	No
	March	0.00001	0.00001	0.00005	0.0001	0.136	0.137	0.0684	No
	April	0.00001	0.00001	0.00005	0.0001	0.113	0.113	0.0566	No
	May	0.00001	0.00001	0.00005	0.0001	0.202	0.202	0.101	No
	June	0.00001	0.00001	0.00005	0.0001	0.205	0.205	0.103	No
	July	0.00002	0.00002	0.00005	0.0001	0.454	0.455	0.227	No
	August	0.00002	0.00002	0.00005	0.0001	0.459	0.459	0.229	No
	September	0.00002	0.00002	0.00005	0.0001	0.463	0.464	0.232	No
	October	0.00002	0.00002	0.00005	0.0001	0.387	0.387	0.193	No
	November	0.00001	0.00001	0.00005	0.0001	0.173	0.173	0.0867	No
	December	0.00001	0.00001	0.00005	0.0001	0.217	0.217	0.109	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00005	0.0001	0.259	0.259	0.130	No
	February	0.00001	0.00001	0.00005	0.0001	0.134	0.134	0.0670	No
	March	0.00001	0.00001	0.00005	0.0001	0.137	0.137	0.0685	No
	April	0.00001	0.00001	0.00005	0.0001	0.113	0.113	0.0567	No
	May	0.00001	0.00001	0.00005	0.0001	0.202	0.202	0.101	No
	June	0.00001	0.00001	0.00005	0.0001	0.205	0.205	0.103	No
	July	0.00002	0.00002	0.00005	0.0001	0.455	0.455	0.228	No
	August	0.00002	0.00002	0.00005	0.0001	0.459	0.459	0.230	No
	September	0.00002	0.00002	0.00005	0.0001	0.464	0.464	0.232	No
	October	0.00002	0.00002	0.00005	0.0001	0.387	0.387	0.193	No
	November	0.00001	0.00001	0.00005	0.0001	0.173	0.173	0.0867	No
	December	0.00001	0.00001	0.00005	0.0001	0.217	0.217	0.109	No
Closure Phase (29-35)	January	0.00001	0.00001	0.00005	0.0001	0.248	0.248	0.124	No
	February	0.00001	0.00001	0.00005	0.0001	0.122	0.122	0.0608	No
	March	0.00001	0.00001	0.00005	0.0001	0.123	0.124	0.0618	No
	April	0.00001	0.00001	0.00005	0.0001	0.108	0.109	0.0543	No
	May	0.00001	0.00001	0.00005	0.0001	0.201	0.201	0.101	No
	June	0.00001	0.00001	0.00005	0.0001	0.205	0.205	0.102	No
	July	0.00002	0.00002	0.00005	0.0001	0.454	0.455	0.227	No
	August	0.00002	0.00002	0.00005	0.0001	0.455	0.455	0.228	No
	September	0.00002	0.00002	0.00005	0.0001	0.455	0.455	0.228	No
	October	0.00002	0.00002	0.00005	0.0001	0.379	0.379	0.189	No
	November	0.00001	0.00001	0.00005	0.0001	0.165	0.165	0.0823	No
	December	0.00001	0.00001	0.00005	0.0001	0.207	0.207	0.104	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00005	0.0001	0.248	0.249	0.124	No
	February	0.00001	0.00001	0.00005	0.0001	0.122	0.122	0.0608	No
	March	0.00001	0.00001	0.00005	0.0001	0.123	0.124	0.0618	No
	April	0.00001	0.00001	0.00005	0.0001	0.108	0.108	0.0542	No
	May	0.00001	0.00001	0.00005	0.0001	0.201	0.201	0.101	No
	June	0.00001	0.00001	0.00005	0.0001	0.205	0.205	0.102	No
	July	0.00002	0.00002	0.00005	0.0001	0.454	0.455	0.227	No
	August	0.00002	0.00002	0.00005	0.0001	0.455	0.455	0.228	No
	September	0.00002	0.00002	0.00005	0.0001	0.455	0.455	0.228	No
	October	0.00002	0.00002	0.00005	0.0001	0.379	0.379	0.189	No
	November	0.00001	0.00001	0.00005	0.0001	0.165	0.165	0.0823	No
	December	0.00001	0.00001	0.00005	0.0001	0.207	0.207	0.104	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D14u. Mid Harper Creek (HM) Hazard Quotients for Total Thallium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.00009	0.00009	0.0003	0.002	0.0315	0.00473	No	No
	February	0.00003	0.00004	0.0003	0.002	0.0125	0.00187	No	No
	March	0.00003	0.00004	0.0003	0.002	0.0130	0.00194	No	No
	April	0.00002	0.00003	0.0003	0.002	0.00856	0.00128	No	No
	May	0.00010	0.00010	0.0003	0.002	0.0336	0.00504	No	No
	June	0.00010	0.00010	0.0003	0.002	0.0336	0.00504	No	No
	July	0.00010	0.00010	0.0003	0.002	0.0338	0.00507	No	No
	August	0.00013	0.00013	0.0003	0.002	0.0448	0.00671	No	No
	September	0.00013	0.00014	0.0003	0.002	0.0457	0.00685	No	No
	October	0.00010	0.00011	0.0003	0.002	0.0371	0.00556	No	No
	November	0.00006	0.00007	0.0003	0.002	0.0232	0.00348	No	No
	December	0.00007	0.00008	0.0003	0.002	0.0251	0.00376	No	No
Operation 1 Phase (1-23)	January	0.00008	0.00008	0.0003	0.002	0.0282	0.00423	No	No
	February	0.00004	0.00004	0.0003	0.002	0.0147	0.00220	No	No
	March	0.00004	0.00005	0.0003	0.002	0.0154	0.00231	No	No
	April	0.00003	0.00003	0.0003	0.002	0.00981	0.00147	No	No
	May	0.00010	0.00010	0.0003	0.002	0.0338	0.00507	No	No
	June	0.00010	0.00010	0.0003	0.002	0.0338	0.00507	No	No
	July	0.00010	0.00010	0.0003	0.002	0.0342	0.00513	No	No
	August	0.00014	0.00014	0.0003	0.002	0.0465	0.00697	No	No
	September	0.00015	0.00015	0.0003	0.002	0.0486	0.00729	No	No
	October	0.00012	0.00012	0.0003	0.002	0.0397	0.00595	No	No
	November	0.00008	0.00008	0.0003	0.002	0.0255	0.00383	No	No
	December	0.00008	0.00008	0.0003	0.002	0.0270	0.00405	No	No
Operations 2 Phase (24-28)	January	0.00008	0.00008	0.0003	0.002	0.0282	0.00423	No	No
	February	0.00004	0.00004	0.0003	0.002	0.0147	0.00220	No	No
	March	0.00005	0.00005	0.0003	0.002	0.0154	0.00232	No	No
	April	0.00003	0.00003	0.0003	0.002	0.00982	0.00147	No	No
	May	0.00010	0.00010	0.0003	0.002	0.0338	0.00507	No	No
	June	0.00010	0.00010	0.0003	0.002	0.0338	0.00507	No	No
	July	0.00010	0.00010	0.0003	0.002	0.0342	0.00513	No	No
	August	0.00014	0.00014	0.0003	0.002	0.0465	0.00697	No	No
	September	0.00015	0.00015	0.0003	0.002	0.0486	0.00729	No	No
	October	0.00012	0.00012	0.0003	0.002	0.0397	0.00595	No	No
	November	0.00008	0.00008	0.0003	0.002	0.0255	0.00383	No	No
	December	0.00008	0.00008	0.0003	0.002	0.0270	0.00405	No	No
Closure Phase (29-35)	January	0.00008	0.00008	0.0003	0.002	0.0256	0.00384	No	No
	February	0.00004	0.00004	0.0003	0.002	0.0119	0.00178	No	No
	March	0.00004	0.00004	0.0003	0.002	0.0123	0.00185	No	No
	April	0.00003	0.00003	0.0003	0.002	0.00871	0.00131	No	No
	May	0.00010	0.00010	0.0003	0.002	0.0336	0.00505	No	No
	June	0.00010	0.00010	0.0003	0.002	0.0337	0.00505	No	No
	July	0.00010	0.00010	0.0003	0.002	0.0339	0.00509	No	No
	August	0.00014	0.00014	0.0003	0.002	0.0454	0.00681	No	No
	September	0.00014	0.00014	0.0003	0.002	0.0467	0.00700	No	No
	October	0.00011	0.00011	0.0003	0.002	0.0378	0.00566	No	No
	November	0.00007	0.00007	0.0003	0.002	0.0235	0.00352	No	No
	December	0.00007	0.00007	0.0003	0.002	0.0247	0.00370	No	No
Post-Closure Phase (36-99)	January	0.00008	0.00008	0.0003	0.002	0.0256	0.00384	No	No
	February	0.00004	0.00004	0.0003	0.002	0.0119	0.00178	No	No
	March	0.00004	0.00004	0.0003	0.002	0.0123	0.00185	No	No
	April	0.00003	0.00003	0.0003	0.002	0.00869	0.00130	No	No
	May	0.00010	0.00010	0.0003	0.002	0.0336	0.00505	No	No
	June	0.00010	0.00010	0.0003	0.002	0.0337	0.00505	No	No
	July	0.00010	0.00010	0.0003	0.002	0.0339	0.00509	No	No
	August	0.00014	0.00014	0.0003	0.002	0.0454	0.00681	No	No
	September	0.00014	0.00014	0.0003	0.002	0.0467	0.00700	No	No
	October	0.00011	0.00011	0.0003	0.002	0.0378	0.00566	No	No
	November	0.00007	0.00007	0.0003	0.002	0.0235	0.00352	No	No
	December	0.00007	0.00007	0.0003	0.002	0.0247	0.00370	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D14v. Mid Harper Creek (HM) Hazard Quotients for Total Uranium Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step									Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline				
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Drinking Water	Livestock	
Construction (-2 to-1)	January	0.0002	0.0003	0.3	0.02	0.2	0.0011	0.0160	0.0016	No	No	No	
	February	0.0003	0.0004	0.3	0.02	0.2	0.0013	0.0190	0.0019	No	No	No	
	March	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0178	0.0018	No	No	No	
	April	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0154	0.0015	No	No	No	
	May	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0175	0.0018	No	No	No	
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0144	0.0014	No	No	No	
	July	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0165	0.0017	No	No	No	
	August	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0182	0.0018	No	No	No	
	September	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0168	0.0017	No	No	No	
	October	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0158	0.0016	No	No	No	
	November	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0153	0.0015	No	No	No	
	December	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0159	0.0016	No	No	No	
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.3	0.02	0.2	0.0018	0.0275	0.0027	No	No	No	
	February	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0314	0.0031	No	No	No	
	March	0.0005	0.0006	0.3	0.02	0.2	0.0021	0.0314	0.0031	No	No	No	
	April	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0204	0.0020	No	No	No	
	May	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0189	0.0019	No	No	No	
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0155	0.0016	No	No	No	
	July	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0181	0.0018	No	No	No	
	August	0.0004	0.0005	0.3	0.02	0.2	0.0015	0.0229	0.0023	No	No	No	
	September	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0252	0.0025	No	No	No	
	October	0.0004	0.0005	0.3	0.02	0.2	0.0016	0.0240	0.0024	No	No	No	
	November	0.0004	0.0005	0.3	0.02	0.2	0.0016	0.0239	0.0024	No	No	No	
	December	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0259	0.0026	No	No	No	
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.3	0.02	0.2	0.0018	0.0272	0.0027	No	No	No	
	February	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0313	0.0031	No	No	No	
	March	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0312	0.0031	No	No	No	
	April	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0204	0.0020	No	No	No	
	May	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0190	0.0019	No	No	No	
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0155	0.0016	No	No	No	
	July	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0181	0.0018	No	No	No	
	August	0.0005	0.0005	0.3	0.02	0.2	0.0015	0.0228	0.0023	No	No	No	
	September	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0250	0.0025	No	No	No	
	October	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0238	0.0024	No	No	No	
	November	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0237	0.0024	No	No	No	
	December	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0257	0.0026	No	No	No	
Closure Phase (29-35)	January	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0214	0.0021	No	No	No	
	February	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0249	0.0025	No	No	No	
	March	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0242	0.0024	No	No	No	
	April	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0179	0.0018	No	No	No	
	May	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0186	0.0019	No	No	No	
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0152	0.0015	No	No	No	
	July	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0174	0.0017	No	No	No	
	August	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0205	0.0021	No	No	No	
	September	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0207	0.0021	No	No	No	
	October	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0195	0.0019	No	No	No	
	November	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0192	0.0019	No	No	No	
	December	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0205	0.0020	No	No	No	
Post-Closure Phase (36-99)	January	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0214	0.0021	No	No	No	
	February	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0249	0.0025	No	No	No	
	March	0.0005	0.0005	0.3	0.02	0.2	0.0016	0.0242	0.0024	No	No	No	
	April	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0178	0.0018	No	No	No	
	May	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0186	0.0019	No	No	No	
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0152	0.0015	No	No	No	
	July	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0174	0.0017	No	No	No	
	August	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0205	0.0021	No	No	No	
	September	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0207	0.0021	No	No	No	
	October	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0195	0.0019	No	No	No	
	November	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0192	0.0019	No	No	No	
	December	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0205	0.0020	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D14w. Mid Harper Creek (HM) Hazard Quotients for Total Vanadium Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase		First Screening Step										Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Livestock
				BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline					
		Mean	Maximum			BC MOE Working			BC MOE Working	BC MOE Working	Working Secondary Chronic Value Guideline	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0008	0.0009	0.006	0.02	0.1	0.158	0.0473	0.0095	No	No		
	February	0.0002	0.0002	0.006	0.02	0.1	0.0348	0.0104	0.0021	No	No		
	March	0.0002	0.0002	0.006	0.02	0.1	0.0349	0.0105	0.0021	No	No		
	April	0.0002	0.0002	0.006	0.02	0.1	0.0338	0.0101	0.0020	No	No		
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	August	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No		
	September	0.0008	0.0008	0.006	0.02	0.1	0.136	0.0407	0.0081	No	No		
	October	0.0006	0.0006	0.006	0.02	0.1	0.103	0.0309	0.0062	No	No		
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0301	0.0060	No	No		
	December	0.0006	0.0006	0.006	0.02	0.1	0.107	0.0321	0.0064	No	No		
Operation 1 Phase (1-23)	January	0.0006	0.0006	0.006	0.02	0.1	0.107	0.0321	0.0064	No	No		
	February	0.0002	0.0002	0.006	0.02	0.1	0.0346	0.0104	0.0021	No	No		
	March	0.0002	0.0002	0.006	0.02	0.1	0.0347	0.0104	0.0021	No	No		
	April	0.0002	0.0002	0.006	0.02	0.1	0.0341	0.0102	0.0020	No	No		
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	August	0.0008	0.0008	0.006	0.02	0.1	0.131	0.0393	0.0079	No	No		
	September	0.0008	0.0008	0.006	0.02	0.1	0.132	0.0395	0.0079	No	No		
	October	0.0006	0.0006	0.006	0.02	0.1	0.101	0.0304	0.0061	No	No		
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0301	0.0060	No	No		
	December	0.0006	0.0006	0.006	0.02	0.1	0.104	0.0311	0.0062	No	No		
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.006	0.02	0.1	0.106	0.0319	0.0064	No	No		
	February	0.0002	0.0002	0.006	0.02	0.1	0.0346	0.0104	0.0021	No	No		
	March	0.0002	0.0002	0.006	0.02	0.1	0.0347	0.0104	0.0021	No	No		
	April	0.0002	0.0002	0.006	0.02	0.1	0.0338	0.0101	0.0020	No	No		
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	August	0.0008	0.0008	0.006	0.02	0.1	0.131	0.0393	0.0079	No	No		
	September	0.0008	0.0008	0.006	0.02	0.1	0.131	0.0394	0.0079	No	No		
	October	0.0006	0.0006	0.006	0.02	0.1	0.101	0.0304	0.0061	No	No		
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0301	0.0060	No	No		
	December	0.0006	0.0006	0.006	0.02	0.1	0.104	0.0311	0.0062	No	No		
Closure Phase (29-35)	January	0.0006	0.0006	0.006	0.02	0.1	0.106	0.0317	0.0063	No	No		
	February	0.0002	0.0002	0.006	0.02	0.1	0.0340	0.0102	0.0020	No	No		
	March	0.0002	0.0002	0.006	0.02	0.1	0.0341	0.0102	0.0020	No	No		
	April	0.0002	0.0002	0.006	0.02	0.1	0.0336	0.0101	0.0020	No	No		
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	August	0.0008	0.0008	0.006	0.02	0.1	0.131	0.0392	0.0078	No	No		
	September	0.0008	0.0008	0.006	0.02	0.1	0.131	0.0393	0.0079	No	No		
	October	0.0006	0.0006	0.006	0.02	0.1	0.101	0.0302	0.0060	No	No		
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No		
	December	0.0006	0.0006	0.006	0.02	0.1	0.103	0.0310	0.0062	No	No		
Post-Closure Phase (36-99)	January	0.0006	0.0006	0.006	0.02	0.1	0.106	0.0318	0.0064	No	No		
	February	0.0002	0.0002	0.006	0.02	0.1	0.0340	0.0102	0.0020	No	No		
	March	0.0002	0.0002	0.006	0.02	0.1	0.0341	0.0102	0.0020	No	No		
	April	0.0002	0.0002	0.006	0.02	0.1	0.0336	0.0101	0.0020	No	No		
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	August	0.0008	0.0008	0.006	0.02	0.1	0.131	0.0392	0.0078	No	No		
	September	0.0008	0.0008	0.006	0.02	0.1	0.131	0.0393	0.0079	No	No		
	October	0.0006	0.0006	0.006	0.02	0.1	0.101	0.0302	0.0060	No	No		
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No		
	December	0.0006	0.0006	0.006	0.02	0.1	0.103	0.0310	0.0062	No	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D14x. Mid Harper Creek (HM) Hazard Quotients for Total Zinc Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Maximum	Maximum Predicted vs.			Maximum Predicted vs BC MOE Maximum Guideline		
								Mean Predicted vs. BC MOE 30-Day Mean Guideline	BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline			
Construction (-2 to-1)	January	0.0026	0.0028	0.008	0.033	2	0.343	0.378	0.0859	0.0014	No	No	
	February	0.0005	0.0007	0.008	0.033	2	0.0726	0.0941	0.0214	0.0004	No	No	
	March	0.0009	0.0009	0.008	0.033	2	0.118	0.120	0.0274	0.0005	No	No	
	April	0.0025	0.0026	0.008	0.033	2	0.333	0.351	0.0797	0.0013	No	No	
	May	0.0031	0.0031	0.008	0.033	2	0.409	0.410	0.0931	0.0015	No	No	
	June	0.0035	0.0035	0.008	0.033	2	0.462	0.462	0.105	0.0017	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.401	0.403	0.0916	0.0015	No	No	
	August	0.0027	0.0028	0.008	0.033	2	0.366	0.372	0.0845	0.0014	No	No	
	September	0.0027	0.0028	0.008	0.033	2	0.355	0.369	0.0840	0.0014	No	No	
	October	0.0063	0.0066	0.008	0.033	2	0.845	0.875	0.199	0.0033	No	No	
	November	0.0018	0.0019	0.008	0.033	2	0.236	0.247	0.0562	0.0009	No	No	
	December	0.0019	0.0020	0.008	0.033	2	0.259	0.271	0.0616	0.0010	No	No	
Operation 1 Phase (1-23)	January	0.0022	0.0022	0.008	0.033	2	0.288	0.289	0.0656	0.0011	No	No	
	February	0.0007	0.0008	0.008	0.033	2	0.0995	0.101	0.0229	0.0004	No	No	
	March	0.0008	0.0008	0.008	0.033	2	0.109	0.111	0.0252	0.0004	No	No	
	April	0.0028	0.0028	0.008	0.033	2	0.375	0.376	0.0854	0.0014	No	No	
	May	0.0031	0.0031	0.008	0.033	2	0.411	0.411	0.0934	0.0015	No	No	
	June	0.0034	0.0035	0.008	0.033	2	0.460	0.460	0.105	0.0017	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.405	0.405	0.0921	0.0015	No	No	
	August	0.0028	0.0028	0.008	0.033	2	0.375	0.375	0.0852	0.0014	No	No	
	September	0.0029	0.0029	0.008	0.033	2	0.383	0.384	0.0872	0.0014	No	No	
	October	0.0070	0.0070	0.008	0.033	2	0.929	0.930	0.211	0.0035	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.255	0.255	0.0580	0.0010	No	No	
	December	0.0020	0.0020	0.008	0.033	2	0.272	0.273	0.0620	0.0010	No	No	
Operations 2 Phase (24-28)	January	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0656	0.0011	No	No	
	February	0.0008	0.0008	0.008	0.033	2	0.101	0.101	0.0230	0.0004	No	No	
	March	0.0008	0.0008	0.008	0.033	2	0.111	0.111	0.0253	0.0004	No	No	
	April	0.0028	0.0028	0.008	0.033	2	0.376	0.376	0.0854	0.0014	No	No	
	May	0.0031	0.0031	0.008	0.033	2	0.411	0.411	0.0934	0.0015	No	No	
	June	0.0034	0.0034	0.008	0.033	2	0.460	0.460	0.105	0.0017	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.405	0.405	0.0921	0.0015	No	No	
	August	0.0028	0.0028	0.008	0.033	2	0.375	0.375	0.0852	0.0014	No	No	
	September	0.0029	0.0029	0.008	0.033	2	0.384	0.384	0.0872	0.0014	No	No	
	October	0.0070	0.0070	0.008	0.033	2	0.929	0.929	0.211	0.0035	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.255	0.255	0.0580	0.0010	No	No	
	December	0.0020	0.0020	0.008	0.033	2	0.273	0.273	0.0620	0.0010	No	No	
Closure Phase (29-35)	January	0.0020	0.0020	0.008	0.033	2	0.273	0.273	0.0621	0.0010	No	No	
	February	0.0006	0.0006	0.008	0.033	2	0.0841	0.0841	0.0191	0.0003	No	No	
	March	0.0007	0.0007	0.008	0.033	2	0.0923	0.0926	0.0211	0.0003	No	No	
	April	0.0028	0.0028	0.008	0.033	2	0.369	0.369	0.0839	0.0014	No	No	
	May	0.0031	0.0031	0.008	0.033	2	0.410	0.410	0.0932	0.0015	No	No	
	June	0.0034	0.0034	0.008	0.033	2	0.459	0.459	0.104	0.0017	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.403	0.403	0.0916	0.0015	No	No	
	August	0.0028	0.0028	0.008	0.033	2	0.369	0.369	0.0838	0.0014	No	No	
	September	0.0028	0.0028	0.008	0.033	2	0.372	0.372	0.0846	0.0014	No	No	
	October	0.0069	0.0069	0.008	0.033	2	0.918	0.918	0.209	0.0034	No	No	
	November	0.0018	0.0018	0.008	0.033	2	0.243	0.243	0.0553	0.0009	No	No	
	December	0.0019	0.0019	0.008	0.033	2	0.259	0.259	0.0588	0.0010	No	No	
Post-Closure Phase (36-99)	January	0.0021	0.0021	0.008	0.033	2	0.273	0.273	0.0621	0.0010	No	No	
	February	0.0006	0.0006	0.008	0.033	2	0.0840	0.0841	0.0191	0.0003	No	No	
	March	0.0007	0.0007	0.008	0.033	2	0.0924	0.0927	0.0211	0.0003	No	No	
	April	0.0028	0.0028	0.008	0.033	2	0.369	0.369	0.0839	0.0014	No	No	
	May	0.0031	0.0031	0.008	0.033	2	0.410	0.410	0.0932	0.0015	No	No	
	June	0.0034	0.0034	0.008	0.033	2	0.459	0.459	0.104	0.0017	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.403	0.403	0.0916	0.0015	No	No	
	August	0.0028	0.0028	0.008	0.033	2	0.369	0.369	0.0838	0.0014	No	No	
	September	0.0028	0.0028	0.008	0.033	2	0.372	0.372	0.0846	0.0014	No	No	
	October	0.0069	0.0069	0.008	0.033	2	0.918	0.918	0.209	0.0034	No	No	
	November	0.0018	0.0018	0.008	0.033	2	0.243	0.243	0.0553	0.0009	No	No	
	December	0.0019	0.0019	0.008	0.033	2	0.259	0.259	0.0589	0.0010	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D14y. Mid Harper Creek (HM) Hazard Quotients for Chloride Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step										
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline				
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Maximum	Maximum	Mean Predicted vs. BC MOE	Maximum Predicted vs. BC MOE	Maximum Predicted vs. BC MOE
										30-Day Mean Guideline	30-Day Mean Guideline	Maximum Guideline
Construction (-2 to-1)	January	0.574	0.668	150	600	600	600	0.0038	0.0045	0.0011		
	February	0.763	0.991	150	600	600	600	0.0051	0.0066	0.0017		
	March	0.588	0.697	150	600	600	600	0.0039	0.0046	0.0012		
	April	0.528	0.559	150	600	600	600	0.0035	0.0037	0.0009		
	May	0.504	0.509	150	600	600	600	0.0034	0.0034	0.0008		
	June	0.948	0.961	150	600	600	600	0.0063	0.0064	0.0016		
	July	0.508	0.516	150	600	600	600	0.0034	0.0034	0.0009		
	August	0.440	0.467	150	600	600	600	0.0029	0.0031	0.0008		
	September	0.636	0.693	150	600	600	600	0.0042	0.0046	0.0012		
	October	0.627	0.688	150	600	600	600	0.0042	0.0046	0.0011		
	November	0.550	0.604	150	600	600	600	0.0037	0.0040	0.0010		
	December	0.559	0.624	150	600	600	600	0.0037	0.0042	0.0010		
Operation 1 Phase (1-23)	January	0.831	0.842	150	600	600	600	0.0055	0.0056	0.0014		
	February	1.23	1.25	150	600	600	600	0.0082	0.0083	0.0021		
	March	0.897	0.919	150	600	600	600	0.0060	0.0061	0.0015		
	April	0.643	0.651	150	600	600	600	0.0043	0.0043	0.0011		
	May	0.520	0.522	150	600	600	600	0.0035	0.0035	0.0009		
	June	0.986	0.990	150	600	600	600	0.0066	0.0066	0.0016		
	July	0.542	0.544	150	600	600	600	0.0036	0.0036	0.0009		
	August	0.542	0.549	150	600	600	600	0.0036	0.0037	0.0009		
	September	0.842	0.850	150	600	600	600	0.0056	0.0057	0.0014		
	October	0.820	0.829	150	600	600	600	0.0055	0.0055	0.0014		
	November	0.759	0.769	150	600	600	600	0.0051	0.0051	0.0013		
	December	0.799	0.810	150	600	600	600	0.0053	0.0054	0.0014		
Operations 2 Phase (24-28)	January	0.842	0.842	150	600	600	600	0.0056	0.0056	0.0014		
	February	1.25	1.25	150	600	600	600	0.0083	0.0084	0.0021		
	March	0.918	0.921	150	600	600	600	0.0061	0.0061	0.0015		
	April	0.651	0.651	150	600	600	600	0.0043	0.0043	0.0011		
	May	0.522	0.523	150	600	600	600	0.0035	0.0035	0.0009		
	June	0.990	0.990	150	600	600	600	0.0066	0.0066	0.0017		
	July	0.544	0.544	150	600	600	600	0.0036	0.0036	0.0009		
	August	0.547	0.548	150	600	600	600	0.0036	0.0037	0.0009		
	September	0.850	0.850	150	600	600	600	0.0057	0.0057	0.0014		
	October	0.828	0.829	150	600	600	600	0.0055	0.0055	0.0014		
	November	0.768	0.768	150	600	600	600	0.0051	0.0051	0.0013		
	December	0.810	0.810	150	600	600	600	0.0054	0.0054	0.0014		
Closure Phase (29-35)	January	0.718	0.718	150	600	600	600	0.0048	0.0048	0.0012		
	February	1.12	1.12	150	600	600	600	0.0074	0.0074	0.0019		
	March	0.768	0.771	150	600	600	600	0.0051	0.0051	0.0013		
	April	0.597	0.598	150	600	600	600	0.0040	0.0040	0.0010		
	May	0.516	0.516	150	600	600	600	0.0034	0.0034	0.0009		
	June	0.984	0.984	150	600	600	600	0.0066	0.0066	0.0016		
	July	0.529	0.529	150	600	600	600	0.0035	0.0035	0.0009		
	August	0.497	0.497	150	600	600	600	0.0033	0.0033	0.0008		
	September	0.757	0.757	150	600	600	600	0.0050	0.0050	0.0013		
	October	0.735	0.735	150	600	600	600	0.0049	0.0049	0.0012		
	November	0.670	0.671	150	600	600	600	0.0045	0.0045	0.0011		
	December	0.697	0.698	150	600	600	600	0.0046	0.0047	0.0012		
Post-Closure Phase (36-99)	January	0.719	0.719	150	600	600	600	0.0048	0.0048	0.0012		
	February	1.11	1.12	150	600	600	600	0.0074	0.0074	0.0019		
	March	0.769	0.771	150	600	600	600	0.0051	0.0051	0.0013		
	April	0.597	0.597	150	600	600	600	0.0040	0.0040	0.0010		
	May	0.516	0.516	150	600	600	600	0.0034	0.0034	0.0009		
	June	0.984	0.984	150	600	600	600	0.0066	0.0066	0.0016		
	July	0.529	0.529	150	600	600	600	0.0035	0.0035	0.0009		
	August	0.496	0.497	150	600	600	600	0.0033	0.0033	0.0008		
	September	0.757	0.757	150	600	600	600	0.0050	0.0050	0.0013		
	October	0.735	0.736	150	600	600	600	0.0049	0.0049	0.0012		
	November	0.671	0.671	150	600	600	600	0.0045	0.0045	0.0011		
	December	0.698	0.698	150	600	600	600	0.0047	0.0047	0.0012		

Notes: (continued)

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D14y. Mid Harper Creek (HM) Hazard Quotients for Chloride Concentrations, Unrecovered Seepage Sensitivity Case (completed)

		First Screening Step		Retained as COPC?		
		Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			
Project Phase	Months	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life	Wildlife	Livestock
Construction (-2 to-1)	January	0.0011	0.0011	No	No	No
	February	0.0017	0.0017	No	No	No
	March	0.0012	0.0012	No	No	No
	April	0.0009	0.0009	No	No	No
	May	0.0008	0.0008	No	No	No
	June	0.0016	0.0016	No	No	No
	July	0.0009	0.0009	No	No	No
	August	0.0008	0.0008	No	No	No
	September	0.0012	0.0012	No	No	No
	October	0.0011	0.0011	No	No	No
	November	0.0010	0.0010	No	No	No
	December	0.0010	0.0010	No	No	No
Operation 1 Phase (1-23)	January	0.0014	0.0014	No	No	No
	February	0.0021	0.0021	No	No	No
	March	0.0015	0.0015	No	No	No
	April	0.0011	0.0011	No	No	No
	May	0.0009	0.0009	No	No	No
	June	0.0016	0.0016	No	No	No
	July	0.0009	0.0009	No	No	No
	August	0.0009	0.0009	No	No	No
	September	0.0014	0.0014	No	No	No
	October	0.0014	0.0014	No	No	No
	November	0.0013	0.0013	No	No	No
	December	0.0014	0.0014	No	No	No
Operations 2 Phase (24-28)	January	0.0014	0.0014	No	No	No
	February	0.0021	0.0021	No	No	No
	March	0.0015	0.0015	No	No	No
	April	0.0011	0.0011	No	No	No
	May	0.0009	0.0009	No	No	No
	June	0.0017	0.0017	No	No	No
	July	0.0009	0.0009	No	No	No
	August	0.0009	0.0009	No	No	No
	September	0.0014	0.0014	No	No	No
	October	0.0014	0.0014	No	No	No
	November	0.0013	0.0013	No	No	No
	December	0.0014	0.0014	No	No	No
Closure Phase (29-35)	January	0.0012	0.0012	No	No	No
	February	0.0019	0.0019	No	No	No
	March	0.0013	0.0013	No	No	No
	April	0.0010	0.0010	No	No	No
	May	0.0009	0.0009	No	No	No
	June	0.0016	0.0016	No	No	No
	July	0.0009	0.0009	No	No	No
	August	0.0008	0.0008	No	No	No
	September	0.0013	0.0013	No	No	No
	October	0.0012	0.0012	No	No	No
	November	0.0011	0.0011	No	No	No
	December	0.0012	0.0012	No	No	No
Post-Closure Phase (36-99)	January	0.0012	0.0012	No	No	No
	February	0.0019	0.0019	No	No	No
	March	0.0013	0.0013	No	No	No
	April	0.0010	0.0010	No	No	No
	May	0.0009	0.0009	No	No	No
	June	0.0016	0.0016	No	No	No
	July	0.0009	0.0009	No	No	No
	August	0.0008	0.0008	No	No	No
	September	0.0013	0.0013	No	No	No
	October	0.0012	0.0012	No	No	No
	November	0.0011	0.0011	No	No	No
	December	0.0012	0.0012	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D14z. Mid Harper Creek (HM) Hazard Quotients for Fluoride Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step												
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines		
		Mean	Maximum	BC MOE Maximum Guideline	BC 30-Day Mean DWQG	BC Maximum DWQG	30-Day Mean	Maximum	30-Day Mean	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Mean Predicted vs. BC 30-Day Mean DWQG	Maximum predicted vs. BC 30-Day Mean DWQG	Maximum predicted vs. BC Maximum DWQG
Construction (-2 to-1)	January	0.0337	0.0384	0.995	1	1.5	1	1.5	1	2	0.0387	0.0337	0.0384	0.0256
	February	0.0459	0.0508	0.998	1	1.5	1	1.5	1	2	0.0509	0.0459	0.0508	0.0338
	March	0.0261	0.0396	1.02	1	1.5	1	1.5	1	2	0.0390	0.0261	0.0396	0.0264
	April	0.0390	0.0398	0.992	1	1.5	1	1.5	1	2	0.0402	0.0390	0.0398	0.0266
	May	0.0269	0.0271	0.817	1	1.5	1	1.5	1	2	0.0332	0.0269	0.0271	0.0181
	June	0.0257	0.0259	0.768	1	1.5	1	1.5	1	2	0.0337	0.0257	0.0259	0.0173
	July	0.0311	0.0313	0.883	1	1.5	1	1.5	1	2	0.0355	0.0311	0.0313	0.0209
	August	0.0394	0.0402	0.972	1	1.5	1	1.5	1	2	0.0413	0.0394	0.0402	0.0268
	September	0.0379	0.0394	0.973	1	1.5	1	1.5	1	2	0.0405	0.0379	0.0394	0.0263
	October	0.0383	0.0398	0.932	1	1.5	1	1.5	1	2	0.0428	0.0383	0.0398	0.0266
	November	0.0373	0.0387	0.959	1	1.5	1	1.5	1	2	0.0404	0.0373	0.0387	0.0258
	December	0.0367	0.0385	0.977	1	1.5	1	1.5	1	2	0.0394	0.0367	0.0385	0.0257
Operation 1 Phase (1-23)	January	0.0422	0.0424	0.995	1	1.5	1	1.5	1	2	0.0426	0.0422	0.0424	0.0282
	February	0.0548	0.0552	0.998	1	1.5	1	1.5	1	2	0.0553	0.0548	0.0552	0.0368
	March	0.0486	0.0490	1.02	1	1.5	1	1.5	1	2	0.0482	0.0486	0.0490	0.0327
	April	0.0415	0.0416	0.992	1	1.5	1	1.5	1	2	0.0420	0.0415	0.0416	0.0278
	May	0.0276	0.0277	0.817	1	1.5	1	1.5	1	2	0.0338	0.0276	0.0277	0.0184
	June	0.0263	0.0263	0.768	1	1.5	1	1.5	1	2	0.0343	0.0263	0.0263	0.0175
	July	0.0319	0.0320	0.883	1	1.5	1	1.5	1	2	0.0362	0.0319	0.0320	0.0213
	August	0.0418	0.0420	0.972	1	1.5	1	1.5	1	2	0.0432	0.0418	0.0420	0.0280
	September	0.0423	0.0424	0.973	1	1.5	1	1.5	1	2	0.0436	0.0423	0.0424	0.0283
	October	0.0423	0.0425	0.932	1	1.5	1	1.5	1	2	0.0456	0.0423	0.0425	0.0283
	November	0.0418	0.0420	0.959	1	1.5	1	1.5	1	2	0.0438	0.0418	0.0420	0.0280
	December	0.0421	0.0423	0.977	1	1.5	1	1.5	1	2	0.0433	0.0421	0.0423	0.0282
Operations 2 Phase (24-28)	January	0.0424	0.0424	0.995	1	1.5	1	1.5	1	2	0.0426	0.0424	0.0424	0.0282
	February	0.0552	0.0552	0.998	1	1.5	1	1.5	1	2	0.0553	0.0552	0.0552	0.0368
	March	0.0490	0.0490	1.02	1	1.5	1	1.5	1	2	0.0483	0.0490	0.0490	0.0327
	April	0.0416	0.0416	0.992	1	1.5	1	1.5	1	2	0.0420	0.0416	0.0416	0.0278
	May	0.0277	0.0277	0.817	1	1.5	1	1.5	1	2	0.0339	0.0277	0.0277	0.0184
	June	0.0263	0.0263	0.768	1	1.5	1	1.5	1	2	0.0343	0.0263	0.0263	0.0176
	July	0.0320	0.0320	0.883	1	1.5	1	1.5	1	2	0.0362	0.0320	0.0320	0.0213
	August	0.0419	0.0419	0.972	1	1.5	1	1.5	1	2	0.0432	0.0419	0.0419	0.0280
	September	0.0424	0.0424	0.973	1	1.5	1	1.5	1	2	0.0436	0.0424	0.0424	0.0283
	October	0.0425	0.0425	0.932	1	1.5	1	1.5	1	2	0.0456	0.0425	0.0425	0.0283
	November	0.0420	0.0420	0.959	1	1.5	1	1.5	1	2	0.0438	0.0420	0.0420	0.0280
	December	0.0423	0.0423	0.977	1	1.5	1	1.5	1	2	0.0433	0.0423	0.0423	0.0282
Closure Phase (29-35)	January	0.0398	0.0398	0.995	1	1.5	1	1.5	1	2	0.0400	0.0398	0.0398	0.0265
	February	0.0524	0.0524	0.998	1	1.5	1	1.5	1	2	0.0525	0.0524	0.0524	0.0349
	March	0.0459	0.0459	1.02	1	1.5	1	1.5	1	2	0.0452	0.0459	0.0459	0.0306
	April	0.0405	0.0405	0.992	1	1.5	1	1.5	1	2	0.0409	0.0405	0.0405	0.0270
	May	0.0275	0.0275	0.817	1	1.5	1	1.5	1	2	0.0337	0.0275	0.0275	0.0184
	June	0.0262	0.0262	0.768	1	1.5	1	1.5	1	2	0.0341	0.0262	0.0262	0.0175
	July	0.0317	0.0317	0.883	1	1.5	1	1.5	1	2	0.0359	0.0317	0.0317	0.0211
	August	0.0409	0.0409	0.972	1	1.5	1	1.5	1	2	0.0421	0.0409	0.0409	0.0273
	September	0.0405	0.0405	0.973	1	1.5	1	1.5	1	2	0.0416	0.0405	0.0405	0.0270
	October	0.0406	0.0406	0.932	1	1.5	1	1.5	1	2	0.0435	0.0406	0.0406	0.0270
	November	0.0400	0.0400	0.959	1	1.5	1	1.5	1	2	0.0417	0.0400	0.0400	0.0266
	December	0.0400	0.0400	0.977	1	1.5	1	1.5	1	2	0.0409	0.0400	0.0400	0.0266
Post-Closure Phase (36-99)	January	0.0398	0.0398	0.995	1	1.5	1	1.5	1	2	0.0400	0.0398	0.0398	0.0265
	February	0.0523	0.0523	0.998	1	1.5	1	1.5	1	2	0.0525	0.0523	0.0523	0.0349
	March	0.0459	0.0459	1.02	1	1.5	1	1.5	1	2	0.0452	0.0459	0.0459	0.0306
	April	0.0405	0.0405	0.992	1	1.5	1	1.5	1	2	0.0409	0.0405	0.0405	0.0270
	May	0.0275	0.0275	0.817	1	1.5	1	1.5	1	2	0.0337	0.0275	0.0275	0.0184
	June	0.0262	0.0262	0.768	1	1.5	1	1.5	1	2	0.0341	0.0262	0.0262	0.0175
	July	0.0317	0.0317	0.883	1	1.5	1	1.5	1	2	0.0359	0.0317	0.0317	0.0211
	August	0.0409	0.0409	0.972	1	1.5	1	1.5	1	2	0.0421	0.0409	0.0409	0.0273
	September	0.0405	0.0405	0.973	1	1.5	1	1.5	1	2	0.0417	0.0405	0.0405	0.0270
	October	0.0406	0.0406	0.932	1	1.5	1	1.5	1	2	0.0436	0.0406	0.0406	0.0271
	November	0.0400	0.0400	0.959	1	1.5	1	1.5	1	2	0.0417	0.0400	0.0400	0.0266
	December	0.0400	0.0400	0.977	1	1.5	1	1.5	1	2	0.0409	0.0400	0.0400	0.0267

Notes:
All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

(continued)

Appendix 13-D14z. Mid Harper Creek (HM) Hazard Quotients for Fluoride Concentrations, Unrecovered Seepage Sensitivity Case (completed)

Project Phase	Months	First Screening Step						Retained as COPC?			
		Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0337	0.0384	0.0256	0.0337	0.0384	0.0192	No	No	No	No
	February	0.0459	0.0508	0.0338	0.0459	0.0508	0.0254	No	No	No	No
	March	0.0261	0.0396	0.0264	0.0261	0.0396	0.0198	No	No	No	No
	April	0.0390	0.0398	0.0266	0.0390	0.0398	0.0199	No	No	No	No
	May	0.0269	0.0271	0.0181	0.0269	0.0271	0.0136	No	No	No	No
	June	0.0257	0.0259	0.0173	0.0257	0.0259	0.0130	No	No	No	No
	July	0.0311	0.0313	0.0209	0.0311	0.0313	0.0157	No	No	No	No
	August	0.0394	0.0402	0.0268	0.0394	0.0402	0.0201	No	No	No	No
	September	0.0379	0.0394	0.0263	0.0379	0.0394	0.0197	No	No	No	No
	October	0.0383	0.0398	0.0266	0.0383	0.0398	0.0199	No	No	No	No
	November	0.0373	0.0387	0.0258	0.0373	0.0387	0.0194	No	No	No	No
	December	0.0367	0.0385	0.0257	0.0367	0.0385	0.0192	No	No	No	No
Operation 1 Phase (1-23)	January	0.0422	0.0424	0.0282	0.0422	0.0424	0.0212	No	No	No	No
	February	0.0548	0.0552	0.0368	0.0548	0.0552	0.0276	No	No	No	No
	March	0.0486	0.0490	0.0327	0.0486	0.0490	0.0245	No	No	No	No
	April	0.0415	0.0416	0.0278	0.0415	0.0416	0.0208	No	No	No	No
	May	0.0276	0.0277	0.0184	0.0276	0.0277	0.0138	No	No	No	No
	June	0.0263	0.0263	0.0175	0.0263	0.0263	0.0132	No	No	No	No
	July	0.0319	0.0320	0.0213	0.0319	0.0320	0.0160	No	No	No	No
	August	0.0418	0.0420	0.0280	0.0418	0.0420	0.0210	No	No	No	No
	September	0.0423	0.0424	0.0283	0.0423	0.0424	0.0212	No	No	No	No
	October	0.0423	0.0425	0.0283	0.0423	0.0425	0.0213	No	No	No	No
	November	0.0418	0.0420	0.0280	0.0418	0.0420	0.0210	No	No	No	No
	December	0.0421	0.0423	0.0282	0.0421	0.0423	0.0211	No	No	No	No
Operations 2 Phase (24-28)	January	0.0424	0.0424	0.0282	0.0424	0.0424	0.0212	No	No	No	No
	February	0.0552	0.0552	0.0368	0.0552	0.0552	0.0276	No	No	No	No
	March	0.0490	0.0490	0.0327	0.0490	0.0490	0.0245	No	No	No	No
	April	0.0416	0.0416	0.0278	0.0416	0.0416	0.0208	No	No	No	No
	May	0.0277	0.0277	0.0184	0.0277	0.0277	0.0138	No	No	No	No
	June	0.0263	0.0263	0.0176	0.0263	0.0263	0.0132	No	No	No	No
	July	0.0320	0.0320	0.0213	0.0320	0.0320	0.0160	No	No	No	No
	August	0.0419	0.0419	0.0280	0.0419	0.0419	0.0210	No	No	No	No
	September	0.0424	0.0424	0.0283	0.0424	0.0424	0.0212	No	No	No	No
	October	0.0425	0.0425	0.0283	0.0425	0.0425	0.0213	No	No	No	No
	November	0.0420	0.0420	0.0280	0.0420	0.0420	0.0210	No	No	No	No
	December	0.0423	0.0423	0.0282	0.0423	0.0423	0.0212	No	No	No	No
Closure Phase (29-35)	January	0.0398	0.0398	0.0265	0.0398	0.0398	0.0199	No	No	No	No
	February	0.0524	0.0524	0.0349	0.0524	0.0524	0.0262	No	No	No	No
	March	0.0459	0.0459	0.0306	0.0459	0.0459	0.0230	No	No	No	No
	April	0.0405	0.0405	0.0270	0.0405	0.0405	0.0203	No	No	No	No
	May	0.0275	0.0275	0.0184	0.0275	0.0275	0.0138	No	No	No	No
	June	0.0262	0.0262	0.0175	0.0262	0.0262	0.0131	No	No	No	No
	July	0.0317	0.0317	0.0211	0.0317	0.0317	0.0158	No	No	No	No
	August	0.0409	0.0409	0.0273	0.0409	0.0409	0.0204	No	No	No	No
	September	0.0405	0.0405	0.0270	0.0405	0.0405	0.0203	No	No	No	No
	October	0.0406	0.0406	0.0270	0.0406	0.0406	0.0203	No	No	No	No
	November	0.0400	0.0400	0.0266	0.0400	0.0400	0.0200	No	No	No	No
	December	0.0400	0.0400	0.0266	0.0400	0.0400	0.0200	No	No	No	No
Post-Closure Phase (36-99)	January	0.0398	0.0398	0.0265	0.0398	0.0398	0.0199	No	No	No	No
	February	0.0523	0.0523	0.0349	0.0523	0.0523	0.0262	No	No	No	No
	March	0.0459	0.0459	0.0306	0.0459	0.0459	0.0229	No	No	No	No
	April	0.0405	0.0405	0.0270	0.0405	0.0405	0.0203	No	No	No	No
	May	0.0275	0.0275	0.0184	0.0275	0.0275	0.0138	No	No	No	No
	June	0.0262	0.0262	0.0175	0.0262	0.0262	0.0131	No	No	No	No
	July	0.0317	0.0317	0.0211	0.0317	0.0317	0.0158	No	No	No	No
	August	0.0409	0.0409	0.0273	0.0409	0.0409	0.0204	No	No	No	No
	September	0.0405	0.0405	0.0270	0.0405	0.0405	0.0203	No	No	No	No
	October	0.0406	0.0406	0.0271	0.0406	0.0406	0.0203	No	No	No	No
	November	0.0400	0.0400	0.0266	0.0400	0.0400	0.0200	No	No	No	No
	December	0.0400	0.0400	0.0267	0.0400	0.0400	0.0200	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent

Appendix 13-D14aa. Mid Harper Creek (HM) Hazard Quotients for Nitrate Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step									
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for			Hazard Quotient relative to Aquatic Life Guideline		
						Drinking Water Quality Guidelines	Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline			
		Mean	Maximum	BC MOE 30-Day Day Mean	BC MOE Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean Predicted vs BC MOE 30-Day Mean	Maximum Predicted vs BC MOE 30-Day Mean	Maximum Predicted vs BC MOE Maximum
Construction (-2 to-1)	January	0.451	0.611	3	32.8	10	100	100	0.150	0.204	0.0186
	February	0.460	0.646	3	32.8	10	100	100	0.153	0.215	0.0197
	March	0.476	0.676	3	32.8	10	100	100	0.159	0.225	0.0206
	April	0.359	0.423	3	32.8	10	100	100	0.120	0.141	0.0129
	May	0.355	0.362	3	32.8	10	100	100	0.118	0.121	0.0110
	June	0.180	0.192	3	32.8	10	100	100	0.0601	0.0640	0.0059
	July	0.0873	0.106	3	32.8	10	100	100	0.0291	0.0353	0.0032
	August	0.153	0.216	3	32.8	10	100	100	0.0510	0.0719	0.0066
	September	0.245	0.366	3	32.8	10	100	100	0.0818	0.122	0.0111
	October	0.265	0.398	3	32.8	10	100	100	0.0882	0.133	0.0121
	November	0.295	0.414	3	32.8	10	100	100	0.0983	0.138	0.0126
	December	0.340	0.482	3	32.8	10	100	100	0.113	0.161	0.0147
Operation 1 Phase (1-23)	January	0.420	0.935	3	32.8	10	100	100	0.140	0.312	0.0285
	February	0.446	1.01	3	32.8	10	100	100	0.149	0.336	0.0307
	March	0.458	1.07	3	32.8	10	100	100	0.153	0.358	0.0328
	April	0.366	0.587	3	32.8	10	100	100	0.122	0.196	0.0179
	May	0.345	0.374	3	32.8	10	100	100	0.115	0.125	0.0114
	June	0.184	0.213	3	32.8	10	100	100	0.0614	0.0711	0.0065
	July	0.0947	0.159	3	32.8	10	100	100	0.0316	0.0529	0.0048
	August	0.174	0.383	3	32.8	10	100	100	0.0579	0.128	0.0117
	September	0.277	0.664	3	32.8	10	100	100	0.0925	0.221	0.0202
	October	0.285	0.667	3	32.8	10	100	100	0.0950	0.222	0.0203
	November	0.336	0.734	3	32.8	10	100	100	0.112	0.245	0.0224
	December	0.380	0.846	3	32.8	10	100	100	0.127	0.282	0.0258
Operations 2 Phase (24-28)	January	0.206	0.206	3	32.8	10	100	100	0.0686	0.0686	0.0063
	February	0.210	0.210	3	32.8	10	100	100	0.0700	0.0700	0.0064
	March	0.202	0.202	3	32.8	10	100	100	0.0674	0.0674	0.0062
	April	0.274	0.274	3	32.8	10	100	100	0.0914	0.0914	0.0084
	May	0.331	0.331	3	32.8	10	100	100	0.110	0.110	0.0101
	June	0.171	0.171	3	32.8	10	100	100	0.0568	0.0568	0.0052
	July	0.0674	0.0675	3	32.8	10	100	100	0.0225	0.0225	0.0021
	August	0.0868	0.0868	3	32.8	10	100	100	0.0289	0.0289	0.0026
	September	0.117	0.117	3	32.8	10	100	100	0.0390	0.0390	0.0036
	October	0.125	0.125	3	32.8	10	100	100	0.0416	0.0416	0.0038
	November	0.169	0.169	3	32.8	10	100	100	0.0563	0.0563	0.0051
	December	0.187	0.187	3	32.8	10	100	100	0.0623	0.0623	0.0057
Closure Phase (29-35)	January	0.206	0.206	3	32.8	10	100	100	0.0686	0.0686	0.0063
	February	0.210	0.210	3	32.8	10	100	100	0.0700	0.0700	0.0064
	March	0.202	0.202	3	32.8	10	100	100	0.0674	0.0674	0.0062
	April	0.274	0.274	3	32.8	10	100	100	0.0914	0.0914	0.0084
	May	0.331	0.331	3	32.8	10	100	100	0.110	0.110	0.0101
	June	0.171	0.171	3	32.8	10	100	100	0.0569	0.0569	0.0052
	July	0.0673	0.0674	3	32.8	10	100	100	0.0224	0.0225	0.0021
	August	0.0867	0.0867	3	32.8	10	100	100	0.0289	0.0289	0.0026
	September	0.117	0.117	3	32.8	10	100	100	0.0390	0.0390	0.0036
	October	0.125	0.125	3	32.8	10	100	100	0.0416	0.0416	0.0038
	November	0.169	0.169	3	32.8	10	100	100	0.0563	0.0563	0.0051
	December	0.187	0.187	3	32.8	10	100	100	0.0623	0.0623	0.0057
Post-Closure Phase (36-99)	January	0.206	0.206	3	32.8	10	100	100	0.0686	0.0686	0.0063
	February	0.210	0.210	3	32.8	10	100	100	0.0700	0.0700	0.0064
	March	0.202	0.202	3	32.8	10	100	100	0.0674	0.0674	0.0062
	April	0.274	0.274	3	32.8	10	100	100	0.0914	0.0915	0.0084
	May	0.331	0.331	3	32.8	10	100	100	0.110	0.110	0.0101
	June	0.171	0.171	3	32.8	10	100	100	0.0569	0.0569	0.0052
	July	0.0673	0.0673	3	32.8	10	100	100	0.0224	0.0224	0.0021
	August	0.0867	0.0867	3	32.8	10	100	100	0.0289	0.0289	0.0026
	September	0.117	0.117	3	32.8	10	100	100	0.0390	0.0390	0.0036
	October	0.125	0.125	3	32.8	10	100	100	0.0416	0.0416	0.0038
	November	0.169	0.169	3	32.8	10	100	100	0.0563	0.0563	0.0051
	December	0.187	0.187	3	32.8	10	100	100	0.0623	0.0623	0.0057

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

(continued)

Appendix 13-D14aa. Mid Harper Creek (HM) Hazard Quotients for Nitrate Concentrations, Unrecovered Seepage Sensitivity Case (completed)

		First Screening Step			Retained as COPC?			
		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline				
Project Phase	Months	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
Construction (-2 to-1)	January	0.0611	0.0061	0.0061	No	No	No	No
	February	0.0646	0.0065	0.0065	No	No	No	No
	March	0.0676	0.0068	0.0068	No	No	No	No
	April	0.0423	0.0042	0.0042	No	No	No	No
	May	0.0362	0.0036	0.0036	No	No	No	No
	June	0.0192	0.0019	0.0019	No	No	No	No
	July	0.0106	0.0011	0.0011	No	No	No	No
	August	0.0216	0.0022	0.0022	No	No	No	No
	September	0.0366	0.0037	0.0037	No	No	No	No
	October	0.0398	0.0040	0.0040	No	No	No	No
	November	0.0414	0.0041	0.0041	No	No	No	No
	December	0.0482	0.0048	0.0048	No	No	No	No
Operation 1 Phase (1-23)	January	0.0935	0.0093	0.0093	No	No	No	No
	February	0.101	0.0101	0.0101	No	No	No	No
	March	0.107	0.0107	0.0107	No	No	No	No
	April	0.0587	0.0059	0.0059	No	No	No	No
	May	0.0374	0.0037	0.0037	No	No	No	No
	June	0.0213	0.0021	0.0021	No	No	No	No
	July	0.0159	0.0016	0.0016	No	No	No	No
	August	0.0383	0.0038	0.0038	No	No	No	No
	September	0.0664	0.0066	0.0066	No	No	No	No
	October	0.0667	0.0067	0.0067	No	No	No	No
	November	0.0734	0.0073	0.0073	No	No	No	No
	December	0.0846	0.0085	0.0085	No	No	No	No
Operations 2 Phase (24-28)	January	0.0206	0.0021	0.0021	No	No	No	No
	February	0.0210	0.0021	0.0021	No	No	No	No
	March	0.0202	0.0020	0.0020	No	No	No	No
	April	0.0274	0.0027	0.0027	No	No	No	No
	May	0.0331	0.0033	0.0033	No	No	No	No
	June	0.0171	0.0017	0.0017	No	No	No	No
	July	0.0067	0.0007	0.0007	No	No	No	No
	August	0.0087	0.0009	0.0009	No	No	No	No
	September	0.0117	0.0012	0.0012	No	No	No	No
	October	0.0125	0.0012	0.0012	No	No	No	No
	November	0.0169	0.0017	0.0017	No	No	No	No
	December	0.0187	0.0019	0.0019	No	No	No	No
Closure Phase (29-35)	January	0.0206	0.0021	0.0021	No	No	No	No
	February	0.0210	0.0021	0.0021	No	No	No	No
	March	0.0202	0.0020	0.0020	No	No	No	No
	April	0.0274	0.0027	0.0027	No	No	No	No
	May	0.0331	0.0033	0.0033	No	No	No	No
	June	0.0171	0.0017	0.0017	No	No	No	No
	July	0.0067	0.0007	0.0007	No	No	No	No
	August	0.0087	0.0009	0.0009	No	No	No	No
	September	0.0117	0.0012	0.0012	No	No	No	No
	October	0.0125	0.0012	0.0012	No	No	No	No
	November	0.0169	0.0017	0.0017	No	No	No	No
	December	0.0187	0.0019	0.0019	No	No	No	No
Post-Closure Phase (36-99)	January	0.0206	0.0021	0.0021	No	No	No	No
	February	0.0210	0.0021	0.0021	No	No	No	No
	March	0.0202	0.0020	0.0020	No	No	No	No
	April	0.0274	0.0027	0.0027	No	No	No	No
	May	0.0331	0.0033	0.0033	No	No	No	No
	June	0.0171	0.0017	0.0017	No	No	No	No
	July	0.0067	0.0007	0.0007	No	No	No	No
	August	0.0087	0.0009	0.0009	No	No	No	No
	September	0.0117	0.0012	0.0012	No	No	No	No
	October	0.0125	0.0012	0.0012	No	No	No	No
	November	0.0169	0.0017	0.0017	No	No	No	No
	December	0.0187	0.0019	0.0019	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D14ab. Mid Harper Creek (HM) Hazard Quotients for Nitrite Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step									
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean Predicted vs BC MOE	Maximum Predicted vs BC MOE	Maximum Predicted vs BC
									30-Day Mean Guideline	30-Day Mean Guideline	MOE Maximum Guideline
Construction (-2 to-1)	January	0.0062	0.0114	0.02	0.06	1	10	10	0.312	0.572	0.191
	February	0.0097	0.0147	0.02	0.06	1	10	10	0.486	0.733	0.244
	March	0.0101	0.0155	0.02	0.06	1	10	10	0.506	0.773	0.258
	April	0.0066	0.0081	0.02	0.06	1	10	10	0.328	0.407	0.136
	May	0.0012	0.0015	0.02	0.06	1	10	10	0.0619	0.0738	0.0246
	June	0.0023	0.0025	0.02	0.06	1	10	10	0.113	0.127	0.0422
	July	0.0014	0.0019	0.02	0.06	1	10	10	0.0716	0.0933	0.0311
	August	0.0027	0.0042	0.02	0.06	1	10	10	0.137	0.210	0.0701
	September	0.0038	0.0066	0.02	0.06	1	10	10	0.190	0.330	0.110
	October	0.0053	0.0084	0.02	0.06	1	10	10	0.267	0.422	0.141
	November	0.0057	0.0085	0.02	0.06	1	10	10	0.287	0.426	0.142
	December	0.0061	0.0094	0.02	0.06	1	10	10	0.303	0.470	0.157
Operation 1 Phase (1-23)	January	0.0077	0.0196	0.02	0.06	1	10	10	0.386	0.978	0.326
	February	0.0104	0.0233	0.02	0.06	1	10	10	0.519	1.16	0.388
	March	0.0108	0.0250	0.02	0.06	1	10	10	0.542	1.25	0.417
	April	0.0071	0.0122	0.02	0.06	1	10	10	0.355	0.608	0.203
	May	0.0013	0.0019	0.02	0.06	1	10	10	0.0646	0.0963	0.0321
	June	0.0024	0.0030	0.02	0.06	1	10	10	0.118	0.151	0.0505
	July	0.0016	0.0031	0.02	0.06	1	10	10	0.0812	0.155	0.0516
	August	0.0033	0.0081	0.02	0.06	1	10	10	0.165	0.405	0.135
	September	0.0047	0.0136	0.02	0.06	1	10	10	0.234	0.679	0.226
	October	0.0059	0.0147	0.02	0.06	1	10	10	0.296	0.736	0.245
	November	0.0068	0.0160	0.02	0.06	1	10	10	0.341	0.799	0.266
	December	0.0073	0.0180	0.02	0.06	1	10	10	0.367	0.902	0.301
Operations 2 Phase (24-28)	January	0.0028	0.0028	0.02	0.06	1	10	10	0.140	0.140	0.0467
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.248	0.248	0.0826
	March	0.0049	0.0049	0.02	0.06	1	10	10	0.247	0.247	0.0825
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.249	0.249	0.0830
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167
	June	0.0021	0.0021	0.02	0.06	1	10	10	0.103	0.103	0.0342
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0499	0.0500	0.0167
	August	0.0013	0.0013	0.02	0.06	1	10	10	0.0653	0.0653	0.0218
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0497	0.0497	0.0166
	October	0.0022	0.0022	0.02	0.06	1	10	10	0.112	0.112	0.0374
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.149	0.149	0.0497
	December	0.0029	0.0029	0.02	0.06	1	10	10	0.144	0.144	0.0481
Closure Phase (29-35)	January	0.0028	0.0028	0.02	0.06	1	10	10	0.140	0.140	0.0467
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.248	0.248	0.0825
	March	0.0049	0.0049	0.02	0.06	1	10	10	0.247	0.247	0.0825
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.249	0.249	0.0830
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167
	June	0.0021	0.0021	0.02	0.06	1	10	10	0.103	0.103	0.0342
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0499	0.0499	0.0166
	August	0.0013	0.0013	0.02	0.06	1	10	10	0.0653	0.0653	0.0218
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0497	0.0497	0.0166
	October	0.0022	0.0022	0.02	0.06	1	10	10	0.112	0.112	0.0374
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.149	0.149	0.0497
	December	0.0029	0.0029	0.02	0.06	1	10	10	0.144	0.144	0.0481
Post-Closure Phase (36-99)	January	0.0028	0.0028	0.02	0.06	1	10	10	0.140	0.140	0.0467
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.248	0.248	0.0825
	March	0.0049	0.0049	0.02	0.06	1	10	10	0.247	0.247	0.0825
	April	0.0050	0.0050	0.02	0.06	1	10	10	0.249	0.249	0.0830
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167
	June	0.0021	0.0021	0.02	0.06	1	10	10	0.103	0.103	0.0342
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0499	0.0499	0.0166
	August	0.0013	0.0013	0.02	0.06	1	10	10	0.0653	0.0653	0.0218
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0497	0.0497	0.0166
	October	0.0022	0.0022	0.02	0.06	1	10	10	0.112	0.112	0.0374
	November	0.0030	0.0030	0.02	0.06	1	10	10	0.149	0.149	0.0497
	December	0.0029	0.0029	0.02	0.06	1	10	10	0.144	0.144	0.0481

Notes: All concentrations in mg/L. (continued)

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are chloride dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D14ab. Mid Harper Creek (HM) Hazard Quotients for Nitrite Concentrations, Unrecovered Seepage Sensitivity Case (completed)

Project Phase	Months	First Screening Step			Second Screening Step				Retained as COPC?			
		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Drinking Water	Wildlife	Livestock
		Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Mean	95%ile	Mean	95%ile				
Construction (-2 to-1)	January	0.0114	0.0011	0.0011	0.0030	0.0030			No	No	No	No
	February	0.0147	0.0015	0.0015	0.0050	0.0050			No	No	No	No
	March	0.0155	0.0015	0.0015	0.0050	0.0050			No	No	No	No
	April	0.0081	0.0008	0.0008	0.0050	0.0050			No	No	No	No
	May	0.0015	0.0001	0.0001	0.0010	0.0010			No	No	No	No
	June	0.0025	0.0003	0.0003	0.0022	0.0022			No	No	No	No
	July	0.0019	0.0002	0.0002	0.0010	0.0010			No	No	No	No
	August	0.0042	0.0004	0.0004	0.0013	0.0013			No	No	No	No
	September	0.0066	0.0007	0.0007	0.0010	0.0010			No	No	No	No
	October	0.0084	0.0008	0.0008	0.0023	0.0023			No	No	No	No
	November	0.0085	0.0009	0.0009	0.0030	0.0030			No	No	No	No
	December	0.0094	0.0009	0.0009	0.0030	0.0030			No	No	No	No
Operation 1 Phase (1-23)	January	0.0196	0.0020	0.0020	0.0030	0.0030			No	No	No	No
	February	0.0233	0.0023	0.0023	0.0050	0.0050	2.08	4.66	Yes	No	No	No
	March	0.0250	0.0025	0.0025	0.0050	0.0050	2.17	5.00	Yes	No	No	No
	April	0.0122	0.0012	0.0012	0.0050	0.0050			No	No	No	No
	May	0.0019	0.0002	0.0002	0.0010	0.0010			No	No	No	No
	June	0.0030	0.0003	0.0003	0.0022	0.0022			No	No	No	No
	July	0.0031	0.0003	0.0003	0.0010	0.0010			No	No	No	No
	August	0.0081	0.0008	0.0008	0.0013	0.0013			No	No	No	No
	September	0.0136	0.0014	0.0014	0.0010	0.0010			No	No	No	No
	October	0.0147	0.0015	0.0015	0.0023	0.0023			No	No	No	No
	November	0.0160	0.0016	0.0016	0.0030	0.0030			No	No	No	No
	December	0.0180	0.0018	0.0018	0.0030	0.0030			No	No	No	No
Operations 2 Phase (24-28)	January	0.0028	0.0003	0.0003	0.0030	0.0030			No	No	No	No
	February	0.0050	0.0005	0.0005	0.0050	0.0050			No	No	No	No
	March	0.0049	0.0005	0.0005	0.0050	0.0050			No	No	No	No
	April	0.0050	0.0005	0.0005	0.0050	0.0050			No	No	No	No
	May	0.0010	0.0001	0.0001	0.0010	0.0010			No	No	No	No
	June	0.0021	0.0002	0.0002	0.0022	0.0022			No	No	No	No
	July	0.0010	0.0001	0.0001	0.0010	0.0010			No	No	No	No
	August	0.0013	0.0001	0.0001	0.0013	0.0013			No	No	No	No
	September	0.0010	0.0001	0.0001	0.0010	0.0010			No	No	No	No
	October	0.0022	0.0002	0.0002	0.0023	0.0023			No	No	No	No
	November	0.0030	0.0003	0.0003	0.0030	0.0030			No	No	No	No
	December	0.0029	0.0003	0.0003	0.0030	0.0030			No	No	No	No
Closure Phase (29-35)	January	0.0028	0.0003	0.0003	0.0030	0.0030			No	No	No	No
	February	0.0050	0.0005	0.0005	0.0050	0.0050			No	No	No	No
	March	0.0049	0.0005	0.0005	0.0050	0.0050			No	No	No	No
	April	0.0050	0.0005	0.0005	0.0050	0.0050			No	No	No	No
	May	0.0010	0.0001	0.0001	0.0010	0.0010			No	No	No	No
	June	0.0021	0.0002	0.0002	0.0022	0.0022			No	No	No	No
	July	0.0010	0.0001	0.0001	0.0010	0.0010			No	No	No	No
	August	0.0013	0.0001	0.0001	0.0013	0.0013			No	No	No	No
	September	0.0010	0.0001	0.0001	0.0010	0.0010			No	No	No	No
	October	0.0022	0.0002	0.0002	0.0023	0.0023			No	No	No	No
	November	0.0030	0.0003	0.0003	0.0030	0.0030			No	No	No	No
	December	0.0029	0.0003	0.0003	0.0030	0.0030			No	No	No	No
Post-Closure Phase (36-99)	January	0.0028	0.0003	0.0003	0.0030	0.0030			No	No	No	No
	February	0.0050	0.0005	0.0005	0.0050	0.0050			No	No	No	No
	March	0.0049	0.0005	0.0005	0.0050	0.0050			No	No	No	No
	April	0.0050	0.0005	0.0005	0.0050	0.0050			No	No	No	No
	May	0.0010	0.0001	0.0001	0.0010	0.0010			No	No	No	No
	June	0.0021	0.0002	0.0002	0.0022	0.0022			No	No	No	No
	July	0.0010	0.0001	0.0001	0.0010	0.0010			No	No	No	No
	August	0.0013	0.0001	0.0001	0.0013	0.0013			No	No	No	No
	September	0.0010	0.0001	0.0001	0.0010	0.0010			No	No	No	No
	October	0.0022	0.0002	0.0002	0.0023	0.0023			No	No	No	No
	November	0.0030	0.0003	0.0003	0.0030	0.0030			No	No	No	No
	December	0.0029	0.0003	0.0003	0.0030	0.0030			No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are chloride dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D14ac. Mid Harper Creek (HM) Hazard Quotients for Ammonia Concentrations, Unrecovered Seepage Sensitivity Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
						Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline		Maximum Predicted vs. BC MOE Working Maximum Guideline
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean	Maximum		Maximum
Construction (-2 to-1)	January	0.0350	0.0647	1.75	9.12	0.0200	0.0370	0.0071	No
	February	0.0626	0.0806	1.48	7.71	0.0423	0.0545	0.0105	No
	March	0.0390	0.0691	2.09	10.8	0.0186	0.0330	0.0064	No
	April	0.0212	0.0302	1.73	8.98	0.0123	0.0175	0.0034	No
	May	0.0106	0.0120	2.00	15.5	0.0053	0.0060	0.0008	No
	June	0.0107	0.0122	1.95	10.1	0.0055	0.0062	0.0012	No
	July	0.0364	0.0390	1.89	9.83	0.0193	0.0207	0.0040	No
	August	0.900	0.900	1.87	11.3	0.481	0.481	0.0796	No
	September	0.0395	0.0537	1.63	8.48	0.0242	0.0329	0.0063	No
	October	0.0277	0.0448	1.97	11.9	0.0141	0.0227	0.0038	No
	November	0.0273	0.0427	1.78	9.26	0.0154	0.0240	0.0046	No
	December	0.0322	0.0506	1.78	9.26	0.0181	0.0285	0.0055	No
Operation 1 Phase (1-23)	January	0.0447	0.110	1.75	9.12	0.0255	0.0628	0.0120	No
	February	0.0528	0.124	1.48	7.71	0.0357	0.0837	0.0161	No
	March	0.0441	0.122	2.09	10.8	0.0211	0.0584	0.0113	No
	April	0.0250	0.0529	1.73	8.98	0.0145	0.0306	0.0059	No
	May	0.0112	0.0146	2.00	15.5	0.0056	0.0073	0.0009	No
	June	0.0112	0.0148	1.95	10.1	0.0057	0.0076	0.0015	No
	July	0.0382	0.0462	1.89	9.83	0.0202	0.0244	0.0047	No
	August	0.874	0.900	1.87	11.3	0.467	0.482	0.0797	No
	September	0.0400	0.0888	1.63	8.48	0.0245	0.0545	0.0105	No
	October	0.0312	0.0795	1.97	11.9	0.0158	0.0404	0.0067	No
	November	0.0338	0.0842	1.78	9.26	0.0190	0.0473	0.0091	No
	December	0.0397	0.0985	1.78	9.26	0.0223	0.0554	0.0106	No
Operations 2 Phase (24-28)	January	0.0176	0.0176	1.75	9.12	0.0101	0.0101	0.0019	No
	February	0.0230	0.0230	1.48	7.71	0.0155	0.0155	0.0030	No
	March	0.0117	0.0117	2.09	10.8	0.0056	0.0056	0.0011	No
	April	0.0134	0.0134	1.73	8.98	0.0078	0.0078	0.0015	No
	May	0.0096	0.0096	2.00	15.5	0.0048	0.0048	0.0006	No
	June	0.0094	0.0094	1.95	10.1	0.0048	0.0048	0.0009	No
	July	0.0348	0.0348	1.89	9.83	0.0184	0.0184	0.0035	No
	August	0.8617	0.8620	1.87	11.3	0.461	0.461	0.0763	No
	September	0.0197	0.0197	1.63	8.48	0.0121	0.0121	0.0023	No
	October	0.0109	0.0109	1.97	11.9	0.0055	0.0055	0.0009	No
	November	0.0127	0.0127	1.78	9.26	0.0071	0.0071	0.0014	No
	December	0.0152	0.0152	1.78	9.26	0.0085	0.0085	0.0016	No
Closure Phase (29-35)	January	0.0176	0.0176	1.75	9.12	0.0101	0.0101	0.0019	No
	February	0.0230	0.0230	1.48	7.71	0.0155	0.0155	0.0030	No
	March	0.0117	0.0117	2.09	10.8	0.0056	0.0056	0.0011	No
	April	0.0134	0.0134	1.73	8.98	0.0078	0.0078	0.0015	No
	May	0.0096	0.0096	2.00	15.5	0.0048	0.0048	0.0006	No
	June	0.0094	0.0094	1.95	10.1	0.0048	0.0048	0.0009	No
	July	0.0349	0.0349	1.89	9.83	0.0185	0.0185	0.0036	No
	August	0.8611	0.8613	1.87	11.3	0.460	0.461	0.0762	No
	September	0.0196	0.0196	1.63	8.48	0.0120	0.0120	0.0023	No
	October	0.0109	0.0109	1.97	11.9	0.0055	0.0055	0.0009	No
	November	0.0127	0.0127	1.78	9.26	0.0071	0.0071	0.0014	No
	December	0.0152	0.0152	1.78	9.26	0.0085	0.0085	0.0016	No
Post-Closure Phase (36-99)	January	0.0176	0.0176	1.75	9.12	0.0101	0.0101	0.0019	No
	February	0.0230	0.0230	1.48	7.71	0.0155	0.0155	0.0030	No
	March	0.0117	0.0117	2.09	10.8	0.0056	0.0056	0.0011	No
	April	0.0134	0.0134	1.73	8.98	0.0077	0.0078	0.0015	No
	May	0.0096	0.0096	2.00	15.5	0.0048	0.0048	0.0006	No
	June	0.0094	0.0094	1.95	10.1	0.0048	0.0048	0.0009	No
	July	0.0349	0.0349	1.89	9.83	0.0185	0.0185	0.0036	No
	August	0.8610	0.8610	1.87	11.3	0.460	0.460	0.0762	No
	September	0.0196	0.0196	1.63	8.48	0.0121	0.0121	0.0023	No
	October	0.0109	0.0109	1.97	11.9	0.0055	0.0055	0.0009	No
	November	0.0127	0.0127	1.78	9.26	0.0071	0.0071	0.0014	No
	December	0.0152	0.0152	1.78	9.26	0.0085	0.0085	0.0016	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Appendix 13-D14ad. Mid Harper Creek (HM) Hazard Quotients for Sulphate Concentrations, Unrecovered Seepage Sensitivity Case

		First Screening Step								Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline				
		Construction (-2 to-1)	January	14.0	16.9	218	500	1000	0.0644	0.0773	0.0337	0.0169	No	No
	February	15.1	17.8	218	500	1000	0.0693	0.0818	0.0357	0.0178	No	No	No	
	March	18.4	22.0	218	500	1000	0.0846	0.101	0.0440	0.0220	No	No	No	
	April	10.5	11.6	218	500	1000	0.0481	0.0533	0.0233	0.0116	No	No	No	
	May	4.97	5.13	128	500	1000	0.0388	0.0401	0.0103	0.0051	No	No	No	
	June	5.33	5.51	128	500	1000	0.0416	0.0431	0.0110	0.0055	No	No	No	
	July	6.83	7.16	218	500	1000	0.0313	0.0328	0.0143	0.0072	No	No	No	
	August	9.74	10.9	218	500	1000	0.0447	0.0498	0.0217	0.0109	No	No	No	
	September	11.9	14.0	218	500	1000	0.0545	0.0641	0.0280	0.0140	No	No	No	
	October	10.5	12.7	218	500	1000	0.0482	0.0584	0.0254	0.0127	No	No	No	
	November	11.1	13.2	218	500	1000	0.0509	0.0605	0.0264	0.0132	No	No	No	
	December	11.9	14.5	218	500	1000	0.0547	0.0664	0.0289	0.0145	No	No	No	
Operation 1 Phase (1-23)	January	31.9	34.4	218	500	1000	0.146	0.158	0.0687	0.0344	No	No	No	
	February	34.5	37.6	218	500	1000	0.158	0.172	0.0751	0.0376	No	No	No	
	March	40.3	43.9	218	500	1000	0.185	0.201	0.0877	0.0439	No	No	No	
	April	18.6	19.9	218	500	1000	0.0855	0.0913	0.0398	0.0199	No	No	No	
	May	6.10	6.37	128	500	1000	0.0477	0.0498	0.0127	0.0064	No	No	No	
	June	6.63	6.91	128	500	1000	0.0518	0.0539	0.0138	0.0069	No	No	No	
	July	9.31	9.68	218	500	1000	0.0427	0.0444	0.0194	0.0097	No	No	No	
	August	17.6	18.8	218	500	1000	0.0809	0.0861	0.0375	0.0188	No	No	No	
	September	26.1	28.0	218	500	1000	0.120	0.128	0.0559	0.0280	No	No	No	
	October	24.6	26.5	218	500	1000	0.113	0.122	0.0530	0.0265	No	No	No	
	November	26.2	28.2	218	500	1000	0.120	0.129	0.0564	0.0282	No	No	No	
	December	29.4	31.6	218	500	1000	0.135	0.145	0.0632	0.0316	No	No	No	
Operations 2 Phase (24-28)	January	34.4	34.4	218	500	1000	0.158	0.158	0.0688	0.0344	No	No	No	
	February	37.7	37.7	218	500	1000	0.173	0.173	0.0754	0.0377	No	No	No	
	March	43.8	44.0	218	500	1000	0.201	0.202	0.0880	0.0440	No	No	No	
	April	19.9	19.9	218	500	1000	0.0914	0.0914	0.0399	0.0199	No	No	No	
	May	6.37	6.37	128	500	1000	0.0498	0.0498	0.0127	0.0064	No	No	No	
	June	6.90	6.91	128	500	1000	0.0539	0.0540	0.0138	0.0069	No	No	No	
	July	9.66	9.68	218	500	1000	0.0443	0.0444	0.0194	0.0097	No	No	No	
	August	18.7	18.7	218	500	1000	0.0858	0.0860	0.0375	0.0187	No	No	No	
	September	27.9	27.9	218	500	1000	0.128	0.128	0.0559	0.0279	No	No	No	
	October	26.4	26.5	218	500	1000	0.121	0.121	0.0529	0.0265	No	No	No	
	November	28.2	28.2	218	500	1000	0.129	0.129	0.0564	0.0282	No	No	No	
	December	31.6	31.6	218	500	1000	0.145	0.145	0.0632	0.0316	No	No	No	
Closure Phase (29-35)	January	25.4	25.4	218	500	1000	0.117	0.117	0.0509	0.0254	No	No	No	
	February	27.8	27.9	218	500	1000	0.128	0.128	0.0557	0.0279	No	No	No	
	March	33.0	33.2	218	500	1000	0.151	0.152	0.0664	0.0332	No	No	No	
	April	16.1	16.1	218	500	1000	0.0737	0.0738	0.0322	0.0161	No	No	No	
	May	5.89	5.89	128	500	1000	0.0460	0.0461	0.0118	0.0059	No	No	No	
	June	6.41	6.41	128	500	1000	0.0501	0.0501	0.0128	0.0064	No	No	No	
	July	8.56	8.57	218	500	1000	0.0393	0.0393	0.0171	0.0086	No	No	No	
	August	15.1	15.1	218	500	1000	0.0691	0.0691	0.0301	0.0151	No	No	No	
	September	21.2	21.2	218	500	1000	0.0972	0.0973	0.0424	0.0212	No	No	No	
	October	19.7	19.7	218	500	1000	0.0904	0.0904	0.0394	0.0197	No	No	No	
	November	21.1	21.1	218	500	1000	0.0969	0.0970	0.0423	0.0211	No	No	No	
	December	23.5	23.5	218	500	1000	0.108	0.108	0.0470	0.0235	No	No	No	
Post-Closure Phase (36-99)	January	25.5	25.5	218	500	1000	0.117	0.117	0.0511	0.0255	No	No	No	
	February	27.8	27.8	218	500	1000	0.128	0.128	0.0557	0.0278	No	No	No	
	March	33.0	33.2	218	500	1000	0.152	0.152	0.0664	0.0332	No	No	No	
	April	16.0	16.0	218	500	1000	0.0735	0.0735	0.0321	0.0160	No	No	No	
	May	5.87	5.88	128	500	1000	0.0459	0.0459	0.0118	0.0059	No	No	No	
	June	6.39	6.40	128	500	1000	0.0499	0.0500	0.0128	0.0064	No	No	No	
	July	8.55	8.55	218	500	1000	0.0392	0.0392	0.0171	0.0086	No	No	No	
	August	15.0	15.0	218	500	1000	0.0689	0.0690	0.0301	0.0150	No	No	No	
	September	21.2	21.3	218	500	1000	0.0974	0.0976	0.0425	0.0213	No	No	No	
	October	19.7	19.8	218	500	1000	0.0906	0.0907	0.0395	0.0198	No	No	No	
	November	21.2	21.2	218	500	1000	0.0971	0.0972	0.0424	0.0212	No	No	No	
	December	23.5	23.6	218	500	1000	0.108	0.108	0.0471	0.0236	No	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D15a. Open Pit (OP) Hazard Quotients for Total Aluminum Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations Total Aluminum		BC MOE Working Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Screening Based on BC MOE Maximum	Screening Based on BC MOE Maximum
Construction (-2 to-1)	January	0.0267	0.0534	5	5	0.0107	0.0107	No	No
	February	0.0267	0.0534	5	5	0.0107	0.0107	No	No
	March	0.0267	0.0534	5	5	0.0107	0.0107	No	No
	April	0.214	0.429	5	5	0.0857	0.0857	No	No
	May	0.189	0.377	5	5	0.0755	0.0755	No	No
	June	0.0245	0.0491	5	5	0.0098	0.0098	No	No
	July	0.0133	0.0267	5	5	0.0053	0.0053	No	No
	August	0.0267	0.0534	5	5	0.0107	0.0107	No	No
	September	0.145	0.291	5	5	0.0582	0.0582	No	No
	October	0.210	0.421	5	5	0.0842	0.0842	No	No
	November	0.0267	0.0534	5	5	0.0107	0.0107	No	No
	December	0.0267	0.0534	5	5	0.0107	0.0107	No	No
Operation 1 Phase (1-23)	January	0.0534	0.0534	5	5	0.0107	0.0107	No	No
	February	0.0534	0.0534	5	5	0.0107	0.0107	No	No
	March	0.0534	0.0534	5	5	0.0107	0.0107	No	No
	April	0.414	0.434	5	5	0.0869	0.0869	No	No
	May	0.423	0.439	5	5	0.0878	0.0878	No	No
	June	0.152	0.284	5	5	0.0568	0.0568	No	No
	July	0.0768	0.339	5	5	0.0677	0.0677	No	No
	August	0.066	0.340	5	5	0.0680	0.0680	No	No
	September	0.239	0.375	5	5	0.0750	0.0750	No	No
	October	0.394	0.423	5	5	0.0846	0.0846	No	No
	November	0.0685	0.400	5	5	0.0800	0.0800	No	No
	December	0.0689	0.410	5	5	0.0820	0.0820	No	No
Operations 2 Phase (24-28)	January	0.579	0.640	5	5	0.128	0.128	No	No
	February	0.590	0.642	5	5	0.128	0.128	No	No
	March	0.597	0.643	5	5	0.129	0.129	No	No
	April	0.604	0.645	5	5	0.129	0.129	No	No
	May	0.608	0.645	5	5	0.129	0.129	No	No
	June	0.607	0.637	5	5	0.127	0.127	No	No
	July	0.605	0.630	5	5	0.126	0.126	No	No
	August	0.606	0.627	5	5	0.125	0.125	No	No
	September	0.611	0.631	5	5	0.126	0.126	No	No
	October	0.614	0.634	5	5	0.127	0.127	No	No
	November	0.617	0.636	5	5	0.127	0.127	No	No
	December	0.621	0.639	5	5	0.128	0.128	No	No
Closure Phase (29-35)	January	0.576	0.639	5	5	0.128	0.128	No	No
	February	0.575	0.639	5	5	0.128	0.128	No	No
	March	0.575	0.638	5	5	0.128	0.128	No	No
	April	0.575	0.638	5	5	0.128	0.128	No	No
	May	0.575	0.638	5	5	0.128	0.128	No	No
	June	0.574	0.632	5	5	0.126	0.126	No	No
	July	0.565	0.620	5	5	0.124	0.124	No	No
	August	0.559	0.613	5	5	0.123	0.123	No	No
	September	0.559	0.613	5	5	0.123	0.123	No	No
	October	0.558	0.612	5	5	0.122	0.122	No	No
	November	0.559	0.612	5	5	0.122	0.122	No	No
	December	0.558	0.611	5	5	0.122	0.122	No	No
Post-Closure Phase (36-99)	January	0.461	0.518	5	5	0.104	0.104	No	No
	February	0.461	0.518	5	5	0.104	0.104	No	No
	March	0.461	0.518	5	5	0.104	0.104	No	No
	April	0.461	0.518	5	5	0.104	0.104	No	No
	May	0.464	0.522	5	5	0.104	0.104	No	No
	June	0.468	0.528	5	5	0.106	0.106	No	No
	July	0.463	0.523	5	5	0.105	0.105	No	No
	August	0.459	0.518	5	5	0.104	0.104	No	No
	September	0.459	0.519	5	5	0.104	0.104	No	No
	October	0.459	0.519	5	5	0.104	0.104	No	No
	November	0.461	0.521	5	5	0.104	0.104	No	No
	December	0.461	0.521	5	5	0.104	0.104	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15b. Open Pit (OP) Hazard Quotients for Total Arsenic Concentrations, Upper Bound Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Interim Guideline		
Construction (-2 to-1)	January	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No
	February	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No
	March	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No
	April	0.0133	0.0265	0.025	0.025	1.06	1.06	Yes	Yes
	May	0.0116	0.0232	0.025	0.025	0.929	0.929	No	No
	June	0.0015	0.0029	0.025	0.025	0.116	0.116	No	No
	July	0.0009	0.0018	0.025	0.025	0.074	0.074	No	No
	August	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No
	September	0.0095	0.0189	0.025	0.025	0.757	0.757	No	No
	October	0.0131	0.0261	0.025	0.025	1.04	1.04	Yes	Yes
	November	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No
	December	0.0029	0.0058	0.025	0.025	0.232	0.232	No	No
Operation 1 Phase (1-23)	January	0.0058	0.0058	0.025	0.025	0.232	0.232	No	No
	February	0.0058	0.0058	0.025	0.025	0.232	0.232	No	No
	March	0.0058	0.0058	0.025	0.025	0.232	0.232	No	No
	April	0.0257	0.0269	0.025	0.025	1.07	1.07	Yes	Yes
	May	0.0261	0.0271	0.025	0.025	1.08	1.08	Yes	Yes
	June	0.0103	0.0260	0.025	0.025	1.04	1.04	Yes	Yes
	July	0.0062	0.0263	0.025	0.025	1.05	1.05	Yes	Yes
	August	0.0067	0.0264	0.025	0.025	1.06	1.06	Yes	Yes
	September	0.0162	0.0266	0.025	0.025	1.06	1.06	Yes	Yes
	October	0.0247	0.0267	0.025	0.025	1.07	1.07	Yes	Yes
	November	0.0067	0.0269	0.025	0.025	1.07	1.07	Yes	Yes
	December	0.0067	0.0270	0.025	0.025	1.08	1.08	Yes	Yes
Operations 2 Phase (24-28)	January	0.0277	0.0280	0.025	0.025	1.12	1.12	Yes	Yes
	February	0.0278	0.0281	0.025	0.025	1.12	1.12	Yes	Yes
	March	0.0279	0.0281	0.025	0.025	1.12	1.12	Yes	Yes
	April	0.0279	0.0282	0.025	0.025	1.13	1.13	Yes	Yes
	May	0.0280	0.0282	0.025	0.025	1.13	1.13	Yes	Yes
	June	0.0279	0.0280	0.025	0.025	1.12	1.12	Yes	Yes
	July	0.0276	0.0277	0.025	0.025	1.11	1.11	Yes	Yes
	August	0.0275	0.0276	0.025	0.025	1.10	1.10	Yes	Yes
	September	0.0276	0.0277	0.025	0.025	1.11	1.11	Yes	Yes
	October	0.0277	0.0278	0.025	0.025	1.11	1.11	Yes	Yes
	November	0.0278	0.0278	0.025	0.025	1.11	1.11	Yes	Yes
	December	0.0278	0.0279	0.025	0.025	1.12	1.12	Yes	Yes
Closure Phase (29-35)	January	0.0255	0.0280	0.025	0.025	1.12	1.12	Yes	Yes
	February	0.0255	0.0280	0.025	0.025	1.12	1.12	Yes	Yes
	March	0.0255	0.0280	0.025	0.025	1.12	1.12	Yes	Yes
	April	0.0255	0.0279	0.025	0.025	1.12	1.12	Yes	Yes
	May	0.0255	0.0280	0.025	0.025	1.12	1.12	Yes	Yes
	June	0.0255	0.0278	0.025	0.025	1.11	1.11	Yes	Yes
	July	0.0251	0.0273	0.025	0.025	1.09	1.09	Yes	Yes
	August	0.0248	0.0269	0.025	0.025	1.08	1.08	Yes	Yes
	September	0.0248	0.0269	0.025	0.025	1.08	1.08	Yes	Yes
	October	0.0248	0.0269	0.025	0.025	1.08	1.08	Yes	Yes
	November	0.0248	0.0269	0.025	0.025	1.08	1.08	Yes	Yes
	December	0.0248	0.0269	0.025	0.025	1.08	1.08	Yes	Yes
Post-Closure Phase (36-99)	January	0.0211	0.0237	0.025	0.025	0.947	0.947	No	No
	February	0.0211	0.0237	0.025	0.025	0.947	0.947	No	No
	March	0.0211	0.0237	0.025	0.025	0.947	0.947	No	No
	April	0.0211	0.0237	0.025	0.025	0.947	0.947	No	No
	May	0.0213	0.0239	0.025	0.025	0.955	0.955	No	No
	June	0.0215	0.0241	0.025	0.025	0.966	0.966	No	No
	July	0.0212	0.0239	0.025	0.025	0.955	0.955	No	No
	August	0.0210	0.0237	0.025	0.025	0.947	0.947	No	No
	September	0.0211	0.0237	0.025	0.025	0.948	0.948	No	No
	October	0.0210	0.0237	0.025	0.025	0.948	0.948	No	No
	November	0.0211	0.0238	0.025	0.025	0.953	0.953	No	No
	December	0.0211	0.0238	0.025	0.025	0.953	0.953	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15c. Open Pit (OP) Hazard Quotients for Total Beryllium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.00003	0.00005	0.1	0.00050	No
	February	0.00003	0.00005	0.1	0.00050	No
	March	0.00003	0.00005	0.1	0.00050	No
	April	0.00007	0.00014	0.1	0.00143	No
	May	0.00006	0.00012	0.1	0.00124	No
	June	0.00001	0.00001	0.1	0.00015	No
	July	0.00001	0.00001	0.1	0.00011	No
	August	0.00003	0.00005	0.1	0.00050	No
	September	0.00005	0.00011	0.1	0.00109	No
	October	0.00007	0.00014	0.1	0.00141	No
	November	0.00003	0.00005	0.1	0.00050	No
	December	0.00003	0.00005	0.1	0.00050	No
Operation 1 Phase (1-23)	January	0.00005	0.00005	0.1	0.00050	No
	February	0.00005	0.00005	0.1	0.00050	No
	March	0.00005	0.00005	0.1	0.00050	No
	April	0.00014	0.00014	0.1	0.00144	No
	May	0.00014	0.00015	0.1	0.00146	No
	June	0.00006	0.00016	0.1	0.00158	No
	July	0.00005	0.00022	0.1	0.00217	No
	August	0.00006	0.00022	0.1	0.00218	No
	September	0.00010	0.00025	0.1	0.00255	No
	October	0.00014	0.00026	0.1	0.00263	No
	November	0.00006	0.00028	0.1	0.00277	No
	December	0.00006	0.00029	0.1	0.00288	No
Operations 2 Phase (24-28)	January	0.00078	0.00127	0.1	0.0127	No
	February	0.00080	0.00130	0.1	0.0130	No
	March	0.00083	0.00133	0.1	0.0133	No
	April	0.00085	0.00136	0.1	0.0136	No
	May	0.00087	0.00139	0.1	0.0139	No
	June	0.00088	0.00139	0.1	0.0139	No
	July	0.00090	0.00140	0.1	0.0140	No
	August	0.00091	0.00142	0.1	0.0142	No
	September	0.00094	0.00146	0.1	0.0146	No
	October	0.00096	0.00149	0.1	0.0149	No
	November	0.00098	0.00152	0.1	0.0152	No
	December	0.00101	0.00156	0.1	0.0156	No
Closure Phase (29-35)	January	0.00125	0.00156	0.1	0.0156	No
	February	0.00125	0.00156	0.1	0.0156	No
	March	0.00125	0.00155	0.1	0.0155	No
	April	0.00125	0.00155	0.1	0.0155	No
	May	0.00124	0.00154	0.1	0.0154	No
	June	0.00121	0.00149	0.1	0.0149	No
	July	0.00119	0.00146	0.1	0.0146	No
	August	0.00118	0.00144	0.1	0.0144	No
	September	0.00118	0.00144	0.1	0.0144	No
	October	0.00118	0.00144	0.1	0.0144	No
	November	0.00117	0.00143	0.1	0.0143	No
	December	0.00117	0.00143	0.1	0.0143	No
Post-Closure Phase (36-99)	January	0.00033	0.00096	0.1	0.00965	No
	February	0.00033	0.00096	0.1	0.00964	No
	March	0.00033	0.00096	0.1	0.00964	No
	April	0.00033	0.00096	0.1	0.00963	No
	May	0.00033	0.00096	0.1	0.00958	No
	June	0.00032	0.00094	0.1	0.00941	No
	July	0.00032	0.00093	0.1	0.00928	No
	August	0.00032	0.00092	0.1	0.00920	No
	September	0.00032	0.00092	0.1	0.00920	No
	October	0.00032	0.00092	0.1	0.00919	No
	November	0.00032	0.00092	0.1	0.00915	No
	December	0.00032	0.00092	0.1	0.00915	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15d. Open Pit (OP) Hazard Quotients for Total Boron Concentrations, Upper Bound Case

Project Phase		First Screening Step								Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs. BC MOE		Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Guideline	Maximum Guideline	Maximum Predicted vs BC MOE	Maximum Guideline		
Construction (-2 to-1)	January	0.0070	0.0140	5	5	0.0028	0.0028			No	No
	February	0.0070	0.0140	5	5	0.0028	0.0028			No	No
	March	0.0070	0.0140	5	5	0.0028	0.0028			No	No
	April	0.139	0.279	5	5	0.0557	0.0557			No	No
	May	0.123	0.246	5	5	0.0491	0.0491			No	No
	June	0.0137	0.0275	5	5	0.0055	0.0055			No	No
	July	0.0053	0.0106	5	5	0.0021	0.0021			No	No
	August	0.0070	0.0140	5	5	0.0028	0.0028			No	No
	September	0.0907	0.181	5	5	0.0363	0.0363			No	No
	October	0.137	0.273	5	5	0.0546	0.0546			No	No
	November	0.0070	0.0140	5	5	0.0028	0.0028			No	No
	December	0.0070	0.0140	5	5	0.0028	0.0028			No	No
Operation 1 Phase (1-23)	January	0.0140	0.0140	5	5	0.0028	0.0028			No	No
	February	0.0140	0.0140	5	5	0.0028	0.0028			No	No
	March	0.0140	0.0140	5	5	0.0028	0.0028			No	No
	April	0.268	0.283	5	5	0.0565	0.0565			No	No
	May	0.275	0.286	5	5	0.0572	0.0572			No	No
	June	0.0989	0.510	5	5	0.102	0.102			No	No
	July	0.0351	0.302	5	5	0.0604	0.0604			No	No
	August	0.0266	0.303	5	5	0.0607	0.0607			No	No
	September	0.148	0.305	5	5	0.0609	0.0609			No	No
	October	0.2566	0.305	5	5	0.0610	0.0610			No	No
	November	0.0267	0.305	5	5	0.0610	0.0610			No	No
	December	0.0267	0.305	5	5	0.0610	0.0610			No	No
Operations 2 Phase (24-28)	January	0.304	0.305	5	5	0.0611	0.0611			No	No
	February	0.304	0.305	5	5	0.0611	0.0611			No	No
	March	0.305	0.306	5	5	0.0611	0.0611			No	No
	April	0.305	0.306	5	5	0.0612	0.0612			No	No
	May	0.305	0.306	5	5	0.0612	0.0612			No	No
	June	0.304	0.304	5	5	0.0609	0.0609			No	No
	July	0.301	0.302	5	5	0.0605	0.0605			No	No
	August	0.300	0.301	5	5	0.0603	0.0603			No	No
	September	0.301	0.302	5	5	0.0604	0.0604			No	No
	October	0.302	0.302	5	5	0.0605	0.0605			No	No
	November	0.302	0.303	5	5	0.0605	0.0605			No	No
	December	0.303	0.303	5	5	0.0607	0.0607			No	No
Closure Phase (29-35)	January	0.258	0.305	5	5	0.0610	0.0610			No	No
	February	0.258	0.305	5	5	0.0610	0.0610			No	No
	March	0.258	0.305	5	5	0.0609	0.0609			No	No
	April	0.258	0.304	5	5	0.0609	0.0609			No	No
	May	0.257	0.303	5	5	0.0605	0.0605			No	No
	June	0.253	0.296	5	5	0.0593	0.0593			No	No
	July	0.249	0.291	5	5	0.0581	0.0581			No	No
	August	0.246	0.287	5	5	0.0574	0.0574			No	No
	September	0.246	0.287	5	5	0.0574	0.0574			No	No
	October	0.246	0.286	5	5	0.0573	0.0573			No	No
	November	0.245	0.286	5	5	0.0571	0.0571			No	No
	December	0.245	0.285	5	5	0.0571	0.0571			No	No
Post-Closure Phase (36-99)	January	0.109	0.212	5	5	0.0425	0.0425			No	No
	February	0.109	0.212	5	5	0.0425	0.0425			No	No
	March	0.109	0.212	5	5	0.0425	0.0425			No	No
	April	0.109	0.212	5	5	0.0425	0.0425			No	No
	May	0.109	0.212	5	5	0.0424	0.0424			No	No
	June	0.108	0.210	5	5	0.0419	0.0419			No	No
	July	0.107	0.207	5	5	0.0414	0.0414			No	No
	August	0.106	0.205	5	5	0.0410	0.0410			No	No
	September	0.106	0.205	5	5	0.0410	0.0410			No	No
	October	0.106	0.205	5	5	0.0410	0.0410			No	No
	November	0.106	0.205	5	5	0.0409	0.0409			No	No
	December	0.106	0.205	5	5	0.0409	0.0409			No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15e. Open Pit (OP) Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
		Mean	Maximum	BC MOE Working Guideline		
				Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
				Maximum Predicted vs BC MOE Working Guideline	Livestock	
Construction (-2 to-1)	January	17.1	34.1	1000	0.0341	No
	February	17.1	34.1	1000	0.0341	No
	March	17.1	34.1	1000	0.0341	No
	April	113	226	1000	0.226	No
	May	98.9	198	1000	0.198	No
	June	10.0	20.0	1000	0.0200	No
	July	4.63	9.26	1000	0.0093	No
	August	17.1	34.1	1000	0.0341	No
	September	77.9	155.8	1000	0.156	No
	October	111	222	1000	0.222	No
	November	17.1	34.1	1000	0.0341	No
	December	17.1	34.1	1000	0.0341	No
Operation 1 Phase (1-23)	January	34.1	34.1	1000	0.0341	No
	February	34.1	34.1	1000	0.0341	No
	March	34.1	34.1	1000	0.0341	No
	April	219	229	1000	0.229	No
	May	222	232	1000	0.232	No
	June	106	934	1000	0.934	No
	July	48.3	482	1000	0.482	No
	August	53.7	484	1000	0.484	No
	September	142	486	1000	0.486	No
	October	221	486	1000	0.486	No
	November	53.6	482	1000	0.482	No
	December	53.6	484	1000	0.484	No
Operations 2 Phase (24-28)	January	481	485	1000	0.485	No
	February	482	485	1000	0.485	No
	March	483	486	1000	0.486	No
	April	484	486	1000	0.486	No
	May	483	485	1000	0.485	No
	June	478	479	1000	0.479	No
	July	474	476	1000	0.476	No
	August	473	475	1000	0.475	No
	September	475	477	1000	0.477	No
	October	477	477	1000	0.477	No
	November	478	478	1000	0.478	No
	December	479	481	1000	0.481	No
Closure Phase (29-35)	January	404	484	1000	0.484	No
	February	404	483	1000	0.483	No
	March	404	483	1000	0.483	No
	April	403	483	1000	0.483	No
	May	401	479	1000	0.479	No
	June	394	468	1000	0.468	No
	July	388	459	1000	0.459	No
	August	384	453	1000	0.453	No
	September	384	453	1000	0.453	No
	October	383	452	1000	0.452	No
	November	382	450	1000	0.450	No
	December	382	450	1000	0.450	No
Post-Closure Phase (36-99)	January	164	327	1000	0.327	No
	February	164	327	1000	0.327	No
	March	164	327	1000	0.327	No
	April	164	327	1000	0.327	No
	May	164	326	1000	0.326	No
	June	164	322	1000	0.322	No
	July	162	318	1000	0.318	No
	August	161	315	1000	0.315	No
	September	161	315	1000	0.315	No
	October	161	315	1000	0.315	No
	November	161	314	1000	0.314	No
	December	161	314	1000	0.314	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15f. Open Pit (OP) Hazard Quotients for Total Cadmium Concentrations, Upper Bound Case

		First Screening Step				Retained as COPC?
Project Phase	Months	Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Livestock
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	Total Cadmium
		Construction (-2 to-1)	January	0.00001	0.00003	0.08
	February	0.00001	0.00003	0.08	0.00031	No
	March	0.00001	0.00003	0.08	0.00031	No
	April	0.00039	0.00079	0.08	0.00985	No
	May	0.00035	0.00070	0.08	0.00869	No
	June	0.00004	0.00008	0.08	0.00096	No
	July	0.00001	0.00003	0.08	0.00034	No
	August	0.00001	0.00003	0.08	0.00031	No
	September	0.00025	0.00051	0.08	0.00635	No
	October	0.00039	0.00077	0.08	0.00965	No
	November	0.00001	0.00003	0.08	0.00031	No
	December	0.00001	0.00003	0.08	0.00031	No
Operation 1 Phase (1-23)	January	0.00003	0.00003	0.08	0.00031	No
	February	0.00003	0.00003	0.08	0.00031	No
	March	0.00003	0.00003	0.08	0.00031	No
	April	0.00076	0.00080	0.08	0.0100	No
	May	0.00078	0.00081	0.08	0.0101	No
	June	0.00023	0.00036	0.08	0.00451	No
	July	0.00008	0.00058	0.08	0.00723	No
	August	0.00005	0.00058	0.08	0.00726	No
	September	0.00040	0.00072	0.08	0.00896	No
	October	0.00072	0.00078	0.08	0.00971	No
	November	0.00006	0.00081	0.08	0.0101	No
	December	0.00006	0.00085	0.08	0.0106	No
Operations 2 Phase (24-28)	January	0.00253	0.00417	0.08	0.0521	No
	February	0.00262	0.00426	0.08	0.0533	No
	March	0.00270	0.00434	0.08	0.0543	No
	April	0.00278	0.00444	0.08	0.0555	No
	May	0.00285	0.00451	0.08	0.0563	No
	June	0.00288	0.00451	0.08	0.0564	No
	July	0.00293	0.00454	0.08	0.0568	No
	August	0.00299	0.00461	0.08	0.0576	No
	September	0.00307	0.00472	0.08	0.0590	No
	October	0.00315	0.00481	0.08	0.0602	No
	November	0.00322	0.00490	0.08	0.0613	No
	December	0.00330	0.00502	0.08	0.0628	No
Closure Phase (29-35)	January	0.00410	0.00502	0.08	0.0628	No
	February	0.00410	0.00501	0.08	0.0627	No
	March	0.00410	0.00501	0.08	0.0626	No
	April	0.00409	0.00500	0.08	0.0626	No
	May	0.00407	0.00496	0.08	0.0620	No
	June	0.00398	0.00483	0.08	0.0603	No
	July	0.00392	0.00473	0.08	0.0592	No
	August	0.00388	0.00467	0.08	0.0584	No
	September	0.00388	0.00467	0.08	0.0584	No
	October	0.00387	0.00466	0.08	0.0583	No
	November	0.00385	0.00464	0.08	0.0579	No
	December	0.00385	0.00463	0.08	0.0579	No
Post-Closure Phase (36-99)	January	0.00140	0.00323	0.08	0.0404	No
	February	0.00140	0.00323	0.08	0.0403	No
	March	0.00140	0.00323	0.08	0.0403	No
	April	0.00140	0.00322	0.08	0.0403	No
	May	0.00140	0.00321	0.08	0.0401	No
	June	0.00139	0.00316	0.08	0.0395	No
	July	0.00138	0.00312	0.08	0.0390	No
	August	0.00136	0.00309	0.08	0.0387	No
	September	0.00137	0.00309	0.08	0.0387	No
	October	0.00136	0.00309	0.08	0.0386	No
	November	0.00136	0.00308	0.08	0.0385	No
	December	0.00136	0.00308	0.08	0.0385	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15g. Open Pit (OP) Hazard Quotients for Total Chromium Concentrations, Upper Bound Case

Project Phase		First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0005	0.0010	0.05	0.0200	No
	February	0.0005	0.0010	0.05	0.0200	No
	March	0.0005	0.0010	0.05	0.0200	No
	April	0.0012	0.0024	0.05	0.0484	No
	May	0.0010	0.0021	0.05	0.0418	No
	June	0.0001	0.0003	0.05	0.0053	No
	July	0.0001	0.0002	0.05	0.0045	No
	August	0.0005	0.0010	0.05	0.0200	No
	September	0.0009	0.0019	0.05	0.0380	No
	October	0.0012	0.0024	0.05	0.0478	No
	November	0.0005	0.0010	0.05	0.0200	No
	December	0.0005	0.0010	0.05	0.0200	No
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.05	0.0200	No
	February	0.0010	0.0010	0.05	0.0200	No
	March	0.0010	0.0010	0.05	0.0200	No
	April	0.0024	0.0024	0.05	0.0488	No
	May	0.0024	0.0025	0.05	0.0492	No
	June	0.0011	0.0031	0.05	0.0613	No
	July	0.0009	0.0036	0.05	0.0712	No
	August	0.0011	0.0036	0.05	0.0715	No
	September	0.0018	0.0039	0.05	0.0779	No
	October	0.0024	0.0040	0.05	0.0793	No
	November	0.0011	0.0041	0.05	0.0816	No
	December	0.0011	0.0042	0.05	0.0836	No
Operations 2 Phase (24-28)	January	0.0084	0.0127	0.05	0.253	No
	February	0.0086	0.0129	0.05	0.258	No
	March	0.0088	0.0132	0.05	0.263	No
	April	0.0090	0.0134	0.05	0.268	No
	May	0.0092	0.0135	0.05	0.271	No
	June	0.0092	0.0134	0.05	0.269	No
	July	0.0093	0.0134	0.05	0.269	No
	August	0.0095	0.0135	0.05	0.270	No
	September	0.0097	0.0137	0.05	0.275	No
	October	0.0099	0.0139	0.05	0.278	No
	November	0.0100	0.0140	0.05	0.280	No
	December	0.0102	0.0142	0.05	0.283	No
Closure Phase (29-35)	January	0.0115	0.0142	0.05	0.283	No
	February	0.0115	0.0142	0.05	0.283	No
	March	0.0115	0.0141	0.05	0.283	No
	April	0.0115	0.0141	0.05	0.282	No
	May	0.0114	0.0140	0.05	0.280	No
	June	0.0111	0.0136	0.05	0.272	No
	July	0.0109	0.0133	0.05	0.267	No
	August	0.0108	0.0132	0.05	0.263	No
	September	0.0108	0.0132	0.05	0.263	No
	October	0.0108	0.0131	0.05	0.262	No
	November	0.0108	0.0130	0.05	0.261	No
	December	0.0108	0.0130	0.05	0.261	No
Post-Closure Phase (36-99)	January	0.0034	0.0089	0.05	0.179	No
	February	0.0034	0.0089	0.05	0.179	No
	March	0.0034	0.0089	0.05	0.179	No
	April	0.0034	0.0089	0.05	0.179	No
	May	0.0034	0.0089	0.05	0.178	No
	June	0.0033	0.0087	0.05	0.175	No
	July	0.0033	0.0086	0.05	0.172	No
	August	0.0033	0.0085	0.05	0.171	No
	September	0.0033	0.0085	0.05	0.171	No
	October	0.0033	0.0085	0.05	0.171	No
	November	0.0033	0.0085	0.05	0.170	No
	December	0.0033	0.0085	0.05	0.170	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15h. Open Pit (OP) Hazard Quotients for Total Cobalt Concentrations, Upper Bound Case

Project Phase		First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0004	0.0008	1.000	0.0008	No
	February	0.0004	0.0008	1.000	0.0008	No
	March	0.0004	0.0008	1.000	0.0008	No
	April	0.0026	0.0052	1.000	0.0052	No
	May	0.0023	0.0045	1.000	0.0045	No
	June	0.0002	0.0005	1.000	0.0005	No
	July	0.0001	0.0002	1.000	0.0002	No
	August	0.0004	0.0008	1.000	0.0008	No
	September	0.0018	0.0035	1.000	0.0035	No
	October	0.0025	0.0051	1.000	0.0051	No
	November	0.0004	0.0008	1.000	0.0008	No
	December	0.0004	0.0008	1.000	0.0008	No
Operation 1 Phase (1-23)	January	0.0008	0.0008	1.000	0.0008	No
	February	0.0008	0.0008	1.000	0.0008	No
	March	0.0008	0.0008	1.000	0.0008	No
	April	0.0050	0.0052	1.000	0.0052	No
	May	0.0051	0.0053	1.000	0.0053	No
	June	0.0017	0.0045	1.000	0.0045	No
	July	0.0014	0.0181	1.000	0.0181	No
	August	0.0015	0.0182	1.000	0.0182	No
	September	0.0039	0.0267	1.000	0.0267	No
	October	0.0058	0.0285	1.000	0.0285	No
	November	0.0021	0.0317	1.000	0.0317	No
	December	0.0022	0.0341	1.000	0.0341	No
Operations 2 Phase (24-28)	January	0.0927	0.116	1.000	0.116	No
	February	0.0955	0.117	1.000	0.117	No
	March	0.0976	0.117	1.000	0.117	No
	April	0.0997	0.118	1.000	0.118	No
	May	0.101	0.117	1.000	0.117	No
	June	0.101	0.115	1.000	0.115	No
	July	0.102	0.113	1.000	0.113	No
	August	0.103	0.113	1.000	0.113	No
	September	0.104	0.114	1.000	0.114	No
	October	0.106	0.115	1.000	0.115	No
	November	0.106	0.115	1.000	0.115	No
	December	0.108	0.116	1.000	0.116	No
Closure Phase (29-35)	January	0.0930	0.116	1.000	0.116	No
	February	0.0930	0.116	1.000	0.116	No
	March	0.0929	0.116	1.000	0.116	No
	April	0.0928	0.116	1.000	0.116	No
	May	0.0920	0.114	1.000	0.114	No
	June	0.0898	0.111	1.000	0.111	No
	July	0.0883	0.109	1.000	0.109	No
	August	0.0874	0.107	1.000	0.107	No
	September	0.0874	0.107	1.000	0.107	No
	October	0.0872	0.107	1.000	0.107	No
	November	0.0867	0.106	1.000	0.106	No
	December	0.0867	0.106	1.000	0.106	No
Post-Closure Phase (36-99)	January	0.0226	0.0710	1.000	0.0710	No
	February	0.0226	0.0710	1.000	0.0710	No
	March	0.0226	0.0710	1.000	0.0710	No
	April	0.0226	0.0709	1.000	0.0709	No
	May	0.0225	0.0705	1.000	0.0705	No
	June	0.0221	0.0692	1.000	0.0692	No
	July	0.0219	0.0683	1.000	0.0683	No
	August	0.0217	0.0677	1.000	0.0677	No
	September	0.0217	0.0677	1.000	0.0677	No
	October	0.0217	0.0676	1.000	0.0676	No
	November	0.0216	0.0673	1.000	0.0673	No
	December	0.0216	0.0673	1.000	0.0673	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15i. Open Pit (OP) Hazard Quotients for Total Copper Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	February	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	March	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	April	0.0124	0.0248	0.3	0.3	0.0826	0.0826	No	No
	May	0.0109	0.0218	0.3	0.3	0.0725	0.0725	No	No
	June	0.0010	0.0020	0.3	0.3	0.0066	0.0066	No	No
	July	0.0002	0.0005	0.3	0.3	0.0016	0.0016	No	No
	August	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	September	0.0080	0.0161	0.3	0.3	0.0535	0.0535	No	No
	October	0.0121	0.0243	0.3	0.3	0.0809	0.0809	No	No
	November	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
	December	0.0005	0.0010	0.3	0.3	0.0034	0.0034	No	No
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.3	0.3	0.0034	0.0034	No	No
	February	0.0010	0.0010	0.3	0.3	0.0034	0.0034	No	No
	March	0.0010	0.0010	0.3	0.3	0.0034	0.0034	No	No
	April	0.0238	0.0251	0.3	0.3	0.0838	0.0838	No	No
	May	0.0244	0.0254	0.3	0.3	0.0848	0.0848	No	No
	June	0.0092	0.0752	0.3	0.3	0.251	0.251	No	No
	July	0.0027	0.0365	0.3	0.3	0.122	0.122	No	No
	August	0.0026	0.0366	0.3	0.3	0.122	0.122	No	No
	September	0.0135	0.0368	0.3	0.3	0.123	0.123	No	No
	October	0.0232	0.0368	0.3	0.3	0.123	0.123	No	No
	November	0.0026	0.0366	0.3	0.3	0.122	0.122	No	No
	December	0.0026	0.0367	0.3	0.3	0.122	0.122	No	No
Operations 2 Phase (24-28)	January	0.0365	0.0367	0.3	0.3	0.122	0.122	No	No
	February	0.0366	0.0368	0.3	0.3	0.123	0.123	No	No
	March	0.0367	0.0368	0.3	0.3	0.123	0.123	No	No
	April	0.0367	0.0368	0.3	0.3	0.123	0.123	No	No
	May	0.0367	0.0368	0.3	0.3	0.123	0.123	No	No
	June	0.0364	0.0365	0.3	0.3	0.122	0.122	No	No
	July	0.0361	0.0362	0.3	0.3	0.121	0.121	No	No
	August	0.0360	0.0361	0.3	0.3	0.120	0.120	No	No
	September	0.0361	0.0362	0.3	0.3	0.121	0.121	No	No
	October	0.0362	0.0363	0.3	0.3	0.121	0.121	No	No
	November	0.0363	0.0363	0.3	0.3	0.121	0.121	No	No
	December	0.0364	0.0365	0.3	0.3	0.122	0.122	No	No
Closure Phase (29-35)	January	0.0312	0.0368	0.3	0.3	0.123	0.123	No	No
	February	0.0312	0.0367	0.3	0.3	0.122	0.122	No	No
	March	0.0311	0.0367	0.3	0.3	0.122	0.122	No	No
	April	0.0311	0.0367	0.3	0.3	0.122	0.122	No	No
	May	0.0310	0.0365	0.3	0.3	0.122	0.122	No	No
	June	0.0305	0.0357	0.3	0.3	0.119	0.119	No	No
	July	0.0301	0.0350	0.3	0.3	0.117	0.117	No	No
	August	0.0297	0.0346	0.3	0.3	0.115	0.115	No	No
	September	0.0297	0.0346	0.3	0.3	0.115	0.115	No	No
	October	0.0297	0.0345	0.3	0.3	0.115	0.115	No	No
	November	0.0296	0.0344	0.3	0.3	0.115	0.115	No	No
	December	0.0296	0.0344	0.3	0.3	0.115	0.115	No	No
Post-Closure Phase (36-99)	January	0.0149	0.0258	0.3	0.3	0.0861	0.0861	No	No
	February	0.0149	0.0258	0.3	0.3	0.0860	0.0860	No	No
	March	0.0149	0.0258	0.3	0.3	0.0860	0.0860	No	No
	April	0.0149	0.0258	0.3	0.3	0.0860	0.0860	No	No
	May	0.0150	0.0257	0.3	0.3	0.0858	0.0858	No	No
	June	0.0150	0.0255	0.3	0.3	0.0850	0.0850	No	No
	July	0.0148	0.0252	0.3	0.3	0.0839	0.0839	No	No
	August	0.0147	0.0249	0.3	0.3	0.0831	0.0831	No	No
	September	0.0147	0.0249	0.3	0.3	0.0831	0.0831	No	No
	October	0.0147	0.0249	0.3	0.3	0.0830	0.0830	No	No
	November	0.0147	0.0249	0.3	0.3	0.0830	0.0830	No	No
	December	0.0147	0.0249	0.3	0.3	0.0829	0.0829	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15j. Open Pit (OP) Hazard Quotients for Total Lead Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Predicted Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.00014	0.00027	0.1	0.1	0.00273	0.00273	No	No
	February	0.00014	0.00027	0.1	0.1	0.00273	0.00273	No	No
	March	0.00014	0.00027	0.1	0.1	0.00273	0.00273	No	No
	April	0.00138	0.00276	0.1	0.1	0.0276	0.0276	No	No
	May	0.00121	0.00242	0.1	0.1	0.0242	0.0242	No	No
	June	0.00012	0.00023	0.1	0.1	0.00235	0.00235	No	No
	July	0.00004	0.00009	0.1	0.1	0.00086	0.00086	No	No
	August	0.00014	0.00027	0.1	0.1	0.00273	0.00273	No	No
	September	0.00092	0.00185	0.1	0.1	0.0185	0.0185	No	No
	October	0.00135	0.00271	0.1	0.1	0.0271	0.0271	No	No
	November	0.00014	0.00027	0.1	0.1	0.00273	0.00273	No	No
	December	0.00014	0.00027	0.1	0.1	0.00273	0.00273	No	No
Operation 1 Phase (1-23)	January	0.00027	0.00027	0.1	0.1	0.00273	0.00273	No	No
	February	0.00027	0.00027	0.1	0.1	0.00273	0.00273	No	No
	March	0.00027	0.00027	0.1	0.1	0.00273	0.00273	No	No
	April	0.00266	0.00280	0.1	0.1	0.0280	0.0280	No	No
	May	0.00271	0.00283	0.1	0.1	0.0283	0.0283	No	No
	June	0.00079	0.00129	0.1	0.1	0.0129	0.0129	No	No
	July	0.00030	0.00137	0.1	0.1	0.0137	0.0137	No	No
	August	0.00032	0.00138	0.1	0.1	0.0138	0.0138	No	No
	September	0.00146	0.00189	0.1	0.1	0.0189	0.0189	No	No
	October	0.00249	0.00272	0.1	0.1	0.0272	0.0272	No	No
	November	0.00033	0.00150	0.1	0.1	0.0150	0.0150	No	No
	December	0.00033	0.00151	0.1	0.1	0.0151	0.0151	No	No
Operations 2 Phase (24-28)	January	0.00226	0.00277	0.1	0.1	0.0277	0.0277	No	No
	February	0.00230	0.00278	0.1	0.1	0.0278	0.0278	No	No
	March	0.00232	0.00279	0.1	0.1	0.0279	0.0279	No	No
	April	0.00235	0.00279	0.1	0.1	0.0279	0.0279	No	No
	May	0.00238	0.00280	0.1	0.1	0.0280	0.0280	No	No
	June	0.00240	0.00278	0.1	0.1	0.0278	0.0278	No	No
	July	0.00240	0.00275	0.1	0.1	0.0275	0.0275	No	No
	August	0.00240	0.00273	0.1	0.1	0.0273	0.0273	No	No
	September	0.00243	0.00275	0.1	0.1	0.0275	0.0275	No	No
	October	0.00245	0.00276	0.1	0.1	0.0276	0.0276	No	No
	November	0.00248	0.00278	0.1	0.1	0.0278	0.0278	No	No
	December	0.00250	0.00279	0.1	0.1	0.0279	0.0279	No	No
Closure Phase (29-35)	January	0.00242	0.00279	0.1	0.1	0.0279	0.0279	No	No
	February	0.00242	0.00278	0.1	0.1	0.0278	0.0278	No	No
	March	0.00242	0.00278	0.1	0.1	0.0278	0.0278	No	No
	April	0.00241	0.00278	0.1	0.1	0.0278	0.0278	No	No
	May	0.00241	0.00277	0.1	0.1	0.0277	0.0277	No	No
	June	0.00239	0.00273	0.1	0.1	0.0273	0.0273	No	No
	July	0.00235	0.00268	0.1	0.1	0.0268	0.0268	No	No
	August	0.00232	0.00264	0.1	0.1	0.0264	0.0264	No	No
	September	0.00232	0.00264	0.1	0.1	0.0264	0.0264	No	No
	October	0.00232	0.00264	0.1	0.1	0.0264	0.0264	No	No
	November	0.00232	0.00263	0.1	0.1	0.0263	0.0263	No	No
	December	0.00232	0.00263	0.1	0.1	0.0263	0.0263	No	No
Post-Closure Phase (36-99)	January	0.00144	0.00207	0.1	0.1	0.0207	0.0207	No	No
	February	0.00144	0.00207	0.1	0.1	0.0207	0.0207	No	No
	March	0.00144	0.00207	0.1	0.1	0.0207	0.0207	No	No
	April	0.00144	0.00207	0.1	0.1	0.0207	0.0207	No	No
	May	0.00145	0.00207	0.1	0.1	0.0207	0.0207	No	No
	June	0.00145	0.00205	0.1	0.1	0.0205	0.0205	No	No
	July	0.00144	0.00203	0.1	0.1	0.0203	0.0203	No	No
	August	0.00142	0.00201	0.1	0.1	0.0201	0.0201	No	No
	September	0.00142	0.00201	0.1	0.1	0.0201	0.0201	No	No
	October	0.00142	0.00201	0.1	0.1	0.0201	0.0201	No	No
	November	0.00143	0.00201	0.1	0.1	0.0201	0.0201	No	No
	December	0.00143	0.00201	0.1	0.1	0.0201	0.0201	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D15k. Open Pit (OP) Hazard Quotients for Total Mercury Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?		
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean if MeHg is 0.5% of THg	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.00003	0.00005	0.00002	0.003	0.125	0.250	0.00167	No	No
	February	0.00003	0.00005	0.00002	0.003	0.125	0.250	0.00167	No	No
	March	0.00003	0.00005	0.00002	0.003	0.125	0.250	0.00167	No	No
	April	0.00014	0.00028	0.00002	0.003	0.706	1.41	0.00941	Yes	No
	May	0.00012	0.00025	0.00002	0.003	0.617	1.23	0.00822	Yes	No
	June	0.00001	0.00003	0.00002	0.003	0.0638	0.128	0.00085	No	No
	July	0.00001	0.00001	0.00002	0.003	0.0326	0.0651	0.00043	No	No
	August	0.00003	0.00005	0.00002	0.003	0.125	0.250	0.00167	No	No
	September	0.00010	0.00020	0.00002	0.003	0.493	0.986	0.00657	No	No
	October	0.00014	0.00028	0.00002	0.003	0.694	1.39	0.00925	Yes	No
	November	0.00003	0.00005	0.00002	0.003	0.125	0.250	0.00167	No	No
	December	0.00003	0.00005	0.00002	0.003	0.125	0.250	0.00167	No	No
Operation 1 Phase (1-23)	January	0.00005	0.00005	0.00002	0.003	0.250	0.250	0.00167	No	No
	February	0.00005	0.00005	0.00002	0.003	0.250	0.250	0.00167	No	No
	March	0.00005	0.00005	0.00002	0.003	0.250	0.250	0.00167	No	No
	April	0.00027	0.00029	0.00002	0.003	1.37	1.43	0.00953	Yes	No
	May	0.00028	0.00029	0.00002	0.003	1.38	1.44	0.00963	Yes	No
	June	0.00019	0.00024	0.00002	0.003	0.949	12.1	0.0804	Yes	No
	July	0.00015	0.00024	0.00002	0.003	0.736	12.4	0.0828	Yes	No
	August	0.00016	0.00024	0.00002	0.003	0.781	12.5	0.0831	Yes	No
	September	0.00026	0.000254	0.00002	0.003	1.32	12.7	0.0847	Yes	No
	October	0.00036	0.000255	0.00002	0.003	1.80	12.8	0.0850	Yes	No
	November	0.00016	0.000254	0.00002	0.003	0.791	12.7	0.0846	Yes	No
	December	0.00016	0.000256	0.00002	0.003	0.797	12.8	0.0855	Yes	No
Operations 2 Phase (24-28)	January	0.000313	0.000372	0.00002	0.003	15.6	18.6	0.124	Yes	No
	February	0.000317	0.000377	0.00002	0.003	15.8	18.8	0.126	Yes	No
	March	0.000320	0.000381	0.00002	0.003	16.0	19.0	0.127	Yes	No
	April	0.000324	0.000386	0.00002	0.003	16.2	19.3	0.129	Yes	No
	May	0.000326	0.000388	0.00002	0.003	16.3	19.4	0.129	Yes	No
	June	0.000324	0.000383	0.00002	0.003	16.2	19.2	0.128	Yes	No
	July	0.000324	0.000383	0.00002	0.003	16.2	19.2	0.128	Yes	No
	August	0.000326	0.000385	0.00002	0.003	16.3	19.2	0.128	Yes	No
	September	0.000330	0.000391	0.00002	0.003	16.5	19.5	0.130	Yes	No
	October	0.000333	0.000395	0.00002	0.003	16.7	19.8	0.132	Yes	No
	November	0.000336	0.000399	0.00002	0.003	16.8	19.9	0.133	Yes	No
	December	0.000340	0.000405	0.00002	0.003	17.0	20.3	0.135	Yes	No
Closure Phase (29-35)	January	0.000326	0.000406	0.00002	0.003	16.3	20.3	0.135	Yes	No
	February	0.000326	0.000405	0.00002	0.003	16.3	20.3	0.135	Yes	No
	March	0.000326	0.000405	0.00002	0.003	16.3	20.2	0.135	Yes	No
	April	0.000326	0.000404	0.00002	0.003	16.3	20.2	0.135	Yes	No
	May	0.000323	0.000400	0.00002	0.003	16.2	20.0	0.133	Yes	No
	June	0.000315	0.000388	0.00002	0.003	15.8	19.4	0.129	Yes	No
	July	0.000310	0.000381	0.00002	0.003	15.5	19.0	0.127	Yes	No
	August	0.000307	0.000376	0.00002	0.003	15.3	18.8	0.125	Yes	No
	September	0.000307	0.000376	0.00002	0.003	15.3	18.8	0.125	Yes	No
	October	0.000306	0.000375	0.00002	0.003	15.3	18.7	0.125	Yes	No
	November	0.000305	0.000373	0.00002	0.003	15.2	18.6	0.124	Yes	No
	December	0.000305	0.000372	0.00002	0.003	15.2	18.6	0.124	Yes	No
Post-Closure Phase (36-99)	January	0.00083	0.000251	0.00002	0.003	4.15	12.5	0.0836	Yes	No
	February	0.00083	0.000251	0.00002	0.003	4.15	12.5	0.0835	Yes	No
	March	0.00083	0.000250	0.00002	0.003	4.15	12.5	0.0835	Yes	No
	April	0.00083	0.000250	0.00002	0.003	4.15	12.5	0.0835	Yes	No
	May	0.00083	0.000249	0.00002	0.003	4.13	12.4	0.0830	Yes	No
	June	0.00081	0.000244	0.00002	0.003	4.07	12.2	0.0815	Yes	No
	July	0.00080	0.000241	0.00002	0.003	4.02	12.1	0.0804	Yes	No
	August	0.00080	0.000239	0.00002	0.003	3.99	11.9	0.0797	Yes	No
	September	0.00080	0.000239	0.00002	0.003	3.99	12.0	0.0797	Yes	No
	October	0.00080	0.000239	0.00002	0.003	3.99	11.9	0.0795	Yes	No
	November	0.00080	0.000238	0.00002	0.003	3.98	11.9	0.0793	Yes	No
	December	0.00080	0.000238	0.00002	0.003	3.98	11.9	0.0792	Yes	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D151. Open Pit (OP) Hazard Quotients for Total Molybdenum Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
	February	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
	March	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
	April	0.0322	0.0644	0.05	0.05	1.29	1.29	Yes	Yes
	May	0.0284	0.0569	0.05	0.05	1.14	1.14	Yes	Yes
	June	0.0030	0.0060	0.05	0.05	0.120	0.120	No	No
	July	0.0009	0.0018	0.05	0.05	0.0358	0.0358	No	No
	August	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
	September	0.0205	0.0410	0.05	0.05	0.821	0.821	No	No
	October	0.0316	0.0631	0.05	0.05	1.26	1.26	Yes	Yes
	November	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
	December	0.0003	0.0007	0.05	0.05	0.0133	0.0133	No	No
Operation 1 Phase (1-23)	January	0.0007	0.0007	0.05	0.05	0.0133	0.0133	No	No
	February	0.0007	0.0007	0.05	0.05	0.0133	0.0133	No	No
	March	0.0007	0.0007	0.05	0.05	0.0133	0.0133	No	No
	April	0.0620	0.0654	0.05	0.05	1.31	1.31	Yes	Yes
	May	0.0636	0.0662	0.05	0.05	1.32	1.32	Yes	Yes
	June	0.0461	0.6853	0.05	0.05	13.7	13.7	Yes	Yes
	July	0.0067	0.0838	0.05	0.05	1.68	1.68	Yes	Yes
	August	0.0043	0.0842	0.05	0.05	1.68	1.68	Yes	Yes
	September	0.0335	0.0845	0.05	0.05	1.69	1.69	Yes	Yes
	October	0.0597	0.0845	0.05	0.05	1.69	1.69	Yes	Yes
	November	0.0043	0.0844	0.05	0.05	1.69	1.69	Yes	Yes
	December	0.0043	0.0845	0.05	0.05	1.69	1.69	Yes	Yes
Operations 2 Phase (24-28)	January	0.0842	0.0846	0.05	0.05	1.69	1.69	Yes	Yes
	February	0.0843	0.0846	0.05	0.05	1.69	1.69	Yes	Yes
	March	0.0845	0.0848	0.05	0.05	1.70	1.70	Yes	Yes
	April	0.0846	0.0850	0.05	0.05	1.70	1.70	Yes	Yes
	May	0.0846	0.0850	0.05	0.05	1.70	1.70	Yes	Yes
	June	0.0840	0.0842	0.05	0.05	1.68	1.68	Yes	Yes
	July	0.0833	0.0835	0.05	0.05	1.67	1.67	Yes	Yes
	August	0.0830	0.0833	0.05	0.05	1.67	1.67	Yes	Yes
	September	0.0833	0.0835	0.05	0.05	1.67	1.67	Yes	Yes
	October	0.0836	0.0836	0.05	0.05	1.67	1.67	Yes	Yes
	November	0.0837	0.0840	0.05	0.05	1.68	1.68	Yes	Yes
	December	0.0840	0.0843	0.05	0.05	1.69	1.69	Yes	Yes
Closure Phase (29-35)	January	0.0749	0.0872	0.05	0.05	1.74	1.74	Yes	Yes
	February	0.0749	0.0872	0.05	0.05	1.74	1.74	Yes	Yes
	March	0.0748	0.0872	0.05	0.05	1.74	1.74	Yes	Yes
	April	0.0748	0.0872	0.05	0.05	1.74	1.74	Yes	Yes
	May	0.0745	0.0867	0.05	0.05	1.73	1.73	Yes	Yes
	June	0.0734	0.0849	0.05	0.05	1.70	1.70	Yes	Yes
	July	0.0723	0.0834	0.05	0.05	1.67	1.67	Yes	Yes
	August	0.0715	0.0823	0.05	0.05	1.65	1.65	Yes	Yes
	September	0.0716	0.0824	0.05	0.05	1.65	1.65	Yes	Yes
	October	0.0715	0.0823	0.05	0.05	1.65	1.65	Yes	Yes
	November	0.0714	0.0820	0.05	0.05	1.64	1.64	Yes	Yes
	December	0.0714	0.0820	0.05	0.05	1.64	1.64	Yes	Yes
Post-Closure Phase (36-99)	January	0.0319	0.0627	0.05	0.05	1.25	1.25	Yes	Yes
	February	0.0319	0.0627	0.05	0.05	1.25	1.25	Yes	Yes
	March	0.0319	0.0627	0.05	0.05	1.25	1.25	Yes	Yes
	April	0.0319	0.0626	0.05	0.05	1.25	1.25	Yes	Yes
	May	0.0320	0.0625	0.05	0.05	1.25	1.25	Yes	Yes
	June	0.0319	0.0619	0.05	0.05	1.24	1.24	Yes	Yes
	July	0.0315	0.0610	0.05	0.05	1.22	1.22	Yes	Yes
	August	0.0312	0.0605	0.05	0.05	1.21	1.21	Yes	Yes
	September	0.0312	0.0606	0.05	0.05	1.21	1.21	Yes	Yes
	October	0.0312	0.0605	0.05	0.05	1.21	1.21	Yes	Yes
	November	0.0312	0.0604	0.05	0.05	1.21	1.21	Yes	Yes
	December	0.0312	0.0604	0.05	0.05	1.21	1.21	Yes	Yes

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15m. Open Pit (OP) Hazard Quotients for Total Nickel Concentrations, Upper Bound Case

Project Phase		First Screening Step			Retained as COPC?	
		Predicted Concentrations		Hazard Quotient relative to BC MOE		
		Mean	Maximum	BC MOE Livestock Watering Water Quality Guideline		
Months	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	Livestock			
Construction (-2 to-1)	January	0.0007	0.0015	1	0.0015	No
	February	0.0007	0.0015	1	0.0015	No
	March	0.0007	0.0015	1	0.0015	No
	April	0.0066	0.0132	1	0.0132	No
	May	0.0058	0.0115	1	0.0115	No
	June	0.0006	0.0011	1	0.0011	No
	July	0.0002	0.0004	1	0.0004	No
	August	0.0007	0.0015	1	0.0015	No
	September	0.0044	0.0089	1	0.0089	No
	October	0.0065	0.0129	1	0.0129	No
	November	0.0007	0.0015	1	0.0015	No
	December	0.0007	0.0015	1	0.0015	No
Operation 1 Phase (1-23)	January	0.0015	0.0015	1	0.0015	No
	February	0.0015	0.0015	1	0.0015	No
	March	0.0015	0.0015	1	0.0015	No
	April	0.0127	0.0134	1	0.0134	No
	May	0.0129	0.0135	1	0.0135	No
	June	0.0046	0.0235	1	0.0235	No
	July	0.0025	0.0298	1	0.0298	No
	August	0.0027	0.0300	1	0.0300	No
	September	0.0083	0.0340	1	0.0340	No
	October	0.0131	0.0349	1	0.0349	No
	November	0.0030	0.0362	1	0.0362	No
	December	0.0031	0.0374	1	0.0374	No
Operations 2 Phase (24-28)	January	0.0899	0.143	1	0.143	No
	February	0.0929	0.147	1	0.147	No
	March	0.0953	0.150	1	0.150	No
	April	0.0981	0.153	1	0.153	No
	May	0.100	0.156	1	0.156	No
	June	0.101	0.156	1	0.156	No
	July	0.103	0.157	1	0.157	No
	August	0.105	0.159	1	0.159	No
	September	0.107	0.163	1	0.163	No
	October	0.110	0.167	1	0.167	No
	November	0.112	0.170	1	0.170	No
	December	0.115	0.174	1	0.174	No
Closure Phase (29-35)	January	0.140	0.174	1	0.174	No
	February	0.140	0.174	1	0.174	No
	March	0.140	0.174	1	0.174	No
	April	0.140	0.174	1	0.174	No
	May	0.138	0.172	1	0.172	No
	June	0.135	0.167	1	0.167	No
	July	0.133	0.163	1	0.163	No
	August	0.132	0.161	1	0.161	No
	September	0.131	0.161	1	0.161	No
	October	0.131	0.161	1	0.161	No
	November	0.131	0.160	1	0.160	No
	December	0.130	0.160	1	0.160	No
Post-Closure Phase (36-99)	January	0.0357	0.107	1	0.107	No
	February	0.0357	0.107	1	0.107	No
	March	0.0357	0.107	1	0.107	No
	April	0.0357	0.107	1	0.107	No
	May	0.0356	0.107	1	0.107	No
	June	0.0351	0.105	1	0.105	No
	July	0.0346	0.103	1	0.103	No
	August	0.0343	0.102	1	0.102	No
	September	0.0343	0.102	1	0.102	No
	October	0.0343	0.102	1	0.102	No
	November	0.0342	0.102	1	0.102	No
	December	0.0342	0.102	1	0.102	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15n. Open Pit (OP) Hazard Quotients for Total Selenium Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?		
Project Phase	Months	Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
		Mean	Maximum	30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Day Mean Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
								Wildlife	Livestock	
Construction (-2 to-1)	January	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
	February	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
	March	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
	April	0.0242	0.0483	0.002	0.03	12.1	24.2	1.61	Yes	Yes
	May	0.0213	0.0425	0.002	0.03	10.6	21.3	1.42	Yes	Yes
	June	0.00185	0.00371	0.002	0.03	0.927	1.85	0.124	Yes	No
	July	0.00028	0.00055	0.002	0.03	0.138	0.276	0.0184	No	No
	August	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
	September	0.0153	0.0306	0.002	0.03	7.65	15.3	1.02	Yes	Yes
	October	0.0237	0.0473	0.002	0.03	11.8	23.7	1.58	Yes	Yes
	November	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
	December	0.00003	0.00005	0.002	0.03	0.0125	0.0250	0.00167	No	No
Operation 1 Phase (1-23)	January	0.00005	0.00005	0.002	0.03	0.0250	0.0250	0.00167	No	No
	February	0.00005	0.00005	0.002	0.03	0.0250	0.0250	0.00167	No	No
	March	0.00005	0.00005	0.002	0.03	0.0250	0.0250	0.00167	No	No
	April	0.0464	0.0490	0.002	0.03	23.2	24.5	1.63	Yes	Yes
	May	0.0475	0.0497	0.002	0.03	23.8	24.8	1.66	Yes	Yes
	June	0.0118	0.0245	0.002	0.03	5.92	12.3	0.817	Yes	No
	July	0.00217	0.0294	0.002	0.03	1.09	14.7	0.980	Yes	No
	August	0.00133	0.0295	0.002	0.03	0.665	14.8	0.984	Yes	No
	September	0.0236	0.0326	0.002	0.03	11.8	16.3	1.09	Yes	Yes
	October	0.0434	0.0476	0.002	0.03	21.7	23.8	1.59	Yes	Yes
	November	0.00157	0.0351	0.002	0.03	0.786	17.5	1.17	Yes	Yes
	December	0.00161	0.0359	0.002	0.03	0.804	17.9	1.20	Yes	Yes
Operations 2 Phase (24-28)	January	0.0795	0.124	0.002	0.03	39.7	61.9	4.13	Yes	Yes
	February	0.0819	0.126	0.002	0.03	40.9	63.2	4.22	Yes	Yes
	March	0.0839	0.129	0.002	0.03	41.9	64.5	4.30	Yes	Yes
	April	0.0861	0.132	0.002	0.03	43.1	65.9	4.39	Yes	Yes
	May	0.0880	0.134	0.002	0.03	44.0	66.9	4.46	Yes	Yes
	June	0.0891	0.134	0.002	0.03	44.6	67.1	4.47	Yes	Yes
	July	0.0903	0.135	0.002	0.03	45.1	67.6	4.51	Yes	Yes
	August	0.0918	0.137	0.002	0.03	45.9	68.5	4.56	Yes	Yes
	September	0.0941	0.140	0.002	0.03	47.1	70.1	4.67	Yes	Yes
	October	0.0961	0.143	0.002	0.03	48.1	71.5	4.77	Yes	Yes
	November	0.0981	0.146	0.002	0.03	49.1	72.8	4.86	Yes	Yes
	December	0.100	0.149	0.002	0.03	50.2	74.6	4.97	Yes	Yes
Closure Phase (29-35)	January	0.122	0.149	0.002	0.03	61.1	74.5	4.97	Yes	Yes
	February	0.122	0.149	0.002	0.03	61.1	74.5	4.96	Yes	Yes
	March	0.122	0.149	0.002	0.03	61.1	74.4	4.96	Yes	Yes
	April	0.122	0.149	0.002	0.03	61.0	74.3	4.95	Yes	Yes
	May	0.121	0.147	0.002	0.03	60.6	73.7	4.91	Yes	Yes
	June	0.119	0.144	0.002	0.03	59.4	71.8	4.78	Yes	Yes
	July	0.117	0.141	0.002	0.03	58.4	70.4	4.69	Yes	Yes
	August	0.116	0.139	0.002	0.03	57.8	69.5	4.63	Yes	Yes
	September	0.116	0.139	0.002	0.03	57.8	69.5	4.63	Yes	Yes
	October	0.115	0.139	0.002	0.03	57.7	69.3	4.62	Yes	Yes
	November	0.115	0.138	0.002	0.03	57.5	68.9	4.60	Yes	Yes
	December	0.115	0.138	0.002	0.03	57.4	68.9	4.59	Yes	Yes
Post-Closure Phase (36-99)	January	0.0426	0.0967	0.002	0.03	21.3	48.3	3.22	Yes	Yes
	February	0.0426	0.0966	0.002	0.03	21.3	48.3	3.22	Yes	Yes
	March	0.0426	0.0966	0.002	0.03	21.3	48.3	3.22	Yes	Yes
	April	0.0426	0.0966	0.002	0.03	21.3	48.3	3.22	Yes	Yes
	May	0.0426	0.0962	0.002	0.03	21.3	48.1	3.21	Yes	Yes
	June	0.0424	0.0948	0.002	0.03	21.2	47.4	3.16	Yes	Yes
	July	0.0419	0.0935	0.002	0.03	20.9	46.8	3.12	Yes	Yes
	August	0.0415	0.0927	0.002	0.03	20.8	46.3	3.09	Yes	Yes
	September	0.0415	0.0927	0.002	0.03	20.8	46.3	3.09	Yes	Yes
	October	0.0415	0.0925	0.002	0.03	20.8	46.3	3.08	Yes	Yes
	November	0.0415	0.0923	0.002	0.03	20.8	46.2	3.08	Yes	Yes
	December	0.0415	0.0923	0.002	0.03	20.8	46.1	3.08	Yes	Yes

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15o. Open Pit (OP) Hazard Quotients for Total Uranium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0006	0.0012	0.2	0.0058	No
	February	0.0006	0.0012	0.2	0.0058	No
	March	0.0006	0.0012	0.2	0.0058	No
	April	0.0027	0.0053	0.2	0.0267	No
	May	0.0023	0.0047	0.2	0.0233	No
	June	0.0002	0.0005	0.2	0.0025	No
	July	0.0001	0.0003	0.2	0.0014	No
	August	0.0006	0.0012	0.2	0.0058	No
	September	0.0019	0.0038	0.2	0.0190	No
	October	0.0026	0.0053	0.2	0.0263	No
	November	0.0006	0.0012	0.2	0.0058	No
	December	0.0006	0.0012	0.2	0.0058	No
Operation 1 Phase (1-23)	January	0.0012	0.0012	0.2	0.0058	No
	February	0.0012	0.0012	0.2	0.0058	No
	March	0.0012	0.0012	0.2	0.0058	No
	April	0.0052	0.0054	0.2	0.0270	No
	May	0.0052	0.0055	0.2	0.0273	No
	June	0.0023	0.0146	0.2	0.0730	No
	July	0.0015	0.0152	0.2	0.0759	No
	August	0.0018	0.0153	0.2	0.0763	No
	September	0.0037	0.0157	0.2	0.0783	No
	October	0.0054	0.0157	0.2	0.0787	No
	November	0.0018	0.0158	0.2	0.0788	No
	December	0.0018	0.0159	0.2	0.0797	No
Operations 2 Phase (24-28)	January	0.0210	0.0262	0.2	0.131	No
	February	0.0213	0.0266	0.2	0.133	No
	March	0.0216	0.0269	0.2	0.135	No
	April	0.0219	0.0273	0.2	0.137	No
	May	0.0221	0.0275	0.2	0.138	No
	June	0.0220	0.0273	0.2	0.137	No
	July	0.0221	0.0273	0.2	0.137	No
	August	0.0223	0.0275	0.2	0.138	No
	September	0.0226	0.0280	0.2	0.140	No
	October	0.0229	0.0283	0.2	0.142	No
	November	0.0231	0.0287	0.2	0.143	No
	December	0.0234	0.0292	0.2	0.146	No
Closure Phase (29-35)	January	0.0237	0.0292	0.2	0.146	No
	February	0.0237	0.0292	0.2	0.146	No
	March	0.0237	0.0291	0.2	0.146	No
	April	0.0237	0.0291	0.2	0.146	No
	May	0.0235	0.0288	0.2	0.144	No
	June	0.0230	0.0280	0.2	0.140	No
	July	0.0226	0.0275	0.2	0.137	No
	August	0.0223	0.0271	0.2	0.136	No
	September	0.0224	0.0271	0.2	0.136	No
	October	0.0223	0.0270	0.2	0.135	No
	November	0.0222	0.0269	0.2	0.134	No
	December	0.0222	0.0269	0.2	0.134	No
Post-Closure Phase (36-99)	January	0.0071	0.0185	0.2	0.0924	No
	February	0.0071	0.0185	0.2	0.0923	No
	March	0.0071	0.0185	0.2	0.0923	No
	April	0.0071	0.0185	0.2	0.0923	No
	May	0.0070	0.0184	0.2	0.0918	No
	June	0.0070	0.0181	0.2	0.0903	No
	July	0.0069	0.0178	0.2	0.0891	No
	August	0.0068	0.0177	0.2	0.0883	No
	September	0.0068	0.0177	0.2	0.0883	No
	October	0.0068	0.0176	0.2	0.0882	No
	November	0.0068	0.0176	0.2	0.0879	No
	December	0.0068	0.0176	0.2	0.0879	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15p. Open Pit (OP) Hazard Quotients for Total Vanadium Concentrations, Upper Bound Case

Project Phase		First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0003	0.0005	0.1	0.0050	No
	February	0.0003	0.0005	0.1	0.0050	No
	March	0.0003	0.0005	0.1	0.0050	No
	April	0.0012	0.0023	0.1	0.0235	No
	May	0.0010	0.0021	0.1	0.0207	No
	June	0.0002	0.0003	0.1	0.0031	No
	July	0.0001	0.0002	0.1	0.0021	No
	August	0.0003	0.0005	0.1	0.0050	No
	September	0.0008	0.0017	0.1	0.0167	No
	October	0.0012	0.0023	0.1	0.0231	No
	November	0.0003	0.0005	0.1	0.0050	No
	December	0.0003	0.0005	0.1	0.0050	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.1	0.0050	No
	February	0.0005	0.0005	0.1	0.0050	No
	March	0.0005	0.0005	0.1	0.0050	No
	April	0.0023	0.0024	0.1	0.0238	No
	May	0.0023	0.0024	0.1	0.0240	No
	June	0.0010	0.0032	0.1	0.0323	No
	July	0.0007	0.0039	0.1	0.0386	No
	August	0.0006	0.0039	0.1	0.0388	No
	September	0.0015	0.0043	0.1	0.0428	No
	October	0.0023	0.0044	0.1	0.0437	No
	November	0.0007	0.0045	0.1	0.0451	No
	December	0.0007	0.0046	0.1	0.0463	No
Operations 2 Phase (24-28)	January	0.0095	0.0142	0.1	0.142	No
	February	0.0098	0.0145	0.1	0.145	No
	March	0.0100	0.0147	0.1	0.147	No
	April	0.0102	0.0150	0.1	0.150	No
	May	0.0104	0.0152	0.1	0.152	No
	June	0.0105	0.0152	0.1	0.152	No
	July	0.0106	0.0152	0.1	0.152	No
	August	0.0108	0.0154	0.1	0.154	No
	September	0.0110	0.0158	0.1	0.158	No
	October	0.0112	0.0160	0.1	0.160	No
	November	0.0114	0.0163	0.1	0.163	No
	December	0.0117	0.0167	0.1	0.167	No
Closure Phase (29-35)	January	0.0137	0.0167	0.1	0.167	No
	February	0.0137	0.0166	0.1	0.166	No
	March	0.0137	0.0166	0.1	0.166	No
	April	0.0137	0.0166	0.1	0.166	No
	May	0.0136	0.0165	0.1	0.165	No
	June	0.0134	0.0161	0.1	0.161	No
	July	0.0132	0.0157	0.1	0.157	No
	August	0.0130	0.0155	0.1	0.155	No
	September	0.0130	0.0155	0.1	0.155	No
	October	0.0130	0.0155	0.1	0.155	No
	November	0.0129	0.0154	0.1	0.154	No
	December	0.0129	0.0154	0.1	0.154	No
Post-Closure Phase (36-99)	January	0.0053	0.0110	0.1	0.110	No
	February	0.0053	0.0110	0.1	0.110	No
	March	0.0053	0.0110	0.1	0.110	No
	April	0.0053	0.0109	0.1	0.109	No
	May	0.0053	0.0109	0.1	0.109	No
	June	0.0053	0.0108	0.1	0.108	No
	July	0.0053	0.0106	0.1	0.106	No
	August	0.0052	0.0105	0.1	0.105	No
	September	0.0052	0.0105	0.1	0.105	No
	October	0.0052	0.0105	0.1	0.105	No
	November	0.0052	0.0105	0.1	0.105	No
	December	0.0052	0.0105	0.1	0.105	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15q. Open Pit (OP) Hazard Quotients for Total Zinc Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Maximum	Maximum Predicted vs BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.0002	0.0005	2	0.0002	No
	February	0.0002	0.0005	2	0.0002	No
	March	0.0002	0.0005	2	0.0002	No
	April	0.0031	0.0062	2	0.0031	No
	May	0.0027	0.0055	2	0.0027	No
	June	0.0003	0.0005	2	0.0003	No
	July	0.0001	0.0002	2	0.0001	No
	August	0.0002	0.0005	2	0.0002	No
	September	0.0021	0.0041	2	0.0021	No
	October	0.0031	0.0061	2	0.0031	No
	November	0.0002	0.0005	2	0.0002	No
	December	0.0002	0.0005	2	0.0002	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	2	0.0002	No
	February	0.0005	0.0005	2	0.0002	No
	March	0.0005	0.0005	2	0.0002	No
	April	0.0060	0.0063	2	0.0032	No
	May	0.0061	0.0064	2	0.0032	No
	June	0.0021	0.0115	2	0.0057	No
	July	0.0010	0.0124	2	0.0062	No
	August	0.0010	0.0125	2	0.0062	No
	September	0.0037	0.0131	2	0.0066	No
	October	0.0060	0.0133	2	0.0066	No
	November	0.0010	0.0134	2	0.0067	No
	December	0.0010	0.0136	2	0.0068	No
Operations 2 Phase (24-28)	January	0.0217	0.0300	2	0.0150	No
	February	0.0222	0.0306	2	0.0153	No
	March	0.0226	0.0311	2	0.0155	No
	April	0.0231	0.0317	2	0.0158	No
	May	0.0234	0.0320	2	0.0160	No
	June	0.0235	0.0319	2	0.0159	No
	July	0.0237	0.0320	2	0.0160	No
	August	0.0239	0.0323	2	0.0162	No
	September	0.0244	0.0330	2	0.0165	No
	October	0.0248	0.0336	2	0.0168	No
	November	0.0252	0.0341	2	0.0170	No
	December	0.0256	0.0348	2	0.0174	No
Closure Phase (29-35)	January	0.0282	0.0348	2	0.0174	No
	February	0.0282	0.0347	2	0.0174	No
	March	0.0282	0.0347	2	0.0174	No
	April	0.0282	0.0347	2	0.0173	No
	May	0.0280	0.0343	2	0.0172	No
	June	0.0273	0.0334	2	0.0167	No
	July	0.0269	0.0327	2	0.0164	No
	August	0.0266	0.0323	2	0.0162	No
	September	0.0266	0.0323	2	0.0162	No
	October	0.0265	0.0322	2	0.0161	No
	November	0.0264	0.0320	2	0.0160	No
	December	0.0264	0.0320	2	0.0160	No
Post-Closure Phase (36-99)	January	0.0083	0.0219	2	0.0110	No
	February	0.0083	0.0219	2	0.0110	No
	March	0.0083	0.0219	2	0.0110	No
	April	0.0083	0.0219	2	0.0110	No
	May	0.0083	0.0218	2	0.0109	No
	June	0.0082	0.0215	2	0.0107	No
	July	0.0081	0.0212	2	0.0106	No
	August	0.0081	0.0210	2	0.0105	No
	September	0.0081	0.0210	2	0.0105	No
	October	0.0081	0.0209	2	0.0105	No
	November	0.0080	0.0209	2	0.0104	No
	December	0.0080	0.0209	2	0.0104	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15r. Open Pit (OP) Hazard Quotients for Chloride Concentrations, Upper Bound Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.400	0.800	600	600	0.0013	0.0013	No	No
	February	0.400	0.800	600	600	0.0013	0.0013	No	No
	March	0.400	0.800	600	600	0.0013	0.0013	No	No
	April	4.77	9.55	600	600	0.0159	0.0159	No	No
	May	4.19	8.37	600	600	0.0140	0.0140	No	No
	June	0.397	0.794	600	600	0.0013	0.0013	No	No
	July	0.132	0.265	600	600	0.0004	0.0004	No	No
	August	0.400	0.800	600	600	0.0013	0.0013	No	No
	September	3.17	6.34	600	600	0.0106	0.0106	No	No
	October	4.68	9.36	600	600	0.0156	0.0156	No	No
	November	0.400	0.800	600	600	0.0013	0.0013	No	No
	December	0.400	0.800	600	600	0.0013	0.0013	No	No
Operation 1 Phase (1-23)	January	0.800	0.800	600	600	0.0013	0.0013	No	No
	February	0.800	0.800	600	600	0.0013	0.0013	No	No
	March	0.800	0.800	600	600	0.0013	0.0013	No	No
	April	9.21	9.68	600	600	0.0161	0.0161	No	No
	May	9.38	9.79	600	600	0.0163	0.0163	No	No
	June	3.80	30.4	600	600	0.0506	0.0506	No	No
	July	2.13	32.4	600	600	0.0540	0.0540	No	No
	August	2.18	32.5	600	600	0.0542	0.0542	No	No
	September	6.25	33.9	600	600	0.0565	0.0565	No	No
	October	9.85	34.2	600	600	0.0569	0.0569	No	No
	November	2.26	34.4	600	600	0.0573	0.0573	No	No
	December	2.28	34.9	600	600	0.0582	0.0582	No	No
Operations 2 Phase (24-28)	January	46.2	51.5	600	600	0.0859	0.0859	No	No
	February	46.8	51.8	600	600	0.0863	0.0863	No	No
	March	47.2	52.0	600	600	0.0866	0.0866	No	No
	April	47.7	52.1	600	600	0.0869	0.0869	No	No
	May	47.9	51.9	600	600	0.0866	0.0866	No	No
	June	47.5	51.0	600	600	0.0849	0.0849	No	No
	July	47.5	50.4	600	600	0.0841	0.0841	No	No
	August	47.6	50.3	600	600	0.0838	0.0838	No	No
	September	48.1	50.8	600	600	0.0847	0.0847	No	No
	October	48.5	51.1	600	600	0.0852	0.0852	No	No
	November	48.7	51.2	600	600	0.0853	0.0853	No	No
	December	49.1	51.5	600	600	0.0859	0.0859	No	No
Closure Phase (29-35)	January	41.8	51.6	600	600	0.0860	0.0860	No	No
	February	41.8	51.6	600	600	0.0859	0.0859	No	No
	March	41.8	51.5	600	600	0.0858	0.0858	No	No
	April	41.7	51.5	600	600	0.0858	0.0858	No	No
	May	41.4	51.0	600	600	0.0849	0.0849	No	No
	June	40.5	49.5	600	600	0.0825	0.0825	No	No
	July	39.8	48.5	600	600	0.0809	0.0809	No	No
	August	39.4	47.9	600	600	0.0799	0.0799	No	No
	September	39.4	47.9	600	600	0.0799	0.0799	No	No
	October	39.3	47.8	600	600	0.0797	0.0797	No	No
	November	39.1	47.5	600	600	0.0792	0.0792	No	No
	December	39.1	47.5	600	600	0.0791	0.0791	No	No
Post-Closure Phase (36-99)	January	11.5	32.4	600	600	0.0541	0.0541	No	No
	February	11.5	32.4	600	600	0.0541	0.0541	No	No
	March	11.5	32.4	600	600	0.0540	0.0540	No	No
	April	11.5	32.4	600	600	0.0540	0.0540	No	No
	May	11.5	32.2	600	600	0.0537	0.0537	No	No
	June	11.3	31.7	600	600	0.0528	0.0528	No	No
	July	11.2	31.3	600	600	0.0521	0.0521	No	No
	August	11.1	31.0	600	600	0.0516	0.0516	No	No
	September	11.1	31.0	600	600	0.0517	0.0517	No	No
	October	11.1	30.9	600	600	0.0516	0.0516	No	No
	November	11.1	30.8	600	600	0.0514	0.0514	No	No
	December	11.1	30.8	600	600	0.0514	0.0514	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15s. Open Pit (OP) Hazard Quotients for Fluoride Concentrations, Upper Bound Case

		First Screening Step											Retained as COPC?		
Project Phase	Months	Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			Wildlife	Livestock
		Mean	Maximum	30-Day Mean	Maximum	30-Day Mean	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
	February	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
	March	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
	April	0.256	0.513	1	1.5	1	2	0.256	0.513	0.342	0.256	0.513	0.256	No	No
	May	0.214	0.429	1	1.5	1	2	0.214	0.429	0.286	0.214	0.429	0.214	No	No
	June	0.044	0.087	1	1.5	1	2	0.044	0.087	0.058	0.044	0.087	0.044	No	No
	July	0.064	0.128	1	1.5	1	2	0.064	0.128	0.085	0.064	0.128	0.064	No	No
	August	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
	September	0.276	0.552	1	1.5	1	2	0.276	0.552	0.368	0.276	0.552	0.276	No	No
	October	0.258	0.515	1	1.5	1	2	0.258	0.515	0.344	0.258	0.515	0.258	No	No
	November	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
	December	0.310	0.620	1	1.5	1	2	0.310	0.620	0.413	0.310	0.620	0.310	No	No
Operation 1 Phase (1-23)	January	0.620	0.620	1	1.5	1	2	0.620	0.620	0.413	0.620	0.620	0.310	No	No
	February	0.620	0.620	1	1.5	1	2	0.620	0.620	0.413	0.620	0.620	0.310	No	No
	March	0.620	0.620	1	1.5	1	2	0.620	0.620	0.413	0.620	0.620	0.310	No	No
	April	0.517	0.523	1	1.5	1	2	0.517	0.523	0.349	0.517	0.523	0.262	No	No
	May	0.492	0.514	1	1.5	1	2	0.492	0.514	0.343	0.492	0.514	0.257	No	No
	June	0.452	1.467	1	1.5	1	2	0.452	1.47	0.978	0.452	1.47	0.733	Yes	Yes
	July	0.467	0.780	1	1.5	1	2	0.467	0.780	0.520	0.467	0.780	0.390	No	No
	August	0.627	0.784	1	1.5	1	2	0.627	0.784	0.522	0.627	0.784	0.392	No	No
	September	0.578	0.787	1	1.5	1	2	0.578	0.787	0.525	0.578	0.787	0.394	No	No
	October	0.534	0.786	1	1.5	1	2	0.534	0.786	0.524	0.534	0.786	0.393	No	No
	November	0.627	0.782	1	1.5	1	2	0.627	0.782	0.521	0.627	0.782	0.391	No	No
	December	0.627	0.784	1	1.5	1	2	0.627	0.784	0.523	0.627	0.784	0.392	No	No
Operations 2 Phase (24-28)	January	0.776	0.785	1	1.5	1	2	0.776	0.785	0.523	0.776	0.785	0.392	No	No
	February	0.778	0.786	1	1.5	1	2	0.778	0.786	0.524	0.778	0.786	0.393	No	No
	March	0.779	0.786	1	1.5	1	2	0.779	0.786	0.524	0.779	0.786	0.393	No	No
	April	0.780	0.787	1	1.5	1	2	0.780	0.787	0.524	0.780	0.787	0.393	No	No
	May	0.779	0.784	1	1.5	1	2	0.779	0.784	0.523	0.779	0.784	0.392	No	No
	June	0.772	0.777	1	1.5	1	2	0.772	0.777	0.518	0.772	0.777	0.388	No	No
	July	0.766	0.772	1	1.5	1	2	0.766	0.772	0.515	0.766	0.772	0.386	No	No
	August	0.763	0.770	1	1.5	1	2	0.763	0.770	0.513	0.763	0.770	0.385	No	No
	September	0.767	0.772	1	1.5	1	2	0.767	0.772	0.515	0.767	0.772	0.386	No	No
	October	0.769	0.773	1	1.5	1	2	0.769	0.773	0.515	0.769	0.773	0.386	No	No
	November	0.770	0.773	1	1.5	1	2	0.770	0.773	0.516	0.770	0.773	0.387	No	No
	December	0.772	0.775	1	1.5	1	2	0.772	0.775	0.516	0.772	0.775	0.387	No	No
Closure Phase (29-35)	January	0.655	0.776	1	1.5	1	2	0.655	0.776	0.517	0.655	0.776	0.388	No	No
	February	0.655	0.776	1	1.5	1	2	0.655	0.776	0.517	0.655	0.776	0.388	No	No
	March	0.655	0.776	1	1.5	1	2	0.655	0.776	0.517	0.655	0.776	0.388	No	No
	April	0.655	0.776	1	1.5	1	2	0.655	0.776	0.517	0.655	0.776	0.388	No	No
	May	0.652	0.770	1	1.5	1	2	0.652	0.770	0.513	0.652	0.770	0.385	No	No
	June	0.639	0.751	1	1.5	1	2	0.639	0.751	0.501	0.639	0.751	0.376	No	No
	July	0.630	0.737	1	1.5	1	2	0.630	0.737	0.492	0.630	0.737	0.369	No	No
	August	0.623	0.729	1	1.5	1	2	0.623	0.729	0.486	0.623	0.729	0.364	No	No
	September	0.624	0.729	1	1.5	1	2	0.624	0.729	0.486	0.624	0.729	0.365	No	No
	October	0.623	0.728	1	1.5	1	2	0.623	0.728	0.485	0.623	0.728	0.364	No	No
	November	0.621	0.725	1	1.5	1	2	0.621	0.725	0.483	0.621	0.725	0.363	No	No
	December	0.621	0.725	1	1.5	1	2	0.621	0.725	0.483	0.621	0.725	0.363	No	No
Post-Closure Phase (36-99)	January	0.245	0.538	1	1.5	1	2	0.245	0.538	0.358	0.245	0.538	0.269	No	No
	February	0.245	0.538	1	1.5	1	2	0.245	0.538	0.358	0.245	0.538	0.269	No	No
	March	0.245	0.538	1	1.5	1	2	0.245	0.538	0.359	0.245	0.538	0.269	No	No
	April	0.245	0.538	1	1.5	1	2	0.245	0.538	0.359	0.245	0.538	0.269	No	No
	May	0.245	0.536	1	1.5	1	2	0.245	0.536	0.357	0.245	0.536	0.268	No	No
	June	0.243	0.529	1	1.5	1	2	0.243	0.529	0.352	0.243	0.529	0.264	No	No
	July	0.241	0.522	1	1.5	1	2	0.241	0.522	0.348	0.241	0.522	0.261	No	No
	August	0.239	0.517	1	1.5	1	2	0.239	0.517	0.345	0.239	0.517	0.259	No	No
	September	0.239	0.518	1	1.5	1	2	0.239	0.518	0.345	0.239	0.518	0.259	No	No
	October	0.239	0.517	1	1.5	1	2	0.239	0.517	0.345	0.239	0.517	0.259	No	No
	November	0.239	0.516	1	1.5	1	2	0.239	0.516	0.344	0.239	0.516	0.258	No	No
	December	0.239	0.516	1	1.5	1	2	0.239	0.516	0.344	0.239	0.516	0.258	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15t. Open Pit (OP) Hazard Quotients for Nitrate Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.00500	0.0100	100	100	0.000100	0.000100	No	No
	February	0.00500	0.0100	100	100	0.000100	0.000100	No	No
	March	0.00500	0.0100	100	100	0.000100	0.000100	No	No
	April	0.000370	0.000740	100	100	0.000007	0.000007	No	No
	May	0.000144	0.000287	100	100	0.000003	0.000003	No	No
	June	0.000415	0.000830	100	100	0.000008	0.000008	No	No
	July	0.000990	0.00198	100	100	0.000020	0.000020	No	No
	August	0.00500	0.0100	100	100	0.000100	0.000100	No	No
	September	0.00207	0.00414	100	100	0.000041	0.000041	No	No
	October	0.000470	0.000939	100	100	0.000009	0.000009	No	No
	November	0.00500	0.0100	100	100	0.000100	0.000100	No	No
	December	0.00500	0.0100	100	100	0.000100	0.000100	No	No
Operation 1 Phase (1-23)	January	0.0100	0.0100	100	100	0.000100	0.000100	No	No
	February	0.0100	0.0100	100	100	0.000100	0.000100	No	No
	March	0.0100	0.0100	100	100	0.000100	0.000100	No	No
	April	0.00111	0.00163	100	100	0.000016	0.000016	No	No
	May	0.000533	0.000822	100	100	0.000008	0.000008	No	No
	June	0.00493	0.00789	100	100	0.000079	0.000079	No	No
	July	0.00719	0.0100	100	100	0.000100	0.000100	No	No
	August	0.00991	0.0100	100	100	0.000100	0.000100	No	No
	September	0.00567	0.00791	100	100	0.000079	0.000079	No	No
	October	0.00187	0.00788	100	100	0.000079	0.000079	No	No
	November	0.00990	0.0100	100	100	0.000100	0.000100	No	No
	December	0.00990	0.0100	100	100	0.000100	0.000100	No	No
Operations 2 Phase (24-28)	January	0.00727	0.00780	100	100	0.000078	0.000078	No	No
	February	0.00728	0.00781	100	100	0.000078	0.000078	No	No
	March	0.00728	0.00781	100	100	0.000078	0.000078	No	No
	April	0.00728	0.00782	100	100	0.000078	0.000078	No	No
	May	0.00723	0.00775	100	100	0.000077	0.000077	No	No
	June	0.00710	0.00759	100	100	0.000076	0.000076	No	No
	July	0.00704	0.00755	100	100	0.000076	0.000076	No	No
	August	0.00700	0.00752	100	100	0.000075	0.000075	No	No
	September	0.00701	0.00753	100	100	0.000075	0.000075	No	No
	October	0.00700	0.00753	100	100	0.000075	0.000075	No	No
	November	0.00698	0.00751	100	100	0.000075	0.000075	No	No
	December	0.00698	0.00751	100	100	0.000075	0.000075	No	No
Closure Phase (29-35)	January	0.00533	0.00637	100	100	0.000064	0.000064	No	No
	February	0.00533	0.00637	100	100	0.000064	0.000064	No	No
	March	0.00534	0.00638	100	100	0.000064	0.000064	No	No
	April	0.00534	0.00638	100	100	0.000064	0.000064	No	No
	May	0.00530	0.00632	100	100	0.000063	0.000063	No	No
	June	0.00517	0.00613	100	100	0.000061	0.000061	No	No
	July	0.00510	0.00602	100	100	0.000060	0.000060	No	No
	August	0.00505	0.00595	100	100	0.000060	0.000060	No	No
	September	0.00505	0.00596	100	100	0.000060	0.000060	No	No
	October	0.00505	0.00596	100	100	0.000060	0.000060	No	No
	November	0.00503	0.00593	100	100	0.000059	0.000059	No	No
	December	0.00503	0.00593	100	100	0.000059	0.000059	No	No
Post-Closure Phase (36-99)	January	0.00162	0.00431	100	100	0.000043	0.000043	No	No
	February	0.00162	0.00431	100	100	0.000043	0.000043	No	No
	March	0.00162	0.00431	100	100	0.000043	0.000043	No	No
	April	0.00162	0.00432	100	100	0.000043	0.000043	No	No
	May	0.00161	0.00429	100	100	0.000043	0.000043	No	No
	June	0.00158	0.00422	100	100	0.000042	0.000042	No	No
	July	0.00157	0.00416	100	100	0.000042	0.000042	No	No
	August	0.00156	0.00413	100	100	0.000041	0.000041	No	No
	September	0.00156	0.00413	100	100	0.000041	0.000041	No	No
	October	0.00156	0.00413	100	100	0.000041	0.000041	No	No
	November	0.00155	0.00412	100	100	0.000041	0.000041	No	No
	December	0.00156	0.00412	100	100	0.000041	0.000041	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15u. Open Pit (OP) Hazard Quotients for Nitrite Concentrations, Upper Bound Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.00125	0.00250	10	10	0.00025	0.00025	No	No
	February	0.00125	0.00250	10	10	0.00025	0.00025	No	No
	March	0.00125	0.00250	10	10	0.00025	0.00025	No	No
	April	0.00009	0.00018	10	10	0.00002	0.00002	No	No
	May	0.00004	0.00007	10	10	0.00001	0.00001	No	No
	June	0.00010	0.00021	10	10	0.00002	0.00002	No	No
	July	0.00025	0.00049	10	10	0.00005	0.00005	No	No
	August	0.00125	0.00250	10	10	0.00025	0.00025	No	No
	September	0.00052	0.00104	10	10	0.00010	0.00010	No	No
	October	0.00012	0.00023	10	10	0.00002	0.00002	No	No
	November	0.00125	0.00250	10	10	0.00025	0.00025	No	No
	December	0.00125	0.00250	10	10	0.00025	0.00025	No	No
Operation 1 Phase (1-23)	January	0.00250	0.00250	10	10	0.00025	0.00025	No	No
	February	0.00250	0.00250	10	10	0.00025	0.00025	No	No
	March	0.00250	0.00250	10	10	0.00025	0.00025	No	No
	April	0.00028	0.00041	10	10	0.00004	0.00004	No	No
	May	0.00013	0.00021	10	10	0.00002	0.00002	No	No
	June	0.00123	0.00197	10	10	0.00020	0.00020	No	No
	July	0.00180	0.00250	10	10	0.00025	0.00025	No	No
	August	0.00248	0.00250	10	10	0.00025	0.00025	No	No
	September	0.00142	0.00198	10	10	0.00020	0.00020	No	No
	October	0.00047	0.00197	10	10	0.00020	0.00020	No	No
	November	0.00248	0.00250	10	10	0.00025	0.00025	No	No
	December	0.00248	0.00250	10	10	0.00025	0.00025	No	No
Operations 2 Phase (24-28)	January	0.00182	0.00195	10	10	0.00020	0.00020	No	No
	February	0.00182	0.00195	10	10	0.00020	0.00020	No	No
	March	0.00182	0.00195	10	10	0.00020	0.00020	No	No
	April	0.00182	0.00195	10	10	0.00020	0.00020	No	No
	May	0.00181	0.00194	10	10	0.00019	0.00019	No	No
	June	0.00177	0.00190	10	10	0.00019	0.00019	No	No
	July	0.00176	0.00189	10	10	0.00019	0.00019	No	No
	August	0.00175	0.00188	10	10	0.00019	0.00019	No	No
	September	0.00175	0.00188	10	10	0.00019	0.00019	No	No
	October	0.00175	0.00188	10	10	0.00019	0.00019	No	No
	November	0.00174	0.00188	10	10	0.00019	0.00019	No	No
	December	0.00175	0.00188	10	10	0.00019	0.00019	No	No
Closure Phase (29-35)	January	0.00133	0.00159	10	10	0.00016	0.00016	No	No
	February	0.00133	0.00159	10	10	0.00016	0.00016	No	No
	March	0.00133	0.00159	10	10	0.00016	0.00016	No	No
	April	0.00133	0.00159	10	10	0.00016	0.00016	No	No
	May	0.00133	0.00158	10	10	0.00016	0.00016	No	No
	June	0.00129	0.00153	10	10	0.00015	0.00015	No	No
	July	0.00127	0.00151	10	10	0.00015	0.00015	No	No
	August	0.00126	0.00149	10	10	0.00015	0.00015	No	No
	September	0.00126	0.00149	10	10	0.00015	0.00015	No	No
	October	0.00126	0.00149	10	10	0.00015	0.00015	No	No
	November	0.00126	0.00148	10	10	0.00015	0.00015	No	No
	December	0.00126	0.00148	10	10	0.00015	0.00015	No	No
Post-Closure Phase (36-99)	January	0.00040	0.00108	10	10	0.00011	0.00011	No	No
	February	0.00040	0.00108	10	10	0.00011	0.00011	No	No
	March	0.00040	0.00108	10	10	0.00011	0.00011	No	No
	April	0.00040	0.00108	10	10	0.00011	0.00011	No	No
	May	0.00040	0.00107	10	10	0.00011	0.00011	No	No
	June	0.00040	0.00105	10	10	0.00011	0.00011	No	No
	July	0.00039	0.00104	10	10	0.00010	0.00010	No	No
	August	0.00039	0.00103	10	10	0.00010	0.00010	No	No
	September	0.00039	0.00103	10	10	0.00010	0.00010	No	No
	October	0.00039	0.00103	10	10	0.00010	0.00010	No	No
	November	0.00039	0.00103	10	10	0.00010	0.00010	No	No
	December	0.00039	0.00103	10	10	0.00010	0.00010	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D15v. Open Pit (OP) Hazard Quotients for Sulphate Concentrations, Upper Bound Case

Project Phase		First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Maximum	Maximum Predicted vs BC MOE Maximum Guideline	
Construction (-2 to-1)	January	40.0	79.9	1000	0.0799	No
	February	40.0	79.9	1000	0.0799	No
	March	40.0	79.9	1000	0.0799	No
	April	250	500	1000	0.500	No
	May	219	437	1000	0.437	No
	June	22.3	44.5	1000	0.0445	No
	July	10.7	21.4	1000	0.0214	No
	August	40.0	79.9	1000	0.0799	No
	September	173	346	1000	0.346	No
	October	246	492	1000	0.492	No
	November	40.0	79.9	1000	0.0799	No
	December	40.0	79.9	1000	0.0799	No
Operation 1 Phase (1-23)	January	79.9	79.9	1000	0.0799	No
	February	79.9	79.9	1000	0.0799	No
	March	79.9	79.9	1000	0.0799	No
	April	484	507	1000	0.507	No
	May	491	512	1000	0.512	No
	June	230	1921	1000	1.92	Yes
	July	129	1496	1000	1.50	Yes
	August	142	1502	1000	1.50	Yes
	September	335	1509	1000	1.51	Yes
	October	507	1506	1000	1.51	Yes
	November	141	1492	1000	1.49	Yes
	December	142	1497	1000	1.50	Yes
Operations 2 Phase (24-28)	January	1489	1501	1000	1.50	Yes
	February	1493	1503	1000	1.50	Yes
	March	1496	1506	1000	1.51	Yes
	April	1499	1507	1000	1.51	Yes
	May	1495	1500	1000	1.50	Yes
	June	1476	1478	1000	1.48	Yes
	July	1466	1471	1000	1.47	Yes
	August	1463	1469	1000	1.47	Yes
	September	1470	1474	1000	1.47	Yes
	October	1475	1477	1000	1.48	Yes
	November	1477	1478	1000	1.48	Yes
	December	1483	1487	1000	1.49	Yes
Closure Phase (29-35)	January	1231	1493	1000	1.49	Yes
	February	1231	1492	1000	1.49	Yes
	March	1230	1491	1000	1.49	Yes
	April	1229	1489	1000	1.49	Yes
	May	1221	1477	1000	1.48	Yes
	June	1197	1439	1000	1.44	Yes
	July	1178	1411	1000	1.41	Yes
	August	1165	1393	1000	1.39	Yes
	September	1166	1394	1000	1.39	Yes
	October	1163	1390	1000	1.39	Yes
	November	1159	1383	1000	1.38	Yes
	December	1159	1382	1000	1.38	Yes
Post-Closure Phase (36-99)	January	439	980	1000	0.980	No
	February	439	980	1000	0.980	No
	March	439	979	1000	0.979	No
	April	439	979	1000	0.979	No
	May	439	975	1000	0.975	No
	June	437	961	1000	0.961	No
	July	431	949	1000	0.949	No
	August	428	940	1000	0.940	No
	September	428	940	1000	0.940	No
	October	427	939	1000	0.939	No
	November	428	937	1000	0.937	No
	December	428	937	1000	0.937	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16a. Tailings Management Facility (TMF) Hazard Quotients for Total Aluminum Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Concentrations	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Screening Based on BC MOE Maximum	Screening Based on BC MOE Maximum
Construction (-2 to-1)	January	0.0	0.0	5	5	0.0	0.0	No	No
	February	0.0053	0.0106	5	5	0.0021	0.0021	No	No
	March	0.119	0.239	5	5	0.0477	0.0477	No	No
	April	0.0053	0.0106	5	5	0.0021	0.0021	No	No
	May	0.0	0.0	5	5	0.0	0.0	No	No
	June	0.0270	0.0541	5	5	0.0108	0.0108	No	No
	July	0.0267	0.0533	5	5	0.0107	0.0107	No	No
	August	0.0261	0.0523	5	5	0.0105	0.0105	No	No
	September	0.0287	0.0574	5	5	0.0115	0.0115	No	No
	October	0.0310	0.0621	5	5	0.0124	0.0124	No	No
	November	0.0331	0.0662	5	5	0.0132	0.0132	No	No
	December	0.0351	0.0702	5	5	0.0140	0.0140	No	No
Operation 1 Phase (1-23)	January	0.124	0.141	5	5	0.0283	0.0283	No	No
	February	0.124	0.141	5	5	0.0283	0.0283	No	No
	March	0.125	0.141	5	5	0.0282	0.0282	No	No
	April	0.126	0.141	5	5	0.0282	0.0282	No	No
	May	0.126	0.141	5	5	0.0282	0.0282	No	No
	June	0.124	0.141	5	5	0.0281	0.0281	No	No
	July	0.122	0.140	5	5	0.0280	0.0280	No	No
	August	0.123	0.141	5	5	0.0281	0.0281	No	No
	September	0.125	0.141	5	5	0.0283	0.0283	No	No
	October	0.126	0.142	5	5	0.0283	0.0283	No	No
	November	0.126	0.142	5	5	0.0283	0.0283	No	No
	December	0.127	0.142	5	5	0.0283	0.0283	No	No
Operations 2 Phase (24-28)	January	0.124	0.138	5	5	0.0276	0.0276	No	No
	February	0.124	0.138	5	5	0.0276	0.0276	No	No
	March	0.124	0.138	5	5	0.0275	0.0275	No	No
	April	0.124	0.138	5	5	0.0275	0.0275	No	No
	May	0.123	0.137	5	5	0.0275	0.0275	No	No
	June	0.120	0.135	5	5	0.0270	0.0270	No	No
	July	0.118	0.132	5	5	0.0265	0.0265	No	No
	August	0.118	0.133	5	5	0.0266	0.0266	No	No
	September	0.118	0.133	5	5	0.0267	0.0267	No	No
	October	0.118	0.134	5	5	0.0267	0.0267	No	No
	November	0.118	0.133	5	5	0.0267	0.0267	No	No
	December	0.118	0.133	5	5	0.0267	0.0267	No	No
Closure Phase (29-35)	January	0.0939	0.105	5	5	0.0209	0.0209	No	No
	February	0.0939	0.104	5	5	0.0209	0.0209	No	No
	March	0.0938	0.104	5	5	0.0209	0.0209	No	No
	April	0.0937	0.104	5	5	0.0208	0.0208	No	No
	May	0.0933	0.104	5	5	0.0207	0.0207	No	No
	June	0.0921	0.102	5	5	0.0204	0.0204	No	No
	July	0.0913	0.101	5	5	0.0202	0.0202	No	No
	August	0.0914	0.101	5	5	0.0202	0.0202	No	No
	September	0.0914	0.101	5	5	0.0201	0.0201	No	No
	October	0.0913	0.101	5	5	0.0201	0.0201	No	No
	November	0.0910	0.100	5	5	0.0201	0.0201	No	No
	December	0.0910	0.100	5	5	0.0200	0.0200	No	No
Post-Closure Phase (36-99)	January	0.106	0.118	5	5	0.0236	0.0236	No	No
	February	0.105	0.118	5	5	0.0235	0.0235	No	No
	March	0.106	0.118	5	5	0.0236	0.0236	No	No
	April	0.106	0.119	5	5	0.0237	0.0237	No	No
	May	0.106	0.119	5	5	0.0238	0.0238	No	No
	June	0.106	0.118	5	5	0.0236	0.0236	No	No
	July	0.106	0.118	5	5	0.0235	0.0235	No	No
	August	0.106	0.118	5	5	0.0237	0.0237	No	No
	September	0.107	0.119	5	5	0.0237	0.0237	No	No
	October	0.106	0.119	5	5	0.0237	0.0237	No	No
	November	0.106	0.118	5	5	0.0237	0.0237	No	No
	December	0.106	0.118	5	5	0.0236	0.0236	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16b. Tailings Management Facility (TMF) Hazard Quotients for Total Arsenic Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Predicted Guideline	Maximum Predicted vs BC MOE Interim Guideline		
Construction (-2 to-1)	January	0.00	0.00	0.025	0.025	0.00	0.00	No	No
	February	0.00003	0.00006	0.025	0.025	0.00250	0.00250	No	No
	March	0.00704	0.01409	0.025	0.025	0.563	0.563	No	No
	April	0.00003	0.00006	0.025	0.025	0.00250	0.00250	No	No
	May	0.00	0.00	0.025	0.025	0.00	0.00	No	No
	June	0.00087	0.00174	0.025	0.025	0.0697	0.0697	No	No
	July	0.00051	0.00102	0.025	0.025	0.0408	0.0408	No	No
	August	0.00058	0.00116	0.025	0.025	0.0463	0.0463	No	No
	September	0.00072	0.00143	0.025	0.025	0.0573	0.0573	No	No
	October	0.00086	0.00172	0.025	0.025	0.0687	0.0687	No	No
	November	0.00101	0.00203	0.025	0.025	0.0810	0.0810	No	No
	December	0.00117	0.00234	0.025	0.025	0.0937	0.0937	No	No
Operation 1 Phase (1-23)	January	0.00604	0.00744	0.025	0.025	0.298	0.298	No	No
	February	0.00607	0.00744	0.025	0.025	0.298	0.298	No	No
	March	0.00612	0.00743	0.025	0.025	0.297	0.297	No	No
	April	0.00616	0.00742	0.025	0.025	0.297	0.297	No	No
	May	0.00620	0.00743	0.025	0.025	0.297	0.297	No	No
	June	0.00609	0.00741	0.025	0.025	0.296	0.296	No	No
	July	0.00597	0.00763	0.025	0.025	0.305	0.305	No	No
	August	0.00601	0.00764	0.025	0.025	0.306	0.306	No	No
	September	0.00610	0.00767	0.025	0.025	0.307	0.307	No	No
	October	0.00616	0.00768	0.025	0.025	0.307	0.307	No	No
	November	0.00620	0.00767	0.025	0.025	0.307	0.307	No	No
	December	0.00623	0.00767	0.025	0.025	0.307	0.307	No	No
Operations 2 Phase (24-28)	January	0.00671	0.00766	0.025	0.025	0.306	0.306	No	No
	February	0.00670	0.00765	0.025	0.025	0.306	0.306	No	No
	March	0.00669	0.00765	0.025	0.025	0.306	0.306	No	No
	April	0.00668	0.00764	0.025	0.025	0.306	0.306	No	No
	May	0.00664	0.00763	0.025	0.025	0.305	0.305	No	No
	June	0.00648	0.00749	0.025	0.025	0.300	0.300	No	No
	July	0.00630	0.00728	0.025	0.025	0.291	0.291	No	No
	August	0.00630	0.00729	0.025	0.025	0.292	0.292	No	No
	September	0.00631	0.00732	0.025	0.025	0.293	0.293	No	No
	October	0.00630	0.00733	0.025	0.025	0.293	0.293	No	No
	November	0.00628	0.00733	0.025	0.025	0.293	0.293	No	No
	December	0.00627	0.00732	0.025	0.025	0.293	0.293	No	No
Closure Phase (29-35)	January	0.00473	0.00541	0.025	0.025	0.216	0.216	No	No
	February	0.00473	0.00540	0.025	0.025	0.216	0.216	No	No
	March	0.00472	0.00539	0.025	0.025	0.216	0.216	No	No
	April	0.00472	0.00539	0.025	0.025	0.216	0.216	No	No
	May	0.00470	0.00536	0.025	0.025	0.214	0.214	No	No
	June	0.00463	0.00525	0.025	0.025	0.210	0.210	No	No
	July	0.00456	0.00516	0.025	0.025	0.206	0.206	No	No
	August	0.00456	0.00516	0.025	0.025	0.206	0.206	No	No
	September	0.00456	0.00515	0.025	0.025	0.206	0.206	No	No
	October	0.00456	0.00515	0.025	0.025	0.206	0.206	No	No
	November	0.00454	0.00513	0.025	0.025	0.205	0.205	No	No
	December	0.00454	0.00512	0.025	0.025	0.205	0.205	No	No
Post-Closure Phase (36-99)	January	0.00456	0.00496	0.025	0.025	0.199	0.199	No	No
	February	0.00456	0.00496	0.025	0.025	0.198	0.198	No	No
	March	0.00457	0.00498	0.025	0.025	0.199	0.199	No	No
	April	0.00460	0.00501	0.025	0.025	0.200	0.200	No	No
	May	0.00461	0.00502	0.025	0.025	0.201	0.201	No	No
	June	0.00458	0.00499	0.025	0.025	0.199	0.199	No	No
	July	0.00455	0.00495	0.025	0.025	0.198	0.198	No	No
	August	0.00458	0.00499	0.025	0.025	0.200	0.200	No	No
	September	0.00460	0.00500	0.025	0.025	0.200	0.200	No	No
	October	0.00459	0.00500	0.025	0.025	0.200	0.200	No	No
	November	0.00458	0.00499	0.025	0.025	0.200	0.200	No	No
	December	0.00458	0.00499	0.025	0.025	0.199	0.199	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16c. Tailings Management Facility (TMF) Hazard Quotients for Total Beryllium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	0.1	0.0	No
	February	0.00000	0.00001	0.1	0.00006	No
	March	0.00013	0.00026	0.1	0.00260	No
	April	0.00000	0.00001	0.1	0.00006	No
	May	0.0	0.0	0.1	0.0	No
	June	0.00002	0.00005	0.1	0.00048	No
	July	0.00002	0.00004	0.1	0.00037	No
	August	0.00002	0.00005	0.1	0.00045	No
	September	0.00003	0.00005	0.1	0.00053	No
	October	0.00003	0.00006	0.1	0.00059	No
	November	0.00003	0.00006	0.1	0.00063	No
	December	0.00003	0.00007	0.1	0.00068	No
Operation 1 Phase (1-23)	January	0.00022	0.00031	0.1	0.00305	No
	February	0.00022	0.00030	0.1	0.00305	No
	March	0.00022	0.00030	0.1	0.00304	No
	April	0.00022	0.00030	0.1	0.00304	No
	May	0.00022	0.00030	0.1	0.00302	No
	June	0.00021	0.00030	0.1	0.00298	No
	July	0.00021	0.00029	0.1	0.00292	No
	August	0.00022	0.00030	0.1	0.00299	No
	September	0.00023	0.00031	0.1	0.00305	No
	October	0.00023	0.00031	0.1	0.00307	No
	November	0.00023	0.00031	0.1	0.00307	No
	December	0.00023	0.00031	0.1	0.00306	No
Operations 2 Phase (24-28)	January	0.00030	0.00031	0.1	0.00307	No
	February	0.00030	0.00031	0.1	0.00307	No
	March	0.00030	0.00031	0.1	0.00306	No
	April	0.00030	0.00031	0.1	0.00306	No
	May	0.00029	0.00030	0.1	0.00303	No
	June	0.00029	0.00030	0.1	0.00297	No
	July	0.00028	0.00029	0.1	0.00294	No
	August	0.00029	0.00030	0.1	0.00301	No
	September	0.00029	0.00031	0.1	0.00307	No
	October	0.00029	0.00031	0.1	0.00309	No
	November	0.00029	0.00031	0.1	0.00308	No
	December	0.00029	0.00031	0.1	0.00308	No
Closure Phase (29-35)	January	0.00024	0.00027	0.1	0.00270	No
	February	0.00024	0.00027	0.1	0.00269	No
	March	0.00024	0.00027	0.1	0.00269	No
	April	0.00024	0.00027	0.1	0.00269	No
	May	0.00024	0.00027	0.1	0.00267	No
	June	0.00024	0.00026	0.1	0.00263	No
	July	0.00024	0.00026	0.1	0.00259	No
	August	0.00024	0.00026	0.1	0.00260	No
	September	0.00024	0.00026	0.1	0.00260	No
	October	0.00024	0.00026	0.1	0.00259	No
	November	0.00024	0.00026	0.1	0.00258	No
	December	0.00024	0.00026	0.1	0.00258	No
Post-Closure Phase (36-99)	January	0.00019	0.00023	0.1	0.00227	No
	February	0.00019	0.00023	0.1	0.00227	No
	March	0.00019	0.00023	0.1	0.00228	No
	April	0.00019	0.00023	0.1	0.00228	No
	May	0.00019	0.00023	0.1	0.00228	No
	June	0.00019	0.00023	0.1	0.00227	No
	July	0.00019	0.00023	0.1	0.00226	No
	August	0.00019	0.00023	0.1	0.00228	No
	September	0.00019	0.00023	0.1	0.00228	No
	October	0.00019	0.00023	0.1	0.00228	No
	November	0.00019	0.00023	0.1	0.00228	No
	December	0.00019	0.00023	0.1	0.00228	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16d. Tailings Management Facility (TMF) Hazard Quotients for Total Boron Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Predicted Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	5	5	0.0	0.0	No	No
	February	0.0156	0.0313	5	5	0.0063	0.0063	No	No
	March	0.0901	0.180	5	5	0.0360	0.0360	No	No
	April	0.0156	0.0313	5	5	0.0063	0.0063	No	No
	May	0.0	0.0	5	5	0.0	0.0	No	No
	June	0.0311	0.0623	5	5	0.0125	0.0125	No	No
	July	0.0261	0.0522	5	5	0.0104	0.0104	No	No
	August	0.0266	0.0532	5	5	0.0106	0.0106	No	No
	September	0.0287	0.0574	5	5	0.0115	0.0115	No	No
	October	0.0305	0.0610	5	5	0.0122	0.0122	No	No
	November	0.0322	0.0643	5	5	0.0129	0.0129	No	No
	December	0.0337	0.0674	5	5	0.0135	0.0135	No	No
Operation 1 Phase (1-23)	January	0.0955	0.124	5	5	0.0248	0.0248	No	No
	February	0.0961	0.124	5	5	0.0248	0.0248	No	No
	March	0.0968	0.125	5	5	0.0249	0.0249	No	No
	April	0.0975	0.125	5	5	0.0250	0.0250	No	No
	May	0.0980	0.125	5	5	0.0251	0.0251	No	No
	June	0.0950	0.119	5	5	0.0238	0.0238	No	No
	July	0.0925	0.112	5	5	0.0224	0.0224	No	No
	August	0.0931	0.112	5	5	0.0224	0.0224	No	No
	September	0.0945	0.113	5	5	0.0226	0.0226	No	No
	October	0.0955	0.114	5	5	0.0229	0.0229	No	No
	November	0.0960	0.116	5	5	0.0232	0.0232	No	No
	December	0.0963	0.120	5	5	0.0239	0.0239	No	No
Operations 2 Phase (24-28)	January	0.0906	0.102	5	5	0.0204	0.0204	No	No
	February	0.0905	0.102	5	5	0.0204	0.0204	No	No
	March	0.0904	0.102	5	5	0.0204	0.0204	No	No
	April	0.0903	0.102	5	5	0.0204	0.0204	No	No
	May	0.0898	0.102	5	5	0.0203	0.0203	No	No
	June	0.0876	0.0997	5	5	0.0199	0.0199	No	No
	July	0.0854	0.0971	5	5	0.0194	0.0194	No	No
	August	0.0855	0.0973	5	5	0.0195	0.0195	No	No
	September	0.0856	0.0976	5	5	0.0195	0.0195	No	No
	October	0.0856	0.0977	5	5	0.0195	0.0195	No	No
	November	0.0853	0.0977	5	5	0.0195	0.0195	No	No
	December	0.0852	0.0976	5	5	0.0195	0.0195	No	No
Closure Phase (29-35)	January	0.0661	0.0747	5	5	0.0149	0.0149	No	No
	February	0.0660	0.0747	5	5	0.0149	0.0149	No	No
	March	0.0660	0.0746	5	5	0.0149	0.0149	No	No
	April	0.0660	0.0746	5	5	0.0149	0.0149	No	No
	May	0.0657	0.0742	5	5	0.0148	0.0148	No	No
	June	0.0647	0.0728	5	5	0.0146	0.0146	No	No
	July	0.0637	0.0715	5	5	0.0143	0.0143	No	No
	August	0.0638	0.0715	5	5	0.0143	0.0143	No	No
	September	0.0638	0.0715	5	5	0.0143	0.0143	No	No
	October	0.0637	0.0714	5	5	0.0143	0.0143	No	No
	November	0.0636	0.0712	5	5	0.0142	0.0142	No	No
	December	0.0636	0.0711	5	5	0.0142	0.0142	No	No
Post-Closure Phase (36-99)	January	0.0447	0.0571	5	5	0.0114	0.0114	No	No
	February	0.0447	0.0571	5	5	0.0114	0.0114	No	No
	March	0.0448	0.0572	5	5	0.0114	0.0114	No	No
	April	0.0449	0.0575	5	5	0.0115	0.0115	No	No
	May	0.0449	0.0575	5	5	0.0115	0.0115	No	No
	June	0.0445	0.0570	5	5	0.0114	0.0114	No	No
	July	0.0441	0.0565	5	5	0.0113	0.0113	No	No
	August	0.0444	0.0569	5	5	0.0114	0.0114	No	No
	September	0.0445	0.0570	5	5	0.0114	0.0114	No	No
	October	0.0444	0.0570	5	5	0.0114	0.0114	No	No
	November	0.0444	0.0569	5	5	0.0114	0.0114	No	No
	December	0.0444	0.0569	5	5	0.0114	0.0114	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16e. Tailings Management Facility (TMF) Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	1000	0.0	No
	February	2.53	5.05	1000	0.0051	No
	March	120	241	1000	0.241	No
	April	2.53	5.05	1000	0.0051	No
	May	0.0	0.0	1000	0.0	No
	June	16.7	33.4	1000	0.0334	No
	July	10.9	21.8	1000	0.0218	No
	August	12.3	24.5	1000	0.0245	No
	September	15.4	30.8	1000	0.0308	No
	October	18.1	36.3	1000	0.0363	No
	November	20.6	41.2	1000	0.0412	No
	December	23.1	46.1	1000	0.0461	No
Operation 1 Phase (1-23)	January	101	117	1000	0.117	No
	February	101	117	1000	0.117	No
	March	102	117	1000	0.117	No
	April	103	117	1000	0.117	No
	May	104	117	1000	0.117	No
	June	100	115	1000	0.115	No
	July	97.7	123	1000	0.123	No
	August	99.1	123	1000	0.123	No
	September	101	124	1000	0.124	No
	October	103	124	1000	0.124	No
	November	103	124	1000	0.124	No
	December	103	124	1000	0.124	No
Operations 2 Phase (24-28)	January	111	124	1000	0.124	No
	February	111	124	1000	0.124	No
	March	111	124	1000	0.124	No
	April	111	124	1000	0.124	No
	May	110	124	1000	0.124	No
	June	107	122	1000	0.122	No
	July	104	118	1000	0.118	No
	August	105	119	1000	0.119	No
	September	105	119	1000	0.119	No
	October	105	120	1000	0.120	No
	November	105	120	1000	0.120	No
	December	105	120	1000	0.120	No
Closure Phase (29-35)	January	80.9	91.5	1000	0.0915	No
	February	80.8	91.4	1000	0.0914	No
	March	80.8	91.4	1000	0.0914	No
	April	80.8	91.3	1000	0.0913	No
	May	80.4	90.8	1000	0.0908	No
	June	79.2	89.0	1000	0.0890	No
	July	78.0	87.4	1000	0.0874	No
	August	78.1	87.4	1000	0.0874	No
	September	78.1	87.4	1000	0.0874	No
	October	78.1	87.3	1000	0.0873	No
	November	77.9	87.0	1000	0.0870	No
	December	77.9	87.0	1000	0.0870	No
Post-Closure Phase (36-99)	January	58.6	71.0	1000	0.0710	No
	February	58.6	70.9	1000	0.0709	No
	March	58.6	71.1	1000	0.0711	No
	April	58.8	71.5	1000	0.0715	No
	May	58.8	71.6	1000	0.0716	No
	June	58.3	71.0	1000	0.0710	No
	July	57.9	70.5	1000	0.0705	No
	August	58.3	71.0	1000	0.0710	No
	September	58.4	71.2	1000	0.0712	No
	October	58.3	71.1	1000	0.0711	No
	November	58.2	71.0	1000	0.0710	No
	December	58.2	71.0	1000	0.0710	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16f. Tailings Management Facility (TMF) Hazard Quotients for Total Cadmium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Livestock
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	Total Cadmium
Construction (-2 to-1)	January	0.0	0.0	0.08	0.0	No
	February	0.000002	0.000003	0.08	0.000039	No
	March	0.000213	0.000425	0.08	0.005314	No
	April	0.000002	0.000003	0.08	0.000039	No
	May	0.0	0.0	0.08	0.0	No
	June	0.000028	0.000057	0.08	0.000709	No
	July	0.000017	0.000034	0.08	0.000427	No
	August	0.000019	0.000039	0.08	0.000486	No
	September	0.000025	0.000050	0.08	0.000630	No
	October	0.000030	0.000060	0.08	0.000754	No
	November	0.000035	0.000069	0.08	0.000868	No
	December	0.000039	0.000078	0.08	0.000973	No
Operation 1 Phase (1-23)	January	0.000266	0.000453	0.08	0.00567	No
	February	0.000270	0.000451	0.08	0.00563	No
	March	0.000272	0.000451	0.08	0.00564	No
	April	0.000276	0.000451	0.08	0.00564	No
	May	0.000278	0.000449	0.08	0.00562	No
	June	0.000268	0.000417	0.08	0.00522	No
	July	0.000258	0.000385	0.08	0.00482	No
	August	0.000260	0.000381	0.08	0.00476	No
	September	0.000264	0.000383	0.08	0.00479	No
	October	0.000268	0.000400	0.08	0.00500	No
	November	0.000270	0.000419	0.08	0.00523	No
	December	0.000271	0.000435	0.08	0.00543	No
Operations 2 Phase (24-28)	January	0.000217	0.000248	0.08	0.00310	No
	February	0.000216	0.000248	0.08	0.00310	No
	March	0.000216	0.000248	0.08	0.00310	No
	April	0.000216	0.000247	0.08	0.00309	No
	May	0.000214	0.000247	0.08	0.00309	No
	June	0.000209	0.000242	0.08	0.00303	No
	July	0.000203	0.000235	0.08	0.00294	No
	August	0.000203	0.000236	0.08	0.00295	No
	September	0.000204	0.000237	0.08	0.00296	No
	October	0.000203	0.000237	0.08	0.00296	No
	November	0.000203	0.000237	0.08	0.00296	No
	December	0.000202	0.000236	0.08	0.00295	No
Closure Phase (29-35)	January	0.000151	0.000174	0.08	0.00217	No
	February	0.000151	0.000174	0.08	0.00217	No
	March	0.000151	0.000173	0.08	0.00217	No
	April	0.000151	0.000173	0.08	0.00216	No
	May	0.000150	0.000172	0.08	0.00215	No
	June	0.000148	0.000169	0.08	0.00211	No
	July	0.000145	0.000166	0.08	0.00207	No
	August	0.000145	0.000166	0.08	0.00207	No
	September	0.000145	0.000165	0.08	0.00207	No
	October	0.000145	0.000165	0.08	0.00206	No
	November	0.000145	0.000165	0.08	0.00206	No
	December	0.000145	0.000164	0.08	0.00205	No
Post-Closure Phase (36-99)	January	0.000243	0.000294	0.08	0.00368	No
	February	0.000242	0.000294	0.08	0.00368	No
	March	0.000243	0.000295	0.08	0.00369	No
	April	0.000245	0.000297	0.08	0.00371	No
	May	0.000246	0.000298	0.08	0.00373	No
	June	0.000244	0.000296	0.08	0.00370	No
	July	0.000242	0.000293	0.08	0.00367	No
	August	0.000244	0.000295	0.08	0.00369	No
	September	0.000245	0.000296	0.08	0.00370	No
	October	0.000245	0.000296	0.08	0.00370	No
	November	0.000244	0.000295	0.08	0.00369	No
	December	0.000244	0.000295	0.08	0.00368	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16g. Tailings Management Facility (TMF) Hazard Quotients for Total Chromium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	0.05	0.0	No
	February	0.00003	0.00006	0.05	0.00125	No
	March	0.00216	0.00433	0.05	0.0865	No
	April	0.00003	0.00006	0.05	0.00125	No
	May	0.0	0.0	0.05	0.0	No
	June	0.00028	0.00056	0.05	0.0113	No
	July	0.00018	0.00037	0.05	0.00736	No
	August	0.00021	0.00042	0.05	0.00832	No
	September	0.00026	0.00052	0.05	0.0105	No
	October	0.00031	0.00062	0.05	0.0124	No
	November	0.00035	0.00071	0.05	0.0141	No
	December	0.00040	0.00080	0.05	0.0160	No
Operation 1 Phase (1-23)	January	0.00196	0.00228	0.05	0.0456	No
	February	0.00197	0.00229	0.05	0.0458	No
	March	0.00198	0.00229	0.05	0.0458	No
	April	0.00199	0.00229	0.05	0.0459	No
	May	0.00199	0.00229	0.05	0.0457	No
	June	0.00191	0.00221	0.05	0.0442	No
	July	0.00187	0.00220	0.05	0.0440	No
	August	0.00192	0.00223	0.05	0.0447	No
	September	0.00198	0.00226	0.05	0.0453	No
	October	0.00200	0.00228	0.05	0.0455	No
	November	0.00201	0.00227	0.05	0.0454	No
	December	0.00201	0.00227	0.05	0.0454	No
Operations 2 Phase (24-28)	January	0.00201	0.00218	0.05	0.0436	No
	February	0.00201	0.00218	0.05	0.0436	No
	March	0.00201	0.00218	0.05	0.0436	No
	April	0.00201	0.00218	0.05	0.0436	No
	May	0.00199	0.00217	0.05	0.0434	No
	June	0.00195	0.00213	0.05	0.0425	No
	July	0.00191	0.00208	0.05	0.0417	No
	August	0.00192	0.00211	0.05	0.0422	No
	September	0.00193	0.00214	0.05	0.0427	No
	October	0.00193	0.00215	0.05	0.0429	No
	November	0.00193	0.00214	0.05	0.0429	No
	December	0.00192	0.00214	0.05	0.0428	No
Closure Phase (29-35)	January	0.00155	0.00172	0.05	0.0344	No
	February	0.00155	0.00172	0.05	0.0344	No
	March	0.00155	0.00172	0.05	0.0343	No
	April	0.00155	0.00171	0.05	0.0343	No
	May	0.00154	0.00171	0.05	0.0341	No
	June	0.00152	0.00168	0.05	0.0335	No
	July	0.00150	0.00165	0.05	0.0330	No
	August	0.00151	0.00166	0.05	0.0331	No
	September	0.00151	0.00166	0.05	0.0331	No
	October	0.00151	0.00165	0.05	0.0331	No
	November	0.00150	0.00165	0.05	0.0330	No
	December	0.00150	0.00165	0.05	0.0329	No
Post-Closure Phase (36-99)	January	0.00138	0.00161	0.05	0.0322	No
	February	0.00138	0.00161	0.05	0.0321	No
	March	0.00138	0.00161	0.05	0.0322	No
	April	0.00138	0.00162	0.05	0.0323	No
	May	0.00138	0.00162	0.05	0.0323	No
	June	0.00137	0.00161	0.05	0.0321	No
	July	0.00137	0.00160	0.05	0.0320	No
	August	0.00138	0.00161	0.05	0.0322	No
	September	0.00138	0.00161	0.05	0.0323	No
	October	0.00138	0.00161	0.05	0.0322	No
	November	0.00138	0.00161	0.05	0.0322	No
	December	0.00138	0.00161	0.05	0.0322	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16h. Tailings Management Facility (TMF) Hazard Quotients for Total Cobalt Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	1.0	0.0	No
	February	0.000004	0.000008	1.0	0.000008	No
	March	0.00465	0.00930	1.0	0.00930	No
	April	0.000004	0.000008	1.0	0.000008	No
	May	0.0	0.0	1.0	0.0	No
	June	0.000530	0.00106	1.0	0.00106	No
	July	0.000358	0.000715	1.0	0.000715	No
	August	0.000645	0.00129	1.0	0.00129	No
	September	0.00117	0.00234	1.0	0.00234	No
	October	0.00144	0.00289	1.0	0.00289	No
	November	0.00153	0.00306	1.0	0.00306	No
	December	0.00160	0.00321	1.0	0.00321	No
Operation 1 Phase (1-23)	January	0.0267	0.0375	1.0	0.0375	No
	February	0.0266	0.0374	1.0	0.0374	No
	March	0.0265	0.0373	1.0	0.0373	No
	April	0.0264	0.0372	1.0	0.0372	No
	May	0.0262	0.0369	1.0	0.0369	No
	June	0.0248	0.0360	1.0	0.0360	No
	July	0.0243	0.0350	1.0	0.0350	No
	August	0.0260	0.0361	1.0	0.0361	No
	September	0.0279	0.0374	1.0	0.0374	No
	October	0.0287	0.0378	1.0	0.0378	No
	November	0.0285	0.0377	1.0	0.0377	No
	December	0.0283	0.0376	1.0	0.0376	No
Operations 2 Phase (24-28)	January	0.0351	0.0372	1.0	0.0372	No
	February	0.0350	0.0371	1.0	0.0371	No
	March	0.0350	0.0370	1.0	0.0370	No
	April	0.0349	0.0369	1.0	0.0369	No
	May	0.0346	0.0366	1.0	0.0366	No
	June	0.0336	0.0354	1.0	0.0354	No
	July	0.0327	0.0347	1.0	0.0347	No
	August	0.0332	0.0357	1.0	0.0357	No
	September	0.0337	0.0370	1.0	0.0370	No
	October	0.0339	0.0375	1.0	0.0375	No
	November	0.0338	0.0374	1.0	0.0374	No
	December	0.0337	0.0373	1.0	0.0373	No
Closure Phase (29-35)	January	0.0247	0.0295	1.0	0.0295	No
	February	0.0247	0.0295	1.0	0.0295	No
	March	0.0247	0.0294	1.0	0.0294	No
	April	0.0247	0.0294	1.0	0.0294	No
	May	0.0245	0.0292	1.0	0.0292	No
	June	0.0241	0.0285	1.0	0.0285	No
	July	0.0236	0.0278	1.0	0.0278	No
	August	0.0236	0.0277	1.0	0.0277	No
	September	0.0236	0.0277	1.0	0.0277	No
	October	0.0235	0.0277	1.0	0.0277	No
	November	0.0234	0.0276	1.0	0.0276	No
	December	0.0234	0.0275	1.0	0.0275	No
Post-Closure Phase (36-99)	January	0.0109	0.0200	1.0	0.0200	No
	February	0.0109	0.0200	1.0	0.0200	No
	March	0.0109	0.0200	1.0	0.0200	No
	April	0.0109	0.0201	1.0	0.0201	No
	May	0.0109	0.0201	1.0	0.0201	No
	June	0.0108	0.0199	1.0	0.0199	No
	July	0.0107	0.0196	1.0	0.0196	No
	August	0.0107	0.0197	1.0	0.0197	No
	September	0.0107	0.0197	1.0	0.0197	No
	October	0.0107	0.0197	1.0	0.0197	No
	November	0.0107	0.0196	1.0	0.0196	No
	December	0.0107	0.0196	1.0	0.0196	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16i. Tailings Management Facility (TMF) Hazard Quotients for Total Copper Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	0.3	0.3	0.0	0.0	No	No
	February	0.0001	0.0002	0.3	0.3	0.0006	0.0006	No	No
	March	0.0225	0.0451	0.3	0.3	0.150	0.150	No	No
	April	0.0001	0.0002	0.3	0.3	0.0006	0.0006	No	No
	May	0.0	0.0	0.3	0.3	0.0	0.0	No	No
	June	0.0028	0.0055	0.3	0.3	0.0184	0.0184	No	No
	July	0.0021	0.0043	0.3	0.3	0.0142	0.0142	No	No
	August	0.0046	0.0092	0.3	0.3	0.0307	0.0307	No	No
	September	0.0091	0.0181	0.3	0.3	0.0605	0.0605	No	No
	October	0.0112	0.0224	0.3	0.3	0.0746	0.0746	No	No
	November	0.0116	0.0231	0.3	0.3	0.0770	0.0770	No	No
	December	0.0118	0.0236	0.3	0.3	0.0786	0.0786	No	No
Operation 1 Phase (1-23)	January	0.0817	0.0955	0.3	0.3	0.318	0.318	No	No
	February	0.0783	0.0934	0.3	0.3	0.311	0.311	No	No
	March	0.0753	0.0913	0.3	0.3	0.304	0.304	No	No
	April	0.0727	0.0896	0.3	0.3	0.299	0.299	No	No
	May	0.0699	0.0877	0.3	0.3	0.292	0.292	No	No
	June	0.0649	0.0847	0.3	0.3	0.282	0.282	No	No
	July	0.0660	0.0846	0.3	0.3	0.282	0.282	No	No
	August	0.0795	0.0925	0.3	0.3	0.308	0.308	No	No
	September	0.0941	0.101	0.3	0.3	0.338	0.338	No	No
	October	0.0976	0.106	0.3	0.3	0.352	0.352	No	No
	November	0.0932	0.105	0.3	0.3	0.351	0.351	No	No
	December	0.0890	0.105	0.3	0.3	0.351	0.351	No	No
Operations 2 Phase (24-28)	January	0.121	0.130	0.3	0.3	0.433	0.433	No	No
	February	0.121	0.130	0.3	0.3	0.432	0.432	No	No
	March	0.121	0.129	0.3	0.3	0.431	0.431	No	No
	April	0.121	0.129	0.3	0.3	0.430	0.430	No	No
	May	0.120	0.128	0.3	0.3	0.427	0.427	No	No
	June	0.117	0.124	0.3	0.3	0.414	0.414	No	No
	July	0.115	0.122	0.3	0.3	0.405	0.405	No	No
	August	0.118	0.124	0.3	0.3	0.414	0.414	No	No
	September	0.122	0.128	0.3	0.3	0.427	0.427	No	No
	October	0.124	0.131	0.3	0.3	0.436	0.436	No	No
	November	0.124	0.130	0.3	0.3	0.435	0.435	No	No
	December	0.123	0.130	0.3	0.3	0.434	0.434	No	No
Closure Phase (29-35)	January	0.0965	0.114	0.3	0.3	0.380	0.380	No	No
	February	0.0964	0.114	0.3	0.3	0.380	0.380	No	No
	March	0.0963	0.114	0.3	0.3	0.379	0.379	No	No
	April	0.0962	0.114	0.3	0.3	0.379	0.379	No	No
	May	0.0958	0.113	0.3	0.3	0.376	0.376	No	No
	June	0.0941	0.110	0.3	0.3	0.368	0.368	No	No
	July	0.0923	0.108	0.3	0.3	0.359	0.359	No	No
	August	0.0922	0.108	0.3	0.3	0.359	0.359	No	No
	September	0.0922	0.107	0.3	0.3	0.358	0.358	No	No
	October	0.0920	0.107	0.3	0.3	0.358	0.358	No	No
	November	0.0918	0.107	0.3	0.3	0.356	0.356	No	No
	December	0.0916	0.107	0.3	0.3	0.356	0.356	No	No
Post-Closure Phase (36-99)	January	0.0360	0.0792	0.3	0.3	0.264	0.264	No	No
	February	0.0359	0.0791	0.3	0.3	0.264	0.264	No	No
	March	0.0359	0.0790	0.3	0.3	0.263	0.263	No	No
	April	0.0359	0.0789	0.3	0.3	0.263	0.263	No	No
	May	0.0357	0.0785	0.3	0.3	0.262	0.262	No	No
	June	0.0354	0.0772	0.3	0.3	0.257	0.257	No	No
	July	0.0351	0.0759	0.3	0.3	0.253	0.253	No	No
	August	0.0352	0.0758	0.3	0.3	0.253	0.253	No	No
	September	0.0352	0.0758	0.3	0.3	0.253	0.253	No	No
	October	0.0352	0.0757	0.3	0.3	0.252	0.252	No	No
	November	0.0351	0.0755	0.3	0.3	0.252	0.252	No	No
	December	0.0351	0.0754	0.3	0.3	0.251	0.251	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16j. Tailings Management Facility (TMF) Hazard Quotients for Total Lead Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Predicted Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	0.1	0.1	0.0	0.0	No	No
	February	0.00000	0.00001	0.1	0.1	0.00007	0.00007	No	No
	March	0.00074	0.00148	0.1	0.1	0.0148	0.0148	No	No
	April	0.00000	0.00001	0.1	0.1	0.00007	0.00007	No	No
	May	0.0	0.0	0.1	0.1	0.0	0.0	No	No
	June	0.00009	0.00019	0.1	0.1	0.00187	0.00187	No	No
	July	0.00008	0.00016	0.1	0.1	0.00159	0.00159	No	No
	August	0.00008	0.00016	0.1	0.1	0.00164	0.00164	No	No
	September	0.00010	0.00019	0.1	0.1	0.00193	0.00193	No	No
	October	0.00011	0.00022	0.1	0.1	0.00223	0.00223	No	No
	November	0.00013	0.00025	0.1	0.1	0.00254	0.00254	No	No
	December	0.00014	0.00028	0.1	0.1	0.00283	0.00283	No	No
Operation 1 Phase (1-23)	January	0.00064	0.00076	0.1	0.1	0.00761	0.00761	No	No
	February	0.00064	0.00076	0.1	0.1	0.00761	0.00761	No	No
	March	0.00064	0.00076	0.1	0.1	0.00759	0.00759	No	No
	April	0.00065	0.00076	0.1	0.1	0.00758	0.00758	No	No
	May	0.00065	0.00076	0.1	0.1	0.00757	0.00757	No	No
	June	0.00064	0.00075	0.1	0.1	0.00755	0.00755	No	No
	July	0.00063	0.00075	0.1	0.1	0.00752	0.00752	No	No
	August	0.00063	0.00076	0.1	0.1	0.00755	0.00755	No	No
	September	0.00064	0.00076	0.1	0.1	0.00760	0.00760	No	No
	October	0.00065	0.00076	0.1	0.1	0.00763	0.00763	No	No
	November	0.00065	0.00076	0.1	0.1	0.00763	0.00763	No	No
	December	0.00065	0.00076	0.1	0.1	0.00761	0.00761	No	No
Operations 2 Phase (24-28)	January	0.00065	0.00073	0.1	0.1	0.00732	0.00732	No	No
	February	0.00065	0.00073	0.1	0.1	0.00731	0.00731	No	No
	March	0.00065	0.00073	0.1	0.1	0.00731	0.00731	No	No
	April	0.00065	0.00073	0.1	0.1	0.00730	0.00730	No	No
	May	0.00064	0.00073	0.1	0.1	0.00729	0.00729	No	No
	June	0.00063	0.00072	0.1	0.1	0.00716	0.00716	No	No
	July	0.00061	0.00070	0.1	0.1	0.00699	0.00699	No	No
	August	0.00061	0.00070	0.1	0.1	0.00702	0.00702	No	No
	September	0.00062	0.00071	0.1	0.1	0.00706	0.00706	No	No
	October	0.00062	0.00071	0.1	0.1	0.00708	0.00708	No	No
	November	0.00061	0.00071	0.1	0.1	0.00708	0.00708	No	No
	December	0.00061	0.00071	0.1	0.1	0.00707	0.00707	No	No
Closure Phase (29-35)	January	0.00047	0.00053	0.1	0.1	0.00532	0.00532	No	No
	February	0.00047	0.00053	0.1	0.1	0.00531	0.00531	No	No
	March	0.00047	0.00053	0.1	0.1	0.00530	0.00530	No	No
	April	0.00047	0.00053	0.1	0.1	0.00530	0.00530	No	No
	May	0.00047	0.00053	0.1	0.1	0.00527	0.00527	No	No
	June	0.00046	0.00052	0.1	0.1	0.00516	0.00516	No	No
	July	0.00045	0.00051	0.1	0.1	0.00509	0.00509	No	No
	August	0.00045	0.00051	0.1	0.1	0.00509	0.00509	No	No
	September	0.00045	0.00051	0.1	0.1	0.00508	0.00508	No	No
	October	0.00045	0.00051	0.1	0.1	0.00508	0.00508	No	No
	November	0.00045	0.00051	0.1	0.1	0.00506	0.00506	No	No
	December	0.00045	0.00051	0.1	0.1	0.00505	0.00505	No	No
Post-Closure Phase (36-99)	January	0.00041	0.00043	0.1	0.1	0.00429	0.00429	No	No
	February	0.00041	0.00043	0.1	0.1	0.00429	0.00429	No	No
	March	0.00041	0.00043	0.1	0.1	0.00429	0.00429	No	No
	April	0.00041	0.00043	0.1	0.1	0.00431	0.00431	No	No
	May	0.00041	0.00043	0.1	0.1	0.00432	0.00432	No	No
	June	0.00041	0.00043	0.1	0.1	0.00429	0.00429	No	No
	July	0.00041	0.00043	0.1	0.1	0.00427	0.00427	No	No
	August	0.00041	0.00043	0.1	0.1	0.00430	0.00430	No	No
	September	0.00041	0.00043	0.1	0.1	0.00431	0.00431	No	No
	October	0.00041	0.00043	0.1	0.1	0.00430	0.00430	No	No
	November	0.00041	0.00043	0.1	0.1	0.00430	0.00430	No	No
	December	0.00041	0.00043	0.1	0.1	0.00429	0.00429	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16k. Tailings Management Facility (TMF) Hazard Quotients for Total Mercury Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?		
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
		Mean	Maximum	BC MOE 30-Day Mean if MeHg is 0.5% of THg	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs. BC MOE 30-Day Mean Guideline if MeHg is 0.5% of THg	Maximum Predicted vs BC MOE Maximum Guideline	Wildlife	Livestock
Construction (-2 to-1)	January	0.0	0.0	0.00002	0.003	0.0	0.0	0.0	No	No
	February	0.00000	0.00001	0.00002	0.003	0.156	0.313	0.00208	No	No
	March	0.00003	0.00006	0.00002	0.003	1.42	2.85	0.0190	Yes	No
	April	0.00000	0.00001	0.00002	0.003	0.156	0.313	0.00208	No	No
	May	0.0	0.0	0.00002	0.003	0.0	0.0	0.0	No	No
	June	0.00001	0.00002	0.00002	0.003	0.381	0.762	0.00508	No	No
	July	0.00001	0.00001	0.00002	0.003	0.315	0.630	0.00420	No	No
	August	0.00001	0.00001	0.00002	0.003	0.333	0.666	0.00444	No	No
	September	0.00001	0.00001	0.00002	0.003	0.367	0.734	0.00490	No	No
	October	0.00001	0.00002	0.00002	0.003	0.397	0.794	0.00529	No	No
	November	0.00001	0.00002	0.00002	0.003	0.422	0.844	0.00563	No	No
	December	0.00001	0.00002	0.00002	0.003	0.447	0.895	0.00596	No	No
Operation 1 Phase (1-23)	January	0.00004	0.00005	0.00002	0.003	1.96	2.68	0.0179	Yes	No
	February	0.00004	0.00005	0.00002	0.003	1.96	2.68	0.0179	Yes	No
	March	0.00004	0.00005	0.00002	0.003	1.97	2.68	0.0179	Yes	No
	April	0.00004	0.00005	0.00002	0.003	1.97	2.68	0.0178	Yes	No
	May	0.00004	0.00005	0.00002	0.003	1.96	2.67	0.0178	Yes	No
	June	0.00004	0.00005	0.00002	0.003	1.90	2.63	0.0176	Yes	No
	July	0.00004	0.00006	0.00002	0.003	1.90	2.92	0.0195	Yes	No
	August	0.00004	0.00006	0.00002	0.003	1.96	2.97	0.0198	Yes	No
	September	0.00004	0.00006	0.00002	0.003	2.02	3.01	0.0200	Yes	No
	October	0.00004	0.00006	0.00002	0.003	2.05	3.02	0.0201	Yes	No
	November	0.00004	0.00006	0.00002	0.003	2.05	3.02	0.0201	Yes	No
	December	0.00004	0.00006	0.00002	0.003	2.05	3.01	0.0201	Yes	No
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.00002	0.003	2.88	3.01	0.0201	Yes	No
	February	0.00006	0.00006	0.00002	0.003	2.88	3.01	0.0201	Yes	No
	March	0.00006	0.00006	0.00002	0.003	2.87	3.01	0.0201	Yes	No
	April	0.00006	0.00006	0.00002	0.003	2.87	3.01	0.0201	Yes	No
	May	0.00006	0.00006	0.00002	0.003	2.85	2.99	0.0200	Yes	No
	June	0.00006	0.00006	0.00002	0.003	2.80	2.94	0.0196	Yes	No
	July	0.00006	0.00006	0.00002	0.003	2.76	2.90	0.0193	Yes	No
	August	0.00006	0.00006	0.00002	0.003	2.79	2.95	0.0197	Yes	No
	September	0.00006	0.00006	0.00002	0.003	2.81	2.99	0.0199	Yes	No
	October	0.00006	0.00006	0.00002	0.003	2.81	3.00	0.0200	Yes	No
	November	0.00006	0.00006	0.00002	0.003	2.80	2.99	0.0200	Yes	No
	December	0.00006	0.00006	0.00002	0.003	2.80	2.99	0.0199	Yes	No
Closure Phase (29-35)	January	0.00005	0.00005	0.00002	0.003	2.38	2.62	0.0175	Yes	No
	February	0.00005	0.00005	0.00002	0.003	2.38	2.62	0.0174	Yes	No
	March	0.00005	0.00005	0.00002	0.003	2.38	2.61	0.0174	Yes	No
	April	0.00005	0.00005	0.00002	0.003	2.38	2.61	0.0174	Yes	No
	May	0.00005	0.00005	0.00002	0.003	2.37	2.60	0.0173	Yes	No
	June	0.00005	0.00005	0.00002	0.003	2.34	2.55	0.0170	Yes	No
	July	0.00005	0.00005	0.00002	0.003	2.31	2.52	0.0168	Yes	No
	August	0.00005	0.00005	0.00002	0.003	2.32	2.53	0.0168	Yes	No
	September	0.00005	0.00005	0.00002	0.003	2.32	2.53	0.0168	Yes	No
	October	0.00005	0.00005	0.00002	0.003	2.32	2.52	0.0168	Yes	No
	November	0.00005	0.00005	0.00002	0.003	2.32	2.52	0.0168	Yes	No
	December	0.00005	0.00005	0.00002	0.003	2.31	2.51	0.0168	Yes	No
Post-Closure Phase (36-99)	January	0.00004	0.00005	0.00002	0.003	2.04	2.43	0.0162	Yes	No
	February	0.00004	0.00005	0.00002	0.003	2.04	2.43	0.0162	Yes	No
	March	0.00004	0.00005	0.00002	0.003	2.04	2.43	0.0162	Yes	No
	April	0.00004	0.00005	0.00002	0.003	2.04	2.44	0.0162	Yes	No
	May	0.00004	0.00005	0.00002	0.003	2.04	2.44	0.0163	Yes	No
	June	0.00004	0.00005	0.00002	0.003	2.03	2.42	0.0162	Yes	No
	July	0.00004	0.00005	0.00002	0.003	2.02	2.41	0.0161	Yes	No
	August	0.00004	0.00005	0.00002	0.003	2.03	2.43	0.0162	Yes	No
	September	0.00004	0.00005	0.00002	0.003	2.04	2.43	0.0162	Yes	No
	October	0.00004	0.00005	0.00002	0.003	2.04	2.43	0.0162	Yes	No
	November	0.00004	0.00005	0.00002	0.003	2.03	2.43	0.0162	Yes	No
	December	0.00004	0.00005	0.00002	0.003	2.03	2.43	0.0162	Yes	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16l. Tailings Management Facility (TMF) Hazard Quotients for Total Molybdenum Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	0.05	0.05	0.0	0.0	No	No
	February	0.0002	0.0005	0.05	0.05	0.0091	0.0091	No	No
	March	0.0175	0.0350	0.05	0.05	0.700	0.700	No	No
	April	0.0002	0.0005	0.05	0.05	0.0091	0.0091	No	No
	May	0.0	0.0	0.05	0.05	0.0	0.0	No	No
	June	0.0023	0.0046	0.05	0.05	0.0927	0.0927	No	No
	July	0.0014	0.0029	0.05	0.05	0.0579	0.0579	No	No
	August	0.0017	0.0033	0.05	0.05	0.0661	0.0661	No	No
	September	0.0021	0.0042	0.05	0.05	0.0838	0.0838	No	No
	October	0.0025	0.0050	0.05	0.05	0.0997	0.0997	No	No
	November	0.0029	0.0057	0.05	0.05	0.115	0.115	No	No
	December	0.0032	0.0064	0.05	0.05	0.129	0.129	No	No
Operation 1 Phase (1-23)	January	0.0156	0.0189	0.05	0.05	0.379	0.379	No	No
	February	0.0157	0.0189	0.05	0.05	0.379	0.379	No	No
	March	0.0158	0.0189	0.05	0.05	0.378	0.378	No	No
	April	0.0159	0.0189	0.05	0.05	0.378	0.378	No	No
	May	0.0160	0.0189	0.05	0.05	0.379	0.379	No	No
	June	0.0157	0.0189	0.05	0.05	0.377	0.377	No	No
	July	0.0155	0.0234	0.05	0.05	0.468	0.468	No	No
	August	0.0156	0.0234	0.05	0.05	0.469	0.469	No	No
	September	0.0159	0.0235	0.05	0.05	0.470	0.470	No	No
	October	0.0161	0.0235	0.05	0.05	0.471	0.471	No	No
	November	0.0162	0.0235	0.05	0.05	0.470	0.470	No	No
	December	0.0162	0.0235	0.05	0.05	0.470	0.470	No	No
Operations 2 Phase (24-28)	January	0.0205	0.0235	0.05	0.05	0.470	0.470	No	No
	February	0.0205	0.0235	0.05	0.05	0.469	0.469	No	No
	March	0.0205	0.0235	0.05	0.05	0.469	0.469	No	No
	April	0.0205	0.0234	0.05	0.05	0.469	0.469	No	No
	May	0.0203	0.0234	0.05	0.05	0.468	0.468	No	No
	June	0.0198	0.0229	0.05	0.05	0.458	0.458	No	No
	July	0.0192	0.0222	0.05	0.05	0.444	0.444	No	No
	August	0.0192	0.0222	0.05	0.05	0.445	0.445	No	No
	September	0.0193	0.0223	0.05	0.05	0.446	0.446	No	No
	October	0.0192	0.0223	0.05	0.05	0.447	0.447	No	No
	November	0.0192	0.0223	0.05	0.05	0.446	0.446	No	No
	December	0.0192	0.0223	0.05	0.05	0.446	0.446	No	No
Closure Phase (29-35)	January	0.0145	0.0165	0.05	0.05	0.331	0.331	No	No
	February	0.0144	0.0165	0.05	0.05	0.330	0.330	No	No
	March	0.0144	0.0165	0.05	0.05	0.330	0.330	No	No
	April	0.0144	0.0165	0.05	0.05	0.330	0.330	No	No
	May	0.0144	0.0164	0.05	0.05	0.328	0.328	No	No
	June	0.0141	0.0161	0.05	0.05	0.322	0.322	No	No
	July	0.0139	0.0158	0.05	0.05	0.315	0.315	No	No
	August	0.0139	0.0158	0.05	0.05	0.315	0.315	No	No
	September	0.0139	0.0157	0.05	0.05	0.315	0.315	No	No
	October	0.0139	0.0157	0.05	0.05	0.314	0.314	No	No
	November	0.0139	0.0157	0.05	0.05	0.314	0.314	No	No
	December	0.0139	0.0157	0.05	0.05	0.313	0.313	No	No
Post-Closure Phase (36-99)	January	0.0100	0.0124	0.05	0.05	0.248	0.248	No	No
	February	0.0100	0.0124	0.05	0.05	0.248	0.248	No	No
	March	0.0100	0.0124	0.05	0.05	0.249	0.249	No	No
	April	0.0101	0.0125	0.05	0.05	0.250	0.250	No	No
	May	0.0101	0.0125	0.05	0.05	0.251	0.251	No	No
	June	0.0100	0.0124	0.05	0.05	0.249	0.249	No	No
	July	0.0099	0.0123	0.05	0.05	0.247	0.247	No	No
	August	0.0099	0.0124	0.05	0.05	0.248	0.248	No	No
	September	0.0100	0.0125	0.05	0.05	0.249	0.249	No	No
	October	0.0100	0.0124	0.05	0.05	0.249	0.249	No	No
	November	0.0099	0.0124	0.05	0.05	0.248	0.248	No	No
	December	0.0099	0.0124	0.05	0.05	0.248	0.248	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D16m. Tailings Management Facility (TMF) Hazard Quotients for Total Nickel Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	1	0.0	No
	February	0.00001	0.00003	1	0.00003	No
	March	0.0119	0.0238	1	0.0238	No
	April	0.00001	0.00003	1	0.00003	No
	May	0.0	0.0	1	0.0	No
	June	0.00132	0.00264	1	0.00264	No
	July	0.00079	0.00157	1	0.00157	No
	August	0.00099	0.00198	1	0.00198	No
	September	0.00141	0.00281	1	0.00281	No
	October	0.00172	0.00345	1	0.00345	No
	November	0.00196	0.00393	1	0.00393	No
	December	0.00220	0.00440	1	0.00440	No
Operation 1 Phase (1-23)	January	0.0149	0.0180	1	0.0180	No
	February	0.0150	0.0180	1	0.0180	No
	March	0.0150	0.0179	1	0.0179	No
	April	0.0150	0.0179	1	0.0179	No
	May	0.0150	0.0178	1	0.0178	No
	June	0.0144	0.0175	1	0.0175	No
	July	0.0141	0.0173	1	0.0173	No
	August	0.0147	0.0176	1	0.0176	No
	September	0.0153	0.0180	1	0.0180	No
	October	0.0155	0.0181	1	0.0181	No
	November	0.0155	0.0180	1	0.0180	No
	December	0.0155	0.0180	1	0.0180	No
Operations 2 Phase (24-28)	January	0.0169	0.0179	1	0.0179	No
	February	0.0169	0.0178	1	0.0178	No
	March	0.0169	0.0178	1	0.0178	No
	April	0.0169	0.0178	1	0.0178	No
	May	0.0168	0.0177	1	0.0177	No
	June	0.0164	0.0174	1	0.0174	No
	July	0.0161	0.0171	1	0.0171	No
	August	0.0163	0.0174	1	0.0174	No
	September	0.0164	0.0177	1	0.0177	No
	October	0.0165	0.0178	1	0.0178	No
	November	0.0164	0.0178	1	0.0178	No
	December	0.0164	0.0178	1	0.0178	No
Closure Phase (29-35)	January	0.0137	0.0150	1	0.0150	No
	February	0.0137	0.0149	1	0.0149	No
	March	0.0137	0.0149	1	0.0149	No
	April	0.0137	0.0149	1	0.0149	No
	May	0.0136	0.0148	1	0.0148	No
	June	0.0135	0.0146	1	0.0146	No
	July	0.0133	0.0144	1	0.0144	No
	August	0.0134	0.0145	1	0.0145	No
	September	0.0134	0.0145	1	0.0145	No
	October	0.0134	0.0145	1	0.0145	No
	November	0.0134	0.0144	1	0.0144	No
	December	0.0134	0.0144	1	0.0144	No
Post-Closure Phase (36-99)	January	0.0140	0.0165	1	0.0165	No
	February	0.0140	0.0165	1	0.0165	No
	March	0.0140	0.0166	1	0.0166	No
	April	0.0140	0.0166	1	0.0166	No
	May	0.0140	0.0166	1	0.0166	No
	June	0.0139	0.0165	1	0.0165	No
	July	0.0139	0.0165	1	0.0165	No
	August	0.0140	0.0166	1	0.0166	No
	September	0.0140	0.0166	1	0.0166	No
	October	0.0140	0.0166	1	0.0166	No
	November	0.0139	0.0166	1	0.0166	No
	December	0.0139	0.0166	1	0.0166	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16n. Tailings Management Facility (TMF) Hazard Quotients for Total Selenium Concentrations, Upper Bound Case

Project Phase		First Screening Step								Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply				Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline		Maximum Predicted vs. BC MOE 30-Day Mean Guideline		Maximum Predicted vs BC MOE Maximum Guideline	
		Mean	Maximum	30-Day Mean	BC MOE Maximum	Mean	Maximum	Mean	Maximum	Maximum	Wildlife
Construction (-2 to-1)	January	0.0	0.0	0.002	0.03	0.0	0.0	0.0	0.0	No	No
	February	0.00001	0.00003	0.002	0.03	0.00625	0.0125	0.00083	0.00083	No	No
	March	0.0439	0.0878	0.002	0.03	22.0	43.9	2.93	2.93	Yes	Yes
	April	0.00001	0.00003	0.002	0.03	0.00625	0.0125	0.00083	0.00083	No	No
	May	0.0	0.0	0.002	0.03	0.0	0.0	0.0	0.0	No	No
	June	0.00474	0.00947	0.002	0.03	2.37	4.74	0.316	0.316	Yes	No
	July	0.00266	0.00532	0.002	0.03	1.33	2.66	0.177	0.177	Yes	No
	August	0.00305	0.00611	0.002	0.03	1.53	3.05	0.204	0.204	Yes	No
	September	0.00397	0.00795	0.002	0.03	1.99	3.97	0.265	0.265	Yes	No
	October	0.00489	0.00979	0.002	0.03	2.45	4.89	0.326	0.326	Yes	No
	November	0.00580	0.0116	0.002	0.03	2.90	5.80	0.387	0.387	Yes	No
	December	0.00670	0.0134	0.002	0.03	3.35	6.70	0.447	0.447	Yes	No
Operation 1 Phase (1-23)	January	0.0365	0.0459	0.002	0.03	18.2	22.9	1.53	1.53	Yes	Yes
	February	0.0366	0.0459	0.002	0.03	18.3	22.9	1.53	1.53	Yes	Yes
	March	0.0368	0.0458	0.002	0.03	18.4	22.9	1.53	1.53	Yes	Yes
	April	0.0370	0.0457	0.002	0.03	18.5	22.9	1.52	1.52	Yes	Yes
	May	0.0371	0.0455	0.002	0.03	18.6	22.7	1.52	1.52	Yes	Yes
	June	0.0360	0.0448	0.002	0.03	18.0	22.4	1.49	1.49	Yes	Yes
	July	0.0353	0.0446	0.002	0.03	17.7	22.3	1.49	1.49	Yes	Yes
	August	0.0362	0.0454	0.002	0.03	18.1	22.7	1.51	1.51	Yes	Yes
	September	0.0370	0.0459	0.002	0.03	18.5	23.0	1.53	1.53	Yes	Yes
	October	0.0375	0.0462	0.002	0.03	18.7	23.1	1.54	1.54	Yes	Yes
	November	0.0376	0.0460	0.002	0.03	18.8	23.0	1.53	1.53	Yes	Yes
	December	0.0376	0.0459	0.002	0.03	18.8	22.9	1.53	1.53	Yes	Yes
Operations 2 Phase (24-28)	January	0.0421	0.0444	0.002	0.03	21.1	22.2	1.48	1.48	Yes	Yes
	February	0.0421	0.0444	0.002	0.03	21.0	22.2	1.48	1.48	Yes	Yes
	March	0.0421	0.0444	0.002	0.03	21.0	22.2	1.48	1.48	Yes	Yes
	April	0.0420	0.0443	0.002	0.03	21.0	22.2	1.48	1.48	Yes	Yes
	May	0.0418	0.0442	0.002	0.03	20.9	22.1	1.47	1.47	Yes	Yes
	June	0.0410	0.0435	0.002	0.03	20.5	21.7	1.45	1.45	Yes	Yes
	July	0.0405	0.0430	0.002	0.03	20.2	21.5	1.43	1.43	Yes	Yes
	August	0.0409	0.0436	0.002	0.03	20.4	21.8	1.45	1.45	Yes	Yes
	September	0.0410	0.0441	0.002	0.03	20.5	22.0	1.47	1.47	Yes	Yes
	October	0.0411	0.0442	0.002	0.03	20.5	22.1	1.47	1.47	Yes	Yes
	November	0.0409	0.0442	0.002	0.03	20.5	22.1	1.47	1.47	Yes	Yes
	December	0.0409	0.0442	0.002	0.03	20.4	22.1	1.47	1.47	Yes	Yes
Closure Phase (29-35)	January	0.0355	0.0379	0.002	0.03	17.7	18.9	1.26	1.26	Yes	Yes
	February	0.0355	0.0378	0.002	0.03	17.7	18.9	1.26	1.26	Yes	Yes
	March	0.0354	0.0378	0.002	0.03	17.7	18.9	1.26	1.26	Yes	Yes
	April	0.0354	0.0378	0.002	0.03	17.7	18.9	1.26	1.26	Yes	Yes
	May	0.0353	0.0376	0.002	0.03	17.7	18.8	1.25	1.25	Yes	Yes
	June	0.0350	0.0371	0.002	0.03	17.5	18.5	1.24	1.24	Yes	Yes
	July	0.0348	0.0368	0.002	0.03	17.4	18.4	1.23	1.23	Yes	Yes
	August	0.0350	0.0370	0.002	0.03	17.5	18.5	1.23	1.23	Yes	Yes
	September	0.0350	0.0370	0.002	0.03	17.5	18.5	1.23	1.23	Yes	Yes
	October	0.0350	0.0369	0.002	0.03	17.5	18.5	1.23	1.23	Yes	Yes
	November	0.0349	0.0368	0.002	0.03	17.4	18.4	1.23	1.23	Yes	Yes
	December	0.0349	0.0368	0.002	0.03	17.4	18.4	1.23	1.23	Yes	Yes
Post-Closure Phase (36-99)	January	0.0327	0.0349	0.002	0.03	16.4	17.4	1.16	1.16	Yes	Yes
	February	0.0327	0.0348	0.002	0.03	16.4	17.4	1.16	1.16	Yes	Yes
	March	0.0327	0.0349	0.002	0.03	16.4	17.4	1.16	1.16	Yes	Yes
	April	0.0327	0.0349	0.002	0.03	16.4	17.5	1.16	1.16	Yes	Yes
	May	0.0327	0.0349	0.002	0.03	16.3	17.4	1.16	1.16	Yes	Yes
	June	0.0325	0.0347	0.002	0.03	16.2	17.3	1.16	1.16	Yes	Yes
	July	0.0325	0.0346	0.002	0.03	16.2	17.3	1.15	1.15	Yes	Yes
	August	0.0327	0.0349	0.002	0.03	16.4	17.4	1.16	1.16	Yes	Yes
	September	0.0327	0.0349	0.002	0.03	16.4	17.5	1.16	1.16	Yes	Yes
	October	0.0327	0.0349	0.002	0.03	16.4	17.5	1.16	1.16	Yes	Yes
	November	0.0327	0.0349	0.002	0.03	16.3	17.4	1.16	1.16	Yes	Yes
	December	0.0327	0.0349	0.002	0.03	16.3	17.4	1.16	1.16	Yes	Yes

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16o. Tailings Management Facility (TMF) Hazard Quotients for Total Uranium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	0.2	0.0	No
	February	0.0001	0.0001	0.2	0.0007	No
	March	0.0048	0.0097	0.2	0.0485	No
	April	0.0001	0.0001	0.2	0.0007	No
	May	0.0	0.0	0.2	0.0	No
	June	0.0006	0.0012	0.2	0.0062	No
	July	0.0004	0.0008	0.2	0.0039	No
	August	0.0004	0.0009	0.2	0.0044	No
	September	0.0005	0.0011	0.2	0.0054	No
	October	0.0006	0.0013	0.2	0.0064	No
	November	0.0007	0.0015	0.2	0.0074	No
	December	0.0008	0.0017	0.2	0.0084	No
Operation 1 Phase (1-23)	January	0.0044	0.0054	0.2	0.0269	No
	February	0.0044	0.0054	0.2	0.0269	No
	March	0.0044	0.0054	0.2	0.0269	No
	April	0.0044	0.0054	0.2	0.0269	No
	May	0.0044	0.0053	0.2	0.0267	No
	June	0.0043	0.0053	0.2	0.0263	No
	July	0.0042	0.0054	0.2	0.0270	No
	August	0.0043	0.0055	0.2	0.0274	No
	September	0.0044	0.0055	0.2	0.0277	No
	October	0.0045	0.0056	0.2	0.0278	No
	November	0.0045	0.0056	0.2	0.0278	No
	December	0.0045	0.0056	0.2	0.0278	No
Operations 2 Phase (24-28)	January	0.0052	0.0055	0.2	0.0277	No
	February	0.0052	0.0055	0.2	0.0277	No
	March	0.0051	0.0055	0.2	0.0277	No
	April	0.0051	0.0055	0.2	0.0277	No
	May	0.0051	0.0055	0.2	0.0276	No
	June	0.0050	0.0054	0.2	0.0271	No
	July	0.0049	0.0053	0.2	0.0266	No
	August	0.0049	0.0054	0.2	0.0269	No
	September	0.0050	0.0054	0.2	0.0272	No
	October	0.0050	0.0055	0.2	0.0273	No
	November	0.0050	0.0055	0.2	0.0273	No
	December	0.0050	0.0055	0.2	0.0273	No
Closure Phase (29-35)	January	0.0041	0.0045	0.2	0.0225	No
	February	0.0041	0.0045	0.2	0.0225	No
	March	0.0041	0.0045	0.2	0.0224	No
	April	0.0041	0.0045	0.2	0.0224	No
	May	0.0041	0.0045	0.2	0.0223	No
	June	0.0040	0.0044	0.2	0.0219	No
	July	0.0040	0.0043	0.2	0.0217	No
	August	0.0040	0.0044	0.2	0.0218	No
	September	0.0040	0.0044	0.2	0.0218	No
	October	0.0040	0.0043	0.2	0.0217	No
	November	0.0040	0.0043	0.2	0.0217	No
	December	0.0040	0.0043	0.2	0.0216	No
Post-Closure Phase (36-99)	January	0.0036	0.0041	0.2	0.0207	No
	February	0.0036	0.0041	0.2	0.0207	No
	March	0.0037	0.0041	0.2	0.0207	No
	April	0.0037	0.0042	0.2	0.0208	No
	May	0.0037	0.0042	0.2	0.0208	No
	June	0.0036	0.0041	0.2	0.0207	No
	July	0.0036	0.0041	0.2	0.0206	No
	August	0.0036	0.0041	0.2	0.0207	No
	September	0.0036	0.0042	0.2	0.0208	No
	October	0.0036	0.0042	0.2	0.0208	No
	November	0.0036	0.0041	0.2	0.0207	No
	December	0.0036	0.0041	0.2	0.0207	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16p. Tailings Management Facility (TMF) Hazard Quotients for Total Vanadium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	0.0	0.0	0.1	0.0	No
	February	0.0001	0.0001	0.1	0.0013	No
	March	0.0007	0.0014	0.1	0.0137	No
	April	0.0001	0.0001	0.1	0.0013	No
	May	0.0	0.0	0.1	0.0	No
	June	0.0002	0.0004	0.1	0.0040	No
	July	0.0002	0.0004	0.1	0.0037	No
	August	0.0002	0.0004	0.1	0.0039	No
	September	0.0002	0.0004	0.1	0.0042	No
	October	0.0002	0.0004	0.1	0.0045	No
	November	0.0002	0.0005	0.1	0.0047	No
	December	0.0002	0.0005	0.1	0.0049	No
Operation 1 Phase (1-23)	January	0.0008	0.0009	0.1	0.0091	No
	February	0.0008	0.0009	0.1	0.0091	No
	March	0.0008	0.0009	0.1	0.0092	No
	April	0.0008	0.0009	0.1	0.0092	No
	May	0.0008	0.0009	0.1	0.0093	No
	June	0.0008	0.0009	0.1	0.0089	No
	July	0.0008	0.0009	0.1	0.0091	No
	August	0.0008	0.0009	0.1	0.0091	No
	September	0.0008	0.0009	0.1	0.0091	No
	October	0.0008	0.0009	0.1	0.0091	No
	November	0.0008	0.0009	0.1	0.0091	No
	December	0.0008	0.0009	0.1	0.0091	No
Operations 2 Phase (24-28)	January	0.0008	0.0009	0.1	0.0091	No
	February	0.0008	0.0009	0.1	0.0091	No
	March	0.0008	0.0009	0.1	0.0091	No
	April	0.0008	0.0009	0.1	0.0091	No
	May	0.0008	0.0009	0.1	0.0091	No
	June	0.0008	0.0009	0.1	0.0089	No
	July	0.0008	0.0009	0.1	0.0087	No
	August	0.0008	0.0009	0.1	0.0087	No
	September	0.0008	0.0009	0.1	0.0087	No
	October	0.0008	0.0009	0.1	0.0087	No
	November	0.0008	0.0009	0.1	0.0087	No
	December	0.0008	0.0009	0.1	0.0087	No
Closure Phase (29-35)	January	0.0006	0.0007	0.1	0.0068	No
	February	0.0006	0.0007	0.1	0.0067	No
	March	0.0006	0.0007	0.1	0.0067	No
	April	0.0006	0.0007	0.1	0.0067	No
	May	0.0006	0.0007	0.1	0.0067	No
	June	0.0006	0.0007	0.1	0.0066	No
	July	0.0006	0.0006	0.1	0.0065	No
	August	0.0006	0.0007	0.1	0.0065	No
	September	0.0006	0.0006	0.1	0.0065	No
	October	0.0006	0.0006	0.1	0.0065	No
	November	0.0006	0.0006	0.1	0.0065	No
	December	0.0006	0.0006	0.1	0.0065	No
Post-Closure Phase (36-99)	January	0.0010	0.0011	0.1	0.0112	No
	February	0.0010	0.0011	0.1	0.0112	No
	March	0.0010	0.0011	0.1	0.0113	No
	April	0.0010	0.0011	0.1	0.0113	No
	May	0.0010	0.0011	0.1	0.0114	No
	June	0.0010	0.0011	0.1	0.0113	No
	July	0.0010	0.0011	0.1	0.0112	No
	August	0.0010	0.0011	0.1	0.0113	No
	September	0.0010	0.0011	0.1	0.0113	No
	October	0.0010	0.0011	0.1	0.0113	No
	November	0.0010	0.0011	0.1	0.0113	No
	December	0.0010	0.0011	0.1	0.0113	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16q. Tailings Management Facility (TMF) Hazard Quotients for Total Zinc Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Maximum	Maximum Predicted vs BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.0	0.0	2	0.0	No
	February	0.00001	0.00001	2	0.00001	No
	March	0.00564	0.01127	2	0.00564	No
	April	0.00001	0.00001	2	0.00001	No
	May	0.0	0.0	2	0.0	No
	June	0.00062	0.00124	2	0.00062	No
	July	0.00036	0.00071	2	0.00036	No
	August	0.00041	0.00083	2	0.00041	No
	September	0.00054	0.00109	2	0.00054	No
	October	0.00067	0.00133	2	0.00067	No
	November	0.00078	0.00156	2	0.00078	No
	December	0.00090	0.00180	2	0.00090	No
Operation 1 Phase (1-23)	January	0.00610	0.00868	2	0.00434	No
	February	0.00611	0.00867	2	0.00434	No
	March	0.00614	0.00867	2	0.00433	No
	April	0.00616	0.00866	2	0.00433	No
	May	0.00616	0.00863	2	0.00431	No
	June	0.00600	0.00856	2	0.00428	No
	July	0.00596	0.00866	2	0.00433	No
	August	0.00614	0.00881	2	0.00440	No
	September	0.00630	0.00890	2	0.00445	No
	October	0.00638	0.00894	2	0.00447	No
	November	0.00638	0.00893	2	0.00446	No
	December	0.00638	0.00892	2	0.00446	No
Operations 2 Phase (24-28)	January	0.00876	0.00898	2	0.00449	No
	February	0.00875	0.00898	2	0.00449	No
	March	0.00875	0.00897	2	0.00448	No
	April	0.00874	0.00896	2	0.00448	No
	May	0.00869	0.00890	2	0.00445	No
	June	0.00856	0.00876	2	0.00438	No
	July	0.00852	0.00872	2	0.00436	No
	August	0.00863	0.00889	2	0.00444	No
	September	0.00867	0.00897	2	0.00449	No
	October	0.00867	0.00901	2	0.00450	No
	November	0.00865	0.00899	2	0.00450	No
	December	0.00864	0.00899	2	0.00449	No
Closure Phase (29-35)	January	0.00769	0.00829	2	0.00415	No
	February	0.00769	0.00828	2	0.00414	No
	March	0.00769	0.00828	2	0.00414	No
	April	0.00768	0.00827	2	0.00414	No
	May	0.00765	0.00823	2	0.00412	No
	June	0.00757	0.00811	2	0.00405	No
	July	0.00753	0.00803	2	0.00401	No
	August	0.00757	0.00807	2	0.00403	No
	September	0.00757	0.00806	2	0.00403	No
	October	0.00756	0.00805	2	0.00403	No
	November	0.00754	0.00803	2	0.00402	No
	December	0.00754	0.00802	2	0.00401	No
Post-Closure Phase (36-99)	January	0.00669	0.00737	2	0.00369	No
	February	0.00669	0.00737	2	0.00368	No
	March	0.00669	0.00738	2	0.00369	No
	April	0.00669	0.00739	2	0.00369	No
	May	0.00668	0.00738	2	0.00369	No
	June	0.00664	0.00734	2	0.00367	No
	July	0.00663	0.00733	2	0.00366	No
	August	0.00668	0.00738	2	0.00369	No
	September	0.00668	0.00739	2	0.00369	No
	October	0.00668	0.00738	2	0.00369	No
	November	0.00667	0.00737	2	0.00369	No
	December	0.00667	0.00737	2	0.00369	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16r. Tailings Management Facility (TMF) Hazard Quotients for Chloride Concentrations, Upper Bound Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Months									
Construction (-2 to-1)	January	0.0	0.0	600	600	0.0	0.0	No	No
	February	0.188	0.375	600	600	0.0006	0.0006	No	No
	March	8.81	17.6	600	600	0.0294	0.0294	No	No
	April	0.188	0.375	600	600	0.0006	0.0006	No	No
	May	0.0	0.0	600	600	0.0	0.0	No	No
	June	1.22	2.43	600	600	0.0041	0.0041	No	No
	July	0.803	1.61	600	600	0.0027	0.0027	No	No
	August	0.903	1.81	600	600	0.0030	0.0030	No	No
	September	1.12	2.25	600	600	0.0037	0.0037	No	No
	October	1.32	2.64	600	600	0.0044	0.0044	No	No
	November	1.50	2.99	600	600	0.0050	0.0050	No	No
	December	1.67	3.34	600	600	0.0056	0.0056	No	No
Operation 1 Phase (1-23)	January	7.61	8.87	600	600	0.0148	0.0148	No	No
	February	7.64	8.92	600	600	0.0149	0.0149	No	No
	March	7.68	8.93	600	600	0.0149	0.0149	No	No
	April	7.73	8.95	600	600	0.0149	0.0149	No	No
	May	7.74	8.92	600	600	0.0149	0.0149	No	No
	June	7.44	8.61	600	600	0.0144	0.0144	No	No
	July	7.27	8.67	600	600	0.0145	0.0145	No	No
	August	7.44	8.76	600	600	0.0146	0.0146	No	No
	September	7.66	8.84	600	600	0.0147	0.0147	No	No
	October	7.77	8.88	600	600	0.0148	0.0148	No	No
	November	7.78	8.87	600	600	0.0148	0.0148	No	No
	December	7.80	8.87	600	600	0.0148	0.0148	No	No
Operations 2 Phase (24-28)	January	8.12	8.86	600	600	0.0148	0.0148	No	No
	February	8.11	8.86	600	600	0.0148	0.0148	No	No
	March	8.10	8.86	600	600	0.0148	0.0148	No	No
	April	8.09	8.85	600	600	0.0148	0.0148	No	No
	May	8.04	8.82	600	600	0.0147	0.0147	No	No
	June	7.85	8.63	600	600	0.0144	0.0144	No	No
	July	7.68	8.45	600	600	0.0141	0.0141	No	No
	August	7.72	8.54	600	600	0.0142	0.0142	No	No
	September	7.76	8.63	600	600	0.0144	0.0144	No	No
	October	7.77	8.66	600	600	0.0144	0.0144	No	No
	November	7.74	8.65	600	600	0.0144	0.0144	No	No
	December	7.73	8.65	600	600	0.0144	0.0144	No	No
Closure Phase (29-35)	January	6.19	6.89	600	600	0.0115	0.0115	No	No
	February	6.18	6.88	600	600	0.0115	0.0115	No	No
	March	6.18	6.88	600	600	0.0115	0.0115	No	No
	April	6.18	6.87	600	600	0.0115	0.0115	No	No
	May	6.15	6.84	600	600	0.0114	0.0114	No	No
	June	6.07	6.71	600	600	0.0112	0.0112	No	No
	July	6.00	6.61	600	600	0.0110	0.0110	No	No
	August	6.02	6.63	600	600	0.0110	0.0110	No	No
	September	6.02	6.62	600	600	0.0110	0.0110	No	No
	October	6.01	6.61	600	600	0.0110	0.0110	No	No
	November	6.00	6.59	600	600	0.0110	0.0110	No	No
	December	6.00	6.59	600	600	0.0110	0.0110	No	No
Post-Closure Phase (36-99)	January	5.08	6.10	600	600	0.0102	0.0102	No	No
	February	5.08	6.09	600	600	0.0102	0.0102	No	No
	March	5.09	6.11	600	600	0.0102	0.0102	No	No
	April	5.10	6.13	600	600	0.0102	0.0102	No	No
	May	5.09	6.14	600	600	0.0102	0.0102	No	No
	June	5.06	6.09	600	600	0.0102	0.0102	No	No
	July	5.03	6.06	600	600	0.0101	0.0101	No	No
	August	5.06	6.10	600	600	0.0102	0.0102	No	No
	September	5.07	6.12	600	600	0.0102	0.0102	No	No
	October	5.07	6.11	600	600	0.0102	0.0102	No	No
	November	5.06	6.10	600	600	0.0102	0.0102	No	No
	December	5.06	6.10	600	600	0.0102	0.0102	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16s. Tailings Management Facility (TMF) Hazard Quotients for Fluoride Concentrations, Upper Bound Case

		First Screening Step											Retained as COPC?		
Project Phase	Months	Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			Wildlife	Livestock
		Mean	Maximum	30-Day		30-Day		Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
				Mean	Maximum	Mean	Maximum								
Construction (-2 to-1)	January	0.0	0.0	1	1.5	1	2	0.0	0.0	0.0	0.0	0.0	0.0	No	No
	February	0.0088	0.0175	1	1.5	1	2	0.0088	0.0175	0.0117	0.0088	0.0175	0.0088	No	No
	March	0.201	0.401	1	1.5	1	2	0.201	0.401	0.267	0.201	0.401	0.201	No	No
	April	0.0088	0.0175	1	1.5	1	2	0.0088	0.0175	0.0117	0.0088	0.0175	0.0088	No	No
	May	0.0	0.0	1	1.5	1	2	0.0	0.0	0.0	0.0	0.0	0.0	No	No
	June	0.0346	0.0693	1	1.5	1	2	0.0346	0.0693	0.0462	0.0346	0.0693	0.0346	No	No
	July	0.0249	0.0498	1	1.5	1	2	0.0249	0.0498	0.0332	0.0249	0.0498	0.0249	No	No
	August	0.0273	0.0545	1	1.5	1	2	0.0273	0.0545	0.0364	0.0273	0.0545	0.0273	No	No
	September	0.0329	0.0659	1	1.5	1	2	0.0329	0.0659	0.0439	0.0329	0.0659	0.0329	No	No
	October	0.0374	0.0749	1	1.5	1	2	0.0374	0.0749	0.0499	0.0374	0.0749	0.0374	No	No
	November	0.0414	0.0829	1	1.5	1	2	0.0414	0.0829	0.0553	0.0414	0.0829	0.0414	No	No
	December	0.0471	0.0942	1	1.5	1	2	0.0471	0.0942	0.0628	0.0471	0.0942	0.0471	No	No
Operation 1 Phase (1-23)	January	0.227	0.266	1	1.5	1	2	0.227	0.266	0.177	0.227	0.266	0.133	No	No
	February	0.229	0.266	1	1.5	1	2	0.229	0.266	0.177	0.229	0.266	0.133	No	No
	March	0.230	0.267	1	1.5	1	2	0.230	0.267	0.178	0.230	0.267	0.133	No	No
	April	0.232	0.267	1	1.5	1	2	0.232	0.267	0.178	0.232	0.267	0.133	No	No
	May	0.233	0.266	1	1.5	1	2	0.233	0.266	0.177	0.233	0.266	0.133	No	No
	June	0.225	0.262	1	1.5	1	2	0.225	0.262	0.174	0.225	0.262	0.131	No	No
	July	0.221	0.265	1	1.5	1	2	0.221	0.265	0.177	0.221	0.265	0.132	No	No
	August	0.223	0.265	1	1.5	1	2	0.223	0.265	0.177	0.223	0.265	0.133	No	No
	September	0.227	0.266	1	1.5	1	2	0.227	0.266	0.177	0.227	0.266	0.133	No	No
	October	0.229	0.266	1	1.5	1	2	0.229	0.266	0.177	0.229	0.266	0.133	No	No
	November	0.230	0.266	1	1.5	1	2	0.230	0.266	0.177	0.230	0.266	0.133	No	No
	December	0.233	0.266	1	1.5	1	2	0.233	0.266	0.177	0.233	0.266	0.133	No	No
Operations 2 Phase (24-28)	January	0.231	0.265	1	1.5	1	2	0.231	0.265	0.177	0.231	0.265	0.133	No	No
	February	0.231	0.265	1	1.5	1	2	0.231	0.265	0.177	0.231	0.265	0.133	No	No
	March	0.230	0.265	1	1.5	1	2	0.230	0.265	0.177	0.230	0.265	0.132	No	No
	April	0.230	0.265	1	1.5	1	2	0.230	0.265	0.176	0.230	0.265	0.132	No	No
	May	0.229	0.264	1	1.5	1	2	0.229	0.264	0.176	0.229	0.264	0.132	No	No
	June	0.222	0.258	1	1.5	1	2	0.222	0.258	0.172	0.222	0.258	0.129	No	No
	July	0.216	0.251	1	1.5	1	2	0.216	0.251	0.167	0.216	0.251	0.125	No	No
	August	0.216	0.251	1	1.5	1	2	0.216	0.251	0.167	0.216	0.251	0.125	No	No
	September	0.216	0.252	1	1.5	1	2	0.216	0.252	0.168	0.216	0.252	0.126	No	No
	October	0.216	0.252	1	1.5	1	2	0.216	0.252	0.168	0.216	0.252	0.126	No	No
	November	0.215	0.251	1	1.5	1	2	0.215	0.251	0.168	0.215	0.251	0.126	No	No
	December	0.215	0.251	1	1.5	1	2	0.215	0.251	0.167	0.215	0.251	0.126	No	No
Closure Phase (29-35)	January	0.161	0.185	1	1.5	1	2	0.161	0.185	0.123	0.161	0.185	0.0924	No	No
	February	0.161	0.185	1	1.5	1	2	0.161	0.185	0.123	0.161	0.185	0.0923	No	No
	March	0.161	0.184	1	1.5	1	2	0.161	0.184	0.123	0.161	0.184	0.0922	No	No
	April	0.161	0.184	1	1.5	1	2	0.161	0.184	0.123	0.161	0.184	0.0921	No	No
	May	0.160	0.183	1	1.5	1	2	0.160	0.183	0.122	0.160	0.183	0.0916	No	No
	June	0.157	0.179	1	1.5	1	2	0.157	0.179	0.120	0.157	0.179	0.0897	No	No
	July	0.155	0.176	1	1.5	1	2	0.155	0.176	0.117	0.155	0.176	0.0880	No	No
	August	0.155	0.176	1	1.5	1	2	0.155	0.176	0.117	0.155	0.176	0.0879	No	No
	September	0.155	0.176	1	1.5	1	2	0.155	0.176	0.117	0.155	0.176	0.0879	No	No
	October	0.155	0.175	1	1.5	1	2	0.155	0.175	0.117	0.155	0.175	0.0877	No	No
	November	0.154	0.175	1	1.5	1	2	0.154	0.175	0.117	0.154	0.175	0.0875	No	No
	December	0.154	0.175	1	1.5	1	2	0.154	0.175	0.117	0.154	0.175	0.0874	No	No
Post-Closure Phase (36-99)	January	0.101	0.137	1	1.5	1	2	0.101	0.137	0.0913	0.101	0.137	0.0685	No	No
	February	0.101	0.137	1	1.5	1	2	0.101	0.137	0.0912	0.101	0.137	0.0684	No	No
	March	0.101	0.137	1	1.5	1	2	0.101	0.137	0.0914	0.101	0.137	0.0686	No	No
	April	0.102	0.138	1	1.5	1	2	0.102	0.138	0.0918	0.102	0.138	0.0689	No	No
	May	0.102	0.138	1	1.5	1	2	0.102	0.138	0.0920	0.102	0.138	0.0690	No	No
	June	0.101	0.137	1	1.5	1	2	0.101	0.137	0.0912	0.101	0.137	0.0684	No	No
	July	0.100	0.136	1	1.5	1	2	0.100	0.136	0.0904	0.100	0.136	0.0678	No	No
	August	0.101	0.136	1	1.5	1	2	0.101	0.136	0.0909	0.101	0.136	0.0682	No	No
	September	0.101	0.137	1	1.5	1	2	0.101	0.137	0.0911	0.101	0.137	0.0683	No	No
	October	0.101	0.137	1	1.5	1	2	0.101	0.137	0.0910	0.101	0.137	0.0683	No	No
	November	0.100	0.136	1	1.5	1	2	0.100	0.136	0.0909	0.100	0.136	0.0682	No	No
	December	0.100	0.136	1	1.5	1	2	0.100	0.136	0.0908	0.100	0.136	0.0681	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16t. Tailings Management Facility (TMF) Hazard Quotients for Nitrate Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock
		Mean	Maximum	Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline		
Construction (-2 to-1)	January	0.0	0.0	100	100	0.0	0.0	No	No
	February	0.0306	0.0613	100	100	0.0006	0.0006	No	No
	March	2.60	5.21	100	100	0.0521	0.0521	No	No
	April	0.0306	0.0613	100	100	0.0006	0.0006	No	No
	May	0.0	0.0	100	100	0.0	0.0	No	No
	June	0.349	0.698	100	100	0.0070	0.0070	No	No
	July	0.248	0.496	100	100	0.0050	0.0050	No	No
	August	0.352	0.704	100	100	0.0070	0.0070	No	No
	September	0.561	1.12	100	100	0.0112	0.0112	No	No
	October	0.679	1.36	100	100	0.0136	0.0136	No	No
	November	0.729	1.46	100	100	0.0146	0.0146	No	No
	December	0.772	1.54	100	100	0.0154	0.0154	No	No
Operation 1 Phase (1-23)	January	2.84	3.37	100	100	0.0337	0.0337	No	No
	February	2.83	3.37	100	100	0.0337	0.0337	No	No
	March	2.84	3.36	100	100	0.0336	0.0336	No	No
	April	2.84	3.36	100	100	0.0336	0.0336	No	No
	May	2.86	3.36	100	100	0.0336	0.0336	No	No
	June	2.78	3.32	100	100	0.0332	0.0332	No	No
	July	2.71	3.29	100	100	0.0329	0.0329	No	No
	August	2.77	3.34	100	100	0.0334	0.0334	No	No
	September	2.84	3.37	100	100	0.0337	0.0337	No	No
	October	2.86	3.39	100	100	0.0339	0.0339	No	No
	November	2.88	3.39	100	100	0.0339	0.0339	No	No
	December	2.87	3.37	100	100	0.0337	0.0337	No	No
Operations 2 Phase (24-28)	January	2.13	2.47	100	100	0.0247	0.0247	No	No
	February	2.12	2.46	100	100	0.0246	0.0246	No	No
	March	2.12	2.46	100	100	0.0246	0.0246	No	No
	April	2.11	2.45	100	100	0.0245	0.0245	No	No
	May	2.12	2.44	100	100	0.0244	0.0244	No	No
	June	2.08	2.55	100	100	0.0255	0.0255	No	No
	July	2.00	2.45	100	100	0.0245	0.0245	No	No
	August	1.99	2.43	100	100	0.0243	0.0243	No	No
	September	1.98	2.42	100	100	0.0242	0.0242	No	No
	October	1.98	2.42	100	100	0.0242	0.0242	No	No
	November	1.98	2.48	100	100	0.0248	0.0248	No	No
	December	1.97	2.47	100	100	0.0247	0.0247	No	No
Closure Phase (29-35)	January	1.29	1.58	100	100	0.0158	0.0158	No	No
	February	1.29	1.58	100	100	0.0158	0.0158	No	No
	March	1.28	1.57	100	100	0.0157	0.0157	No	No
	April	1.28	1.57	100	100	0.0157	0.0157	No	No
	May	1.28	1.56	100	100	0.0156	0.0156	No	No
	June	1.25	1.52	100	100	0.0152	0.0152	No	No
	July	1.22	1.48	100	100	0.0148	0.0148	No	No
	August	1.21	1.47	100	100	0.0147	0.0147	No	No
	September	1.21	1.47	100	100	0.0147	0.0147	No	No
	October	1.21	1.47	100	100	0.0147	0.0147	No	No
	November	1.21	1.46	100	100	0.0146	0.0146	No	No
	December	1.21	1.46	100	100	0.0146	0.0146	No	No
Post-Closure Phase (36-99)	January	0.249	0.993	100	100	0.0099	0.0099	No	No
	February	0.249	0.992	100	100	0.0099	0.0099	No	No
	March	0.249	0.990	100	100	0.0099	0.0099	No	No
	April	0.248	0.988	100	100	0.0099	0.0099	No	No
	May	0.247	0.982	100	100	0.0098	0.0098	No	No
	June	0.242	0.962	100	100	0.0096	0.0096	No	No
	July	0.237	0.939	100	100	0.0094	0.0094	No	No
	August	0.236	0.934	100	100	0.0093	0.0093	No	No
	September	0.236	0.933	100	100	0.0093	0.0093	No	No
	October	0.235	0.931	100	100	0.0093	0.0093	No	No
	November	0.235	0.929	100	100	0.0093	0.0093	No	No
	December	0.235	0.927	100	100	0.0093	0.0093	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16u. Tailings Management Facility (TMF) Hazard Quotients for Nitrite Concentrations, Upper Bound Case

Project Phase		First Screening Step								Retained as COPC?	
		Predicted Concentrations			BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Wildlife	Livestock	
		Median	Mean	Maximum	Maximum	BC MOE Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	0.0	0.0	0.0	10	10	0.0	0.0	No	No	
	February	0.0016	0.0016	0.0031	10	10	0.0003	0.0003	No	No	
	March	0.0607	0.0607	0.121	10	10	0.0121	0.0121	No	No	
	April	0.0016	0.0016	0.0031	10	10	0.0003	0.0003	No	No	
	May	0.0	0.0	0.0	10	10	0.0	0.0	No	No	
	June	0.0093	0.0093	0.0185	10	10	0.0019	0.0019	No	No	
	July	0.0069	0.0069	0.0138	10	10	0.0014	0.0014	No	No	
	August	0.0093	0.0093	0.0185	10	10	0.0019	0.0019	No	No	
	September	0.0141	0.0141	0.0281	10	10	0.0028	0.0028	No	No	
	October	0.0168	0.0168	0.0336	10	10	0.0034	0.0034	No	No	
	November	0.0179	0.0179	0.0359	10	10	0.0036	0.0036	No	No	
	December	0.0189	0.0189	0.0379	10	10	0.0038	0.0038	No	No	
Operation 1 Phase (1-23)	January	0.0675	0.0656	0.0778	10	10	0.0078	0.0078	No	No	
	February	0.0674	0.0656	0.0777	10	10	0.0078	0.0078	No	No	
	March	0.0674	0.0657	0.0776	10	10	0.0078	0.0078	No	No	
	April	0.0673	0.0657	0.0775	10	10	0.0077	0.0077	No	No	
	May	0.0674	0.0661	0.0776	10	10	0.0078	0.0078	No	No	
	June	0.0669	0.0643	0.0766	10	10	0.0077	0.0077	No	No	
	July	0.0658	0.0625	0.0759	10	10	0.0076	0.0076	No	No	
	August	0.0657	0.0640	0.0771	10	10	0.0077	0.0077	No	No	
	September	0.0655	0.0655	0.0778	10	10	0.0078	0.0078	No	No	
	October	0.0664	0.0662	0.0782	10	10	0.0078	0.0078	No	No	
	November	0.0678	0.0664	0.0782	10	10	0.0078	0.0078	No	No	
	December	0.0676	0.0662	0.0779	10	10	0.0078	0.0078	No	No	
Operations 2 Phase (24-28)	January	0.0499	0.0492	0.0570	10	10	0.0057	0.0057	No	No	
	February	0.0498	0.0491	0.0569	10	10	0.0057	0.0057	No	No	
	March	0.0497	0.0490	0.0568	10	10	0.0057	0.0057	No	No	
	April	0.0496	0.0489	0.0566	10	10	0.0057	0.0057	No	No	
	May	0.0492	0.0490	0.0564	10	10	0.0056	0.0056	No	No	
	June	0.0474	0.0482	0.0589	10	10	0.0059	0.0059	No	No	
	July	0.0455	0.0464	0.0567	10	10	0.0057	0.0057	No	No	
	August	0.0451	0.0460	0.0563	10	10	0.0056	0.0056	No	No	
	September	0.0449	0.0458	0.0560	10	10	0.0056	0.0056	No	No	
	October	0.0448	0.0457	0.0560	10	10	0.0056	0.0056	No	No	
	November	0.0446	0.0458	0.0573	10	10	0.0057	0.0057	No	No	
	December	0.0444	0.0457	0.0571	10	10	0.0057	0.0057	No	No	
Closure Phase (29-35)	January	0.0293	0.0298	0.0366	10	10	0.0037	0.0037	No	No	
	February	0.0293	0.0298	0.0365	10	10	0.0036	0.0036	No	No	
	March	0.0292	0.0297	0.0364	10	10	0.0036	0.0036	No	No	
	April	0.0292	0.0297	0.0364	10	10	0.0036	0.0036	No	No	
	May	0.0291	0.0296	0.0361	10	10	0.0036	0.0036	No	No	
	June	0.0285	0.0289	0.0352	10	10	0.0035	0.0035	No	No	
	July	0.0279	0.0282	0.0342	10	10	0.0034	0.0034	No	No	
	August	0.0278	0.0281	0.0341	10	10	0.0034	0.0034	No	No	
	September	0.0277	0.0281	0.0340	10	10	0.0034	0.0034	No	No	
	October	0.0277	0.0281	0.0340	10	10	0.0034	0.0034	No	No	
	November	0.0276	0.0280	0.0338	10	10	0.0034	0.0034	No	No	
	December	0.0276	0.0279	0.0338	10	10	0.0034	0.0034	No	No	
Post-Closure Phase (36-99)	January	0.0033	0.0059	0.0230	10	10	0.0023	0.0023	No	No	
	February	0.0033	0.0059	0.0230	10	10	0.0023	0.0023	No	No	
	March	0.0033	0.0059	0.0230	10	10	0.0023	0.0023	No	No	
	April	0.0033	0.0059	0.0229	10	10	0.0023	0.0023	No	No	
	May	0.0033	0.0059	0.0228	10	10	0.0023	0.0023	No	No	
	June	0.0032	0.0057	0.0223	10	10	0.0022	0.0022	No	No	
	July	0.0032	0.0056	0.0218	10	10	0.0022	0.0022	No	No	
	August	0.0032	0.0056	0.0217	10	10	0.0022	0.0022	No	No	
	September	0.0032	0.0056	0.0216	10	10	0.0022	0.0022	No	No	
	October	0.0032	0.0056	0.0216	10	10	0.0022	0.0022	No	No	
	November	0.0032	0.0056	0.0216	10	10	0.0022	0.0022	No	No	
	December	0.0032	0.0056	0.0215	10	10	0.0022	0.0022	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D16v. Tailings Management Facility (TMF) Hazard Quotients for Sulphate Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Maximum	Maximum Predicted vs BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.0	0.0	1000	0.0	No
	February	0.572	1.14	1000	0.0011	No
	March	450	900	1000	0.900	No
	April	0.572	1.14	1000	0.0011	No
	May	0.0	0.0	1000	0.0	No
	June	49.2	98.5	1000	0.0985	No
	July	28.3	56.6	1000	0.0566	No
	August	33.8	67.7	1000	0.0677	No
	September	46.0	92.1	1000	0.0921	No
	October	56.6	113	1000	0.113	No
	November	65.8	132	1000	0.132	No
	December	75.1	150	1000	0.150	No
Operation 1 Phase (1-23)	January	436	513	1000	0.513	No
	February	438	513	1000	0.513	No
	March	440	512	1000	0.512	No
	April	442	512	1000	0.512	No
	May	443	509	1000	0.509	No
	June	425	500	1000	0.500	No
	July	416	514	1000	0.514	No
	August	428	520	1000	0.520	No
	September	443	526	1000	0.526	No
	October	449	529	1000	0.529	No
	November	450	528	1000	0.528	No
	December	450	528	1000	0.528	No
Operations 2 Phase (24-28)	January	488	528	1000	0.528	No
	February	487	527	1000	0.527	No
	March	487	527	1000	0.527	No
	April	486	527	1000	0.527	No
	May	483	525	1000	0.525	No
	June	471	514	1000	0.514	No
	July	462	503	1000	0.503	No
	August	465	510	1000	0.510	No
	September	468	516	1000	0.516	No
	October	468	519	1000	0.519	No
	November	467	518	1000	0.518	No
	December	466	517	1000	0.517	No
Closure Phase (29-35)	January	377	418	1000	0.418	No
	February	377	417	1000	0.417	No
	March	377	417	1000	0.417	No
	April	377	417	1000	0.417	No
	May	375	415	1000	0.415	No
	June	370	407	1000	0.407	No
	July	366	402	1000	0.402	No
	August	368	403	1000	0.403	No
	September	368	402	1000	0.402	No
	October	367	402	1000	0.402	No
	November	366	401	1000	0.401	No
	December	366	400	1000	0.400	No
Post-Closure Phase (36-99)	January	281	339	1000	0.339	No
	February	281	339	1000	0.339	No
	March	281	339	1000	0.339	No
	April	281	340	1000	0.340	No
	May	281	340	1000	0.340	No
	June	279	338	1000	0.338	No
	July	278	336	1000	0.336	No
	August	280	339	1000	0.339	No
	September	280	339	1000	0.339	No
	October	280	339	1000	0.339	No
	November	280	338	1000	0.338	No
	December	279	338	1000	0.338	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D17b. P Creek Hazard Quotients for Total Antimony Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Closure Phase (29-35)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D17c. P Creek Hazard Quotients for Total Arsenic Concentrations, Upper Bound Case

Project Phase		First Screening Step											Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	BC MOE Interim	Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Interim Guideline					
Construction (-2 to-1)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No	
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No	
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No	
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No	
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No	
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No	
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No	
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No	
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No	
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No	
Closure Phase (29-35)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No	
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No	
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No	
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No	
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No	
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No	
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D17d. P Creek Hazard Quotients for Total Barium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step									Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum		Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline			
						Maximum Predicted vs. Canadian DWQG						
Construction (-2 to-1)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Operation 1 Phase (1-23)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Operations 2 Phase (24-28)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Closure Phase (29-35)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No
Post-Closure Phase (36-99)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	March	0.0062	0.0063	1	5	1	0.0062	0.0063	0.0013	0.0063	No	No
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D17e. P Creek Hazard Quotients for Total Beryllium Concentrations, Upper Bound Case

		First Screening Step										Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock	
		Mean	Maximum	BC MOE Working (Chronic, 30-day mean)	BC DWQG	BC MOE Working	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs BC MOE Working Guideline				
Construction (-2 to-1)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Closure Phase (29-35)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No	
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D17f. P Creek Hazard Quotients for Total Boron Concentrations, Upper Bound Case

		First Screening Step											Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
		Mean	Maximum	BC MOE	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
Construction (-2 to-1)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No	
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No	
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No	
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No	
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No	
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No	
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	
Closure Phase (29-35)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No	
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No	
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No	
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No	
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D17g. P Creek Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step				Retained as COPC?
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Operation 1 Phase (1-23)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Operations 2 Phase (24-28)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Closure Phase (29-35)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Post-Closure Phase (36-99)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D17i. P Creek Hazard Quotients for Total Chromium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step										Retained as COPC?						
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME Cr III Guideline	Canadian DWQG	BC MOE Working	Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs. MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs. MOE Working Guideline					
Construction (-2 to-1)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No				
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No				
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No				
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No				
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No				
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No				
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No				
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No				
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No				
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No				
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No				
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No				
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
Closure Phase (29-35)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No				
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No				
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No				
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No				
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.177	0.0199	0.0035	0.0035	No	No	No				
	June	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.267	0.0300	0.0053	0.0053	No	No	No				
	July	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.110	0.0124	0.0022	0.0022	No	No	No				
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	September	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.140	0.0157	0.0028	0.0028	No	No	No				
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No				

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

CCME = Canadian Council of Ministers of the Environment

Appendix 13-D17j. P Creek Hazard Quotients for Total Cobalt Concentrations, Upper Bound Case

Project Phase		First Screening Step										Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			
							Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline				
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum						BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	Aquatic Life
Construction (-2 to-1)	January	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1.0	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1.0	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1.0	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1.0	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1.0	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1.0	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1.0	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1.0	0.0198	0.0198	0.00072	0.00008	No	No	
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1.0	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1.0	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1.0	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1.0	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1.0	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1.0	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1.0	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1.0	0.0198	0.0198	0.00072	0.00008	No	No	
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1.0	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1.0	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1.0	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1.0	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1.0	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1.0	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1.0	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1.0	0.0198	0.0198	0.00072	0.00008	No	No	
Closure Phase (29-35)	January	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1.0	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1.0	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1.0	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1.0	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1.0	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1.0	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1.0	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1.0	0.0198	0.0198	0.00072	0.00008	No	No	
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	February	0.00001	0.00001	0.004	0.110	1.0	0.00275	0.00275	0.00010	0.00001	No	No	
	March	0.00001	0.00001	0.004	0.110	1.0	0.00225	0.00225	0.00008	0.00001	No	No	
	April	0.00001	0.00001	0.004	0.110	1.0	0.00248	0.00248	0.00009	0.00001	No	No	
	May	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	June	0.00024	0.00024	0.004	0.110	1.0	0.0608	0.0608	0.00221	0.00024	No	No	
	July	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	August	0.00010	0.00010	0.004	0.110	1.0	0.0250	0.0250	0.00091	0.00010	No	No	
	September	0.00007	0.00007	0.004	0.110	1.0	0.0181	0.0181	0.00066	0.00007	No	No	
	October	0.00007	0.00007	0.004	0.110	1.0	0.0179	0.0179	0.00065	0.00007	No	No	
	November	0.00006	0.00006	0.004	0.110	1.0	0.0146	0.0146	0.00053	0.00006	No	No	
	December	0.00008	0.00008	0.004	0.110	1.0	0.0198	0.0198	0.00072	0.00008	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D17k. P Creek Hazard Quotients for Total Copper Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step											Second Screening Step				Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines ¹		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day	BC MOE	Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day	Maximum Predicted vs. BC MOE 30-Day	Maximum Predicted vs. BC MOE 30-Day	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Mean	95%ile	Mean	95%ile	Life	Wildlife	Livestock
								Mean	Mean	Mean	Maximum Guideline	Maximum Guideline							
Construction (-2 to-1)	January	0.0005	0.0005	0.0029	0.0087	0.3	0.3	0.174	0.174	0.0571	0.0017	0.0017					No	No	No
	February	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.118	0.118	0.0392	0.0012	0.0012					No	No	No
	March	0.0004	0.0004	0.0031	0.0093	0.3	0.3	0.122	0.122	0.0408	0.0013	0.0013					No	No	No
	April	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.139	0.139	0.0462	0.0014	0.0014					No	No	No
	May	0.0016	0.0016	0.0020	0.0065	0.3	0.3	0.805	0.805	0.248	0.0054	0.0054					No	No	No
	June	0.0035	0.0035	0.0020	0.0061	0.3	0.3	1.76	1.76	0.580	0.0117	0.0117	0.0035	0.0058	1.00	0.602	No	No	No
	July	0.0013	0.0013	0.0024	0.0077	0.3	0.3	0.517	0.517	0.163	0.0042	0.0042					No	No	No
	August	0.0007	0.0007	0.0029	0.0087	0.3	0.3	0.255	0.255	0.0837	0.0024	0.0024					No	No	No
	September	0.0007	0.0007	0.0030	0.0090	0.3	0.3	0.225	0.225	0.0745	0.0022	0.0022					No	No	No
	October	0.0008	0.0008	0.0031	0.0092	0.3	0.3	0.264	0.264	0.0879	0.0027	0.0027					No	No	No
	November	0.0008	0.0008	0.0028	0.0085	0.3	0.3	0.279	0.279	0.0907	0.0026	0.0026					No	No	No
	December	0.0006	0.0006	0.0028	0.0086	0.3	0.3	0.215	0.215	0.0702	0.0020	0.0020					No	No	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.0029	0.0087	0.3	0.3	0.174	0.174	0.0571	0.0017	0.0017					No	No	No
	February	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.118	0.118	0.0392	0.0012	0.0012					No	No	No
	March	0.0004	0.0004	0.0031	0.0093	0.3	0.3	0.122	0.122	0.0408	0.0013	0.0013					No	No	No
	April	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.139	0.139	0.0462	0.0014	0.0014					No	No	No
	May	0.0016	0.0016	0.0020	0.0065	0.3	0.3	0.805	0.805	0.248	0.0054	0.0054					No	No	No
	June	0.0035	0.0035	0.0020	0.0061	0.3	0.3	1.76	1.76	0.580	0.0117	0.0117	0.0035	0.0058	1.00	0.602	No	No	No
	July	0.0013	0.0013	0.0024	0.0077	0.3	0.3	0.517	0.517	0.163	0.0042	0.0042					No	No	No
	August	0.0007	0.0007	0.0029	0.0087	0.3	0.3	0.255	0.255	0.0837	0.0024	0.0024					No	No	No
	September	0.0007	0.0007	0.0030	0.0090	0.3	0.3	0.225	0.225	0.0745	0.0022	0.0022					No	No	No
	October	0.0008	0.0008	0.0031	0.0092	0.3	0.3	0.264	0.264	0.0879	0.0027	0.0027					No	No	No
	November	0.0008	0.0008	0.0028	0.0085	0.3	0.3	0.279	0.279	0.0907	0.0026	0.0026					No	No	No
	December	0.0006	0.0006	0.0028	0.0086	0.3	0.3	0.215	0.215	0.0702	0.0020	0.0020					No	No	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.0029	0.0087	0.3	0.3	0.174	0.174	0.0571	0.0017	0.0017					No	No	No
	February	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.118	0.118	0.0392	0.0012	0.0012					No	No	No
	March	0.0004	0.0004	0.0031	0.0093	0.3	0.3	0.122	0.122	0.0408	0.0013	0.0013					No	No	No
	April	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.139	0.139	0.0462	0.0014	0.0014					No	No	No
	May	0.0016	0.0016	0.0020	0.0065	0.3	0.3	0.805	0.805	0.248	0.0054	0.0054					No	No	No
	June	0.0035	0.0035	0.0020	0.0061	0.3	0.3	1.76	1.76	0.580	0.0117	0.0117	0.0035	0.0058	1.00	0.602	No	No	No
	July	0.0013	0.0013	0.0024	0.0077	0.3	0.3	0.517	0.517	0.163	0.0042	0.0042					No	No	No
	August	0.0007	0.0007	0.0029	0.0087	0.3	0.3	0.255	0.255	0.0837	0.0024	0.0024					No	No	No
	September	0.0007	0.0007	0.0030	0.0090	0.3	0.3	0.225	0.225	0.0745	0.0022	0.0022					No	No	No
	October	0.0008	0.0008	0.0031	0.0092	0.3	0.3	0.264	0.264	0.0879	0.0027	0.0027					No	No	No
	November	0.0008	0.0008	0.0028	0.0085	0.3	0.3	0.279	0.279	0.0907	0.0026	0.0026					No	No	No
	December	0.0006	0.0006	0.0028	0.0086	0.3	0.3	0.215	0.215	0.0702	0.0020	0.0020					No	No	No
Closure Phase (29-35)	January	0.0005	0.0005	0.0029	0.0087	0.3	0.3	0.174	0.174	0.0571	0.0017	0.0017					No	No	No
	February	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.118	0.118	0.0392	0.0012	0.0012					No	No	No
	March	0.0004	0.0004	0.0031	0.0093	0.3	0.3	0.122	0.122	0.0408	0.0013	0.0013					No	No	No
	April	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.139	0.139	0.0462	0.0014	0.0014					No	No	No
	May	0.0016	0.0016	0.0020	0.0065	0.3	0.3	0.805	0.805	0.248	0.0054	0.0054					No	No	No
	June	0.0035	0.0035	0.0020	0.0061	0.3	0.3	1.76	1.76	0.580	0.0117	0.0117	0.0035	0.0058	1.00	0.602	No	No	No
	July	0.0013	0.0013	0.0024	0.0077	0.3	0.3	0.517	0.517	0.163	0.0042	0.0042					No	No	No
	August	0.0007	0.0007	0.0029	0.0087	0.3	0.3	0.255	0.255	0.0837	0.0024	0.0024					No	No	No
	September	0.0007	0.0007	0.0030	0.0090	0.3	0.3	0.225	0.225	0.0745	0.0022	0.0022					No	No	No
	October	0.0008	0.0008	0.0031	0.0092	0.3	0.3	0.264	0.264	0.0879	0.0027	0.0027					No	No	No
	November	0.0008	0.0008	0.0028	0.0085	0.3	0.3	0.279	0.279	0.0907	0.0026	0.0026					No	No	No
	December	0.0006	0.0006	0.0028	0.0086	0.3	0.3	0.215	0.215	0.0702	0.0020	0.0020					No	No	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.0029	0.0087	0.3	0.3	0.174	0.174	0.0571	0.0017	0.0017					No	No	No
	February	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.118	0.118	0.0392	0.0012	0.0012					No	No	No
	March	0.0004	0.0004	0.0031	0.0093	0.3	0.3	0.122	0.122	0.0408	0.0013	0.0013					No	No	No
	April	0.0004	0.0004	0.0031	0.0092	0.3	0.3	0.139	0.139	0.0462	0.0014	0.0014					No	No	No
	May	0.0016	0.0016	0.0020	0.0065	0.3	0.3	0.805	0.805	0.248	0.0054	0.0054					No	No	No
	June	0.0035	0.0035	0.0020	0.0061	0.3	0.3	1.76	1.76	0.580	0.0117	0.0117	0.0035	0.0058	1.00	0.602	No	No	No
	July	0.0013	0.0013	0.0024	0.0077	0.3	0.3	0.517	0.517	0.163	0.0042	0.0042					No	No	No
	August	0.0007	0.0007	0.0029	0.0087	0.3	0.3	0.255	0.255	0.0837	0.0024	0.0024					No	No	No
	September	0.0007	0.0007	0.0030	0.0090	0.3	0.3	0.225	0.225	0.0745	0.0022	0.0022					No	No	No
	October	0.0008	0.0008	0.0031	0.0092	0.3	0.3	0.264	0.264	0.0879	0.0027	0.0027					No	No	No
	November	0.0008	0.0008	0.0028	0.0085	0.3	0.3	0.279	0.279	0.0907	0.0026	0.0026					No	No	No
	December	0.0006	0.0006	0.0028	0.0086	0.3	0.3	0.215	0.215	0.0702	0.0020	0.0020					No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D17I. P Creek Hazard Quotients for Dissolved and Total Iron Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step								Retained as COPC?	
		Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life	
		Dissolved Iron		Total Iron		BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Operation 1 Phase (1-23)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Operations 2 Phase (24-28)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Closure Phase (29-35)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No
Post-Closure Phase (36-99)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-17Dn. P Creek Hazard Quotients for Total Lithium Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE Working Value Guideline	Final Chronic BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
Construction (-2 to-1)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Closure Phase (29-35)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D17o. P Creek Hazard Quotients for Total Manganese Concentrations, Upper Bound Case

Project Phase		Predicted Concentrations		First Screening Step					Retained as COPC?
				Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
				BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean	Maximum Predicted vs. BC MOE	
Months	Mean	Maximum			Mean Guideline	Mean Guideline	Maximum Guideline	Aquatic Life	
Construction (-2 to-1)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Closure Phase (29-35)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D17r. P Creek Hazard Quotients for Total Nickel Concentrations, Upper Bound Case

Project Phase		First Screening Step								Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline				
Construction (-2 to-1)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No		
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No		
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No		
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No		
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No		
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No		
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No		
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No		
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No		
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No		
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No		
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No		
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No		
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No		
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No		
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No		
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No		
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No		
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No		
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No		
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No		
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No		
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No		
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No		
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No		
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No		
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No		
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No		
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No		
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No		
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No		
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No		
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No		
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No		
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No		
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No		
Closure Phase (29-35)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No		
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No		
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No		
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No		
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No		
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No		
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No		
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No		
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No		
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No		
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No		
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No		
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No		
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No		
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No		
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No		
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No		
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No		
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No		
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No		
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No		
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No		
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No		
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guideline is hardness dependent

Appendix 13-D17t. P Creek Hazard Quotients for Total Silver Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No
Operation 1 Phase (1-23)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No
Operations 2 Phase (24-28)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No
Closure Phase (29-35)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D17u. P Creek Hazard Quotients for Total Thallium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water	
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG			
Construction (-2 to-1)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No	
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No	
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No	
Operation 1 Phase (1-23)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No	
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No	
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No	
Operations 2 Phase (24-28)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No	
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No	
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No	
Closure Phase (29-35)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No	
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No	
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No	
Post-Closure Phase (36-99)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No	
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No	
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No	
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No	
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D17v. P Creek Hazard Quotients for Total Uranium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Closure Phase (29-35)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D17w. P Creek Hazard Quotients for Total Vanadium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
				BC MOE Working	BC MOE Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline			
		Mean	Maximum			BC MOE Working			BC MOE Secondary Chronic Value	BC MOE Working	BC MOE Working
Construction (-2 to-1)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Closure Phase (29-35)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D17x. P Creek Hazard Quotients for Total Zinc Concentrations, Upper Bound Case

Project Phase		First Screening Step										Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life	Livestock
				BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE 30-Day Mean				
		Mean	Maximum			Guideline		Guideline	Guideline				
Construction (-2 to-1)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Operation 1 Phase (1-23)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Operations 2 Phase (24-28)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Closure Phase (29-35)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Post-Closure Phase (36-99)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D17ac. P Creek Hazard Quotients for Ammonia Concentrations, Upper Bound Case

Project Phase		First Screening Step							Second Screening Step				Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Baseline Concentrations		Hazard Quotient relative to Baseline		
						Mean	Maximum	Mean	95%ile	Mean	95%ile		
Months	Mean	Maximum	30-Day Mean	Maximum	Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Mean	95%ile	Mean	95%ile	Aquatic Life	
Construction (-2 to-1)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008				No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098				No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012				No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013				No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005				No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007				No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017				No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219	1.30	4.42	1.00	0.295	No
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117				No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012				No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011				No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010				No	
Operation 1 Phase (1-23)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008				No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098				No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012				No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013				No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005				No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007				No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017				No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219	1.30	4.42	1.00	0.295	No
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117				No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012				No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011				No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010				No	
Operations 2 Phase (24-28)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008				No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098				No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012				No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013				No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005				No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007				No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017				No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219	1.30	4.42	1.00	0.295	No
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117				No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012				No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011				No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010				No	
Closure Phase (29-35)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008				No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098				No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012				No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013				No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005				No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007				No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017				No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219	1.30	4.42	1.00	0.295	No
	September	0.0563	0.0563	0.922	4.80	0.0610	0.0610	0.0117				No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012				No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011				No	
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010				No	
Post-Closure Phase (36-99)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008				No	
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098				No	
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012				No	
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013				No	
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005				No	
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007				No	
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017				No	
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219	1.30	4.42	1.00	0.295	No
	September	0.0562	0.0563	0.922	4.80	0.0610	0.0610	0.0117				No	
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012				No	
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011				No	
	December	0.0062	0.0063	1.24	6.46	0.0050	0.0050	0.0010				No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH and temperature dependent
 Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D17ad. P Creek Hazard Quotients for Sulphate Concentrations, Upper Bound Case

Project Phase		Months		First Screening Step								Retained as COPC?			
				Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
				Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline			
				Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No		
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No		
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No		
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No		
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No		
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No		
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No		
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No		
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No		
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No		
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No		
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No		
Operation 1 Phase (1-23)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No		
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No		
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No		
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No		
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No		
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No		
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No		
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No		
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No		
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No		
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No		
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No		
Operations 2 Phase (24-28)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No		
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No		
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No		
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No		
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No		
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No		
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No		
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No		
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No		
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No		
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No		
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No		
Closure Phase (29-35)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No		
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No		
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No		
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No		
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No		
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No		
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No		
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No		
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No		
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No		
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No		
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No		
Post-Closure Phase (36-99)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No		
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No		
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No		
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No		
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No		
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No		
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No		
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No		
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No		
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No		
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No		
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent

Appendix 13-D18b. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Antimony Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Closure Phase (29-35)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	September	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	October	0.00007	0.00007	0.020	0.014	0.00367	0.00524	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D18c. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Arsenic Concentrations, Upper Bound Case

		First Screening Step											Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline					
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Interim Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
		Construction (-2 to-1)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No	
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No	
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No	
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No	
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No	
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No	
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No	
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No	
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No	
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No	
Closure Phase (29-35)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No	
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No	
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No	
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0420	0.0084	0.0084	0.0084	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0382	0.0076	0.0076	0.0076	No	No	No	No	
	May	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0693	0.0139	0.0139	0.0139	No	No	No	No	
	June	0.0023	0.0023	0.005	0.025	0.025	0.025	0.453	0.0905	0.0905	0.0905	No	No	No	No	
	July	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0573	0.0115	0.0115	0.0115	No	No	No	No	
	August	0.0010	0.0010	0.005	0.025	0.025	0.025	0.205	0.0410	0.0410	0.0410	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0484	0.0097	0.0097	0.0097	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.116	0.0231	0.0231	0.0231	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0450	0.0090	0.0090	0.0090	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0435	0.0087	0.0087	0.0087	No	No	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D18d. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Barium Concentrations, Upper Bound Case

Project Phase		First Screening Step										Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water	
				BC MOE Working	BC MOE Working		Working 30-Day Mean Guideline	MOE Working 30-Day Mean Guideline	MOE Working Maximum Guideline				Maximum Predicted vs. Canadian DWQG
		Mean	Maximum	30-Day Mean	Maximum	Canadian DWQG							
Construction (-2 to-1)	Months	Mean	Maximum	30-Day Mean	Maximum	Canadian DWQG	Working 30-Day Mean Guideline	MOE Working 30-Day Mean Guideline	MOE Working Maximum Guideline	Maximum Predicted vs. Canadian DWQG	Aquatic Life	Drinking Water	
	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No	
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No	
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No	
Operation 1 Phase (1-23)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No	
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No	
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No	
Operations 2 Phase (24-28)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No	
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No	
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No	
Closure Phase (29-35)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	March	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No	
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No	
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No	
Post-Closure Phase (36-99)	January	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	February	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	March	0.0062	0.0063	1	5	1	0.0062	0.0063	0.0013	0.0063	No	No	
	April	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No	
	May	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	June	0.0049	0.0049	1	5	1	0.0049	0.0049	0.0010	0.0049	No	No	
	July	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No	
	August	0.0061	0.0061	1	5	1	0.0061	0.0061	0.0012	0.0061	No	No	
	September	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	October	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No	
	November	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No	
	December	0.0057	0.0057	1	5	1	0.0057	0.0057	0.0011	0.0057	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D18e. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Beryllium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step								Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working (Chronic, 30-day mean)	BC DWQG	BC MOE Working	MOE Working 30-Day Mean Guideline	BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
Closure Phase (29-35)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	August	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	September	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0132	0.0132	0.0175	0.00070	No	No	No
	November	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.00055	No	No	No
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D18f. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Boron Concentrations, Upper Bound Case

		First Screening Step											Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline					
		Mean	Maximum	BC MOE	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
Construction (-2 to-1)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No	
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No	
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No	
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No	
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No	
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No	
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	
Closure Phase (29-35)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No	
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No	
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No	
	May	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	June	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	July	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	August	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	September	0.0100	0.0100	1.2	5	5	5	0.0083	0.0020	0.0020	0.0020	No	No	No	No	
	October	0.0233	0.0233	1.2	5	5	5	0.0194	0.0047	0.0047	0.0047	No	No	No	No	
	November	0.0300	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No	
	December	0.0200	0.0200	1.2	5	5	5	0.0167	0.0040	0.0040	0.0040	No	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D18g. Harper Creek downstream of P Creek (HP) Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum	BC MOE Working		Maximum Predicted vs BC MOE Working Guideline
Construction (-2 to-1)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Operation 1 Phase (1-23)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Operations 2 Phase (24-28)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Closure Phase (29-35)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No
Post-Closure Phase (36-99)	January	21.2	21.2	1000	0.0212	No
	February	22.0	22.0	1000	0.0220	No
	March	22.6	22.6	1000	0.0226	No
	April	22.6	22.6	1000	0.0226	No
	May	14.9	14.9	1000	0.0149	No
	June	13.7	13.7	1000	0.0137	No
	July	18.9	18.9	1000	0.0189	No
	August	20.7	20.7	1000	0.0207	No
	September	22.5	22.5	1000	0.0225	No
	October	21.7	21.7	1000	0.0217	No
	November	20.6	20.6	1000	0.0206	No
	December	20.9	20.9	1000	0.0209	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D18j. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Cobalt Concentrations, Upper Bound Case

Project Phase		First Screening Step										Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life Livestock			
				30-Day Mean	BC MOE Maximum		Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
		Mean	Maximum	Mean	Maximum	BC MOE Working	Working Guideline	Working Guideline	Working Guideline					
Construction (-2 to-1)	January	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	February	0.00001	0.00001	0.004	0.110	1.000	0.00275	0.00275	0.00010	0.00001	No	No		
	March	0.00001	0.00001	0.004	0.110	1.000	0.00225	0.00225	0.00008	0.00001	No	No		
	April	0.00001	0.00001	0.004	0.110	1.000	0.00248	0.00248	0.00009	0.00001	No	No		
	May	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	June	0.00024	0.00024	0.004	0.110	1.000	0.0608	0.0608	0.00221	0.00024	No	No		
	July	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	August	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	September	0.00007	0.00007	0.004	0.110	1.000	0.0181	0.0181	0.00066	0.00007	No	No		
	October	0.00007	0.00007	0.004	0.110	1.000	0.0179	0.0179	0.00065	0.00007	No	No		
	November	0.00006	0.00006	0.004	0.110	1.000	0.0146	0.0146	0.00053	0.00006	No	No		
	December	0.00008	0.00008	0.004	0.110	1.000	0.0198	0.0198	0.00072	0.00008	No	No		
Operation 1 Phase (1-23)	January	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	February	0.00001	0.00001	0.004	0.110	1.000	0.00275	0.00275	0.00010	0.00001	No	No		
	March	0.00001	0.00001	0.004	0.110	1.000	0.00225	0.00225	0.00008	0.00001	No	No		
	April	0.00001	0.00001	0.004	0.110	1.000	0.00248	0.00248	0.00009	0.00001	No	No		
	May	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	June	0.00024	0.00024	0.004	0.110	1.000	0.0608	0.0608	0.00221	0.00024	No	No		
	July	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	August	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	September	0.00007	0.00007	0.004	0.110	1.000	0.0181	0.0181	0.00066	0.00007	No	No		
	October	0.00007	0.00007	0.004	0.110	1.000	0.0179	0.0179	0.00065	0.00007	No	No		
	November	0.00006	0.00006	0.004	0.110	1.000	0.0146	0.0146	0.00053	0.00006	No	No		
	December	0.00008	0.00008	0.004	0.110	1.000	0.0198	0.0198	0.00072	0.00008	No	No		
Operations 2 Phase (24-28)	January	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	February	0.00001	0.00001	0.004	0.110	1.000	0.00275	0.00275	0.00010	0.00001	No	No		
	March	0.00001	0.00001	0.004	0.110	1.000	0.00225	0.00225	0.00008	0.00001	No	No		
	April	0.00001	0.00001	0.004	0.110	1.000	0.00248	0.00248	0.00009	0.00001	No	No		
	May	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	June	0.00024	0.00024	0.004	0.110	1.000	0.0608	0.0608	0.00221	0.00024	No	No		
	July	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	August	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	September	0.00007	0.00007	0.004	0.110	1.000	0.0181	0.0181	0.00066	0.00007	No	No		
	October	0.00007	0.00007	0.004	0.110	1.000	0.0179	0.0179	0.00065	0.00007	No	No		
	November	0.00006	0.00006	0.004	0.110	1.000	0.0146	0.0146	0.00053	0.00006	No	No		
	December	0.00008	0.00008	0.004	0.110	1.000	0.0198	0.0198	0.00072	0.00008	No	No		
Closure Phase (29-35)	January	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	February	0.00001	0.00001	0.004	0.110	1.000	0.00275	0.00275	0.00010	0.00001	No	No		
	March	0.00001	0.00001	0.004	0.110	1.000	0.00225	0.00225	0.00008	0.00001	No	No		
	April	0.00001	0.00001	0.004	0.110	1.000	0.00248	0.00248	0.00009	0.00001	No	No		
	May	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	June	0.00024	0.00024	0.004	0.110	1.000	0.0608	0.0608	0.00221	0.00024	No	No		
	July	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	August	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	September	0.00007	0.00007	0.004	0.110	1.000	0.0181	0.0181	0.00066	0.00007	No	No		
	October	0.00007	0.00007	0.004	0.110	1.000	0.0179	0.0179	0.00065	0.00007	No	No		
	November	0.00006	0.00006	0.004	0.110	1.000	0.0146	0.0146	0.00053	0.00006	No	No		
	December	0.00008	0.00008	0.004	0.110	1.000	0.0198	0.0198	0.00072	0.00008	No	No		
Post-Closure Phase (36-99)	January	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	February	0.00001	0.00001	0.004	0.110	1.000	0.00275	0.00275	0.00010	0.00001	No	No		
	March	0.00001	0.00001	0.004	0.110	1.000	0.00225	0.00225	0.00008	0.00001	No	No		
	April	0.00001	0.00001	0.004	0.110	1.000	0.00248	0.00248	0.00009	0.00001	No	No		
	May	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	June	0.00024	0.00024	0.004	0.110	1.000	0.0608	0.0608	0.00221	0.00024	No	No		
	July	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	August	0.00010	0.00010	0.004	0.110	1.000	0.0250	0.0250	0.00091	0.00010	No	No		
	September	0.00007	0.00007	0.004	0.110	1.000	0.0181	0.0181	0.00066	0.00007	No	No		
	October	0.00007	0.00007	0.004	0.110	1.000	0.0179	0.0179	0.00065	0.00007	No	No		
	November	0.00006	0.00006	0.004	0.110	1.000	0.0146	0.0146	0.00053	0.00006	No	No		
	December	0.00008	0.00008	0.004	0.110	1.000	0.0198	0.0198	0.00072	0.00008	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D18I. Harper Creek downstream of P Creek (HP) Hazard Quotients for Dissolved and Total Iron Concentrations, Upper Bound Case

Project Phase		First Screening Step										Retained as COPC?			
		Predicted Concentrations				Aquatic Life Guidelines		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Aquatic Life Guideline		Aquatic Life	
		Dissolved Iron		Total Iron		BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron	Dissolved Iron	Total Iron	Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum										
Construction (-2 to-1)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No	No	No		
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No	No	No		
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No	No	No		
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No	No	No		
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No	No	No		
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No	No	No		
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No	No	No		
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No	No	No		
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No	No	No		
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No	No	No		
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No	No	No		
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No	No	No		
Operation 1 Phase (1-23)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No	No	No		
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No	No	No		
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No	No	No		
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No	No	No		
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No	No	No		
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No	No	No		
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No	No	No		
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No	No	No		
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No	No	No		
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No	No	No		
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No	No	No		
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No	No	No		
Operations 2 Phase (24-28)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No	No	No		
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No	No	No		
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No	No	No		
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No	No	No		
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No	No	No		
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No	No	No		
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No	No	No		
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No	No	No		
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No	No	No		
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No	No	No		
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No	No	No		
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No	No	No		
Closure Phase (29-35)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No	No	No		
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No	No	No		
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No	No	No		
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No	No	No		
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No	No	No		
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No	No	No		
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No	No	No		
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No	No	No		
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No	No	No		
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No	No	No		
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No	No	No		
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No	No	No		
Post-Closure Phase (36-99)	January	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No	No	No		
	February	0.0080	0.0080	0.0080	0.0080	0.35	1	0.0229	0.0080	No	No	No	No		
	March	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No	No	No		
	April	0.0034	0.0034	0.0034	0.0034	0.35	1	0.0097	0.0034	No	No	No	No		
	May	0.0167	0.0167	0.0760	0.0760	0.35	1	0.0476	0.0760	No	No	No	No		
	June	0.0100	0.0100	0.191	0.191	0.35	1	0.0286	0.191	No	No	No	No		
	July	0.0100	0.0100	0.0160	0.0160	0.35	1	0.0286	0.0160	No	No	No	No		
	August	0.0100	0.0100	0.0100	0.0100	0.35	1	0.0286	0.0100	No	No	No	No		
	September	0.0077	0.0077	0.0110	0.0110	0.35	1	0.0219	0.0110	No	No	No	No		
	October	0.0080	0.0080	0.0090	0.0090	0.35	1	0.0229	0.0090	No	No	No	No		
	November	0.0060	0.0060	0.0070	0.0070	0.35	1	0.0171	0.0070	No	No	No	No		
	December	0.0080	0.0080	0.0085	0.0085	0.35	1	0.0229	0.0085	No	No	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D18n. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Lithium Concentrations, Upper Bound Case

Project Phase		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
				BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Months	Mean	Maximum						Aquatic Life	
Construction (-2 to-1)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Closure Phase (29-35)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	September	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	October	0.0009	0.0009	0.096	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D18o. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Manganese Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Closure Phase (29-35)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.921	1.33	0.0004	0.0004	0.0003	No
	February	0.0003	0.0003	0.941	1.38	0.0003	0.0003	0.0002	No
	March	0.0003	0.0003	0.948	1.40	0.0003	0.0003	0.0002	No
	April	0.0004	0.0004	0.944	1.39	0.0004	0.0004	0.0003	No
	May	0.0033	0.0033	0.816	1.07	0.0041	0.0041	0.0031	No
	June	0.0082	0.0082	0.786	0.993	0.0104	0.0104	0.0083	No
	July	0.0007	0.0007	0.876	1.22	0.0008	0.0008	0.0006	No
	August	0.0006	0.0006	0.916	1.32	0.0007	0.0007	0.0005	No
	September	0.0006	0.0006	0.944	1.39	0.0006	0.0006	0.0004	No
	October	0.0006	0.0006	0.928	1.35	0.0006	0.0006	0.0004	No
	November	0.0005	0.0005	0.909	1.30	0.0006	0.0006	0.0004	No
	December	0.0004	0.0004	0.915	1.32	0.0005	0.0005	0.0003	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D18r. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Nickel Concentrations, Upper Bound Case

Project Phase		First Screening Step							Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No	
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No	
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No	
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No	
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No	
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No	
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No	
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No	
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No	
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No	
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No	
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No	
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No	
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No	
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No	
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No	
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No	
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No	
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No	
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No	
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No	
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No	
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No	
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No	
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No	
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No	
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No	
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No	
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No	
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No	
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No	
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No	
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No	
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No	
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No	
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No	
Closure Phase (29-35)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No	
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No	
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No	
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No	
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No	
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No	
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No	
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No	
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No	
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No	
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No	
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No	
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No	
	February	0.0001	0.0001	0.065	1	0.0009	0.0001	No	No	
	March	0.0001	0.0001	0.065	1	0.0011	0.0001	No	No	
	April	0.0001	0.0001	0.065	1	0.0013	0.0001	No	No	
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No	
	June	0.0009	0.0009	0.025	1	0.0365	0.0009	No	No	
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No	
	August	0.0005	0.0005	0.065	1	0.0082	0.0005	No	No	
	September	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No	
	October	0.0004	0.0004	0.065	1	0.0057	0.0004	No	No	
	November	0.0004	0.0004	0.065	1	0.0055	0.0004	No	No	
	December	0.0004	0.0004	0.065	1	0.0066	0.0004	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix 13-D18t. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Silver Concentrations, Upper Bound Case

Project Phase		First Screening Step							Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline				
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline		
Construction (-2 to-1)	Months									
	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No	
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No	
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No	
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No	
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No	
Operation 1 Phase (1-23)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No	
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No	
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No	
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No	
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No	
Operations 2 Phase (24-28)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No	
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No	
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No	
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No	
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No	
Closure Phase (29-35)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No	
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No	
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No	
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No	
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No	
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.00005	0.0001	0.340	0.340	0.170	No	
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No	
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	June	0.00001	0.00001	0.00005	0.0001	0.233	0.233	0.117	No	
	July	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	August	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	September	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No	
	October	0.00001	0.00001	0.00005	0.0001	0.260	0.260	0.130	No	
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750	No	
	December	0.00001	0.00001	0.00005	0.0001	0.245	0.245	0.123	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D18u. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Thallium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operation 1 Phase (1-23)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operations 2 Phase (24-28)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Closure Phase (29-35)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Post-Closure Phase (36-99)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D18v. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Uranium Concentrations, Upper Bound Case

Project Phase		First Screening Step									Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock	
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline				
Construction (-2 to-1)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No	
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No	
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No	
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No	
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No	
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No	
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No	
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No	
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No	
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No	
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No	
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No	
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No	
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No	
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No	
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No	
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No	
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No	
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No	
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No	
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No	
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No	
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No	
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No	
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No	
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No	
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No	
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
Closure Phase (29-35)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No	
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No	
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No	
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No	
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No	
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No	
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No	
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No	
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No	
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
Post-Closure Phase (36-99)	January	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
	February	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No	
	March	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0089	0.0009	No	No	No	
	April	0.0002	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No	
	May	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0027	0.0003	No	No	No	
	June	0.0001	0.0001	0.3	0.02	0.2	0.0002	0.0029	0.0003	No	No	No	
	July	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0044	0.0004	No	No	No	
	August	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0056	0.0006	No	No	No	
	September	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0063	0.0006	No	No	No	
	October	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No	
	November	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	
	December	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0064	0.0006	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D18w. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Vanadium Concentrations, Upper Bound Case

Project Phase		First Screening Step										Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline				
				BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline					
		Mean	Maximum			BC MOE Working			BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Guideline	Aquatic Life
Construction (-2 to-1)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No		
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No		
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No		
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No		
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No		
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No		
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No		
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No		
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No		
Closure Phase (29-35)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No		
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No		
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No		
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No		
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	July	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	August	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	September	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No		
	October	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No		
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No		
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D18x. Harper Creek downstream of P Creek (HP) Hazard Quotients for Total Zinc Concentrations, Upper Bound Case

Project Phase		First Screening Step										Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
				BC MOE 30-Day	BC MOE		Mean Predicted vs. BC MOE	Maximum Predicted vs. BC MOE	Maximum Predicted vs. BC MOE				
		Mean	Maximum	Mean	Maximum	Maximum	30-Day Mean Guideline	30-Day Mean Guideline	Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Operation 1 Phase (1-23)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Operations 2 Phase (24-28)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Closure Phase (29-35)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	
Post-Closure Phase (36-99)	January	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No	
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.133	0.0303	0.0005	No	No	
	April	0.0010	0.0010	0.008	0.033	2	0.128	0.128	0.0291	0.0005	No	No	
	May	0.0030	0.0030	0.008	0.033	2	0.404	0.404	0.0919	0.0015	No	No	
	June	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020	No	No	
	July	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	August	0.0030	0.0030	0.008	0.033	2	0.400	0.400	0.0909	0.0015	No	No	
	September	0.0022	0.0022	0.008	0.033	2	0.289	0.289	0.0657	0.0011	No	No	
	October	0.0024	0.0024	0.008	0.033	2	0.320	0.320	0.0727	0.0012	No	No	
	November	0.0019	0.0019	0.008	0.033	2	0.247	0.247	0.0561	0.0009	No	No	
	December	0.0024	0.0024	0.008	0.033	2	0.323	0.323	0.0735	0.0012	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D18ac. Harper Creek downstream of P Creek (HP) Hazard Quotients for Ammonia Concentrations, Upper Bound Case

Project Phase		Months		First Screening Step						Second Screening Step				Retained as COPC?	
				Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Baseline Concentrations		Hazard Quotient relative to Baseline		
						BC MOE	BC MOE	Mean Predicted vs. BC MOE	Maximum Predicted vs. BC	Maximum Predicted vs. BC					
						30-Day Mean	Maximum	Working 30-Day Mean	MOE Working 30-Day Mean	MOE Working Maximum	Mean	95%ile	Mean		95%ile
Construction (-2 to-1)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008					No		
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No		
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No		
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No		
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No		
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No		
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No		
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219	1.30	4.42	1.00	0.295	No		
	September	0.0563	0.0563	1.14	5.91	0.0493	0.0493	0.0095					No		
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No		
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No		
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No		
Operation 1 Phase (1-23)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008					No		
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No		
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No		
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No		
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No		
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No		
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No		
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219	1.30	4.42	1.00	0.295	No		
	September	0.0563	0.0563	1.14	5.91	0.0493	0.0493	0.0095					No		
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No		
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No		
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No		
Operations 2 Phase (24-28)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008					No		
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No		
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No		
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No		
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No		
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No		
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No		
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219	1.30	4.42	1.00	0.295	No		
	September	0.0563	0.0563	1.14	5.91	0.0493	0.0493	0.0095					No		
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No		
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No		
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No		
Closure Phase (29-35)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008					No		
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No		
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No		
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No		
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No		
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No		
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No		
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219	1.30	4.42	1.00	0.295	No		
	September	0.0563	0.0563	1.14	5.91	0.0493	0.0493	0.0095					No		
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No		
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No		
	December	0.0063	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No		
Post-Closure Phase (36-99)	January	0.0050	0.0050	1.23	6.37	0.0041	0.0041	0.0008					No		
	February	0.0510	0.0510	1.00	5.21	0.0510	0.0510	0.0098					No		
	March	0.0090	0.0090	1.48	7.71	0.0061	0.0061	0.0012					No		
	April	0.0068	0.0068	0.976	5.07	0.0070	0.0070	0.0013					No		
	May	0.0050	0.0050	2.03	10.5	0.0025	0.0025	0.0005					No		
	June	0.0065	0.0065	1.69	8.77	0.0038	0.0038	0.0007					No		
	July	0.0103	0.0103	1.16	6.02	0.0089	0.0089	0.0017					No		
	August	1.30	1.30	1.15	5.96	1.13	1.13	0.219	1.30	4.42	1.00	0.295	No		
	September	0.0562	0.0563	1.14	5.91	0.0493	0.0493	0.0095					No		
	October	0.0090	0.0090	1.41	7.33	0.0064	0.0064	0.0012					No		
	November	0.0075	0.0075	1.26	6.55	0.0060	0.0060	0.0011					No		
	December	0.0062	0.0063	1.24	6.46	0.0050	0.0050	0.0010					No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D18ad. Harper Creek downstream of P Creek (HP) Hazard Quotients for Sulphate Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step										Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock	
		Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No	
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No	
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No	
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No	
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No	
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No	
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No	
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No	
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No	
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No	
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No	
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No	
Operation 1 Phase (1-23)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No	
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No	
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No	
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No	
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No	
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No	
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No	
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No	
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No	
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No	
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No	
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No	
Operations 2 Phase (24-28)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No	
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No	
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No	
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No	
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No	
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No	
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No	
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No	
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No	
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No	
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No	
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No	
Closure Phase (29-35)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No	
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No	
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No	
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No	
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No	
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No	
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No	
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No	
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No	
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No	
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No	
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No	
Post-Closure Phase (36-99)	January	11.8	11.8	218	500	1000	0.0541	0.0541	0.0236	0.0118	No	No	No	
	February	13.5	13.5	309	500	1000	0.0437	0.0437	0.0270	0.0135	No	No	No	
	March	15.8	15.8	309	500	1000	0.0511	0.0511	0.0316	0.0158	No	No	No	
	April	11.5	11.5	309	500	1000	0.0372	0.0372	0.0230	0.0115	No	No	No	
	May	5.67	5.67	218	500	1000	0.0260	0.0260	0.0113	0.0057	No	No	No	
	June	5.13	5.13	218	500	1000	0.0235	0.0235	0.0103	0.0051	No	No	No	
	July	7.96	7.96	218	500	1000	0.0365	0.0365	0.0159	0.0080	No	No	No	
	August	10.2	10.2	218	500	1000	0.0466	0.0466	0.0203	0.0102	No	No	No	
	September	13.0	13.0	309	500	1000	0.0422	0.0422	0.0261	0.0130	No	No	No	
	October	12.0	12.0	218	500	1000	0.0552	0.0552	0.0241	0.0120	No	No	No	
	November	11.5	11.5	218	500	1000	0.0527	0.0527	0.0230	0.0115	No	No	No	
	December	11.6	11.6	218	500	1000	0.0534	0.0534	0.0233	0.0116	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent

Appendix 13-D19b. Mid Harper Creek (HM) Hazard Quotients for Total Antimony Concentrations, Upper Bound Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00005	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00009	0.00010	0.020	0.014	0.00500	0.00714	No	No
	August	0.00010	0.00013	0.020	0.014	0.00667	0.00952	No	No
	September	0.00008	0.00013	0.020	0.014	0.00667	0.00952	No	No
	October	0.00007	0.00011	0.020	0.014	0.00525	0.00750	No	No
	November	0.00004	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00005	0.00006	0.020	0.014	0.00300	0.00429	No	No
Operation 1 Phase (1-23)	January	0.00025	0.00054	0.020	0.014	0.0272	0.0389	No	No
	February	0.00028	0.00063	0.020	0.014	0.0315	0.0450	No	No
	March	0.00033	0.00076	0.020	0.014	0.0381	0.0545	No	No
	April	0.00012	0.00025	0.020	0.014	0.0127	0.0181	No	No
	May	0.00011	0.00014	0.020	0.014	0.00694	0.00991	No	No
	June	0.00012	0.00016	0.020	0.014	0.00788	0.0113	No	No
	July	0.00016	0.00026	0.020	0.014	0.0131	0.0188	No	No
	August	0.00022	0.00042	0.020	0.014	0.0211	0.0301	No	No
	September	0.00018	0.00038	0.020	0.014	0.0191	0.0274	No	No
	October	0.00018	0.00038	0.020	0.014	0.0190	0.0271	No	No
	November	0.00019	0.00040	0.020	0.014	0.0201	0.0288	No	No
	December	0.00023	0.00049	0.020	0.014	0.0243	0.0348	No	No
Operations 2 Phase (24-28)	January	0.00057	0.00062	0.020	0.014	0.0311	0.0444	No	No
	February	0.00065	0.00071	0.020	0.014	0.0354	0.0506	No	No
	March	0.00079	0.00086	0.020	0.014	0.0428	0.0612	No	No
	April	0.00026	0.00028	0.020	0.014	0.0141	0.0202	No	No
	May	0.00014	0.00014	0.020	0.014	0.00719	0.0103	No	No
	June	0.00016	0.00016	0.020	0.014	0.00811	0.0116	No	No
	July	0.00027	0.00028	0.020	0.014	0.0138	0.0196	No	No
	August	0.00042	0.00044	0.020	0.014	0.0222	0.0316	No	No
	September	0.00039	0.00042	0.020	0.014	0.0209	0.0298	No	No
	October	0.00038	0.00041	0.020	0.014	0.0206	0.0295	No	No
	November	0.00041	0.00044	0.020	0.014	0.0218	0.0311	No	No
	December	0.00049	0.00053	0.020	0.014	0.0263	0.0375	No	No
Closure Phase (29-35)	January	0.00013	0.00016	0.020	0.014	0.00809	0.0116	No	No
	February	0.00012	0.00013	0.020	0.014	0.00635	0.00907	No	No
	March	0.00016	0.00017	0.020	0.014	0.00849	0.0121	No	No
	April	0.00006	0.00006	0.020	0.014	0.00314	0.00448	No	No
	May	0.00010	0.00010	0.020	0.014	0.00516	0.00737	No	No
	June	0.00011	0.00011	0.020	0.014	0.00564	0.00806	No	No
	July	0.00014	0.00014	0.020	0.014	0.00721	0.0103	No	No
	August	0.00018	0.00019	0.020	0.014	0.00926	0.0132	No	No
	September	0.00009	0.00009	0.020	0.014	0.00444	0.00635	No	No
	October	0.00009	0.00009	0.020	0.014	0.00447	0.00639	No	No
	November	0.00009	0.00010	0.020	0.014	0.00475	0.00679	No	No
	December	0.00010	0.00011	0.020	0.014	0.00544	0.00777	No	No
Post-Closure Phase (36-99)	January	0.00011	0.00011	0.020	0.014	0.00569	0.00813	No	No
	February	0.00011	0.00011	0.020	0.014	0.00568	0.00811	No	No
	March	0.00014	0.00015	0.020	0.014	0.00750	0.0107	No	No
	April	0.00005	0.00006	0.020	0.014	0.00287	0.00410	No	No
	May	0.00010	0.00010	0.020	0.014	0.00510	0.00729	No	No
	June	0.00011	0.00011	0.020	0.014	0.00561	0.00802	No	No
	July	0.00014	0.00014	0.020	0.014	0.00716	0.0102	No	No
	August	0.00018	0.00018	0.020	0.014	0.00898	0.0128	No	No
	September	0.00008	0.00008	0.020	0.014	0.00406	0.00581	No	No
	October	0.00008	0.00008	0.020	0.014	0.00408	0.00583	No	No
	November	0.00008	0.00009	0.020	0.014	0.00431	0.00616	No	No
	December	0.00009	0.00010	0.020	0.014	0.00492	0.00703	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D19c. Mid Harper Creek (HM) Hazard Quotients for Total Arsenic Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step											Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline					
		Mean	Maximum	BC MOE	BC DWQG	Maximum	BC MOE Interim	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Interim Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock	
Construction (-2 to-1)	January	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0960	0.0192	0.0192	0.0192	No	No	No	No	
	February	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0960	0.0192	0.0192	0.0192	No	No	No	No	
	March	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0840	0.0168	0.0168	0.0168	No	No	No	No	
	April	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0965	0.0193	0.0193	0.0193	No	No	No	No	
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0764	0.0153	0.0153	0.0153	No	No	No	No	
	June	0.0007	0.0009	0.005	0.025	0.025	0.025	0.189	0.0379	0.0379	0.0379	No	No	No	No	
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.102	0.0205	0.0205	0.0205	No	No	No	No	
	August	0.0008	0.0010	0.005	0.025	0.025	0.025	0.202	0.0403	0.0403	0.0403	No	No	No	No	
	September	0.0005	0.0006	0.005	0.025	0.025	0.025	0.117	0.0235	0.0235	0.0235	No	No	No	No	
	October	0.0006	0.0007	0.005	0.025	0.025	0.025	0.148	0.0296	0.0296	0.0296	No	No	No	No	
	November	0.0005	0.0005	0.005	0.025	0.025	0.025	0.103	0.0206	0.0206	0.0206	No	No	No	No	
	December	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0980	0.0196	0.0196	0.0196	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0005	0.0006	0.005	0.025	0.025	0.025	0.127	0.0253	0.0253	0.0253	No	No	No	No	
	February	0.0005	0.0007	0.005	0.025	0.025	0.025	0.133	0.0265	0.0265	0.0265	No	No	No	No	
	March	0.0006	0.0007	0.005	0.025	0.025	0.025	0.142	0.0284	0.0284	0.0284	No	No	No	No	
	April	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0980	0.0196	0.0196	0.0196	No	No	No	No	
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0792	0.0158	0.0158	0.0158	No	No	No	No	
	June	0.0009	0.0009	0.005	0.025	0.025	0.025	0.176	0.0352	0.0352	0.0352	No	No	No	No	
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.106	0.0211	0.0211	0.0211	No	No	No	No	
	August	0.0007	0.0008	0.005	0.025	0.025	0.025	0.154	0.0307	0.0307	0.0307	No	No	No	No	
	September	0.0005	0.0006	0.005	0.025	0.025	0.025	0.116	0.0233	0.0233	0.0233	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.123	0.0246	0.0246	0.0246	No	No	No	No	
	November	0.0005	0.0006	0.005	0.025	0.025	0.025	0.116	0.0232	0.0232	0.0232	No	No	No	No	
	December	0.0005	0.0006	0.005	0.025	0.025	0.025	0.123	0.0245	0.0245	0.0245	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0007	0.0007	0.005	0.025	0.025	0.025	0.131	0.0262	0.0262	0.0262	No	No	No	No	
	February	0.0007	0.0007	0.005	0.025	0.025	0.025	0.137	0.0274	0.0274	0.0274	No	No	No	No	
	March	0.0007	0.0007	0.005	0.025	0.025	0.025	0.147	0.0294	0.0294	0.0294	No	No	No	No	
	April	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0996	0.0199	0.0199	0.0199	No	No	No	No	
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0795	0.0159	0.0159	0.0159	No	No	No	No	
	June	0.0009	0.0009	0.005	0.025	0.025	0.025	0.174	0.0348	0.0348	0.0348	No	No	No	No	
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.106	0.0212	0.0212	0.0212	No	No	No	No	
	August	0.0008	0.0008	0.005	0.025	0.025	0.025	0.155	0.0311	0.0311	0.0311	No	No	No	No	
	September	0.0006	0.0006	0.005	0.025	0.025	0.025	0.118	0.0236	0.0236	0.0236	No	No	No	No	
	October	0.0006	0.0006	0.005	0.025	0.025	0.025	0.125	0.0249	0.0249	0.0249	No	No	No	No	
	November	0.0006	0.0006	0.005	0.025	0.025	0.025	0.118	0.0235	0.0235	0.0235	No	No	No	No	
	December	0.0006	0.0006	0.005	0.025	0.025	0.025	0.125	0.0249	0.0249	0.0249	No	No	No	No	
Closure Phase (29-35)	January	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0951	0.0190	0.0190	0.0190	No	No	No	No	
	February	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0948	0.0190	0.0190	0.0190	No	No	No	No	
	March	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0978	0.0196	0.0196	0.0196	No	No	No	No	
	April	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0837	0.0167	0.0167	0.0167	No	No	No	No	
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0765	0.0153	0.0153	0.0153	No	No	No	No	
	June	0.0009	0.0009	0.005	0.025	0.025	0.025	0.171	0.0342	0.0342	0.0342	No	No	No	No	
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0978	0.0196	0.0196	0.0196	No	No	No	No	
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.139	0.0278	0.0278	0.0278	No	No	No	No	
	September	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0944	0.0189	0.0189	0.0189	No	No	No	No	
	October	0.0005	0.0005	0.005	0.025	0.025	0.025	0.101	0.0203	0.0203	0.0203	No	No	No	No	
	November	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0930	0.0186	0.0186	0.0186	No	No	No	No	
	December	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0946	0.0189	0.0189	0.0189	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0945	0.0189	0.0189	0.0189	No	No	No	No	
	February	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0942	0.0188	0.0188	0.0188	No	No	No	No	
	March	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0969	0.0194	0.0194	0.0194	No	No	No	No	
	April	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0834	0.0167	0.0167	0.0167	No	No	No	No	
	May	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0765	0.0153	0.0153	0.0153	No	No	No	No	
	June	0.0009	0.0009	0.005	0.025	0.025	0.025	0.171	0.0342	0.0342	0.0342	No	No	No	No	
	July	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0978	0.0196	0.0196	0.0196	No	No	No	No	
	August	0.0007	0.0007	0.005	0.025	0.025	0.025	0.139	0.0277	0.0277	0.0277	No	No	No	No	
	September	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0940	0.0188	0.0188	0.0188	No	No	No	No	
	October	0.0005	0.0005	0.005	0.025	0.025	0.025	0.101	0.0202	0.0202	0.0202	No	No	No	No	
	November	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0926	0.0185	0.0185	0.0185	No	No	No	No	
	December	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0941	0.0188	0.0188	0.0188	No	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D19d. Mid Harper Creek (HM) Hazard Quotients for Total Barium Concentrations, Upper Bound Case

		First Screening Step										Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water	
		Mean	Maximum	BC MOE Working 30-Day Mean	Working Maximum	Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Maximum Predicted vs. Canadian DWQG			
Construction (-2 to-1)	January	0.0102	0.0102	1	5	1	0.0102	0.0102	0.0020	0.0102	No	No	
	February	0.0108	0.0114	1	5	1	0.0108	0.0114	0.0023	0.0114	No	No	
	March	0.0105	0.0109	1	5	1	0.0105	0.0109	0.0022	0.0109	No	No	
	April	0.0099	0.0104	1	5	1	0.0099	0.0104	0.0021	0.0104	No	No	
	May	0.0065	0.0066	1	5	1	0.0065	0.0066	0.0013	0.0066	No	No	
	June	0.0063	0.0064	1	5	1	0.0063	0.0064	0.0013	0.0064	No	No	
	July	0.0077	0.0083	1	5	1	0.0077	0.0083	0.0017	0.0083	No	No	
	August	0.0100	0.0102	1	5	1	0.0100	0.0102	0.0020	0.0102	No	No	
	September	0.0105	0.0106	1	5	1	0.0105	0.0106	0.0021	0.0106	No	No	
	October	0.0100	0.0105	1	5	1	0.0100	0.0105	0.0021	0.0105	No	No	
	November	0.0099	0.0104	1	5	1	0.0099	0.0104	0.0021	0.0104	No	No	
	December	0.0101	0.0104	1	5	1	0.0101	0.0104	0.0021	0.0104	No	No	
Operation 1 Phase (1-23)	January	0.0114	0.0121	1	5	1	0.0114	0.0121	0.0024	0.0121	No	No	
	February	0.0116	0.0124	1	5	1	0.0116	0.0124	0.0025	0.0124	No	No	
	March	0.0117	0.0127	1	5	1	0.0117	0.0127	0.0025	0.0127	No	No	
	April	0.0100	0.0103	1	5	1	0.0100	0.0103	0.0021	0.0103	No	No	
	May	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	June	0.0066	0.0067	1	5	1	0.0066	0.0067	0.0013	0.0067	No	No	
	July	0.0086	0.0088	1	5	1	0.0086	0.0088	0.0018	0.0088	No	No	
	August	0.0109	0.0113	1	5	1	0.0109	0.0113	0.0023	0.0113	No	No	
	September	0.0114	0.0118	1	5	1	0.0114	0.0118	0.0024	0.0118	No	No	
	October	0.0112	0.0116	1	5	1	0.0112	0.0116	0.0023	0.0116	No	No	
	November	0.0112	0.0116	1	5	1	0.0112	0.0116	0.0023	0.0116	No	No	
	December	0.0114	0.0119	1	5	1	0.0114	0.0119	0.0024	0.0119	No	No	
Operations 2 Phase (24-28)	January	0.0122	0.0122	1	5	1	0.0122	0.0122	0.0024	0.0122	No	No	
	February	0.0125	0.0125	1	5	1	0.0125	0.0125	0.0025	0.0125	No	No	
	March	0.0128	0.0128	1	5	1	0.0128	0.0128	0.0026	0.0128	No	No	
	April	0.0103	0.0103	1	5	1	0.0103	0.0103	0.0021	0.0103	No	No	
	May	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	June	0.0067	0.0067	1	5	1	0.0067	0.0067	0.0013	0.0067	No	No	
	July	0.0088	0.0088	1	5	1	0.0088	0.0088	0.0018	0.0088	No	No	
	August	0.0113	0.0113	1	5	1	0.0113	0.0113	0.0023	0.0113	No	No	
	September	0.0119	0.0119	1	5	1	0.0119	0.0119	0.0024	0.0119	No	No	
	October	0.0117	0.0117	1	5	1	0.0117	0.0117	0.0023	0.0117	No	No	
	November	0.0117	0.0117	1	5	1	0.0117	0.0117	0.0023	0.0117	No	No	
	December	0.0120	0.0120	1	5	1	0.0120	0.0120	0.0024	0.0120	No	No	
Closure Phase (29-35)	January	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	No	No	
	February	0.0110	0.0110	1	5	1	0.0110	0.0110	0.0022	0.0110	No	No	
	March	0.0110	0.0111	1	5	1	0.0110	0.0111	0.0022	0.0111	No	No	
	April	0.0097	0.0098	1	5	1	0.0097	0.0098	0.0020	0.0098	No	No	
	May	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No	
	June	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	July	0.0085	0.0085	1	5	1	0.0085	0.0085	0.0017	0.0085	No	No	
	August	0.0107	0.0107	1	5	1	0.0107	0.0107	0.0021	0.0107	No	No	
	September	0.0110	0.0110	1	5	1	0.0110	0.0110	0.0022	0.0110	No	No	
	October	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	No	No	
	November	0.0108	0.0108	1	5	1	0.0108	0.0108	0.0022	0.0108	No	No	
	December	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	No	No	
Post-Closure Phase (36-99)	January	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	No	No	
	February	0.0110	0.0110	1	5	1	0.0110	0.0110	0.0022	0.0110	No	No	
	March	0.0111	0.0111	1	5	1	0.0111	0.0111	0.0022	0.0111	No	No	
	April	0.0098	0.0098	1	5	1	0.0098	0.0098	0.0020	0.0098	No	No	
	May	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013	0.0065	No	No	
	June	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013	0.0066	No	No	
	July	0.0085	0.0085	1	5	1	0.0085	0.0085	0.0017	0.0085	No	No	
	August	0.0107	0.0107	1	5	1	0.0107	0.0107	0.0021	0.0107	No	No	
	September	0.0110	0.0110	1	5	1	0.0110	0.0110	0.0022	0.0110	No	No	
	October	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	No	No	
	November	0.0108	0.0108	1	5	1	0.0108	0.0108	0.0022	0.0108	No	No	
	December	0.0109	0.0109	1	5	1	0.0109	0.0109	0.0022	0.0109	No	No	

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D19e. Mid Harper Creek (HM) Hazard Quotients for Total Beryllium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Maximum Predicted vs. BC MOE DWQG	Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working (Chronic, 30-day mean)	BC DWQG	BC MOE Working	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline							
		Mean	Maximum	mean)	BC DWQG	BC MOE Working	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline							
Construction (-2 to-1)	January	0.00004	0.00006	0.0053	0.004	0.1	0.00791	0.0104	0.0138	0.00055	No	No	No		
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No		
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No		
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No		
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0189	0.0250	0.00100	No	No	No		
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0179	0.0189	0.0250	0.00100	No	No	No		
	July	0.00009	0.00010	0.0053	0.004	0.1	0.0161	0.0189	0.0250	0.00100	No	No	No		
	August	0.00009	0.00013	0.0053	0.004	0.1	0.0174	0.0252	0.0333	0.00133	No	No	No		
	September	0.00006	0.00009	0.0053	0.004	0.1	0.0109	0.0170	0.0225	0.00090	No	No	No		
	October	0.00004	0.00006	0.0053	0.004	0.1	0.00740	0.0108	0.0144	0.00058	No	No	No		
	November	0.00004	0.00006	0.0053	0.004	0.1	0.00695	0.0104	0.0138	0.00055	No	No	No		
	December	0.00004	0.00006	0.0053	0.004	0.1	0.00730	0.0104	0.0138	0.00055	No	No	No		
Operation 1 Phase (1-23)	January	0.00003	0.00005	0.0053	0.004	0.1	0.00584	0.00864	0.0115	0.00046	No	No	No		
	February	0.00002	0.00004	0.0053	0.004	0.1	0.00447	0.00778	0.0103	0.00041	No	No	No		
	March	0.00003	0.00005	0.0053	0.004	0.1	0.00496	0.00892	0.0118	0.00047	No	No	No		
	April	0.00002	0.00002	0.0053	0.004	0.1	0.00287	0.00413	0.00547	0.00022	No	No	No		
	May	0.00009	0.00009	0.0053	0.004	0.1	0.0177	0.0179	0.0237	0.00095	No	No	No		
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0171	0.0179	0.0231	0.00092	No	No	No		
	July	0.00007	0.00008	0.0053	0.004	0.1	0.0138	0.0146	0.0193	0.00077	No	No	No		
	August	0.00005	0.00006	0.0053	0.004	0.1	0.0103	0.0119	0.0158	0.00063	No	No	No		
	September	0.00003	0.00004	0.0053	0.004	0.1	0.00512	0.00700	0.00928	0.00037	No	No	No		
	October	0.00003	0.00004	0.0053	0.004	0.1	0.00475	0.00661	0.00876	0.00035	No	No	No		
	November	0.00002	0.00003	0.0053	0.004	0.1	0.00457	0.00654	0.00866	0.00035	No	No	No		
	December	0.00003	0.00004	0.0053	0.004	0.1	0.00518	0.00759	0.0101	0.00040	No	No	No		
Operations 2 Phase (24-28)	January	0.00005	0.00005	0.0053	0.004	0.1	0.00879	0.00927	0.0123	0.00049	No	No	No		
	February	0.00004	0.00004	0.0053	0.004	0.1	0.00791	0.00847	0.0112	0.00045	No	No	No		
	March	0.00005	0.00005	0.0053	0.004	0.1	0.00907	0.00973	0.0129	0.00052	No	No	No		
	April	0.00002	0.00002	0.0053	0.004	0.1	0.00417	0.00438	0.00581	0.00023	No	No	No		
	May	0.00009	0.00010	0.0053	0.004	0.1	0.0179	0.0180	0.0238	0.00095	No	No	No		
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0174	0.0175	0.0231	0.00093	No	No	No		
	July	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0147	0.0194	0.00078	No	No	No		
	August	0.00006	0.00006	0.0053	0.004	0.1	0.0119	0.0122	0.0161	0.00064	No	No	No		
	September	0.00004	0.00004	0.0053	0.004	0.1	0.00702	0.00732	0.00970	0.00039	No	No	No		
	October	0.00004	0.00004	0.0053	0.004	0.1	0.00661	0.00689	0.00913	0.00037	No	No	No		
	November	0.00003	0.00004	0.0053	0.004	0.1	0.00652	0.00682	0.00903	0.00036	No	No	No		
	December	0.00004	0.00004	0.0053	0.004	0.1	0.00755	0.00792	0.0105	0.00042	No	No	No		
Closure Phase (29-35)	January	0.00002	0.00002	0.0053	0.004	0.1	0.00404	0.00420	0.00556	0.00022	No	No	No		
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00230	0.00232	0.00308	0.00012	No	No	No		
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00246	0.00250	0.00331	0.00013	No	No	No		
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00205	0.00206	0.00273	0.00011	No	No	No		
	May	0.00009	0.00009	0.0053	0.004	0.1	0.0175	0.0175	0.0232	0.00093	No	No	No		
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0170	0.0170	0.0225	0.00090	No	No	No		
	July	0.00007	0.00007	0.0053	0.004	0.1	0.0134	0.0134	0.0178	0.00071	No	No	No		
	August	0.00005	0.00005	0.0053	0.004	0.1	0.00961	0.00964	0.0128	0.00051	No	No	No		
	September	0.00002	0.00002	0.0053	0.004	0.1	0.00382	0.00384	0.00509	0.00020	No	No	No		
	October	0.00002	0.00002	0.0053	0.004	0.1	0.00347	0.00349	0.00463	0.00019	No	No	No		
	November	0.00002	0.00002	0.0053	0.004	0.1	0.00322	0.00324	0.00429	0.00017	No	No	No		
	December	0.00002	0.00002	0.0053	0.004	0.1	0.00351	0.00353	0.00468	0.00019	No	No	No		
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.0053	0.004	0.1	0.00397	0.00399	0.00529	0.00021	No	No	No		
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00224	0.00227	0.00300	0.00012	No	No	No		
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00239	0.00242	0.00321	0.00013	No	No	No		
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00203	0.00204	0.00270	0.00011	No	No	No		
	May	0.00009	0.00009	0.0053	0.004	0.1	0.0175	0.0175	0.0232	0.00093	No	No	No		
	June	0.00009	0.00009	0.0053	0.004	0.1	0.0170	0.0170	0.0225	0.00090	No	No	No		
	July	0.00007	0.00007	0.0053	0.004	0.1	0.0134	0.0134	0.0177	0.00071	No	No	No		
	August	0.00005	0.00005	0.0053	0.004	0.1	0.00958	0.00958	0.0127	0.00051	No	No	No		
	September	0.00002	0.00002	0.0053	0.004	0.1	0.00378	0.00379	0.00502	0.00020	No	No	No		
	October	0.00002	0.00002	0.0053	0.004	0.1	0.00344	0.00345	0.00457	0.00018	No	No	No		
	November	0.00002	0.00002	0.0053	0.004	0.1	0.00319	0.00320	0.00424	0.00017	No	No	No		
	December	0.00002	0.00002	0.0053	0.004	0.1	0.00347	0.00349	0.00462	0.00018	No	No	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D19f. Mid Harper Creek (HM) Hazard Quotients for Total Boron Concentrations, Upper Bound Case

		First Screening Step											Retained as COPC?				
Project Phase	Months	Predicted Concentrations		Drinking Aquatic Life Guidelines	BC MOE Working Water Quality Guidelines for Wildlife	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline			Aquatic Life	Drinking Water	Wildlife	Livestock	
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline						
Construction (-2 to-1)	January	0.0358	0.0416	1.2	5	5	5	0.0347	0.0083	0.0083	0.0083	No	No	No	No		
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	May	0.0115	0.0129	1.2	5	5	5	0.0108	0.0026	0.0026	0.0026	No	No	No	No		
	June	0.0122	0.0143	1.2	5	5	5	0.0120	0.0029	0.0029	0.0029	No	No	No	No		
	July	0.0164	0.0229	1.2	5	5	5	0.0191	0.0046	0.0046	0.0046	No	No	No	No		
	August	0.0225	0.0349	1.2	5	5	5	0.0291	0.0070	0.0070	0.0070	No	No	No	No		
	September	0.0266	0.0432	1.2	5	5	5	0.0360	0.0086	0.0086	0.0086	No	No	No	No		
	October	0.0325	0.0451	1.2	5	5	5	0.0376	0.0090	0.0090	0.0090	No	No	No	No		
	November	0.0381	0.0462	1.2	5	5	5	0.0385	0.0092	0.0092	0.0092	No	No	No	No		
	December	0.0372	0.0445	1.2	5	5	5	0.0371	0.0089	0.0089	0.0089	No	No	No	No		
Operation 1 Phase (1-23)	January	0.0466	0.0474	1.2	5	5	5	0.0395	0.0095	0.0095	0.0095	No	No	No	No		
	February	0.0509	0.0518	1.2	5	5	5	0.0432	0.0104	0.0104	0.0104	No	No	No	No		
	March	0.0510	0.0522	1.2	5	5	5	0.0435	0.0104	0.0104	0.0104	No	No	No	No		
	April	0.0503	0.0507	1.2	5	5	5	0.0422	0.0101	0.0101	0.0101	No	No	No	No		
	May	0.0133	0.0134	1.2	5	5	5	0.0111	0.0027	0.0027	0.0027	No	No	No	No		
	June	0.0148	0.0149	1.2	5	5	5	0.0124	0.0030	0.0030	0.0030	No	No	No	No		
	July	0.0237	0.0240	1.2	5	5	5	0.0200	0.0048	0.0048	0.0048	No	No	No	No		
	August	0.0371	0.0376	1.2	5	5	5	0.0314	0.0075	0.0075	0.0075	No	No	No	No		
	September	0.0465	0.0470	1.2	5	5	5	0.0392	0.0094	0.0094	0.0094	No	No	No	No		
	October	0.0473	0.0478	1.2	5	5	5	0.0399	0.0096	0.0096	0.0096	No	No	No	No		
	November	0.0480	0.0486	1.2	5	5	5	0.0405	0.0097	0.0097	0.0097	No	No	No	No		
	December	0.0476	0.0483	1.2	5	5	5	0.0402	0.0097	0.0097	0.0097	No	No	No	No		
Operations 2 Phase (24-28)	January	0.0476	0.0476	1.2	5	5	5	0.0397	0.0095	0.0095	0.0095	No	No	No	No		
	February	0.0520	0.0520	1.2	5	5	5	0.0434	0.0104	0.0104	0.0104	No	No	No	No		
	March	0.0524	0.0524	1.2	5	5	5	0.0437	0.0105	0.0105	0.0105	No	No	No	No		
	April	0.0508	0.0508	1.2	5	5	5	0.0423	0.0102	0.0102	0.0102	No	No	No	No		
	May	0.0134	0.0134	1.2	5	5	5	0.0112	0.0027	0.0027	0.0027	No	No	No	No		
	June	0.0149	0.0149	1.2	5	5	5	0.0124	0.0030	0.0030	0.0030	No	No	No	No		
	July	0.0241	0.0241	1.2	5	5	5	0.0201	0.0048	0.0048	0.0048	No	No	No	No		
	August	0.0376	0.0377	1.2	5	5	5	0.0314	0.0075	0.0075	0.0075	No	No	No	No		
	September	0.0471	0.0471	1.2	5	5	5	0.0392	0.0094	0.0094	0.0094	No	No	No	No		
	October	0.0479	0.0479	1.2	5	5	5	0.0400	0.0096	0.0096	0.0096	No	No	No	No		
	November	0.0487	0.0487	1.2	5	5	5	0.0406	0.0097	0.0097	0.0097	No	No	No	No		
	December	0.0484	0.0484	1.2	5	5	5	0.0403	0.0097	0.0097	0.0097	No	No	No	No		
Closure Phase (29-35)	January	0.0457	0.0457	1.2	5	5	5	0.0381	0.0091	0.0091	0.0091	No	No	No	No		
	February	0.0498	0.0498	1.2	5	5	5	0.0415	0.0100	0.0100	0.0100	No	No	No	No		
	March	0.0498	0.0498	1.2	5	5	5	0.0415	0.0100	0.0100	0.0100	No	No	No	No		
	April	0.0499	0.0499	1.2	5	5	5	0.0416	0.0100	0.0100	0.0100	No	No	No	No		
	May	0.0132	0.0132	1.2	5	5	5	0.0110	0.0026	0.0026	0.0026	No	No	No	No		
	June	0.0147	0.0147	1.2	5	5	5	0.0123	0.0029	0.0029	0.0029	No	No	No	No		
	July	0.0237	0.0238	1.2	5	5	5	0.0198	0.0048	0.0048	0.0048	No	No	No	No		
	August	0.0367	0.0367	1.2	5	5	5	0.0306	0.0073	0.0073	0.0073	No	No	No	No		
	September	0.0459	0.0459	1.2	5	5	5	0.0383	0.0092	0.0092	0.0092	No	No	No	No		
	October	0.0467	0.0468	1.2	5	5	5	0.0390	0.0094	0.0094	0.0094	No	No	No	No		
	November	0.0474	0.0474	1.2	5	5	5	0.0395	0.0095	0.0095	0.0095	No	No	No	No		
	December	0.0468	0.0468	1.2	5	5	5	0.0390	0.0094	0.0094	0.0094	No	No	No	No		
Post-Closure Phase (36-99)	January	0.0459	0.0460	1.2	5	5	5	0.0383	0.0092	0.0092	0.0092	No	No	No	No		
	February	0.0500	0.0501	1.2	5	5	5	0.0418	0.0100	0.0100	0.0100	No	No	No	No		
	March	0.0501	0.0502	1.2	5	5	5	0.0418	0.0100	0.0100	0.0100	No	No	No	No		
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No		
	May	0.0132	0.0132	1.2	5	5	5	0.0110	0.0026	0.0026	0.0026	No	No	No	No		
	June	0.0147	0.0147	1.2	5	5	5	0.0123	0.0029	0.0029	0.0029	No	No	No	No		
	July	0.0238	0.0238	1.2	5	5	5	0.0199	0.0048	0.0048	0.0048	No	No	No	No		
	August	0.0368	0.0368	1.2	5	5	5	0.0307	0.0074	0.0074	0.0074	No	No	No	No		
	September	0.0460	0.0461	1.2	5	5	5	0.0384	0.0092	0.0092	0.0092	No	No	No	No		
	October	0.0469	0.0469	1.2	5	5	5	0.0391	0.0094	0.0094	0.0094	No	No	No	No		
	November	0.0475	0.0476	1.2	5	5	5	0.0397	0.0095	0.0095	0.0095	No	No	No	No		
	December	0.0470	0.0470	1.2	5	5	5	0.0392	0.0094	0.0094	0.0094	No	No	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D19g. Mid Harper Creek (HM) Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	Livestock		
Construction (-2 to-1)	January	14.3	15.0	1000	0.0150	No
	February	14.4	15.3	1000	0.0153	No
	March	14.9	15.6	1000	0.0156	No
	April	14.9	16.3	1000	0.0163	No
	May	9.93	11.1	1000	0.0111	No
	June	8.91	10.0	1000	0.0100	No
	July	11.6	12.9	1000	0.0129	No
	August	13.6	14.4	1000	0.0144	No
	September	13.9	14.9	1000	0.0149	No
	October	13.3	14.9	1000	0.0149	No
	November	13.5	14.8	1000	0.0148	No
	December	13.8	14.8	1000	0.0148	No
Operation 1 Phase (1-23)	January	15.7	17.2	1000	0.0172	No
	February	16.0	17.8	1000	0.0178	No
	March	16.4	18.6	1000	0.0186	No
	April	16.4	17.1	1000	0.0171	No
	May	10.9	11.0	1000	0.0110	No
	June	9.90	10.0	1000	0.0100	No
	July	13.1	13.5	1000	0.0135	No
	August	14.9	15.8	1000	0.0158	No
	September	15.3	16.3	1000	0.0163	No
	October	15.4	16.4	1000	0.0164	No
	November	15.4	16.5	1000	0.0165	No
	December	15.5	16.8	1000	0.0168	No
Operations 2 Phase (24-28)	January	17.5	17.6	1000	0.0176	No
	February	18.1	18.2	1000	0.0182	No
	March	18.9	19.0	1000	0.0190	No
	April	17.2	17.2	1000	0.0172	No
	May	11.1	11.1	1000	0.0111	No
	June	10.1	10.1	1000	0.0101	No
	July	13.6	13.6	1000	0.0136	No
	August	15.9	15.9	1000	0.0159	No
	September	16.5	16.5	1000	0.0165	No
	October	16.5	16.6	1000	0.0166	No
	November	16.6	16.6	1000	0.0166	No
	December	17.0	17.0	1000	0.0170	No
Closure Phase (29-35)	January	14.5	14.6	1000	0.0146	No
	February	14.6	14.7	1000	0.0147	No
	March	14.9	14.9	1000	0.0149	No
	April	15.9	15.9	1000	0.0159	No
	May	10.8	10.8	1000	0.0108	No
	June	9.85	9.85	1000	0.0098	No
	July	12.9	12.9	1000	0.0129	No
	August	14.6	14.6	1000	0.0146	No
	September	14.5	14.5	1000	0.0145	No
	October	14.6	14.6	1000	0.0146	No
	November	14.5	14.5	1000	0.0145	No
	December	14.4	14.5	1000	0.0145	No
Post-Closure Phase (36-99)	January	14.5	14.6	1000	0.0146	No
	February	14.6	14.7	1000	0.0147	No
	March	14.8	14.9	1000	0.0149	No
	April	15.9	15.9	1000	0.0159	No
	May	10.8	10.8	1000	0.0108	No
	June	9.85	9.85	1000	0.0099	No
	July	12.9	12.9	1000	0.0129	No
	August	14.6	14.6	1000	0.0146	No
	September	14.5	14.5	1000	0.0145	No
	October	14.6	14.6	1000	0.0146	No
	November	14.5	14.5	1000	0.0145	No
	December	14.4	14.5	1000	0.0145	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D191. Mid Harper Creek (HM) Hazard Quotients for Dissolved and Total Iron Concentrations, Upper Bound Case

Project Phase		Months		First Screening Step								Retained as COPC?			
				Predicted Concentrations				Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Aquatic Life Guideline		Aquatic Life	
				Dissolved Iron		Total Iron		BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron		
				Mean	Maximum	Mean	Maximum								
Construction (-2 to-1)	January	0.0071	0.0090	0.0086	0.0095	0.35	1	0.0257	0.0095	No	No				
	February	0.0044	0.0049	0.0071	0.0072	0.35	1	0.0140	0.0072	No	No				
	March	0.0036	0.0040	0.0059	0.0060	0.35	1	0.0114	0.0060	No	No				
	April	0.0119	0.0154	0.0402	0.0553	0.35	1	0.0440	0.0553	No	No				
	May	0.0184	0.0194	0.144	0.164	0.35	1	0.0554	0.164	No	No				
	June	0.0117	0.0125	0.134	0.135	0.35	1	0.0357	0.135	No	No				
	July	0.0108	0.0123	0.0317	0.0390	0.35	1	0.0352	0.0390	No	No				
	August	0.0110	0.0148	0.0148	0.0195	0.35	1	0.0421	0.0195	No	No				
	September	0.0069	0.0092	0.0169	0.0262	0.35	1	0.0263	0.0262	No	No				
	October	0.0082	0.0118	0.0138	0.0203	0.35	1	0.0336	0.0203	No	No				
	November	0.0062	0.0080	0.0108	0.0145	0.35	1	0.0229	0.0145	No	No				
	December	0.0066	0.0085	0.0096	0.0120	0.35	1	0.0243	0.0120	No	No				
Operation 1 Phase (1-23)	January	0.0055	0.0064	0.0082	0.0091	0.35	1	0.0183	0.0091	No	No				
	February	0.0054	0.0065	0.0081	0.0092	0.35	1	0.0186	0.0092	No	No				
	March	0.0049	0.0062	0.0077	0.0090	0.35	1	0.0178	0.0090	No	No				
	April	0.0091	0.0096	0.0273	0.0277	0.35	1	0.0273	0.0277	No	No				
	May	0.0175	0.0176	0.128	0.128	0.35	1	0.0502	0.128	No	No				
	June	0.0111	0.0112	0.131	0.132	0.35	1	0.0319	0.132	No	No				
	July	0.0095	0.0098	0.0253	0.0256	0.35	1	0.0279	0.0256	No	No				
	August	0.0077	0.0082	0.0108	0.0113	0.35	1	0.0235	0.0113	No	No				
	September	0.0050	0.0056	0.0081	0.0087	0.35	1	0.0160	0.0087	No	No				
	October	0.0051	0.0057	0.0079	0.0085	0.35	1	0.0163	0.0085	No	No				
	November	0.0049	0.0056	0.0077	0.0083	0.35	1	0.0159	0.0083	No	No				
	December	0.0052	0.0060	0.0079	0.0087	0.35	1	0.0171	0.0087	No	No				
Operations 2 Phase (24-28)	January	0.0066	0.0066	0.0092	0.0093	0.35	1	0.0189	0.0093	No	No				
	February	0.0067	0.0067	0.0093	0.0094	0.35	1	0.0192	0.0094	No	No				
	March	0.0064	0.0065	0.0092	0.0092	0.35	1	0.0185	0.0092	No	No				
	April	0.0096	0.0096	0.0278	0.0278	0.35	1	0.0275	0.0278	No	No				
	May	0.0176	0.0176	0.128	0.128	0.35	1	0.0502	0.128	No	No				
	June	0.0112	0.0112	0.131	0.131	0.35	1	0.0320	0.131	No	No				
	July	0.0098	0.0098	0.0256	0.0256	0.35	1	0.0279	0.0256	No	No				
	August	0.0083	0.0083	0.0114	0.0114	0.35	1	0.0237	0.0114	No	No				
	September	0.0057	0.0057	0.0088	0.0088	0.35	1	0.0163	0.0088	No	No				
	October	0.0058	0.0058	0.0085	0.0085	0.35	1	0.0165	0.0085	No	No				
	November	0.0056	0.0056	0.0084	0.0084	0.35	1	0.0161	0.0084	No	No				
	December	0.0061	0.0061	0.0088	0.0088	0.35	1	0.0174	0.0088	No	No				
Closure Phase (29-35)	January	0.0049	0.0049	0.0075	0.0075	0.35	1	0.0139	0.0075	No	No				
	February	0.0047	0.0047	0.0073	0.0073	0.35	1	0.0134	0.0073	No	No				
	March	0.0041	0.0041	0.0068	0.0068	0.35	1	0.0116	0.0068	No	No				
	April	0.0089	0.0089	0.0270	0.0270	0.35	1	0.0253	0.0270	No	No				
	May	0.0174	0.0174	0.128	0.128	0.35	1	0.0498	0.128	No	No				
	June	0.0110	0.0110	0.131	0.131	0.35	1	0.0315	0.131	No	No				
	July	0.0094	0.0094	0.0251	0.0251	0.35	1	0.0268	0.0251	No	No				
	August	0.0075	0.0075	0.0106	0.0106	0.35	1	0.0214	0.0106	No	No				
	September	0.0045	0.0045	0.0076	0.0076	0.35	1	0.0129	0.0076	No	No				
	October	0.0046	0.0046	0.0074	0.0074	0.35	1	0.0133	0.0074	No	No				
	November	0.0044	0.0044	0.0072	0.0072	0.35	1	0.0127	0.0072	No	No				
	December	0.0046	0.0046	0.0073	0.0073	0.35	1	0.0132	0.0073	No	No				
Post-Closure Phase (36-99)	January	0.0048	0.0048	0.0075	0.0075	0.35	1	0.0138	0.0075	No	No				
	February	0.0046	0.0046	0.0073	0.0073	0.35	1	0.0133	0.0073	No	No				
	March	0.0040	0.0040	0.0068	0.0068	0.35	1	0.0115	0.0068	No	No				
	April	0.0089	0.0089	0.0270	0.0270	0.35	1	0.0253	0.0270	No	No				
	May	0.0174	0.0174	0.128	0.128	0.35	1	0.0498	0.128	No	No				
	June	0.0110	0.0110	0.131	0.131	0.35	1	0.0315	0.131	No	No				
	July	0.0094	0.0094	0.0251	0.0251	0.35	1	0.0267	0.0251	No	No				
	August	0.0075	0.0075	0.0106	0.0106	0.35	1	0.0213	0.0106	No	No				
	September	0.0045	0.0045	0.0076	0.0076	0.35	1	0.0129	0.0076	No	No				
	October	0.0046	0.0046	0.0074	0.0074	0.35	1	0.0132	0.0074	No	No				
	November	0.0044	0.0044	0.0071	0.0071	0.35	1	0.0126	0.0071	No	No				
	December	0.0046	0.0046	0.0073	0.0073	0.35	1	0.0131	0.0073	No	No				

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D19n. Mid Harper Creek (HM) Hazard Quotients for Total Lithium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Construction (-2 to-1)	January	0.0008	0.0008	0.096	0.87	0.0080	0.0085	0.0009	No
	February	0.0009	0.0009	0.096	0.87	0.0089	0.0094	0.0010	No
	March	0.0008	0.0008	0.096	0.87	0.0078	0.0084	0.0009	No
	April	0.0006	0.0006	0.096	0.87	0.0058	0.0064	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	June	0.0005	0.0006	0.096	0.87	0.0056	0.0058	0.0006	No
	July	0.0006	0.0007	0.096	0.87	0.0062	0.0068	0.0008	No
	August	0.0008	0.0008	0.096	0.87	0.0082	0.0084	0.0009	No
	September	0.0008	0.0008	0.096	0.87	0.0079	0.0087	0.0010	No
	October	0.0008	0.0009	0.096	0.87	0.0085	0.0093	0.0010	No
	November	0.0007	0.0008	0.096	0.87	0.0072	0.0087	0.0010	No
	December	0.0007	0.0008	0.096	0.87	0.0076	0.0086	0.0010	No
Operation 1 Phase (1-23)	January	0.0011	0.0013	0.096	0.87	0.0113	0.0137	0.0015	No
	February	0.0011	0.0014	0.096	0.87	0.0117	0.0146	0.0016	No
	March	0.0012	0.0015	0.096	0.87	0.0122	0.0157	0.0017	No
	April	0.0007	0.0008	0.096	0.87	0.0076	0.0087	0.0010	No
	May	0.0006	0.0006	0.096	0.87	0.0057	0.0060	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0061	0.0064	0.0007	No
	July	0.0007	0.0008	0.096	0.87	0.0077	0.0084	0.0009	No
	August	0.0010	0.0011	0.096	0.87	0.0101	0.0115	0.0013	No
	September	0.0010	0.0012	0.096	0.87	0.0106	0.0122	0.0013	No
	October	0.0011	0.0012	0.096	0.87	0.0110	0.0126	0.0014	No
	November	0.0010	0.0012	0.096	0.87	0.0106	0.0123	0.0014	No
	December	0.0011	0.0013	0.096	0.87	0.0111	0.0131	0.0015	No
Operations 2 Phase (24-28)	January	0.0014	0.0014	0.096	0.87	0.0141	0.0142	0.0016	No
	February	0.0014	0.0015	0.096	0.87	0.0150	0.0151	0.0017	No
	March	0.0016	0.0016	0.096	0.87	0.0162	0.0163	0.0018	No
	April	0.0008	0.0009	0.096	0.87	0.0088	0.0089	0.0010	No
	May	0.0006	0.0006	0.096	0.87	0.0060	0.0060	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0064	0.0064	0.0007	No
	July	0.0008	0.0008	0.096	0.87	0.0084	0.0084	0.0009	No
	August	0.0011	0.0011	0.096	0.87	0.0116	0.0117	0.0013	No
	September	0.0012	0.0012	0.096	0.87	0.0124	0.0125	0.0014	No
	October	0.0012	0.0012	0.096	0.87	0.0127	0.0128	0.0014	No
	November	0.0012	0.0012	0.096	0.87	0.0125	0.0125	0.0014	No
	December	0.0013	0.0013	0.096	0.87	0.0134	0.0134	0.0015	No
Closure Phase (29-35)	January	0.0009	0.0009	0.096	0.87	0.0095	0.0096	0.0011	No
	February	0.0009	0.0009	0.096	0.87	0.0096	0.0096	0.0011	No
	March	0.0009	0.0010	0.096	0.87	0.0099	0.0099	0.0011	No
	April	0.0007	0.0007	0.096	0.87	0.0068	0.0068	0.0008	No
	May	0.0005	0.0005	0.096	0.87	0.0056	0.0056	0.0006	No
	June	0.0006	0.0006	0.096	0.87	0.0060	0.0060	0.0007	No
	July	0.0007	0.0007	0.096	0.87	0.0074	0.0074	0.0008	No
	August	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0011	No
	September	0.0009	0.0009	0.096	0.87	0.0093	0.0094	0.0010	No
	October	0.0009	0.0009	0.096	0.87	0.0097	0.0098	0.0011	No
	November	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	December	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0010	No
Post-Closure Phase (36-99)	January	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0010	No
	February	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0011	No
	March	0.0009	0.0009	0.096	0.87	0.0098	0.0098	0.0011	No
	April	0.0006	0.0007	0.096	0.87	0.0068	0.0068	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0056	0.0056	0.0006	No
	June	0.0006	0.0006	0.096	0.87	0.0060	0.0060	0.0007	No
	July	0.0007	0.0007	0.096	0.87	0.0074	0.0074	0.0008	No
	August	0.0009	0.0009	0.096	0.87	0.0095	0.0095	0.0010	No
	September	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	October	0.0009	0.0009	0.096	0.87	0.0097	0.0097	0.0011	No
	November	0.0009	0.0009	0.096	0.87	0.0092	0.0093	0.0010	No
	December	0.0009	0.0009	0.096	0.87	0.0094	0.0094	0.0010	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D19o. Mid Harper Creek (HM) Hazard Quotients for Total Manganese Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.0007	0.0007	0.794	1.01	0.0009	0.0009	0.0007	No
	February	0.0007	0.0008	0.796	1.02	0.0009	0.0010	0.0008	No
	March	0.0006	0.0007	0.804	1.04	0.0007	0.0008	0.0006	No
	April	0.0020	0.0027	0.793	1.01	0.0026	0.0034	0.0026	No
	May	0.0067	0.0076	0.727	0.845	0.0092	0.0105	0.0090	No
	June	0.0058	0.0059	0.713	0.810	0.0081	0.0082	0.0072	No
	July	0.0016	0.0018	0.748	0.899	0.0021	0.0024	0.0020	No
	August	0.0012	0.0015	0.784	0.988	0.0015	0.0019	0.0015	No
	September	0.0015	0.0021	0.784	0.989	0.0019	0.0027	0.0022	No
	October	0.0016	0.0024	0.767	0.945	0.0021	0.0031	0.0026	No
	November	0.0011	0.0012	0.778	0.973	0.0014	0.0015	0.0012	No
	December	0.0009	0.0009	0.786	0.993	0.0011	0.0012	0.0010	No
Operation 1 Phase (1-23)	January	0.0578	0.130	0.794	1.01	0.0728	0.164	0.128	No
	February	0.0680	0.153	0.796	1.02	0.0854	0.192	0.151	No
	March	0.0804	0.182	0.804	1.04	0.100	0.226	0.175	No
	April	0.0271	0.0594	0.793	1.01	0.0342	0.0749	0.0588	No
	May	0.0107	0.0167	0.727	0.845	0.0147	0.0230	0.0198	No
	June	0.0118	0.0192	0.713	0.810	0.0165	0.0269	0.0237	No
	July	0.0180	0.0372	0.748	0.899	0.0240	0.0497	0.0414	No
	August	0.0330	0.0717	0.784	0.988	0.0421	0.0915	0.0726	No
	September	0.0405	0.0890	0.784	0.989	0.0517	0.113	0.0900	No
	October	0.0401	0.0877	0.767	0.945	0.0523	0.114	0.0928	No
	November	0.0427	0.0930	0.778	0.973	0.0549	0.120	0.0955	No
	December	0.0522	0.114	0.786	0.993	0.0665	0.145	0.115	No
Operations 2 Phase (24-28)	January	0.133	0.146	0.794	1.01	0.168	0.183	0.144	No
	February	0.156	0.171	0.796	1.02	0.196	0.214	0.168	No
	March	0.185	0.202	0.804	1.04	0.230	0.251	0.194	No
	April	0.0603	0.0658	0.793	1.01	0.0761	0.0830	0.0651	No
	May	0.0168	0.0178	0.727	0.845	0.0231	0.0245	0.0210	No
	June	0.0192	0.0203	0.713	0.810	0.0269	0.0284	0.0250	No
	July	0.0374	0.0401	0.748	0.899	0.0500	0.0536	0.0447	No
	August	0.0715	0.0767	0.784	0.988	0.0912	0.0978	0.0776	No
	September	0.0889	0.0966	0.784	0.989	0.113	0.123	0.0977	No
	October	0.0874	0.0949	0.767	0.945	0.114	0.124	0.100	No
	November	0.0923	0.100	0.778	0.973	0.119	0.129	0.103	No
	December	0.113	0.122	0.786	0.993	0.143	0.155	0.123	No
Closure Phase (29-35)	January	0.0089	0.0120	0.794	1.01	0.0113	0.0151	0.0118	No
	February	0.0092	0.0097	0.796	1.02	0.0116	0.0122	0.0096	No
	March	0.0125	0.0133	0.804	1.04	0.0156	0.0166	0.0128	No
	April	0.0049	0.0051	0.793	1.01	0.0061	0.0064	0.0050	No
	May	0.0067	0.0067	0.727	0.845	0.0092	0.0092	0.0079	No
	June	0.0075	0.0075	0.713	0.810	0.0105	0.0106	0.0093	No
	July	0.0073	0.0073	0.748	0.899	0.0097	0.0097	0.0081	No
	August	0.0117	0.0119	0.784	0.988	0.0149	0.0151	0.0120	No
	September	0.0056	0.0059	0.784	0.989	0.0071	0.0075	0.0059	No
	October	0.0058	0.0061	0.767	0.945	0.0075	0.0079	0.0064	No
	November	0.0063	0.0066	0.778	0.973	0.0081	0.0085	0.0068	No
	December	0.0073	0.0077	0.786	0.993	0.0093	0.0098	0.0077	No
Post-Closure Phase (36-99)	January	0.0073	0.0079	0.794	1.01	0.0092	0.0100	0.0078	No
	February	0.0079	0.0086	0.796	1.02	0.0100	0.0108	0.0085	No
	March	0.0108	0.0117	0.804	1.04	0.0135	0.0145	0.0112	No
	April	0.0044	0.0046	0.793	1.01	0.0055	0.0059	0.0046	No
	May	0.0065	0.0066	0.727	0.845	0.0090	0.0091	0.0078	No
	June	0.0075	0.0075	0.713	0.810	0.0105	0.0105	0.0092	No
	July	0.0072	0.0072	0.748	0.899	0.0096	0.0097	0.0080	No
	August	0.0111	0.0114	0.784	0.988	0.0142	0.0146	0.0116	No
	September	0.0049	0.0052	0.784	0.989	0.0062	0.0067	0.0053	No
	October	0.0051	0.0054	0.767	0.945	0.0066	0.0071	0.0057	No
	November	0.0055	0.0059	0.778	0.973	0.0071	0.0076	0.0061	No
	December	0.0064	0.0068	0.786	0.993	0.0081	0.0087	0.0069	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D19r. Mid Harper Creek (HM) Hazard Quotients for Total Nickel Concentrations, Upper Bound Case

Project Phase		Months		First Screening Step				Retained as COPC?			
				Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
				Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0002	0.0003	0.025	1	0.0118	0.0003	No	No		
	February	0.0001	0.0001	0.025	1	0.0036	0.0001	No	No		
	March	0.0001	0.0001	0.025	1	0.0034	0.0001	No	No		
	April	0.0001	0.0001	0.025	1	0.0051	0.0001	No	No		
	May	0.0005	0.0005	0.025	1	0.0200	0.0005	No	No		
	June	0.0005	0.0006	0.025	1	0.0227	0.0006	No	No		
	July	0.0004	0.0005	0.025	1	0.0200	0.0005	No	No		
	August	0.0004	0.0005	0.025	1	0.0200	0.0005	No	No		
	September	0.0003	0.0004	0.025	1	0.0149	0.0004	No	No		
	October	0.0002	0.0003	0.025	1	0.0134	0.0003	No	No		
	November	0.0002	0.0003	0.025	1	0.0118	0.0003	No	No		
	December	0.0002	0.0003	0.025	1	0.0117	0.0003	No	No		
Operation 1 Phase (1-23)	January	0.0006	0.0012	0.025	1	0.0467	0.0012	No	No		
	February	0.0007	0.0013	0.025	1	0.0523	0.0013	No	No		
	March	0.0008	0.0016	0.025	1	0.0621	0.0016	No	No		
	April	0.0003	0.0006	0.025	1	0.0228	0.0006	No	No		
	May	0.0005	0.0006	0.025	1	0.0222	0.0006	No	No		
	June	0.0006	0.0007	0.025	1	0.0262	0.0007	No	No		
	July	0.0005	0.0007	0.025	1	0.0273	0.0007	No	No		
	August	0.0005	0.0009	0.025	1	0.0343	0.0009	No	No		
	September	0.0005	0.0008	0.025	1	0.0330	0.0008	No	No		
	October	0.0005	0.0008	0.025	1	0.0329	0.0008	No	No		
	November	0.0005	0.0009	0.025	1	0.0348	0.0009	No	No		
	December	0.0006	0.0010	0.025	1	0.0415	0.0010	No	No		
Operations 2 Phase (24-28)	January	0.0013	0.0013	0.025	1	0.0513	0.0013	No	No		
	February	0.0014	0.0014	0.025	1	0.0572	0.0014	No	No		
	March	0.0017	0.0017	0.025	1	0.0678	0.0017	No	No		
	April	0.0006	0.0006	0.025	1	0.0246	0.0006	No	No		
	May	0.0006	0.0006	0.025	1	0.0225	0.0006	No	No		
	June	0.0007	0.0007	0.025	1	0.0266	0.0007	No	No		
	July	0.0007	0.0007	0.025	1	0.0281	0.0007	No	No		
	August	0.0009	0.0009	0.025	1	0.0357	0.0009	No	No		
	September	0.0009	0.0009	0.025	1	0.0351	0.0009	No	No		
	October	0.0009	0.0009	0.025	1	0.0349	0.0009	No	No		
	November	0.0009	0.0009	0.025	1	0.0366	0.0009	No	No		
	December	0.0011	0.0011	0.025	1	0.0437	0.0011	No	No		
Closure Phase (29-35)	January	0.0003	0.0003	0.025	1	0.0115	0.0003	No	No		
	February	0.0002	0.0003	0.025	1	0.0103	0.0003	No	No		
	March	0.0003	0.0003	0.025	1	0.0130	0.0003	No	No		
	April	0.0002	0.0002	0.025	1	0.0069	0.0002	No	No		
	May	0.0005	0.0005	0.025	1	0.0193	0.0005	No	No		
	June	0.0006	0.0006	0.025	1	0.0231	0.0006	No	No		
	July	0.0005	0.0005	0.025	1	0.0190	0.0005	No	No		
	August	0.0004	0.0004	0.025	1	0.0176	0.0004	No	No		
	September	0.0002	0.0002	0.025	1	0.0086	0.0002	No	No		
	October	0.0002	0.0002	0.025	1	0.0089	0.0002	No	No		
	November	0.0002	0.0002	0.025	1	0.0094	0.0002	No	No		
	December	0.0002	0.0003	0.025	1	0.0102	0.0003	No	No		
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.025	1	0.0107	0.0003	No	No		
	February	0.0002	0.0002	0.025	1	0.0094	0.0002	No	No		
	March	0.0003	0.0003	0.025	1	0.0118	0.0003	No	No		
	April	0.0002	0.0002	0.025	1	0.0065	0.0002	No	No		
	May	0.0005	0.0005	0.025	1	0.0192	0.0005	No	No		
	June	0.0006	0.0006	0.025	1	0.0231	0.0006	No	No		
	July	0.0005	0.0005	0.025	1	0.0189	0.0005	No	No		
	August	0.0004	0.0004	0.025	1	0.0172	0.0004	No	No		
	September	0.0002	0.0002	0.025	1	0.0081	0.0002	No	No		
	October	0.0002	0.0002	0.025	1	0.0084	0.0002	No	No		
	November	0.0002	0.0002	0.025	1	0.0088	0.0002	No	No		
	December	0.0002	0.0002	0.025	1	0.0096	0.0002	No	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix 13-D19t. Mid Harper Creek (HM) Hazard Quotients for Total Silver Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.000009	0.000011	0.00005	0.0001	0.185	0.220	0.110	No
	February	0.000005	0.000005	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.000005	0.000005	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.000005	0.000005	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.000010	0.000010	0.00005	0.0001	0.196	0.200	0.100	No
	June	0.000010	0.000010	0.00005	0.0001	0.199	0.200	0.100	No
	July	0.000019	0.000023	0.00005	0.0001	0.383	0.467	0.233	No
	August	0.000017	0.000023	0.00005	0.0001	0.331	0.467	0.233	No
	September	0.000015	0.000023	0.00005	0.0001	0.292	0.467	0.233	No
	October	0.000013	0.000019	0.00005	0.0001	0.255	0.380	0.190	No
	November	0.000006	0.000008	0.00005	0.0001	0.130	0.150	0.0750	No
	December	0.000008	0.000009	0.00005	0.0001	0.156	0.185	0.0925	No
Operation 1 Phase (1-23)	January	0.000008	0.000009	0.00005	0.0001	0.156	0.188	0.0939	No
	February	0.000007	0.000009	0.00005	0.0001	0.136	0.174	0.0872	No
	March	0.000007	0.000009	0.00005	0.0001	0.143	0.189	0.0945	No
	April	0.000006	0.000006	0.00005	0.0001	0.114	0.128	0.0642	No
	May	0.000010	0.000010	0.00005	0.0001	0.195	0.197	0.0986	No
	June	0.000010	0.000010	0.00005	0.0001	0.199	0.202	0.101	No
	July	0.000016	0.000016	0.00005	0.0001	0.316	0.326	0.163	No
	August	0.000011	0.000012	0.00005	0.0001	0.216	0.235	0.118	No
	September	0.000007	0.000008	0.00005	0.0001	0.133	0.155	0.0774	No
	October	0.000007	0.000008	0.00005	0.0001	0.141	0.162	0.0810	No
	November	0.000006	0.000008	0.00005	0.0001	0.129	0.152	0.0759	No
	December	0.000007	0.000009	0.00005	0.0001	0.143	0.170	0.0852	No
Operations 2 Phase (24-28)	January	0.000010	0.000010	0.00005	0.0001	0.194	0.195	0.0975	No
	February	0.000009	0.000009	0.00005	0.0001	0.180	0.182	0.0909	No
	March	0.000010	0.000010	0.00005	0.0001	0.196	0.198	0.0990	No
	April	0.000007	0.000007	0.00005	0.0001	0.131	0.131	0.0655	No
	May	0.000010	0.000010	0.00005	0.0001	0.198	0.198	0.0989	No
	June	0.000010	0.000010	0.00005	0.0001	0.203	0.203	0.102	No
	July	0.000016	0.000016	0.00005	0.0001	0.326	0.327	0.163	No
	August	0.000012	0.000012	0.00005	0.0001	0.237	0.237	0.118	No
	September	0.000008	0.000008	0.00005	0.0001	0.157	0.158	0.0789	No
	October	0.000008	0.000008	0.00005	0.0001	0.164	0.165	0.0824	No
	November	0.000008	0.000008	0.00005	0.0001	0.154	0.155	0.0773	No
	December	0.000009	0.000009	0.00005	0.0001	0.173	0.174	0.0869	No
Closure Phase (29-35)	January	0.000007	0.000007	0.00005	0.0001	0.133	0.134	0.0668	No
	February	0.000005	0.000005	0.00005	0.0001	0.109	0.109	0.0547	No
	March	0.000006	0.000006	0.00005	0.0001	0.113	0.113	0.0567	No
	April	0.000005	0.000005	0.00005	0.0001	0.104	0.104	0.0519	No
	May	0.000010	0.000010	0.00005	0.0001	0.193	0.193	0.0964	No
	June	0.000010	0.000010	0.00005	0.0001	0.198	0.198	0.0989	No
	July	0.000016	0.000016	0.00005	0.0001	0.311	0.312	0.156	No
	August	0.000010	0.000010	0.00005	0.0001	0.208	0.209	0.104	No
	September	0.000006	0.000006	0.00005	0.0001	0.116	0.117	0.0584	No
	October	0.000006	0.000006	0.00005	0.0001	0.124	0.125	0.0624	No
	November	0.000006	0.000006	0.00005	0.0001	0.112	0.113	0.0563	No
	December	0.000006	0.000006	0.00005	0.0001	0.122	0.122	0.0611	No
Post-Closure Phase (36-99)	January	0.000007	0.000007	0.00005	0.0001	0.132	0.132	0.0662	No
	February	0.000005	0.000005	0.00005	0.0001	0.108	0.108	0.0541	No
	March	0.000006	0.000006	0.00005	0.0001	0.111	0.112	0.0559	No
	April	0.000005	0.000005	0.00005	0.0001	0.103	0.103	0.0517	No
	May	0.000010	0.000010	0.00005	0.0001	0.193	0.193	0.0963	No
	June	0.000010	0.000010	0.00005	0.0001	0.198	0.198	0.0988	No
	July	0.000016	0.000016	0.00005	0.0001	0.311	0.311	0.156	No
	August	0.000010	0.000010	0.00005	0.0001	0.208	0.208	0.104	No
	September	0.000006	0.000006	0.00005	0.0001	0.115	0.116	0.0578	No
	October	0.000006	0.000006	0.00005	0.0001	0.124	0.124	0.0619	No
	November	0.000006	0.000006	0.00005	0.0001	0.112	0.112	0.0559	No
	December	0.000006	0.000006	0.00005	0.0001	0.121	0.121	0.0607	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D19u. Mid Harper Creek (HM) Hazard Quotients for Total Thallium Concentrations, Uppé Bound Case

Project Phase		First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	Months								
	January	0.000005	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000009	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	August	0.000010	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	September	0.000008	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	October	0.000007	0.000011	0.0003	0.002	0.0358	0.00538	No	No
	November	0.000004	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000005	0.000006	0.0003	0.002	0.0200	0.00300	No	No
Operation 1 Phase (1-23)	January	0.000004	0.000005	0.0003	0.002	0.0155	0.00233	No	No
	February	0.000003	0.000004	0.0003	0.002	0.0139	0.00208	No	No
	March	0.000003	0.000005	0.0003	0.002	0.0153	0.00229	No	No
	April	0.000002	0.000003	0.0003	0.002	0.00940	0.00141	No	No
	May	0.000009	0.000010	0.0003	0.002	0.0317	0.00475	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0309	0.00463	No	No
	July	0.000008	0.000008	0.0003	0.002	0.0262	0.00393	No	No
	August	0.000006	0.000007	0.0003	0.002	0.0219	0.00329	No	No
	September	0.000003	0.000004	0.0003	0.002	0.0136	0.00204	No	No
	October	0.000003	0.000004	0.0003	0.002	0.0129	0.00194	No	No
	November	0.000003	0.000004	0.0003	0.002	0.0128	0.00191	No	No
	December	0.000003	0.000004	0.0003	0.002	0.0141	0.00212	No	No
Operations 2 Phase (24-28)	January	0.000005	0.000005	0.0003	0.002	0.0162	0.00243	No	No
	February	0.000004	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	March	0.000005	0.000005	0.0003	0.002	0.0161	0.00242	No	No
	April	0.000003	0.000003	0.0003	0.002	0.00967	0.00145	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0317	0.00476	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0309	0.00464	No	No
	July	0.000008	0.000008	0.0003	0.002	0.0263	0.00395	No	No
	August	0.000007	0.000007	0.0003	0.002	0.0222	0.00333	No	No
	September	0.000004	0.000004	0.0003	0.002	0.0139	0.00208	No	No
	October	0.000004	0.000004	0.0003	0.002	0.0132	0.00198	No	No
	November	0.000004	0.000004	0.0003	0.002	0.0130	0.00195	No	No
	December	0.000004	0.000004	0.0003	0.002	0.0144	0.00216	No	No
Closure Phase (29-35)	January	0.000003	0.000003	0.0003	0.002	0.0103	0.00154	No	No
	February	0.000002	0.000002	0.0003	0.002	0.0076	0.00114	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00800	0.00120	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00704	0.00106	No	No
	May	0.000009	0.000009	0.0003	0.002	0.0313	0.00469	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0304	0.00456	No	No
	July	0.000007	0.000007	0.0003	0.002	0.0249	0.00374	No	No
	August	0.000006	0.000006	0.0003	0.002	0.0195	0.00292	No	No
	September	0.000003	0.000003	0.0003	0.002	0.0100	0.00149	No	No
	October	0.000003	0.000003	0.0003	0.002	0.00936	0.00140	No	No
	November	0.000003	0.000003	0.0003	0.002	0.00896	0.00134	No	No
	December	0.000003	0.000003	0.0003	0.002	0.00946	0.00142	No	No
Post-Closure Phase (36-99)	January	0.000003	0.000003	0.0003	0.002	0.0102	0.00153	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00749	0.00112	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00782	0.00117	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00700	0.00105	No	No
	May	0.000009	0.000009	0.0003	0.002	0.0313	0.00469	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0304	0.00456	No	No
	July	0.000007	0.000007	0.0003	0.002	0.0249	0.00373	No	No
	August	0.000006	0.000006	0.0003	0.002	0.0194	0.00291	No	No
	September	0.000003	0.000003	0.0003	0.002	0.00983	0.00147	No	No
	October	0.000003	0.000003	0.0003	0.002	0.00926	0.00139	No	No
	November	0.000003	0.000003	0.0003	0.002	0.00888	0.00133	No	No
	December	0.000003	0.000003	0.0003	0.002	0.00936	0.00140	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D19v. Mid Harper Creek (HM) Hazard Quotients for Total Uranium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step									Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock	
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline				
Construction (-2 to-1)	January	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0174	0.0017	No	No	No	
	February	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0201	0.0020	No	No	No	
	March	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0188	0.0019	No	No	No	
	April	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0175	0.0017	No	No	No	
	May	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0209	0.0021	No	No	No	
	June	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0161	0.0016	No	No	No	
	July	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0174	0.0017	No	No	No	
	August	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0194	0.0019	No	No	No	
	September	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0180	0.0018	No	No	No	
	October	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0175	0.0017	No	No	No	
	November	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0175	0.0017	No	No	No	
	December	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0175	0.0018	No	No	No	
Operation 1 Phase (1-23)	January	0.0005	0.0007	0.3	0.02	0.2	0.0022	0.0333	0.0033	No	No	No	
	February	0.0005	0.0007	0.3	0.02	0.2	0.0024	0.0362	0.0036	No	No	No	
	March	0.0006	0.0008	0.3	0.02	0.2	0.0026	0.0396	0.0040	No	No	No	
	April	0.0004	0.0004	0.3	0.02	0.2	0.0015	0.0225	0.0022	No	No	No	
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0172	0.0017	No	No	No	
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0154	0.0015	No	No	No	
	July	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0211	0.0021	No	No	No	
	August	0.0005	0.0005	0.3	0.02	0.2	0.0018	0.0274	0.0027	No	No	No	
	September	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0288	0.0029	No	No	No	
	October	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0283	0.0028	No	No	No	
	November	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0289	0.0029	No	No	No	
	December	0.0005	0.0006	0.3	0.02	0.2	0.0021	0.0316	0.0032	No	No	No	
Operations 2 Phase (24-28)	January	0.0007	0.0007	0.3	0.02	0.2	0.0023	0.0349	0.0035	No	No	No	
	February	0.0007	0.0008	0.3	0.02	0.2	0.0025	0.0380	0.0038	No	No	No	
	March	0.0008	0.0008	0.3	0.02	0.2	0.0028	0.0417	0.0042	No	No	No	
	April	0.0005	0.0005	0.3	0.02	0.2	0.0015	0.0231	0.0023	No	No	No	
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0172	0.0017	No	No	No	
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0154	0.0015	No	No	No	
	July	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0214	0.0021	No	No	No	
	August	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0278	0.0028	No	No	No	
	September	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0295	0.0029	No	No	No	
	October	0.0006	0.0006	0.3	0.02	0.2	0.0019	0.0290	0.0029	No	No	No	
	November	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0296	0.0030	No	No	No	
	December	0.0006	0.0006	0.3	0.02	0.2	0.0022	0.0323	0.0032	No	No	No	
Closure Phase (29-35)	January	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0207	0.0021	No	No	No	
	February	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0212	0.0021	No	No	No	
	March	0.0004	0.0004	0.3	0.02	0.2	0.0015	0.0221	0.0022	No	No	No	
	April	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0168	0.0017	No	No	No	
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0161	0.0016	No	No	No	
	June	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0141	0.0014	No	No	No	
	July	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0181	0.0018	No	No	No	
	August	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0213	0.0021	No	No	No	
	September	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0200	0.0020	No	No	No	
	October	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0197	0.0020	No	No	No	
	November	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0198	0.0020	No	No	No	
	December	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0204	0.0020	No	No	No	
Post-Closure Phase (36-99)	January	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0204	0.0020	No	No	No	
	February	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0209	0.0021	No	No	No	
	March	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0217	0.0022	No	No	No	
	April	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0167	0.0017	No	No	No	
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0160	0.0016	No	No	No	
	June	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0141	0.0014	No	No	No	
	July	0.0004	0.0004	0.3	0.02	0.2	0.0012	0.0181	0.0018	No	No	No	
	August	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0212	0.0021	No	No	No	
	September	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0198	0.0020	No	No	No	
	October	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0195	0.0020	No	No	No	
	November	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0196	0.0020	No	No	No	
	December	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0202	0.0020	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D19w. Mid Harper Creek (HM) Hazard Quotients for Total Vanadium Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0005	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	July	0.0009	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0006	0.0008	0.006	0.02	0.1	0.128	0.0385	0.0077	No	No
	September	0.0005	0.0008	0.006	0.02	0.1	0.128	0.0383	0.0077	No	No
	October	0.0004	0.0006	0.006	0.02	0.1	0.0979	0.0294	0.0059	No	No
	November	0.0004	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0005	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.006	0.02	0.1	0.0496	0.0149	0.0030	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0362	0.0109	0.0022	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0368	0.0110	0.0022	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0344	0.0103	0.0021	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0468	0.0094	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.151	0.0454	0.0091	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0701	0.0210	0.0042	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0482	0.0145	0.0029	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0456	0.0137	0.0027	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0435	0.0131	0.0026	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0458	0.0137	0.0027	No	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.006	0.02	0.1	0.0499	0.0150	0.0030	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0365	0.0110	0.0022	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0372	0.0112	0.0022	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0346	0.0104	0.0021	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0468	0.0094	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.151	0.0454	0.0091	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0367	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0709	0.0213	0.0043	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0485	0.0145	0.0029	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0457	0.0137	0.0027	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0436	0.0131	0.0026	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0459	0.0138	0.0028	No	No
Closure Phase (29-35)	January	0.0003	0.0003	0.006	0.02	0.1	0.0473	0.0142	0.0028	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0334	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0336	0.0101	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0334	0.0100	0.0020	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0468	0.0094	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.151	0.0453	0.0091	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0365	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0697	0.0209	0.0042	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0467	0.0140	0.0028	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0440	0.0132	0.0026	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0418	0.0125	0.0025	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0437	0.0131	0.0026	No	No
Post-Closure Phase (36-99)	January	0.0003	0.0003	0.006	0.02	0.1	0.0474	0.0142	0.0028	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0336	0.0101	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0337	0.0101	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0334	0.0100	0.0020	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0468	0.0094	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.151	0.0453	0.0091	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.121	0.0364	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0697	0.0209	0.0042	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0467	0.0140	0.0028	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0440	0.0132	0.0026	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0419	0.0126	0.0025	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0438	0.0131	0.0026	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D19x. Mid Harper Creek (HM) Hazard Quotients for Total Zinc Concentrations, Upper Bound Case

Project Phase		Months		First Screening Step								Retained as COPC?		
				Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline					Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
									Maximum Predicted					
									Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline			
Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life	Livestock				
Construction (-2 to-1)	January	0.0013	0.0018	0.008	0.033	2	0.180	0.233	0.0530	0.0009	No	No		
	February	0.0004	0.0004	0.008	0.033	2	0.0533	0.0533	0.0121	0.0002	No	No		
	March	0.0005	0.0005	0.008	0.033	2	0.0629	0.0725	0.0165	0.0003	No	No		
	April	0.0024	0.0031	0.008	0.033	2	0.316	0.413	0.0939	0.0016	No	No		
	May	0.0030	0.0031	0.008	0.033	2	0.395	0.409	0.0929	0.0015	No	No		
	June	0.0033	0.0034	0.008	0.033	2	0.439	0.449	0.102	0.0017	No	No		
	July	0.0026	0.0030	0.008	0.033	2	0.344	0.400	0.0909	0.0015	No	No		
	August	0.0020	0.0027	0.008	0.033	2	0.264	0.356	0.0808	0.0013	No	No		
	September	0.0017	0.0027	0.008	0.033	2	0.227	0.360	0.0818	0.0014	No	No		
	October	0.0041	0.0074	0.008	0.033	2	0.541	0.980	0.2227	0.0037	No	No		
	November	0.0012	0.0017	0.008	0.033	2	0.156	0.220	0.0500	0.0008	No	No		
	December	0.0012	0.0017	0.008	0.033	2	0.165	0.227	0.0515	0.0009	No	No		
Operation 1 Phase (1-23)	January	0.0008	0.0010	0.008	0.033	2	0.112	0.136	0.0310	0.0005	No	No		
	February	0.0006	0.0008	0.008	0.033	2	0.0803	0.109	0.0247	0.0004	No	No		
	March	0.0007	0.0010	0.008	0.033	2	0.0936	0.128	0.0290	0.0005	No	No		
	April	0.0018	0.0019	0.008	0.033	2	0.237	0.248	0.0564	0.0009	No	No		
	May	0.0029	0.0029	0.008	0.033	2	0.381	0.383	0.0870	0.0014	No	No		
	June	0.0032	0.0032	0.008	0.033	2	0.423	0.425	0.0967	0.0016	No	No		
	July	0.0022	0.0022	0.008	0.033	2	0.291	0.297	0.0676	0.0011	No	No		
	August	0.0013	0.0014	0.008	0.033	2	0.173	0.187	0.0425	0.0007	No	No		
	September	0.0007	0.0008	0.008	0.033	2	0.0936	0.110	0.0249	0.0004	No	No		
	October	0.0008	0.0009	0.008	0.033	2	0.102	0.118	0.0269	0.0004	No	No		
	November	0.0007	0.0008	0.008	0.033	2	0.0948	0.112	0.0254	0.0004	No	No		
	December	0.0008	0.0009	0.008	0.033	2	0.102	0.123	0.0279	0.0005	No	No		
Operations 2 Phase (24-28)	January	0.0011	0.0011	0.008	0.033	2	0.141	0.141	0.0321	0.0005	No	No		
	February	0.0008	0.0009	0.008	0.033	2	0.113	0.114	0.0260	0.0004	No	No		
	March	0.0010	0.0010	0.008	0.033	2	0.133	0.134	0.0305	0.0005	No	No		
	April	0.0019	0.0019	0.008	0.033	2	0.250	0.250	0.0569	0.0009	No	No		
	May	0.0029	0.0029	0.008	0.033	2	0.383	0.383	0.0871	0.0014	No	No		
	June	0.0032	0.0032	0.008	0.033	2	0.426	0.427	0.0970	0.0016	No	No		
	July	0.0022	0.0022	0.008	0.033	2	0.298	0.298	0.0677	0.0011	No	No		
	August	0.0014	0.0014	0.008	0.033	2	0.189	0.190	0.0432	0.0007	No	No		
	September	0.0008	0.0008	0.008	0.033	2	0.112	0.112	0.0255	0.0004	No	No		
	October	0.0009	0.0009	0.008	0.033	2	0.120	0.120	0.0273	0.0005	No	No		
	November	0.0009	0.0009	0.008	0.033	2	0.113	0.114	0.0259	0.0004	No	No		
	December	0.0009	0.0009	0.008	0.033	2	0.125	0.125	0.0284	0.0005	No	No		
Closure Phase (29-35)	January	0.0007	0.0007	0.008	0.033	2	0.0955	0.0959	0.0218	0.0004	No	No		
	February	0.0005	0.0005	0.008	0.033	2	0.0602	0.0606	0.0138	0.0002	No	No		
	March	0.0005	0.0005	0.008	0.033	2	0.0710	0.0716	0.0163	0.0003	No	No		
	April	0.0017	0.0017	0.008	0.033	2	0.230	0.230	0.0523	0.0009	No	No		
	May	0.0028	0.0028	0.008	0.033	2	0.380	0.380	0.0863	0.0014	No	No		
	June	0.0032	0.0032	0.008	0.033	2	0.423	0.423	0.0961	0.0016	No	No		
	July	0.0022	0.0022	0.008	0.033	2	0.287	0.287	0.0653	0.0011	No	No		
	August	0.0013	0.0013	0.008	0.033	2	0.169	0.169	0.0384	0.0006	No	No		
	September	0.0006	0.0006	0.008	0.033	2	0.0811	0.0816	0.0185	0.0003	No	No		
	October	0.0007	0.0007	0.008	0.033	2	0.0894	0.0901	0.0205	0.0003	No	No		
	November	0.0006	0.0006	0.008	0.033	2	0.0820	0.0824	0.0187	0.0003	No	No		
	December	0.0006	0.0007	0.008	0.033	2	0.0863	0.0867	0.0197	0.0003	No	No		
Post-Closure Phase (36-99)	January	0.0007	0.0007	0.008	0.033	2	0.0947	0.0950	0.0216	0.0004	No	No		
	February	0.0004	0.0004	0.008	0.033	2	0.0593	0.0597	0.0136	0.0002	No	No		
	March	0.0005	0.0005	0.008	0.033	2	0.0699	0.0703	0.0160	0.0003	No	No		
	April	0.0017	0.0017	0.008	0.033	2	0.230	0.230	0.0523	0.0009	No	No		
	May	0.0028	0.0028	0.008	0.033	2	0.380	0.380	0.0863	0.0014	No	No		
	June	0.0032	0.0032	0.008	0.033	2	0.423	0.423	0.0961	0.0016	No	No		
	July	0.0021	0.0022	0.008	0.033	2	0.287	0.287	0.0652	0.0011	No	No		
	August	0.0013	0.0013	0.008	0.033	2	0.168	0.168	0.0382	0.0006	No	No		
	September	0.0006	0.0006	0.008	0.033	2	0.0805	0.0807	0.0183	0.0003	No	No		
	October	0.0007	0.0007	0.008	0.033	2	0.0885	0.0888	0.0202	0.0003	No	No		
	November	0.0006	0.0006	0.008	0.033	2	0.0815	0.0817	0.0186	0.0003	No	No		
	December	0.0006	0.0006	0.008	0.033	2	0.0857	0.0859	0.0195	0.0003	No	No		

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D19y. Mid Harper Creek (HM) Hazard Quotients for Chloride Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum			Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline					
		Mean	Maximum	Mean	Maximum	Maximum	Maximum	Guideline	Guideline	Guideline	BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	0.658	0.816	150	600	600	600	0.0044	0.0054	0.0014	0.0014	0.0014	No	No	No
	February	0.855	0.900	150	600	600	600	0.0057	0.0060	0.0015	0.0015	0.0015	No	No	No
	March	0.652	0.804	150	600	600	600	0.0043	0.0054	0.0013	0.0013	0.0013	No	No	No
	April	0.558	0.617	150	600	600	600	0.0037	0.0041	0.0010	0.0010	0.0010	No	No	No
	May	0.515	0.529	150	600	600	600	0.0034	0.0035	0.0009	0.0009	0.0009	No	No	No
	June	0.939	1.02	150	600	600	600	0.0063	0.0068	0.0017	0.0017	0.0017	No	No	No
	July	0.564	0.628	150	600	600	600	0.0038	0.0042	0.0010	0.0010	0.0010	No	No	No
	August	0.563	0.727	150	600	600	600	0.0038	0.0048	0.0012	0.0012	0.0012	No	No	No
	September	0.719	0.837	150	600	600	600	0.0048	0.0056	0.0014	0.0014	0.0014	No	No	No
	October	0.706	0.839	150	600	600	600	0.0047	0.0056	0.0014	0.0014	0.0014	No	No	No
	November	0.663	0.826	150	600	600	600	0.0044	0.0055	0.0014	0.0014	0.0014	No	No	No
	December	0.663	0.827	150	600	600	600	0.0044	0.0055	0.0014	0.0014	0.0014	No	No	No
Operation 1 Phase (1-23)	January	1.02	1.20	150	600	600	600	0.0068	0.0080	0.0020	0.0020	0.0020	No	No	No
	February	1.05	1.26	150	600	600	600	0.0070	0.0084	0.0021	0.0021	0.0021	No	No	No
	March	1.09	1.34	150	600	600	600	0.0073	0.0089	0.0022	0.0022	0.0022	No	No	No
	April	0.702	0.780	150	600	600	600	0.0047	0.0052	0.0013	0.0013	0.0013	No	No	No
	May	0.546	0.561	150	600	600	600	0.0036	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.912	0.933	150	600	600	600	0.0061	0.0062	0.0016	0.0016	0.0016	No	No	No
	July	0.691	0.741	150	600	600	600	0.0046	0.0049	0.0012	0.0012	0.0012	No	No	No
	August	0.848	0.950	150	600	600	600	0.0057	0.0063	0.0016	0.0016	0.0016	No	No	No
	September	0.980	1.10	150	600	600	600	0.0065	0.0073	0.0018	0.0018	0.0018	No	No	No
	October	0.976	1.09	150	600	600	600	0.0065	0.0073	0.0018	0.0018	0.0018	No	No	No
	November	0.974	1.10	150	600	600	600	0.0065	0.0073	0.0018	0.0018	0.0018	No	No	No
	December	1.01	1.16	150	600	600	600	0.0067	0.0077	0.0019	0.0019	0.0019	No	No	No
Operations 2 Phase (24-28)	January	1.23	1.24	150	600	600	600	0.0082	0.0082	0.0021	0.0021	0.0021	No	No	No
	February	1.29	1.30	150	600	600	600	0.0086	0.0087	0.0022	0.0022	0.0022	No	No	No
	March	1.38	1.39	150	600	600	600	0.0092	0.0093	0.0023	0.0023	0.0023	No	No	No
	April	0.792	0.795	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	May	0.563	0.564	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	June	0.933	0.934	150	600	600	600	0.0062	0.0062	0.0016	0.0016	0.0016	No	No	No
	July	0.747	0.748	150	600	600	600	0.0050	0.0050	0.0012	0.0012	0.0012	No	No	No
	August	0.958	0.960	150	600	600	600	0.0064	0.0064	0.0016	0.0016	0.0016	No	No	No
	September	1.11	1.11	150	600	600	600	0.0074	0.0074	0.0019	0.0019	0.0019	No	No	No
	October	1.10	1.11	150	600	600	600	0.0074	0.0074	0.0018	0.0018	0.0018	No	No	No
	November	1.11	1.11	150	600	600	600	0.0074	0.0074	0.0019	0.0019	0.0019	No	No	No
	December	1.17	1.18	150	600	600	600	0.0078	0.0079	0.0020	0.0020	0.0020	No	No	No
Closure Phase (29-35)	January	0.901	0.903	150	600	600	600	0.0060	0.0060	0.0015	0.0015	0.0015	No	No	No
	February	0.905	0.907	150	600	600	600	0.0060	0.0060	0.0015	0.0015	0.0015	No	No	No
	March	0.924	0.929	150	600	600	600	0.0062	0.0062	0.0015	0.0015	0.0015	No	No	No
	April	0.645	0.647	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	May	0.537	0.537	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	June	0.901	0.901	150	600	600	600	0.0060	0.0060	0.0015	0.0015	0.0015	No	No	No
	July	0.672	0.673	150	600	600	600	0.0045	0.0045	0.0011	0.0011	0.0011	No	No	No
	August	0.807	0.807	150	600	600	600	0.0054	0.0054	0.0013	0.0013	0.0013	No	No	No
	September	0.889	0.891	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	October	0.888	0.889	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	November	0.880	0.882	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	December	0.894	0.897	150	600	600	600	0.0060	0.0060	0.0015	0.0015	0.0015	No	No	No
Post-Closure Phase (36-99)	January	0.897	0.898	150	600	600	600	0.0060	0.0060	0.0015	0.0015	0.0015	No	No	No
	February	0.901	0.902	150	600	600	600	0.0060	0.0060	0.0015	0.0015	0.0015	No	No	No
	March	0.919	0.921	150	600	600	600	0.0061	0.0061	0.0015	0.0015	0.0015	No	No	No
	April	0.644	0.644	150	600	600	600	0.0043	0.0043	0.0011	0.0011	0.0011	No	No	No
	May	0.536	0.536	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	June	0.900	0.901	150	600	600	600	0.0060	0.0060	0.0015	0.0015	0.0015	No	No	No
	July	0.673	0.673	150	600	600	600	0.0045	0.0045	0.0011	0.0011	0.0011	No	No	No
	August	0.805	0.806	150	600	600	600	0.0054	0.0054	0.0013	0.0013	0.0013	No	No	No
	September	0.888	0.888	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	October	0.886	0.887	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	November	0.878	0.878	150	600	600	600	0.0059	0.0059	0.0015	0.0015	0.0015	No	No	No
	December	0.892	0.893	150	600	600	600	0.0059	0.0060	0.0015	0.0015	0.0015	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D19ac. Mid Harper Creek (HM) Hazard Quotients for Ammonia Concentrations, Upper Bound Case

Project Phase		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
				BC MOE 30-Day	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Months	Mean	Maximum	Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life	
Construction (-2 to-1)	January	0.0183	0.0190	1.75	9.12	0.0105	0.0109	0.0021	No
	February	0.0244	0.0277	1.48	7.71	0.0165	0.0187	0.0036	No
	March	0.0151	0.0181	2.09	10.8	0.0072	0.0087	0.0017	No
	April	0.0146	0.0151	1.73	8.98	0.0085	0.0087	0.0017	No
	May	0.0099	0.0104	2.00	15.5	0.0049	0.0052	0.0007	No
	June	0.0099	0.0101	1.95	10.1	0.0051	0.0052	0.0010	No
	July	0.0315	0.0363	1.89	9.83	0.0167	0.0192	0.0037	No
	August	0.615	0.832	1.87	11.3	0.329	0.445	0.0736	No
	September	0.0215	0.0268	1.63	8.48	0.0132	0.0165	0.0032	No
	October	0.0151	0.0189	1.97	11.9	0.0076	0.0096	0.0016	No
	November	0.0163	0.0190	1.78	9.26	0.0091	0.0107	0.0021	No
	December	0.0174	0.0185	1.78	9.26	0.0098	0.0104	0.0020	No
Operation 1 Phase (1-23)	January	0.0232	0.0404	1.75	9.12	0.0133	0.0231	0.0044	No
	February	0.0285	0.0476	1.48	7.71	0.0192	0.0322	0.0062	No
	March	0.0251	0.0477	2.09	10.8	0.0120	0.0228	0.0044	No
	April	0.0166	0.0238	1.73	8.98	0.0096	0.0138	0.0027	No
	May	0.0101	0.0115	2.00	15.5	0.0051	0.0057	0.0007	No
	June	0.0109	0.0126	1.95	10.1	0.0056	0.0065	0.0012	No
	July	0.0294	0.0338	1.89	9.83	0.0156	0.0179	0.0034	No
	August	0.341	0.348	1.87	11.3	0.182	0.186	0.0308	No
	September	0.0271	0.0383	1.63	8.48	0.0166	0.0235	0.0045	No
	October	0.0223	0.0333	1.97	11.9	0.0113	0.0169	0.0028	No
	November	0.0223	0.0340	1.78	9.26	0.0125	0.0191	0.0037	No
	December	0.0231	0.0375	1.78	9.26	0.0130	0.0211	0.0040	No
Operations 2 Phase (24-28)	January	0.0192	0.0193	1.75	9.12	0.0110	0.0110	0.0021	No
	February	0.0239	0.0240	1.48	7.71	0.0162	0.0162	0.0031	No
	March	0.0196	0.0196	2.09	10.8	0.0094	0.0094	0.0018	No
	April	0.0148	0.0148	1.73	8.98	0.0086	0.0086	0.0017	No
	May	0.0098	0.0098	2.00	15.5	0.0049	0.0049	0.0006	No
	June	0.0104	0.0104	1.95	10.1	0.0053	0.0053	0.0010	No
	July	0.0275	0.0276	1.89	9.83	0.0146	0.0146	0.0028	No
	August	0.341	0.344	1.87	11.3	0.182	0.184	0.0304	No
	September	0.0243	0.0243	1.63	8.48	0.0149	0.0149	0.0029	No
	October	0.0195	0.0195	1.97	11.9	0.0099	0.0099	0.0016	No
	November	0.0192	0.0192	1.78	9.26	0.0108	0.0108	0.0021	No
	December	0.0194	0.0194	1.78	9.26	0.0109	0.0109	0.0021	No
Closure Phase (29-35)	January	0.0192	0.0192	1.75	9.12	0.0110	0.0110	0.0021	No
	February	0.0239	0.0239	1.48	7.71	0.0162	0.0162	0.0031	No
	March	0.0196	0.0196	2.09	10.8	0.0094	0.0094	0.0018	No
	April	0.0148	0.0148	1.73	8.98	0.0086	0.0086	0.0016	No
	May	0.0098	0.0098	2.00	15.5	0.0049	0.0049	0.0006	No
	June	0.0103	0.0103	1.95	10.1	0.0053	0.0053	0.0010	No
	July	0.0274	0.0274	1.89	9.83	0.0145	0.0145	0.0028	No
	August	0.342	0.343	1.87	11.3	0.183	0.184	0.0304	No
	September	0.0243	0.0243	1.63	8.48	0.0149	0.0149	0.0029	No
	October	0.0195	0.0195	1.97	11.9	0.0099	0.0099	0.0016	No
	November	0.0192	0.0192	1.78	9.26	0.0108	0.0108	0.0021	No
	December	0.0194	0.0194	1.78	9.26	0.0109	0.0109	0.0021	No
Post-Closure Phase (36-99)	January	0.0193	0.0193	1.75	9.12	0.0110	0.0110	0.0021	No
	February	0.0240	0.0241	1.48	7.71	0.0162	0.0163	0.0031	No
	March	0.0197	0.0198	2.09	10.8	0.0094	0.0094	0.0018	No
	April	0.0148	0.0148	1.73	8.98	0.0086	0.0086	0.0017	No
	May	0.0098	0.0098	2.00	15.5	0.0049	0.0049	0.0006	No
	June	0.0103	0.0104	1.95	10.1	0.0053	0.0053	0.0010	No
	July	0.0275	0.0275	1.89	9.83	0.0145	0.0145	0.0028	No
	August	0.342	0.342	1.87	11.3	0.183	0.183	0.0303	No
	September	0.0244	0.0244	1.63	8.48	0.0150	0.0150	0.0029	No
	October	0.0196	0.0196	1.97	11.9	0.0099	0.0099	0.0016	No
	November	0.0193	0.0193	1.78	9.26	0.0108	0.0108	0.0021	No
	December	0.0194	0.0195	1.78	9.26	0.0109	0.0109	0.0021	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Appendix 13-D19ad. Mid Harper Creek (HM) Hazard Quotients for Sulphate Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines ¹		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline					
Construction (-2 to-1)	January	9.63	9.93	218	500	1000	0.0442	0.0456	0.0199	0.0099	No	No	No		
	February	9.90	10.4	218	500	1000	0.0454	0.0475	0.0207	0.0104	No	No	No		
	March	12.1	13.3	218	500	1000	0.0556	0.0610	0.0266	0.0133	No	No	No		
	April	9.00	9.65	218	500	1000	0.0413	0.0442	0.0193	0.0096	No	No	No		
	May	4.94	5.31	218	500	1000	0.0386	0.0415	0.0106	0.0053	No	No	No		
	June	5.38	5.61	218	500	1000	0.0420	0.0439	0.0112	0.0056	No	No	No		
	July	7.01	7.65	218	500	1000	0.0321	0.0351	0.0153	0.0077	No	No	No		
	August	8.85	9.32	218	500	1000	0.0406	0.0427	0.0186	0.0093	No	No	No		
	September	9.49	10.0	218	500	1000	0.0435	0.0460	0.0201	0.0100	No	No	No		
	October	8.57	9.93	218	500	1000	0.0393	0.0455	0.0199	0.0099	No	No	No		
	November	9.14	9.97	218	500	1000	0.0419	0.0457	0.0199	0.0100	No	No	No		
	December	9.35	9.88	218	500	1000	0.0429	0.0453	0.0198	0.0099	No	No	No		
Operation 1 Phase (1-23)	January	21.3	33.5	218	500	1000	0.0979	0.154	0.0670	0.0335	No	No	No		
	February	23.6	38.0	218	500	1000	0.108	0.174	0.0760	0.0380	No	No	No		
	March	26.4	43.8	218	500	1000	0.121	0.201	0.0877	0.0438	No	No	No		
	April	14.7	20.2	218	500	1000	0.0675	0.0927	0.0404	0.0202	No	No	No		
	May	6.26	7.30	218	500	1000	0.0489	0.0570	0.0146	0.0073	No	No	No		
	June	7.03	8.37	218	500	1000	0.0549	0.0654	0.0167	0.0084	No	No	No		
	July	11.6	15.0	218	500	1000	0.0531	0.0689	0.0301	0.0150	No	No	No		
	August	16.6	23.7	218	500	1000	0.0764	0.109	0.0475	0.0237	No	No	No		
	September	17.9	26.1	218	500	1000	0.0823	0.120	0.0522	0.0261	No	No	No		
	October	17.9	25.9	218	500	1000	0.0819	0.119	0.0518	0.0259	No	No	No		
	November	18.4	26.9	218	500	1000	0.0844	0.123	0.0538	0.0269	No	No	No		
	December	20.3	30.7	218	500	1000	0.0932	0.141	0.0614	0.0307	No	No	No		
Operations 2 Phase (24-28)	January	35.7	36.2	218	500	1000	0.164	0.166	0.0724	0.0362	No	No	No		
	February	40.3	40.8	218	500	1000	0.185	0.187	0.0817	0.0408	No	No	No		
	March	46.5	47.2	218	500	1000	0.214	0.216	0.0943	0.0472	No	No	No		
	April	21.0	21.3	218	500	1000	0.0965	0.0975	0.0425	0.0213	No	No	No		
	May	7.44	7.48	218	500	1000	0.0581	0.0584	0.0150	0.0075	No	No	No		
	June	8.50	8.53	218	500	1000	0.0664	0.0666	0.0171	0.0085	No	No	No		
	July	15.4	15.5	218	500	1000	0.0707	0.0711	0.0310	0.0155	No	No	No		
	August	24.4	24.5	218	500	1000	0.112	0.112	0.0490	0.0245	No	No	No		
	September	27.1	27.3	218	500	1000	0.124	0.125	0.0546	0.0273	No	No	No		
	October	26.8	27.0	218	500	1000	0.123	0.124	0.0540	0.0270	No	No	No		
	November	27.8	28.0	218	500	1000	0.127	0.128	0.0560	0.0280	No	No	No		
	December	31.7	32.0	218	500	1000	0.146	0.147	0.0639	0.0320	No	No	No		
Closure Phase (29-35)	January	13.0	13.2	218	500	1000	0.0596	0.0604	0.0263	0.0132	No	No	No		
	February	13.5	13.7	218	500	1000	0.0619	0.0628	0.0274	0.0137	No	No	No		
	March	15.1	15.5	218	500	1000	0.0694	0.0710	0.0309	0.0155	No	No	No		
	April	10.9	11.0	218	500	1000	0.0501	0.0506	0.0220	0.0110	No	No	No		
	May	5.60	5.62	218	500	1000	0.0437	0.0439	0.0112	0.0056	No	No	No		
	June	6.45	6.46	218	500	1000	0.0504	0.0504	0.0129	0.0065	No	No	No		
	July	10.2	10.2	218	500	1000	0.0469	0.0469	0.0205	0.0102	No	No	No		
	August	13.9	14.0	218	500	1000	0.0639	0.0643	0.0280	0.0140	No	No	No		
	September	11.8	12.0	218	500	1000	0.0543	0.0548	0.0239	0.0120	No	No	No		
	October	11.9	12.0	218	500	1000	0.0545	0.0551	0.0240	0.0120	No	No	No		
	November	12.1	12.2	218	500	1000	0.0553	0.0560	0.0244	0.0122	No	No	No		
	December	12.5	12.6	218	500	1000	0.0571	0.0579	0.0253	0.0126	No	No	No		
Post-Closure Phase (36-99)	January	12.5	12.7	218	500	1000	0.0574	0.0585	0.0255	0.0127	No	No	No		
	February	13.0	13.2	218	500	1000	0.0594	0.0606	0.0264	0.0132	No	No	No		
	March	14.4	14.8	218	500	1000	0.0662	0.0677	0.0295	0.0148	No	No	No		
	April	10.7	10.8	218	500	1000	0.0492	0.0497	0.0217	0.0108	No	No	No		
	May	5.55	5.58	218	500	1000	0.0434	0.0436	0.0112	0.0056	No	No	No		
	June	6.42	6.44	218	500	1000	0.0502	0.0503	0.0129	0.0064	No	No	No		
	July	10.2	10.2	218	500	1000	0.0467	0.0469	0.0204	0.0102	No	No	No		
	August	13.7	13.8	218	500	1000	0.0628	0.0634	0.0277	0.0138	No	No	No		
	September	11.6	11.7	218	500	1000	0.0530	0.0536	0.0234	0.0117	No	No	No		
	October	11.6	11.7	218	500	1000	0.0532	0.0538	0.0235	0.0117	No	No	No		
	November	11.7	11.9	218	500	1000	0.0539	0.0546	0.0238	0.0119	No	No	No		
	December	12.1	12.3	218	500	1000	0.0555	0.0562	0.0245	0.0123	No	No	No		

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent

Appendix 13-D20a. T Creek Hazard Quotients for Dissolved and Total Aluminum Concentrations, Upper Bound Case (completed)

		First Screening Step		Second Screening Step						Retained as COPC?					
Project Phase	Months	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply for Total Aluminum Maximum Predicted vs. BC MOE Maximum Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline for Total Aluminum Maximum Predicted vs BC MOE Maximum Guideline	Baseline Concentrations				Hazard Quotient relative to Baseline				Aquatic Life for Dissolved Aluminum	Drinking Water for Dissolved Aluminum	Wildlife for Total Aluminum	Livestock for Total Aluminum
				Dissolved Aluminum		Total Aluminum		Dissolved Aluminum		Total Aluminum					
				Mean	95%ile	Mean	95%ile	Mean	95%ile	Mean	95%ile				
Construction (-2 to-1)	January	0.0038	0.0038									No	No	No	No
	February	0.0034	0.0034									No	No	No	No
	March	0.0032	0.0032									No	No	No	No
	April	0.0069	0.0069									No	No	No	No
	May	0.0278	0.0278	0.0803	0.0947	0.139	0.176	1.00	0.848	1.00	0.792	No	No	No	No
	June	0.0432	0.0432	0.0684	0.0822	0.216	0.505	1.00	0.832	1.00	0.428	No	No	No	No
	July	0.0085	0.0085									No	No	No	No
	August	0.0074	0.0074									No	No	No	No
	September	0.0055	0.0055									No	No	No	No
	October	0.0078	0.0078									No	No	No	No
	November	0.0055	0.0055									No	No	No	No
	December	0.0087	0.0087									No	No	No	No
Operation 1 Phase (1-23)	January	0.0038	0.0038									No	No	No	No
	February	0.0034	0.0034									No	No	No	No
	March	0.0032	0.0032									No	No	No	No
	April	0.0070	0.0070									No	No	No	No
	May	0.0278	0.0278	0.0803	0.0947	0.139	0.176	1.00	0.848	1.00	0.792	No	No	No	No
	June	0.0432	0.0432	0.0684	0.0822	0.216	0.505	1.00	0.832	1.00	0.428	No	No	No	No
	July	0.0085	0.0085									No	No	No	No
	August	0.0074	0.0074									No	No	No	No
	September	0.0055	0.0055									No	No	No	No
	October	0.0086	0.0086									No	No	No	No
	November	0.0084	0.0084									No	No	No	No
	December	0.0087	0.0087									No	No	No	No
Operations 2 Phase (24-28)	January	0.0038	0.0038									No	No	No	No
	February	0.0034	0.0034									No	No	No	No
	March	0.0032	0.0032									No	No	No	No
	April	0.0069	0.0069									No	No	No	No
	May	0.0278	0.0278	0.0803	0.0947	0.139	0.176	1.00	0.848	1.00	0.792	No	No	No	No
	June	0.0432	0.0432	0.0684	0.0822	0.216	0.505	1.00	0.832	1.00	0.428	No	No	No	No
	July	0.0085	0.0085									No	No	No	No
	August	0.0074	0.0074									No	No	No	No
	September	0.0055	0.0055									No	No	No	No
	October	0.0078	0.0078									No	No	No	No
	November	0.0055	0.0055									No	No	No	No
	December	0.0087	0.0087									No	No	No	No
Closure Phase (29-35)	January	0.0186	0.0186	0.0174	0.0176	0.0190	0.0191	3.02	4.71	3.12	4.88	Yes	No	No	No
	February	0.0186	0.0186	0.0168	0.0168	0.0169	0.0169	3.11	4.93	3.44	5.51	Yes	No	No	No
	March	0.0186	0.0186	0.0158	0.0158	0.0162	0.0162	3.28	5.24	3.57	5.74	Yes	No	No	No
	April	0.0172	0.0172	0.0286	0.0286	0.0347	0.0347	1.87	2.66	1.78	2.47	Yes	No	No	No
	May	0.0278	0.0278	0.0803	0.0947	0.139	0.176	0.991	0.863	0.853	0.792	No	No	No	No
	June	0.0432	0.0432	0.0684	0.0822	0.216	0.505	1.08	0.967	0.699	0.428	Yes	No	No	No
	July	0.0153	0.0153	0.0331	0.0602	0.0424	0.0747	1.62	1.10	1.50	1.02	Yes	No	No	No
	August	0.0160	0.0160	0.0186	0.0199	0.0371	0.0528	2.66	3.41	1.72	1.52	Yes	No	No	No
	September	0.0185	0.0185	0.0175	0.0199	0.0276	0.0519	3.43	4.12	2.54	1.78	Yes	No	No	No
	October	0.0187	0.0187	0.0310	0.0464	0.0392	0.0508	2.08	1.79	1.89	1.84	Yes	No	No	No
	November	0.0187	0.0187	0.0252	0.0262	0.0274	0.0314	2.49	3.17	2.59	2.97	Yes	No	No	No
	December	0.0187	0.0187	0.0374	0.0374	0.0434	0.0434	1.77	2.22	1.74	2.15	Yes	No	No	No
Post-Closure Phase (36-99)	January	0.0236	0.0236	0.0174	0.0176	0.0190	0.0191	5.51	6.15	5.57	6.17	Yes	No	No	No
	February	0.0235	0.0235	0.0168	0.0168	0.0169	0.0169	5.70	6.44	6.24	6.96	Yes	No	No	No
	March	0.0236	0.0236	0.0158	0.0158	0.0162	0.0162	6.08	6.86	6.52	7.28	Yes	No	No	No
	April	0.0213	0.0213	0.0286	0.0286	0.0347	0.0347	3.04	3.41	2.77	3.07	Yes	No	No	No
	May	0.0241	0.0241	0.0803	0.0947	0.139	0.176	1.11	1.03	0.807	0.687	Yes	No	No	No
	June	0.0283	0.0283	0.0684	0.0822	0.216	0.505	1.26	1.15	0.614	0.280	Yes	No	No	No
	July	0.0191	0.0191	0.0331	0.0602	0.0424	0.0747	2.34	1.43	2.06	1.28	Yes	No	No	No
	August	0.0208	0.0208	0.0186	0.0199	0.0371	0.0528	4.47	4.66	2.54	1.97	Yes	No	No	No
	September	0.0221	0.0221	0.0175	0.0199	0.0276	0.0519	5.19	5.10	3.62	2.13	Yes	No	No	No
	October	0.0226	0.0226	0.0310	0.0464	0.0392	0.0508	2.98	2.23	2.59	2.22	Yes	No	No	No
	November	0.0237	0.0237	0.0252	0.0262	0.0274	0.0314	3.83	4.15	3.88	3.76	Yes	No	No	No
	December	0.0236	0.0236	0.0374	0.0374	0.0434	0.0434	2.58	2.91	2.45	2.72	Yes	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D20b. T Creek Hazard Quotients for Total Antimony Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00102	0.00145	No	No
	May	0.00012	0.00012	0.020	0.014	0.00625	0.00893	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00013	0.00013	0.020	0.014	0.00666	0.00952	No	No
	August	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	September	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	October	0.00009	0.00010	0.020	0.014	0.00522	0.00745	No	No
	November	0.00006	0.00006	0.020	0.014	0.00314	0.00449	No	No
	December	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
Operation 1 Phase (1-23)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00110	0.00158	No	No
	May	0.00013	0.00013	0.020	0.014	0.00627	0.00895	No	No
	June	0.00010	0.00010	0.020	0.014	0.00503	0.00718	No	No
	July	0.00013	0.00013	0.020	0.014	0.00669	0.00956	No	No
	August	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	September	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	October	0.00011	0.00017	0.020	0.014	0.00840	0.01200	No	No
	November	0.00007	0.00017	0.020	0.014	0.00872	0.01246	No	No
	December	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00013	0.00013	0.020	0.014	0.00625	0.00893	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	August	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	September	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	October	0.00011	0.00011	0.020	0.014	0.00525	0.00750	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
Closure Phase (29-35)	January	0.00428	0.00764	0.020	0.014	0.382	0.545	No	No
	February	0.00427	0.00763	0.020	0.014	0.382	0.545	No	No
	March	0.00426	0.00763	0.020	0.014	0.381	0.545	No	No
	April	0.00372	0.00668	0.020	0.014	0.334	0.477	No	No
	May	0.00308	0.00545	0.020	0.014	0.272	0.389	No	No
	June	0.00385	0.00548	0.020	0.014	0.274	0.391	No	No
	July	0.00347	0.00511	0.020	0.014	0.255	0.365	No	No
	August	0.00392	0.00587	0.020	0.014	0.293	0.419	No	No
	September	0.00523	0.00752	0.020	0.014	0.376	0.537	No	No
	October	0.00532	0.00764	0.020	0.014	0.382	0.545	No	No
	November	0.00530	0.00763	0.020	0.014	0.382	0.545	No	No
	December	0.00531	0.00764	0.020	0.014	0.382	0.546	No	No
Post-Closure Phase (36-99)	January	0.00670	0.00738	0.020	0.014	0.369	0.527	No	No
	February	0.00669	0.00738	0.020	0.014	0.369	0.527	No	No
	March	0.00670	0.00739	0.020	0.014	0.369	0.528	No	No
	April	0.00584	0.00664	0.020	0.014	0.332	0.474	No	No
	May	0.00467	0.00535	0.020	0.014	0.268	0.382	No	No
	June	0.00471	0.00537	0.020	0.014	0.268	0.384	No	No
	July	0.00475	0.00528	0.020	0.014	0.264	0.377	No	No
	August	0.00557	0.00625	0.020	0.014	0.312	0.446	No	No
	September	0.00624	0.00720	0.020	0.014	0.360	0.514	No	No
	October	0.00638	0.00734	0.020	0.014	0.367	0.524	No	No
	November	0.00667	0.00738	0.020	0.014	0.369	0.527	No	No
	December	0.00668	0.00738	0.020	0.014	0.369	0.527	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D20d. T Creek Hazard Quotients for Total Barium Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines		
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum	Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Maximum Predicted vs. Canadian DWQG	Aquatic Life	Drinking Water
Construction (-2 to-1)	January	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	No	No
	February	0.0076	0.0076	1	5	1	0.0076	0.0076	0.0015	0.0076	No	No
	March	0.0074	0.0074	1	5	1	0.0074	0.0074	0.0015	0.0074	No	No
	April	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
	May	0.0060	0.0060	1	5	1	0.0060	0.0060	0.0012	0.0060	No	No
	June	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	July	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	August	0.0079	0.0079	1	5	1	0.0079	0.0079	0.0016	0.0079	No	No
	September	0.0078	0.0078	1	5	1	0.0078	0.0078	0.0016	0.0078	No	No
	October	0.0067	0.0070	1	5	1	0.0067	0.0070	0.0014	0.0070	No	No
	November	0.0070	0.0072	1	5	1	0.0070	0.0072	0.0014	0.0072	No	No
	December	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
Operation 1 Phase (1-23)	January	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	No	No
	February	0.0076	0.0076	1	5	1	0.0076	0.0076	0.0015	0.0076	No	No
	March	0.0074	0.0074	1	5	1	0.0074	0.0074	0.0015	0.0074	No	No
	April	0.0070	0.0072	1	5	1	0.0070	0.0072	0.0014	0.0072	No	No
	May	0.0060	0.0061	1	5	1	0.0060	0.0061	0.0012	0.0061	No	No
	June	0.0063	0.0064	1	5	1	0.0063	0.0064	0.0013	0.0064	No	No
	July	0.0062	0.0064	1	5	1	0.0062	0.0064	0.0013	0.0064	No	No
	August	0.0079	0.0079	1	5	1	0.0079	0.0079	0.0016	0.0079	No	No
	September	0.0078	0.0078	1	5	1	0.0078	0.0078	0.0016	0.0078	No	No
	October	0.0072	0.0179	1	5	1	0.0072	0.0179	0.0036	0.0179	No	No
	November	0.0077	0.0202	1	5	1	0.0077	0.0202	0.0040	0.0202	No	No
	December	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
Operations 2 Phase (24-28)	January	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	No	No
	February	0.0076	0.0076	1	5	1	0.0076	0.0076	0.0015	0.0076	No	No
	March	0.0074	0.0074	1	5	1	0.0074	0.0074	0.0015	0.0074	No	No
	April	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
	May	0.0060	0.0060	1	5	1	0.0060	0.0060	0.0012	0.0060	No	No
	June	0.0063	0.0063	1	5	1	0.0063	0.0063	0.0013	0.0063	No	No
	July	0.0062	0.0062	1	5	1	0.0062	0.0062	0.0012	0.0062	No	No
	August	0.0079	0.0079	1	5	1	0.0079	0.0079	0.0016	0.0079	No	No
	September	0.0078	0.0078	1	5	1	0.0078	0.0078	0.0016	0.0078	No	No
	October	0.0064	0.0064	1	5	1	0.0064	0.0064	0.0013	0.0064	No	No
	November	0.0068	0.0068	1	5	1	0.0068	0.0068	0.0014	0.0068	No	No
	December	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
Closure Phase (29-35)	January	0.0233	0.0374	1	5	1	0.0233	0.0374	0.0075	0.0374	No	No
	February	0.0235	0.0374	1	5	1	0.0235	0.0374	0.0075	0.0374	No	No
	March	0.0234	0.0374	1	5	1	0.0234	0.0374	0.0075	0.0374	No	No
	April	0.0212	0.0336	1	5	1	0.0212	0.0336	0.0067	0.0336	No	No
	May	0.0178	0.0282	1	5	1	0.0178	0.0282	0.0056	0.0282	No	No
	June	0.0212	0.0287	1	5	1	0.0212	0.0287	0.0057	0.0287	No	No
	July	0.0195	0.0270	1	5	1	0.0195	0.0270	0.0054	0.0270	No	No
	August	0.0220	0.0305	1	5	1	0.0220	0.0305	0.0061	0.0305	No	No
	September	0.0268	0.0370	1	5	1	0.0268	0.0370	0.0074	0.0370	No	No
	October	0.0268	0.0375	1	5	1	0.0268	0.0375	0.0075	0.0375	No	No
	November	0.0269	0.0375	1	5	1	0.0269	0.0375	0.0075	0.0375	No	No
	December	0.0269	0.0375	1	5	1	0.0269	0.0375	0.0075	0.0375	No	No
Post-Closure Phase (36-99)	January	0.0268	0.0325	1	5	1	0.0268	0.0325	0.0065	0.0325	No	No
	February	0.0268	0.0325	1	5	1	0.0268	0.0325	0.0065	0.0325	No	No
	March	0.0269	0.0326	1	5	1	0.0269	0.0326	0.0065	0.0326	No	No
	April	0.0242	0.0303	1	5	1	0.0242	0.0303	0.0061	0.0303	No	No
	May	0.0203	0.0254	1	5	1	0.0203	0.0254	0.0051	0.0254	No	No
	June	0.0205	0.0255	1	5	1	0.0205	0.0255	0.0051	0.0255	No	No
	July	0.0206	0.0249	1	5	1	0.0206	0.0249	0.0050	0.0249	No	No
	August	0.0235	0.0287	1	5	1	0.0235	0.0287	0.0057	0.0287	No	No
	September	0.0251	0.0321	1	5	1	0.0251	0.0321	0.0064	0.0321	No	No
	October	0.0255	0.0326	1	5	1	0.0255	0.0326	0.0065	0.0326	No	No
	November	0.0267	0.0325	1	5	1	0.0267	0.0325	0.0065	0.0325	No	No
	December	0.0267	0.0325	1	5	1	0.0267	0.0325	0.0065	0.0325	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D20g. T Creek Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

		First Screening Step			Retained as COPC?	
Project Phase	Months	Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Livestock
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
Construction (-2 to-1)	January	7.23	7.23	1000	0.0072	No
	February	8.08	8.08	1000	0.0081	No
	March	7.91	7.91	1000	0.0079	No
	April	6.76	6.78	1000	0.0068	No
	May	4.44	4.44	1000	0.0044	No
	June	3.71	3.71	1000	0.0037	No
	July	5.54	5.55	1000	0.0056	No
	August	6.68	6.68	1000	0.0067	No
	September	7.10	7.10	1000	0.0071	No
	October	4.73	6.02	1000	0.0060	No
	November	4.52	6.14	1000	0.0061	No
	December	6.50	6.50	1000	0.0065	No
Operation 1 Phase (1-23)	January	7.23	7.23	1000	0.0072	No
	February	8.08	8.08	1000	0.0081	No
	March	7.91	7.91	1000	0.0079	No
	April	6.78	6.78	1000	0.0068	No
	May	4.44	4.46	1000	0.0045	No
	June	3.71	3.73	1000	0.0037	No
	July	5.55	5.57	1000	0.0056	No
	August	6.68	6.68	1000	0.0067	No
	September	7.10	7.10	1000	0.0071	No
	October	6.04	6.66	1000	0.0067	No
	November	6.12	6.79	1000	0.0068	No
	December	6.50	6.50	1000	0.0065	No
Operations 2 Phase (24-28)	January	7.23	7.23	1000	0.0072	No
	February	8.08	8.08	1000	0.0081	No
	March	7.91	7.91	1000	0.0079	No
	April	6.78	6.78	1000	0.0068	No
	May	4.44	4.44	1000	0.0044	No
	June	3.71	3.71	1000	0.0037	No
	July	5.55	5.55	1000	0.0056	No
	August	6.68	6.68	1000	0.0067	No
	September	7.10	7.10	1000	0.0071	No
	October	6.06	6.06	1000	0.0061	No
	November	6.16	6.16	1000	0.0062	No
	December	6.50	6.50	1000	0.0065	No
Closure Phase (29-35)	January	46.6	80.0	1000	0.0800	No
	February	47.0	80.0	1000	0.0800	No
	March	46.9	80.0	1000	0.0800	No
	April	41.3	70.9	1000	0.0709	No
	May	33.3	58.0	1000	0.0580	No
	June	40.8	58.5	1000	0.0585	No
	July	37.5	55.1	1000	0.0551	No
	August	42.3	62.7	1000	0.0627	No
	September	54.7	78.9	1000	0.0789	No
	October	55.3	80.0	1000	0.0800	No
	November	55.3	80.0	1000	0.0800	No
	December	55.4	80.1	1000	0.0801	No
Post-Closure Phase (36-99)	January	58.6	71.0	1000	0.0710	No
	February	58.6	70.9	1000	0.0709	No
	March	58.6	71.1	1000	0.0711	No
	April	52.0	65.2	1000	0.0652	No
	May	42.0	53.1	1000	0.0531	No
	June	42.1	53.0	1000	0.0530	No
	July	42.7	52.0	1000	0.0520	No
	August	49.5	60.9	1000	0.0609	No
	September	54.7	69.8	1000	0.0698	No
	October	55.7	71.0	1000	0.0710	No
	November	58.2	71.0	1000	0.0710	No
	December	58.2	71.0	1000	0.0710	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D20h. T Creek Hazard Quotients for Dissolved and Total Cadmium Concentrations, Upper Bound Case (completed)

		First Screening Step		Second Screening Step						Retained as COPC?				
Project Phase	Months	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations				Hazard Quotient relative to Baseline				Aquatic Life	Drinking Water	Livestock
		Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline	Dissolved Cadmium		Total Cadmium		Dissolved Cadmium		Total Cadmium		Dissolved Cadmium	Total Cadmium	Total Cadmium
				Mean	95%ile	Mean	95%ile	Mean	95%ile	Mean	95%ile			
Construction (-2 to-1)	January	0.00150	0.00009								No	No	No	
	February	0.00100	0.00006								No	No	No	
	March	0.00100	0.00006								No	No	No	
	April	0.00102	0.00006								No	No	No	
	May	0.00826	0.00052								No	No	No	
	June	0.00274	0.00017								No	No	No	
	July	0.00211	0.00013								No	No	No	
	August	0.00767	0.00048	0.00004	0.00008	0.00004	0.00008	1.00	0.466	1.00	0.466	No	No	No
	September	0.00190	0.00012									No	No	No
	October	0.00330	0.00021									No	No	No
	November	0.00363	0.00023	0.00001	0.00001	0.00001	0.00001	1.71	1.86	1.71	1.86	Yes	No	No
	December	0.00240	0.00015									No	No	No
Operation 1 Phase (1-23)	January	0.00150	0.00009								No	No	No	
	February	0.00100	0.00006								No	No	No	
	March	0.00100	0.00006								No	No	No	
	April	0.00114	0.00007								No	No	No	
	May	0.00829	0.00052								No	No	No	
	June	0.00279	0.00017								No	No	No	
	July	0.00220	0.00014								No	No	No	
	August	0.00767	0.00048	0.00004	0.00008	0.00004	0.00008	1.00	0.466	1.00	0.466	No	No	No
	September	0.00190	0.00012									No	No	No
	October	0.00934	0.00058	0.00001	0.00001	0.00001	0.00001	1.35	4.66	1.34	4.67	Yes	No	No
	November	0.01080	0.00067	0.00001	0.00001	0.00001	0.00001	1.44	5.54	1.44	5.54	Yes	No	No
	December	0.00240	0.00015									No	No	No
Operations 2 Phase (24-28)	January	0.00150	0.00009								No	No	No	
	February	0.00100	0.00006								No	No	No	
	March	0.00100	0.00006								No	No	No	
	April	0.00100	0.00006								No	No	No	
	May	0.00827	0.00052								No	No	No	
	June	0.00273	0.00017								No	No	No	
	July	0.00210	0.00013								No	No	No	
	August	0.00767	0.00048	0.00004	0.00008	0.00004	0.00008	1.00	0.466	1.00	0.466	No	No	No
	September	0.00190	0.00012									No	No	No
	October	0.00160	0.00010									No	No	No
	November	0.00150	0.00009									No	No	No
	December	0.00240	0.00015									No	No	No
Closure Phase (29-35)	January	0.0299	0.00187	0.00001	0.00001	0.00001	0.00001	11.0	15.1	11.2	15.3	Yes	No	No
	February	0.0298	0.00187	0.00001	0.00001	0.00001	0.00001	16.3	29.5	16.5	29.8	Yes	No	No
	March	0.0298	0.00186	0.00001	0.00001	0.00001	0.00001	16.3	29.5	16.5	29.8	Yes	No	No
	April	0.0262	0.00164	0.00001	0.00001	0.00001	0.00001	14.3	25.9	14.5	26.2	Yes	No	No
	May	0.0235	0.00147	0.00001	0.00001	0.00004	0.00014	6.55	10.7	1.96	0.846	Yes	No	No
	June	0.0223	0.00140	0.00001	0.00002	0.00001	0.00002	5.97	6.89	5.76	5.94	Yes	No	No
	July	0.0207	0.00129	0.00001	0.00002	0.00001	0.00002	6.56	6.55	6.63	6.62	Yes	No	No
	August	0.0247	0.00154	0.00004	0.00008	0.00004	0.00008	2.34	1.49	2.36	1.50	Yes	No	No
	September	0.0295	0.00184	0.00001	0.00001	0.00001	0.00001	10.4	14.6	10.5	14.8	Yes	No	No
	October	0.0299	0.00187	0.00001	0.00001	0.00001	0.00001	12.9	14.8	12.6	15.0	Yes	No	No
	November	0.0299	0.00187	0.00001	0.00001	0.00001	0.00001	13.3	15.2	13.5	15.3	Yes	No	No
	December	0.0299	0.00187	0.00001	0.00001	0.00001	0.00001	13.3	15.2	8.52	12.5	Yes	No	No
Post-Closure Phase (36-99)	January	0.0589	0.00368	0.00001	0.00001	0.00001	0.00001	32.2	30.0	32.3	30.2	Yes	No	No
	February	0.0588	0.00368	0.00001	0.00001	0.00001	0.00001	48.2	58.5	48.5	58.8	Yes	No	No
	March	0.0590	0.00369	0.00001	0.00001	0.00001	0.00001	48.4	58.7	48.7	59.0	Yes	No	No
	April	0.0519	0.00324	0.00001	0.00001	0.00001	0.00001	42.6	51.6	42.8	51.9	Yes	No	No
	May	0.0435	0.00272	0.00001	0.00001	0.00004	0.00014	18.3	20.8	4.40	1.57	Yes	No	No
	June	0.0424	0.00265	0.00001	0.00002	0.00001	0.00002	13.4	13.2	12.9	11.3	Yes	No	No
	July	0.0423	0.00265	0.00001	0.00002	0.00001	0.00002	16.6	13.5	16.7	13.6	Yes	No	No
	August	0.0505	0.00316	0.00004	0.00008	0.00004	0.00008	5.42	3.06	5.45	3.07	Yes	No	No
	September	0.0553	0.00345	0.00001	0.00001	0.00001	0.00001	23.9	27.5	24.1	27.6	Yes	No	No
	October	0.0564	0.00352	0.00001	0.00001	0.00001	0.00001	29.9	28.0	29.2	28.2	Yes	No	No
	November	0.0590	0.00369	0.00001	0.00001	0.00001	0.00001	32.3	30.1	32.5	30.2	Yes	No	No
	December	0.0589	0.00368	0.00001	0.00001	0.00001	0.00001	32.3	30.1	20.3	24.6	Yes	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guideline is hardness dependent
 Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D20L. T Creek Hazard Quotients for Dissolved and Total Iron Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?					
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life					
		Dissolved Iron		Total Iron						BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum										
Construction (-2 to-1)	January	0.0075	0.0075	0.0090	0.0090	0.35	1	0.0214	0.0090	No	No				
	February	0.0040	0.0040	0.0050	0.0050	0.35	1	0.0114	0.0050	No	No				
	March	0.0030	0.0030	0.0040	0.0040	0.35	1	0.0086	0.0040	No	No				
	April	0.0196	0.0197	0.0205	0.0206	0.35	1	0.0562	0.0206	No	No				
	May	0.0333	0.0333	0.102	0.102	0.35	1	0.0952	0.102	No	No				
	June	0.0233	0.0233	0.189	0.189	0.35	1	0.0666	0.189	No	No				
	July	0.0150	0.0150	0.0244	0.0245	0.35	1	0.0428	0.0245	No	No				
	August	0.0090	0.0090	0.0158	0.0158	0.35	1	0.0257	0.0158	No	No				
	September	0.0085	0.0085	0.0184	0.0184	0.35	1	0.0243	0.0184	No	No				
	October	0.0111	0.0164	0.0152	0.0226	0.35	1	0.0468	0.0226	No	No				
	November	0.0066	0.0105	0.0084	0.0135	0.35	1	0.0299	0.0135	No	No				
	December	0.0090	0.0090	0.0320	0.0320	0.35	1	0.0257	0.0320	No	No				
Operation 1 Phase (1-23)	January	0.0075	0.0075	0.0090	0.0090	0.35	1	0.0214	0.0090	No	No				
	February	0.0040	0.0040	0.0050	0.0050	0.35	1	0.0114	0.0050	No	No				
	March	0.0030	0.0030	0.0040	0.0040	0.35	1	0.0086	0.0040	No	No				
	April	0.0197	0.0197	0.0206	0.0206	0.35	1	0.0563	0.0206	No	No				
	May	0.0333	0.0333	0.102	0.103	0.35	1	0.0952	0.103	No	No				
	June	0.0233	0.0233	0.189	0.189	0.35	1	0.0667	0.189	No	No				
	July	0.0150	0.0150	0.0245	0.0245	0.35	1	0.0429	0.0245	No	No				
	August	0.0090	0.0090	0.0158	0.0158	0.35	1	0.0257	0.0158	No	No				
	September	0.0085	0.0085	0.0184	0.0184	0.35	1	0.0243	0.0184	No	No				
	October	0.0157	0.0165	0.0215	0.0228	0.35	1	0.0471	0.0228	No	No				
	November	0.0099	0.0105	0.0127	0.0135	0.35	1	0.0300	0.0135	No	No				
	December	0.0090	0.0090	0.0320	0.0320	0.35	1	0.0257	0.0320	No	No				
Operations 2 Phase (24-28)	January	0.0075	0.0075	0.0090	0.0090	0.35	1	0.0214	0.0090	No	No				
	February	0.0040	0.0040	0.0050	0.0050	0.35	1	0.0114	0.0050	No	No				
	March	0.0030	0.0030	0.0040	0.0040	0.35	1	0.0086	0.0040	No	No				
	April	0.0197	0.0197	0.0206	0.0206	0.35	1	0.0563	0.0206	No	No				
	May	0.0333	0.0333	0.103	0.103	0.35	1	0.0952	0.103	No	No				
	June	0.0233	0.0233	0.189	0.189	0.35	1	0.0667	0.189	No	No				
	July	0.0150	0.0150	0.0245	0.0245	0.35	1	0.0429	0.0245	No	No				
	August	0.0090	0.0090	0.0158	0.0158	0.35	1	0.0257	0.0158	No	No				
	September	0.0085	0.0085	0.0184	0.0184	0.35	1	0.0243	0.0184	No	No				
	October	0.0165	0.0165	0.0228	0.0228	0.35	1	0.0471	0.0228	No	No				
	November	0.0105	0.0105	0.0135	0.0135	0.35	1	0.0300	0.0135	No	No				
	December	0.0090	0.0090	0.0320	0.0320	0.35	1	0.0257	0.0320	No	No				
Closure Phase (29-35)	January	0.0167	0.0240	0.0219	0.0316	0.35	1	0.0685	0.0316	No	No				
	February	0.0152	0.0240	0.0202	0.0316	0.35	1	0.0685	0.0316	No	No				
	March	0.0148	0.0240	0.0197	0.0316	0.35	1	0.0685	0.0316	No	No				
	April	0.0216	0.0234	0.0260	0.0302	0.35	1	0.0670	0.0302	No	No				
	May	0.0294	0.0333	0.0738	0.103	0.35	1	0.0952	0.103	No	No				
	June	0.0234	0.0238	0.108	0.189	0.35	1	0.0680	0.189	No	No				
	July	0.0189	0.0209	0.0277	0.0292	0.35	1	0.0597	0.0292	No	No				
	August	0.0165	0.0204	0.0240	0.0279	0.35	1	0.0584	0.0279	No	No				
	September	0.0190	0.0238	0.0277	0.0315	0.35	1	0.0679	0.0315	No	No				
	October	0.0215	0.0240	0.0291	0.0317	0.35	1	0.0686	0.0317	No	No				
	November	0.0198	0.0240	0.0264	0.0316	0.35	1	0.0685	0.0316	No	No				
	December	0.0194	0.0240	0.0317	0.0320	0.35	1	0.0685	0.0320	No	No				
Post-Closure Phase (36-99)	January	0.0254	0.0278	0.0360	0.0391	0.35	1	0.0795	0.0391	No	No				
	February	0.0254	0.0278	0.0360	0.0391	0.35	1	0.0795	0.0391	No	No				
	March	0.0254	0.0279	0.0360	0.0391	0.35	1	0.0796	0.0391	No	No				
	April	0.0241	0.0262	0.0334	0.0361	0.35	1	0.0749	0.0361	No	No				
	May	0.0269	0.0285	0.0533	0.0555	0.35	1	0.0815	0.0555	No	No				
	June	0.0241	0.0258	0.0761	0.0783	0.35	1	0.0737	0.0783	No	No				
	July	0.0223	0.0240	0.0327	0.0348	0.35	1	0.0685	0.0348	No	No				
	August	0.0226	0.0245	0.0327	0.0351	0.35	1	0.0701	0.0351	No	No				
	September	0.0240	0.0261	0.0342	0.0369	0.35	1	0.0746	0.0369	No	No				
	October	0.0244	0.0266	0.0346	0.0374	0.35	1	0.0760	0.0374	No	No				
	November	0.0254	0.0279	0.0361	0.0392	0.35	1	0.0797	0.0392	No	No				
	December	0.0254	0.0279	0.0361	0.0392	0.35	1	0.0797	0.0392	No	No				

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D20n. T Creek Hazard Quotients for Total Lithium Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline				
Project Phase	Months	Mean	Maximum	BC MOE Working Value	Final Chronic Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
Construction (-2 to-1)	January	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	May	0.0006	0.0006	0.096	0.87	0.87	0.0065	0.0065	0.0007	No
	June	0.0005	0.0005	0.096	0.87	0.87	0.0053	0.0053	0.0006	No
	July	0.0007	0.0007	0.096	0.87	0.87	0.0069	0.0070	0.0008	No
	August	0.0007	0.0007	0.096	0.87	0.87	0.0069	0.0069	0.0008	No
	September	0.0007	0.0007	0.096	0.87	0.87	0.0069	0.0069	0.0008	No
	October	0.0008	0.0009	0.096	0.87	0.87	0.0087	0.0091	0.0010	No
	November	0.0006	0.0007	0.096	0.87	0.87	0.0064	0.0076	0.0008	No
	December	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0054	0.0006	No
	May	0.0006	0.0006	0.096	0.87	0.87	0.0065	0.0066	0.0007	No
	June	0.0005	0.0005	0.096	0.87	0.87	0.0053	0.0054	0.0006	No
	July	0.0007	0.0007	0.096	0.87	0.87	0.0070	0.0071	0.0008	No
	August	0.0007	0.0007	0.096	0.87	0.87	0.0069	0.0069	0.0008	No
	September	0.0007	0.0007	0.096	0.87	0.87	0.0069	0.0069	0.0008	No
	October	0.0009	0.0019	0.096	0.87	0.87	0.0098	0.0201	0.0022	No
	November	0.0006	0.0021	0.096	0.87	0.87	0.0063	0.0217	0.0024	No
	December	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	May	0.0006	0.0006	0.096	0.87	0.87	0.0065	0.0065	0.0007	No
	June	0.0005	0.0005	0.096	0.87	0.87	0.0053	0.0053	0.0006	No
	July	0.0007	0.0007	0.096	0.87	0.87	0.0069	0.0069	0.0008	No
	August	0.0007	0.0007	0.096	0.87	0.87	0.0069	0.0069	0.0008	No
	September	0.0007	0.0007	0.096	0.87	0.87	0.0069	0.0069	0.0008	No
	October	0.0009	0.0009	0.096	0.87	0.87	0.0091	0.0091	0.0010	No
	November	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.87	0.0052	0.0052	0.0006	No
Closure Phase (29-35)	January	0.0067	0.0121	0.096	0.87	0.87	0.0699	0.126	0.0139	No
	February	0.0067	0.0120	0.096	0.87	0.87	0.0698	0.125	0.0138	No
	March	0.0067	0.0120	0.096	0.87	0.87	0.0698	0.125	0.0138	No
	April	0.0059	0.0106	0.096	0.87	0.87	0.0615	0.110	0.0122	No
	May	0.0049	0.0087	0.096	0.87	0.87	0.0515	0.0907	0.0100	No
	June	0.0061	0.0088	0.096	0.87	0.87	0.0632	0.0921	0.0102	No
	July	0.0055	0.0083	0.096	0.87	0.87	0.0575	0.0861	0.0095	No
	August	0.0062	0.0094	0.096	0.87	0.87	0.0641	0.0978	0.0108	No
	September	0.0080	0.0119	0.096	0.87	0.87	0.0838	0.124	0.0137	No
	October	0.0082	0.0121	0.096	0.87	0.87	0.0858	0.126	0.0139	No
	November	0.0081	0.0121	0.096	0.87	0.87	0.0846	0.126	0.0139	No
	December	0.0081	0.0121	0.096	0.87	0.87	0.0846	0.126	0.0139	No
Post-Closure Phase (36-99)	January	0.0093	0.0114	0.096	0.87	0.87	0.0965	0.118	0.0130	No
	February	0.0093	0.0113	0.096	0.87	0.87	0.0964	0.118	0.0130	No
	March	0.0093	0.0114	0.096	0.87	0.87	0.0966	0.118	0.0131	No
	April	0.0082	0.0100	0.096	0.87	0.87	0.0851	0.105	0.0115	No
	May	0.0066	0.0082	0.096	0.87	0.87	0.0691	0.0856	0.0094	No
	June	0.0066	0.0082	0.096	0.87	0.87	0.0693	0.0857	0.0095	No
	July	0.0067	0.0082	0.096	0.87	0.87	0.0698	0.0857	0.0095	No
	August	0.0078	0.0096	0.096	0.87	0.87	0.0809	0.101	0.0111	No
	September	0.0086	0.0109	0.096	0.87	0.87	0.0900	0.114	0.0125	No
	October	0.0088	0.0111	0.096	0.87	0.87	0.0919	0.116	0.0127	No
	November	0.0092	0.0114	0.096	0.87	0.87	0.0960	0.118	0.0131	No
	December	0.0092	0.0114	0.096	0.87	0.87	0.0960	0.118	0.0131	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D20o. T Creek Hazard Quotients for Total Manganese Concentrations, Upper Bound Case

		First Screening Step							Second Screening Step				Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Mean	95%ile	Mean	95%ile	
Construction (-2 to-1)	January	0.0003	0.0003	0.698	0.773	0.0005	0.0005	0.0004					No
	February	0.0002	0.0002	0.709	0.801	0.0002	0.0002	0.0002					No
	March	0.0001	0.0001	0.708	0.797	0.0002	0.0002	0.0002					No
	April	0.0005	0.0005	0.693	0.760	0.0007	0.0007	0.0007					No
	May	0.0056	0.0056	0.659	0.676	0.0084	0.0084	0.0082					No
	June	0.0109	0.0109	0.653	0.659	0.0167	0.0167	0.0165					No
	July	0.0014	0.0014	0.668	0.699	0.0021	0.0021	0.0020					No
	August	0.0016	0.0016	0.691	0.755	0.0023	0.0023	0.0021					No
	September	0.0021	0.0021	0.695	0.766	0.0030	0.0030	0.0027					No
	October	0.0023	0.0039	0.675	0.716	0.0034	0.0058	0.0055					No
	November	0.0028	0.0046	0.647	0.644	0.0043	0.0072	0.0072					No
	December	0.0006	0.0006	0.694	0.764	0.0009	0.0009	0.0008					No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.698	0.773	0.0005	0.0005	0.0004					No
	February	0.0002	0.0002	0.709	0.801	0.0002	0.0002	0.0002					No
	March	0.0001	0.0001	0.708	0.797	0.0002	0.0002	0.0002					No
	April	0.0005	0.0007	0.693	0.760	0.0007	0.0009	0.0009					No
	May	0.0056	0.0056	0.659	0.676	0.0084	0.0085	0.0083					No
	June	0.0109	0.0109	0.653	0.659	0.0167	0.0167	0.0166					No
	July	0.0014	0.0015	0.668	0.699	0.0021	0.0023	0.0022					No
	August	0.0016	0.0016	0.691	0.755	0.0023	0.0023	0.0021					No
	September	0.0021	0.0021	0.695	0.766	0.0030	0.0030	0.0027					No
	October	0.0015	0.0120	0.675	0.716	0.0022	0.0177	0.0167					No
	November	0.0019	0.0141	0.647	0.644	0.0029	0.0219	0.0219					No
	December	0.0006	0.0006	0.694	0.764	0.0009	0.0009	0.0008					No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.698	0.773	0.0005	0.0005	0.0004					No
	February	0.0002	0.0002	0.709	0.801	0.0002	0.0002	0.0002					No
	March	0.0001	0.0001	0.708	0.797	0.0002	0.0002	0.0002					No
	April	0.0005	0.0005	0.693	0.760	0.0007	0.0007	0.0006					No
	May	0.0056	0.0056	0.659	0.676	0.0084	0.0084	0.0082					No
	June	0.0109	0.0109	0.653	0.659	0.0167	0.0167	0.0165					No
	July	0.0014	0.0014	0.668	0.699	0.0021	0.0021	0.0020					No
	August	0.0016	0.0016	0.691	0.755	0.0023	0.0023	0.0021					No
	September	0.0021	0.0021	0.695	0.766	0.0030	0.0030	0.0027					No
	October	0.0007	0.0007	0.675	0.716	0.0010	0.0010	0.0010					No
	November	0.0009	0.0009	0.647	0.644	0.0014	0.0014	0.0014					No
	December	0.0006	0.0006	0.694	0.764	0.0009	0.0009	0.0008					No
Closure Phase (29-35)	January	0.536	0.982	0.698	0.773	0.768	1.41	1.27	0.0003	0.0005	1562	2107	Yes
	February	0.535	0.982	0.709	0.801	0.755	1.38	1.23	0.0002	0.0002	3346	6135	Yes
	March	0.535	0.981	0.708	0.797	0.756	1.39	1.23	0.0001	0.0001	3822	7007	Yes
	April	0.466	0.859	0.693	0.760	0.673	1.24	1.13	0.0005	0.0005	1003	1847	Yes
	May	0.380	0.697	0.659	0.676	0.577	1.06	1.03	0.0056	0.0085	68.4	82.2	Yes
	June	0.485	0.708	0.653	0.659	0.743	1.09	1.07	0.0109	0.0268	44.5	26.4	Yes
	July	0.427	0.655	0.668	0.699	0.639	0.980	0.937					No
	August	0.483	0.752	0.691	0.755	0.699	1.09	0.996	0.0016	0.0028	299	267	Yes
	September	0.650	0.969	0.695	0.766	0.935	1.39	1.26	0.0021	0.0042	317	230	Yes
	October	0.661	0.983	0.675	0.716	0.979	1.46	1.37	0.0007	0.0010	939	986	Yes
	November	0.661	0.983	0.647	0.644	1.02	1.52	1.53	0.0009	0.0016	730	620	Yes
	December	0.661	0.983	0.694	0.764	0.952	1.42	1.29	0.0006	0.0006	1049	1561	Yes
Post-Closure Phase (36-99)	January	0.754	0.935	0.698	0.773	1.08	1.34	1.21	0.0003	0.0005	2199	2005	Yes
	February	0.754	0.935	0.709	0.801	1.06	1.32	1.17	0.0002	0.0002	4713	5842	Yes
	March	0.755	0.936	0.708	0.797	1.07	1.32	1.18	0.0001	0.0001	5391	6689	Yes
	April	0.660	0.832	0.693	0.760	0.952	1.20	1.09	0.0005	0.0005	1419	1789	Yes
	May	0.525	0.670	0.659	0.676	0.797	1.02	0.991	0.0056	0.0085	94.5	79.0	Yes
	June	0.532	0.675	0.653	0.659	0.815	1.03	1.02	0.0109	0.0268	48.8	25.2	Yes
	July	0.530	0.665	0.668	0.699	0.793	0.995	0.952					No
	August	0.624	0.789	0.691	0.755	0.902	1.14	1.04	0.0016	0.0028	386	280	Yes
	September	0.702	0.905	0.695	0.766	1.01	1.30	1.18	0.0021	0.0042	342	215	Yes
	October	0.718	0.922	0.675	0.716	1.06	1.37	1.29	0.0007	0.0010	1019	924	Yes
	November	0.750	0.936	0.647	0.644	1.16	1.45	1.45	0.0009	0.0016	828	591	Yes
	December	0.750	0.936	0.694	0.764	1.08	1.35	1.23	0.0006	0.0006	1190	1485	Yes

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D20r. T Creek Hazard Quotients for Total Nickel Concentrations, Upper Bound Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.00028	0.00028	0.025	1	0.0110	0.00028	No	No
	February	0.00004	0.00004	0.025	1	0.00160	0.00004	No	No
	March	0.00003	0.00003	0.025	1	0.00120	0.00003	No	No
	April	0.00006	0.00006	0.025	1	0.00230	0.00006	No	No
	May	0.00042	0.00042	0.025	1	0.0170	0.00042	No	No
	June	0.00050	0.00050	0.025	1	0.0200	0.00050	No	No
	July	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	August	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	September	0.00037	0.00037	0.025	1	0.0147	0.00037	No	No
	October	0.00026	0.00032	0.025	1	0.0128	0.00032	No	No
	November	0.00021	0.00027	0.025	1	0.0108	0.00027	No	No
	December	0.00027	0.00027	0.025	1	0.0109	0.00027	No	No
Operation 1 Phase (1-23)	January	0.00028	0.00028	0.025	1	0.0110	0.00028	No	No
	February	0.00004	0.00004	0.025	1	0.00160	0.00004	No	No
	March	0.00003	0.00003	0.025	1	0.00120	0.00003	No	No
	April	0.00006	0.00006	0.025	1	0.00245	0.00006	No	No
	May	0.00042	0.00043	0.025	1	0.0170	0.00043	No	No
	June	0.00050	0.00050	0.025	1	0.0200	0.00050	No	No
	July	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	August	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	September	0.00037	0.00037	0.025	1	0.0147	0.00037	No	No
	October	0.00032	0.00038	0.025	1	0.0152	0.00038	No	No
	November	0.00027	0.00039	0.025	1	0.0154	0.00039	No	No
	December	0.00027	0.00027	0.025	1	0.0109	0.00027	No	No
Operations 2 Phase (24-28)	January	0.00028	0.00028	0.025	1	0.0110	0.00028	No	No
	February	0.00004	0.00004	0.025	1	0.00160	0.00004	No	No
	March	0.00003	0.00003	0.025	1	0.00120	0.00003	No	No
	April	0.00006	0.00006	0.025	1	0.00228	0.00006	No	No
	May	0.00043	0.00043	0.025	1	0.0170	0.00043	No	No
	June	0.00050	0.00050	0.025	1	0.0200	0.00050	No	No
	July	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	August	0.00043	0.00043	0.025	1	0.0173	0.00043	No	No
	September	0.00037	0.00037	0.025	1	0.0147	0.00037	No	No
	October	0.00032	0.00032	0.025	1	0.0129	0.00032	No	No
	November	0.00027	0.00027	0.025	1	0.0108	0.00027	No	No
	December	0.00027	0.00027	0.025	1	0.0109	0.00027	No	No
Closure Phase (29-35)	January	0.00763	0.0135	0.025	1	0.542	0.0135	No	No
	February	0.00752	0.0135	0.025	1	0.542	0.0135	No	No
	March	0.00752	0.0135	0.025	1	0.541	0.0135	No	No
	April	0.00657	0.0119	0.025	1	0.474	0.0119	No	No
	May	0.00554	0.00972	0.025	1	0.389	0.00972	No	No
	June	0.00695	0.00980	0.025	1	0.392	0.00980	No	No
	July	0.00622	0.00914	0.025	1	0.366	0.00914	No	No
	August	0.00699	0.0105	0.025	1	0.418	0.0105	No	No
	September	0.00925	0.0134	0.025	1	0.534	0.0134	No	No
	October	0.00940	0.0136	0.025	1	0.542	0.0136	No	No
	November	0.00938	0.0135	0.025	1	0.542	0.0135	No	No
	December	0.00938	0.0136	0.025	1	0.542	0.0136	No	No
Post-Closure Phase (36-99)	January	0.0140	0.0165	0.025	1	0.662	0.0165	No	No
	February	0.0140	0.0165	0.025	1	0.662	0.0165	No	No
	March	0.0140	0.0166	0.025	1	0.663	0.0166	No	No
	April	0.0122	0.0145	0.025	1	0.580	0.0145	No	No
	May	0.00982	0.0116	0.025	1	0.465	0.0116	No	No
	June	0.00994	0.0118	0.025	1	0.471	0.0118	No	No
	July	0.00996	0.0118	0.025	1	0.474	0.0118	No	No
	August	0.0117	0.0139	0.025	1	0.556	0.0139	No	No
	September	0.0131	0.0155	0.025	1	0.620	0.0155	No	No
	October	0.0133	0.0158	0.025	1	0.632	0.0158	No	No
	November	0.0139	0.0166	0.025	1	0.662	0.0166	No	No
	December	0.0139	0.0166	0.025	1	0.662	0.0166	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix 13-D20t. T Creek Hazard Quotients for Total Silver Concentrations, Upper Bound Case

		First Screening Step							Second Screening Step				Retained as COPC?
		Aquatic Life Guidelines ¹				Hazard Quotient relative to Aquatic Life Guideline							
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life
		Mean	Maximum						Mean	95%ile	Mean	95%ile	
Construction (-2 to-1)	January	0.00001	0.00001	0.00005	0.0001	0.230	0.230	0.115					No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500					No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500					No
	April	0.00000	0.00000	0.00005	0.0001	0.100	0.0999	0.0500					No
	May	0.00002	0.00002	0.00005	0.0001	0.499	0.500	0.250					No
	June	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.1000					No
	July	0.00002	0.00002	0.00005	0.0001	0.465	0.467	0.233					No
	August	0.00002	0.00002	0.00005	0.0001	0.467	0.467	0.233					No
	September	0.00002	0.00002	0.00005	0.0001	0.467	0.467	0.233					No
	October	0.00001	0.00002	0.00005	0.0001	0.249	0.373	0.186					No
	November	0.00000	0.00001	0.00005	0.0001	0.0943	0.150	0.0749					No
	December	0.00001	0.00001	0.00005	0.0001	0.190	0.190	0.0950					No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00005	0.0001	0.230	0.230	0.115					No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500					No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500					No
	April	0.00000	0.00001	0.00005	0.0001	0.100	0.100	0.0500					No
	May	0.00002	0.00003	0.00005	0.0001	0.500	0.500	0.250					No
	June	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100					No
	July	0.00002	0.00002	0.00005	0.0001	0.466	0.467	0.233					No
	August	0.00002	0.00002	0.00005	0.0001	0.467	0.467	0.233					No
	September	0.00002	0.00002	0.00005	0.0001	0.467	0.467	0.233					No
	October	0.00002	0.00002	0.00005	0.0001	0.354	0.375	0.188					No
	November	0.00001	0.00001	0.00005	0.0001	0.142	0.150	0.0750					No
	December	0.00001	0.00001	0.00005	0.0001	0.190	0.190	0.0950					No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00005	0.0001	0.230	0.230	0.115					No
	February	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500					No
	March	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500					No
	April	0.00001	0.00001	0.00005	0.0001	0.100	0.100	0.0500					No
	May	0.00003	0.00003	0.00005	0.0001	0.500	0.500	0.250					No
	June	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100					No
	July	0.00002	0.00002	0.00005	0.0001	0.467	0.467	0.233					No
	August	0.00002	0.00002	0.00005	0.0001	0.467	0.467	0.233					No
	September	0.00002	0.00002	0.00005	0.0001	0.467	0.467	0.233					No
	October	0.00002	0.00002	0.00005	0.0001	0.375	0.375	0.188					No
	November	0.00001	0.00001	0.00005	0.0001	0.150	0.150	0.0750					No
	December	0.00001	0.00001	0.00005	0.0001	0.190	0.190	0.0950					No
Closure Phase (29-35)	January	0.00004	0.00006	0.00005	0.0001	0.802	1.28	0.641	0.00001	0.00002	3.49	3.69	Yes
	February	0.00004	0.00006	0.00005	0.0001	0.746	1.28	0.641	0.00001	0.00001	7.46	12.8	Yes
	March	0.00004	0.00006	0.00005	0.0001	0.746	1.28	0.641	0.00001	0.00001	7.46	12.8	Yes
	April	0.00003	0.00006	0.00005	0.0001	0.662	1.13	0.567	0.00001	0.00001	6.62	11.3	Yes
	May	0.00004	0.00005	0.00005	0.0001	0.793	1.05	0.527	0.00003	0.00006	1.59	0.957	Yes
	June	0.00004	0.00005	0.00005	0.0001	0.726	0.976	0.488					No
	July	0.00004	0.00005	0.00005	0.0001	0.811	1.01	0.504	0.00002	0.00004	1.74	1.20	Yes
	August	0.00004	0.00005	0.00005	0.0001	0.857	1.09	0.545	0.00002	0.00004	1.84	1.24	Yes
	September	0.00005	0.00006	0.00005	0.0001	0.993	1.27	0.635	0.00002	0.00004	2.13	1.59	Yes
	October	0.00005	0.00006	0.00005	0.0001	0.975	1.28	0.641	0.00002	0.00004	2.60	1.46	Yes
	November	0.00005	0.00006	0.00005	0.0001	0.910	1.28	0.641	0.00001	0.00001	6.07	6.57	Yes
	December	0.00005	0.00006	0.00005	0.0001	0.922	1.28	0.641	0.00001	0.00001	4.85	4.73	Yes
Post-Closure Phase (36-99)	January	0.00005	0.00006	0.00005	0.0001	1.02	1.23	0.615	0.00001	0.00002	4.41	3.54	Yes
	February	0.00005	0.00006	0.00005	0.0001	1.01	1.23	0.615	0.00001	0.00001	10.1	12.3	Yes
	March	0.00005	0.00006	0.00005	0.0001	1.02	1.23	0.616	0.00001	0.00001	10.2	12.3	Yes
	April	0.00004	0.00006	0.00005	0.0001	0.898	1.10	0.552	0.00001	0.00001	8.98	11.0	Yes
	May	0.00004	0.00005	0.00005	0.0001	0.844	1.02	0.509	0.00003	0.00006	1.69	0.925	Yes
	June	0.00004	0.00005	0.00005	0.0001	0.766	0.937	0.469					No
	July	0.00004	0.00005	0.00005	0.0001	0.848	1.01	0.503	0.00002	0.00004	1.82	1.20	Yes
	August	0.00005	0.00006	0.00005	0.0001	0.918	1.11	0.555	0.00002	0.00004	1.97	1.26	Yes
	September	0.00005	0.00006	0.00005	0.0001	0.956	1.20	0.599	0.00002	0.00004	2.05	1.50	Yes
	October	0.00005	0.00006	0.00005	0.0001	0.967	1.21	0.606	0.00002	0.00004	2.58	1.38	Yes
	November	0.00005	0.00006	0.00005	0.0001	1.01	1.23	0.615	0.00001	0.00001	6.73	6.31	Yes
	December	0.00005	0.00006	0.00005	0.0001	1.01	1.23	0.615	0.00001	0.00001	5.31	4.54	Yes

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D20u. T Creek Hazard Quotients for Total Thallium Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE Working	Drinking Water Quality Guidelines BC DWQG	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Working Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines Maximum predicted vs. BC DWQG	Aquatic Life	Drinking Water
		Mean	Maximum						
Construction (-2 to-1)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0417	0.00625	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000013	0.000013	0.0003	0.002	0.0444	0.00666	No	No
	August	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	September	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	October	0.000008	0.000010	0.0003	0.002	0.0348	0.00522	No	No
	November	0.000004	0.000006	0.0003	0.002	0.0200	0.00299	No	No
	December	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
Operation 1 Phase (1-23)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00683	0.00103	No	No
	May	0.000012	0.000013	0.0003	0.002	0.0417	0.00625	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	August	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	September	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	October	0.000010	0.000011	0.0003	0.002	0.0350	0.00525	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0203	0.00305	No	No
	December	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
Operations 2 Phase (24-28)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000013	0.000013	0.0003	0.002	0.0417	0.00625	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	August	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	September	0.000007	0.000007	0.0003	0.002	0.0244	0.00367	No	No
	October	0.000011	0.000011	0.0003	0.002	0.0350	0.00525	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
Closure Phase (29-35)	January	0.000024	0.000040	0.0003	0.002	0.134	0.0201	No	No
	February	0.000023	0.000040	0.0003	0.002	0.134	0.0201	No	No
	March	0.000023	0.000040	0.0003	0.002	0.134	0.0201	No	No
	April	0.000020	0.000035	0.0003	0.002	0.118	0.0177	No	No
	May	0.000023	0.000032	0.0003	0.002	0.107	0.0160	No	No
	June	0.000024	0.000032	0.0003	0.002	0.106	0.0159	No	No
	July	0.000025	0.000031	0.0003	0.002	0.104	0.0157	No	No
	August	0.000026	0.000034	0.0003	0.002	0.113	0.0170	No	No
	September	0.000029	0.000040	0.0003	0.002	0.133	0.0199	No	No
	October	0.000030	0.000040	0.0003	0.002	0.135	0.0202	No	No
	November	0.000029	0.000040	0.0003	0.002	0.134	0.0202	No	No
	December	0.000029	0.000040	0.0003	0.002	0.134	0.0202	No	No
Post-Closure Phase (36-99)	January	0.000033	0.000037	0.0003	0.002	0.124	0.0187	No	No
	February	0.000033	0.000037	0.0003	0.002	0.124	0.0187	No	No
	March	0.000033	0.000037	0.0003	0.002	0.125	0.0187	No	No
	April	0.000029	0.000033	0.0003	0.002	0.111	0.0167	No	No
	May	0.000027	0.000030	0.0003	0.002	0.100	0.0151	No	No
	June	0.000026	0.000030	0.0003	0.002	0.0983	0.0148	No	No
	July	0.000027	0.000030	0.0003	0.002	0.101	0.0151	No	No
	August	0.000030	0.000034	0.0003	0.002	0.112	0.0168	No	No
	September	0.000031	0.000036	0.0003	0.002	0.121	0.0181	No	No
	October	0.000032	0.000037	0.0003	0.002	0.123	0.0184	No	No
	November	0.000033	0.000037	0.0003	0.002	0.125	0.0187	No	No
	December	0.000033	0.000037	0.0003	0.002	0.125	0.0187	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D20v. T Creek Hazard Quotients for Total Uranium Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0102	0.0010	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0010	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0100	0.0010	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0093	0.0009	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0120	0.0012	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0148	0.0015	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0139	0.0014	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	September	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0011	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0102	0.0010	No	No	No
	November	0.0001	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	December	0.0010	0.0010	0.3	0.02	0.2	0.0035	0.0520	0.0052	No	No	No
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0102	0.0010	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0010	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0100	0.0010	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0120	0.0012	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0148	0.0015	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0140	0.0014	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	September	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0011	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	December	0.0010	0.0010	0.3	0.02	0.2	0.0035	0.0520	0.0052	No	No	No
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0102	0.0010	No	No	No
	February	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0010	No	No	No
	March	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0100	0.0010	No	No	No
	April	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0094	0.0009	No	No	No
	May	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0120	0.0012	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0148	0.0015	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0140	0.0014	No	No	No
	August	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	September	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0105	0.0011	No	No	No
	October	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	November	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0103	0.0010	No	No	No
	December	0.0010	0.0010	0.3	0.02	0.2	0.0035	0.0520	0.0052	No	No	No
Closure Phase (29-35)	January	0.0023	0.0041	0.3	0.02	0.2	0.0136	0.204	0.0204	No	No	No
	February	0.0023	0.0041	0.3	0.02	0.2	0.0136	0.204	0.0204	No	No	No
	March	0.0023	0.0041	0.3	0.02	0.2	0.0136	0.204	0.0204	No	No	No
	April	0.0021	0.0036	0.3	0.02	0.2	0.0120	0.180	0.0180	No	No	No
	May	0.0017	0.0030	0.3	0.02	0.2	0.0099	0.148	0.0148	No	No	No
	June	0.0022	0.0030	0.3	0.02	0.2	0.0100	0.149	0.0149	No	No	No
	July	0.0019	0.0028	0.3	0.02	0.2	0.0093	0.140	0.0140	No	No	No
	August	0.0021	0.0032	0.3	0.02	0.2	0.0105	0.158	0.0158	No	No	No
	September	0.0028	0.0040	0.3	0.02	0.2	0.0134	0.201	0.0201	No	No	No
	October	0.0029	0.0041	0.3	0.02	0.2	0.0136	0.204	0.0204	No	No	No
	November	0.0029	0.0041	0.3	0.02	0.2	0.0136	0.204	0.0204	No	No	No
	December	0.0031	0.0041	0.3	0.02	0.2	0.0136	0.204	0.0204	No	No	No
Post-Closure Phase (36-99)	January	0.0036	0.0041	0.3	0.02	0.2	0.0138	0.207	0.0207	No	No	No
	February	0.0036	0.0041	0.3	0.02	0.2	0.0138	0.207	0.0207	No	No	No
	March	0.0037	0.0041	0.3	0.02	0.2	0.0138	0.207	0.0207	No	No	No
	April	0.0032	0.0036	0.3	0.02	0.2	0.0121	0.182	0.0182	No	No	No
	May	0.0026	0.0030	0.3	0.02	0.2	0.0099	0.148	0.0148	No	No	No
	June	0.0026	0.0030	0.3	0.02	0.2	0.0100	0.150	0.0150	No	No	No
	July	0.0026	0.0030	0.3	0.02	0.2	0.0100	0.151	0.0151	No	No	No
	August	0.0031	0.0035	0.3	0.02	0.2	0.0117	0.175	0.0175	No	No	No
	September	0.0034	0.0039	0.3	0.02	0.2	0.0132	0.197	0.0197	No	No	No
	October	0.0035	0.0040	0.3	0.02	0.2	0.0134	0.201	0.0201	No	No	No
	November	0.0036	0.0041	0.3	0.02	0.2	0.0138	0.207	0.0207	No	No	No
	December	0.0036	0.0041	0.3	0.02	0.2	0.0138	0.207	0.0207	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D20w. T Creek Hazard Quotients for Total Vanadium Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline			
		BC MOE Working	BC MOE Working Secondary Chronic Value	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline	Maximum Predicted vs BC MOE Working Guideline				
Construction (-2 to-1)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0008	0.0008	0.006	0.02	0.1	0.135	0.0404	0.0081	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.178	0.0533	0.0107	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0366	0.0073	No	No
	September	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
	October	0.0004	0.0006	0.006	0.02	0.1	0.0973	0.0292	0.0058	No	No
	November	0.0004	0.0006	0.006	0.02	0.1	0.0998	0.0299	0.0060	No	No
	December	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
Operation 1 Phase (1-23)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0336	0.0101	0.0020	No	No
	May	0.0008	0.0008	0.006	0.02	0.1	0.135	0.0404	0.0081	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.178	0.0533	0.0107	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0366	0.0073	No	No
	September	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
	October	0.0006	0.0006	0.006	0.02	0.1	0.0979	0.0294	0.0059	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	May	0.0008	0.0008	0.006	0.02	0.1	0.135	0.0404	0.0081	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.178	0.0533	0.0107	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0366	0.0073	No	No
	September	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
	October	0.0006	0.0006	0.006	0.02	0.1	0.0979	0.0294	0.0059	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	December	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
Closure Phase (29-35)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0004	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	March	0.0004	0.0006	0.006	0.02	0.1	0.0999	0.0300	0.0060	No	No
	April	0.0004	0.0005	0.006	0.02	0.1	0.0916	0.0275	0.0055	No	No
	May	0.0007	0.0008	0.006	0.02	0.1	0.135	0.0404	0.0081	No	No
	June	0.0008	0.0011	0.006	0.02	0.1	0.178	0.0533	0.0107	No	No
	July	0.0006	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No
	August	0.0006	0.0007	0.006	0.02	0.1	0.122	0.0366	0.0073	No	No
	September	0.0006	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
	October	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0301	0.0060	No	No
	November	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0301	0.0060	No	No
	December	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
Post-Closure Phase (36-99)	January	0.0010	0.0011	0.006	0.02	0.1	0.187	0.0562	0.0112	No	No
	February	0.0010	0.0011	0.006	0.02	0.1	0.187	0.0562	0.0112	No	No
	March	0.0010	0.0011	0.006	0.02	0.1	0.188	0.0564	0.0113	No	No
	April	0.0009	0.0010	0.006	0.02	0.1	0.168	0.0504	0.0101	No	No
	May	0.0009	0.0010	0.006	0.02	0.1	0.168	0.0505	0.0101	No	No
	June	0.0010	0.0011	0.006	0.02	0.1	0.180	0.0541	0.0108	No	No
	July	0.0009	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	August	0.0009	0.0011	0.006	0.02	0.1	0.177	0.0530	0.0106	No	No
	September	0.0009	0.0011	0.006	0.02	0.1	0.179	0.0536	0.0107	No	No
	October	0.0009	0.0011	0.006	0.02	0.1	0.180	0.0539	0.0108	No	No
	November	0.0010	0.0011	0.006	0.02	0.1	0.188	0.0563	0.0113	No	No
	December	0.0010	0.0011	0.006	0.02	0.1	0.188	0.0563	0.0113	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D20x. T Creek Hazard Quotients for Total Zinc Concentrations, Upper Bound Case

		First Screening Step								Second Screening Step				Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Baseline Concentrations		Hazard Quotient relative to Baseline		Aquatic Life	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline		Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Mean	95%ile		
Construction (-2 to-1)	January	0.0017	0.0017	0.008	0.033	2	0.220	0.220	0.0500	0.0008			No	No		
	February	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002			No	No		
	March	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002			No	No		
	April	0.0016	0.0016	0.008	0.033	2	0.218	0.219	0.0497	0.0008			No	No		
	May	0.0030	0.0030	0.008	0.033	2	0.406	0.407	0.0924	0.0015			No	No		
	June	0.0036	0.0036	0.008	0.033	2	0.484	0.484	0.110	0.0018			No	No		
	July	0.0040	0.0040	0.008	0.033	2	0.532	0.533	0.121	0.0020			No	No		
	August	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012			No	No		
	September	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012			No	No		
	October	0.0021	0.0029	0.008	0.033	2	0.283	0.381	0.0866	0.0014			No	No		
	November	0.0012	0.0015	0.008	0.033	2	0.161	0.206	0.0469	0.0008			No	No		
	December	0.0016	0.0016	0.008	0.033	2	0.213	0.213	0.0485	0.0008			No	No		
Operation 1 Phase (1-23)	January	0.0017	0.0017	0.008	0.033	2	0.220	0.220	0.0500	0.0008			No	No		
	February	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002			No	No		
	March	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002			No	No		
	April	0.0016	0.0016	0.008	0.033	2	0.219	0.220	0.0499	0.0008			No	No		
	May	0.0030	0.0031	0.008	0.033	2	0.407	0.407	0.0924	0.0015			No	No		
	June	0.0036	0.0036	0.008	0.033	2	0.484	0.484	0.110	0.0018			No	No		
	July	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020			No	No		
	August	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012			No	No		
	September	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012			No	No		
	October	0.0028	0.0029	0.008	0.033	2	0.375	0.383	0.0871	0.0014			No	No		
	November	0.0016	0.0021	0.008	0.033	2	0.210	0.284	0.0646	0.0011			No	No		
	December	0.0016	0.0016	0.008	0.033	2	0.213	0.213	0.0485	0.0008			No	No		
Operations 2 Phase (24-28)	January	0.0017	0.0017	0.008	0.033	2	0.220	0.220	0.0500	0.0008			No	No		
	February	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002			No	No		
	March	0.0003	0.0003	0.008	0.033	2	0.0400	0.0400	0.0091	0.0002			No	No		
	April	0.0016	0.0016	0.008	0.033	2	0.219	0.219	0.0497	0.0008			No	No		
	May	0.0031	0.0031	0.008	0.033	2	0.407	0.407	0.0924	0.0015			No	No		
	June	0.0036	0.0036	0.008	0.033	2	0.484	0.484	0.110	0.0018			No	No		
	July	0.0040	0.0040	0.008	0.033	2	0.533	0.533	0.121	0.0020			No	No		
	August	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012			No	No		
	September	0.0023	0.0023	0.008	0.033	2	0.311	0.311	0.0707	0.0012			No	No		
	October	0.0029	0.0029	0.008	0.033	2	0.383	0.383	0.0871	0.0014			No	No		
	November	0.0016	0.0016	0.008	0.033	2	0.207	0.207	0.0470	0.0008			No	No		
	December	0.0016	0.0016	0.008	0.033	2	0.213	0.213	0.0485	0.0008			No	No		
Closure Phase (29-35)	January	0.0065	0.0108	0.008	0.033	2	0.870	1.44	0.328	0.0054	0.0017	0.0029	3.95	3.77	Yes	No
	February	0.0059	0.0108	0.008	0.033	2	0.792	1.44	0.327	0.0054	0.0003	0.0003	19.8	36.0	Yes	No
	March	0.0059	0.0108	0.008	0.033	2	0.792	1.44	0.327	0.0054	0.0003	0.0003	19.8	36.0	Yes	No
	April	0.0059	0.0097	0.008	0.033	2	0.784	1.29	0.292	0.0048	0.0016	0.0016	3.59	5.89	Yes	No
	May	0.0059	0.0085	0.008	0.033	2	0.788	1.14	0.258	0.0043	0.0031	0.0053	1.94	1.62	Yes	No
	June	0.0070	0.0089	0.008	0.033	2	0.932	1.18	0.269	0.0044	0.0036	0.0045	1.92	1.96	Yes	No
	July	0.0068	0.0086	0.008	0.033	2	0.904	1.14	0.260	0.0043	0.0040	0.0082	1.70	1.04	Yes	No
	August	0.0063	0.0088	0.008	0.033	2	0.846	1.18	0.268	0.0044	0.0023	0.0036	2.72	2.49	Yes	No
	September	0.0077	0.0107	0.008	0.033	2	1.03	1.43	0.325	0.0054	0.0023	0.0030	3.31	3.57	Yes	No
	October	0.0080	0.0108	0.008	0.033	2	1.06	1.45	0.328	0.0054	0.0029	0.0047	2.77	2.31	Yes	No
	November	0.0076	0.0108	0.008	0.033	2	1.01	1.44	0.328	0.0054	0.0016	0.0029	4.90	3.79	Yes	No
	December	0.0076	0.0108	0.008	0.033	2	1.01	1.44	0.328	0.0054	0.0016	0.0029	4.75	3.78	Yes	No
Post-Closure Phase (36-99)	January	0.0149	0.0189	0.008	0.033	2	1.99	2.52	0.573	0.0095	0.0017	0.0029	9.04	6.60	Yes	No
	February	0.0149	0.0189	0.008	0.033	2	1.99	2.52	0.572	0.0094	0.0003	0.0003	49.7	62.9	Yes	No
	March	0.0150	0.0189	0.008	0.033	2	1.99	2.53	0.574	0.0095	0.0003	0.0003	49.8	63.1	Yes	No
	April	0.0133	0.0168	0.008	0.033	2	1.77	2.24	0.508	0.0084	0.0016	0.0016	8.10	10.2	Yes	No
	May	0.0113	0.0141	0.008	0.033	2	1.51	1.88	0.427	0.0070	0.0031	0.0053	3.71	2.68	Yes	No
	June	0.0115	0.0143	0.008	0.033	2	1.54	1.91	0.435	0.0072	0.0036	0.0045	3.18	3.17	Yes	No
	July	0.0117	0.0145	0.008	0.033	2	1.56	1.94	0.441	0.0073	0.0040	0.0082	2.93	1.77	Yes	No
	August	0.0128	0.0162	0.008	0.033	2	1.71	2.16	0.491	0.0081	0.0023	0.0036	5.49	4.56	Yes	No
	September	0.0141	0.0178	0.008	0.033	2	1.87	2.37	0.539	0.0089	0.0023	0.0030	6.03	5.92	Yes	No
	October	0.0143	0.0181	0.008	0.033	2	1.91	2.41	0.548	0.0090	0.0029	0.0047	4.98	3.85	Yes	No
	November	0.0150	0.0189	0.008	0.033	2	1.99	2.52	0.574	0.0095	0.0016	0.0029	9.65	6.63	Yes	No
	December	0.0150	0.0189	0.008	0.033	2	1.99	2.52	0.573	0.0095	0.0016	0.0029	9.35	6.61	Yes	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Light grey shading indicates predicted concentrations are below guidelines; therefore, a second screening is not required and the contaminant is not retained as a COPC.

Appendix 13-D20y. T Creek Hazard Quotients for Chloride Concentrations, Upper Bound Case

		First Screening Step											Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Maximum	Maximum	Maximum Predicted vs. BC			Maximum Predicted vs. BC	Maximum Predicted vs. BC			
		Mean Predicted vs. BC MOE 30-Day Mean Guideline	MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline							
Construction (-2 to-1)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.498	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.499	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.499	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.532	0.533	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	August	0.400	0.400	150	600	600	600	0.0027	0.0027	0.0007	0.0007	0.0007	No	No	No
	September	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	October	0.398	0.559	150	600	600	600	0.0027	0.0037	0.0009	0.0009	0.0009	No	No	No
	November	0.330	0.499	150	600	600	600	0.0022	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Operation 1 Phase (1-23)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	August	0.400	0.400	150	600	600	600	0.0027	0.0027	0.0007	0.0007	0.0007	No	No	No
	September	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	October	0.542	0.563	150	600	600	600	0.0036	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.480	0.500	150	600	600	600	0.0032	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Operations 2 Phase (24-28)	January	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	February	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	May	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	June	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	July	0.533	0.533	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	August	0.400	0.400	150	600	600	600	0.0027	0.0027	0.0007	0.0007	0.0007	No	No	No
	September	0.600	0.600	150	600	600	600	0.0040	0.0040	0.0010	0.0010	0.0010	No	No	No
	October	0.563	0.563	150	600	600	600	0.0038	0.0038	0.0009	0.0009	0.0009	No	No	No
	November	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	December	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
Closure Phase (29-35)	January	3.57	6.12	150	600	600	600	0.0238	0.0408	0.0102	0.0102	0.0102	No	No	No
	February	3.62	6.12	150	600	600	600	0.0241	0.0408	0.0102	0.0102	0.0102	No	No	No
	March	3.57	6.12	150	600	600	600	0.0238	0.0408	0.0102	0.0102	0.0102	No	No	No
	April	3.18	5.42	150	600	600	600	0.0212	0.0361	0.0090	0.0090	0.0090	No	No	No
	May	2.67	4.48	150	600	600	600	0.0178	0.0299	0.0075	0.0075	0.0075	No	No	No
	June	3.25	4.53	150	600	600	600	0.0216	0.0302	0.0075	0.0075	0.0075	No	No	No
	July	2.96	4.25	150	600	600	600	0.0197	0.0283	0.0071	0.0071	0.0071	No	No	No
	August	3.22	4.77	150	600	600	600	0.0215	0.0318	0.0080	0.0080	0.0080	No	No	No
	September	4.26	6.04	150	600	600	600	0.0284	0.0403	0.0101	0.0101	0.0101	No	No	No
	October	4.31	6.13	150	600	600	600	0.0287	0.0408	0.0102	0.0102	0.0102	No	No	No
	November	4.29	6.12	150	600	600	600	0.0286	0.0408	0.0102	0.0102	0.0102	No	No	No
	December	4.29	6.13	150	600	600	600	0.0286	0.0408	0.0102	0.0102	0.0102	No	No	No
Post-Closure Phase (36-99)	January	5.08	6.10	150	600	600	600	0.0339	0.0406	0.0102	0.0102	0.0102	No	No	No
	February	5.08	6.09	150	600	600	600	0.0339	0.0406	0.0102	0.0102	0.0102	No	No	No
	March	5.09	6.11	150	600	600	600	0.0339	0.0407	0.0102	0.0102	0.0102	No	No	No
	April	4.49	5.39	150	600	600	600	0.0300	0.0359	0.0090	0.0090	0.0090	No	No	No
	May	3.67	4.43	150	600	600	600	0.0245	0.0295	0.0074	0.0074	0.0074	No	No	No
	June	3.70	4.45	150	600	600	600	0.0246	0.0296	0.0074	0.0074	0.0074	No	No	No
	July	3.73	4.47	150	600	600	600	0.0248	0.0298	0.0074	0.0074	0.0074	No	No	No
	August	4.27	5.18	150	600	600	600	0.0285	0.0345	0.0086	0.0086	0.0086	No	No	No
	September	4.75	5.83	150	600	600	600	0.0316	0.0388	0.0097	0.0097	0.0097	No	No	No
	October	4.84	5.93	150	600	600	600	0.0323	0.0395	0.0099	0.0099	0.0099	No	No	No
	November	5.06	6.10	150	600	600	600	0.0337	0.0407	0.0102	0.0102	0.0102	No	No	No
	December	5.06	6.10	150	600	600	600	0.0337	0.0407	0.0102	0.0102	0.0102	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D20ac. T Creek Hazard Quotients for Ammonia Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Aquatic Life Guidelines ¹				Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.0270	0.0270	2.09	12.6	0.0129	0.0129	0.0021	No
	February	0.0200	0.0200	1.75	9.12	0.0114	0.0114	0.0022	No
	March	0.0140	0.0140	2.05	14.1	0.0068	0.0068	0.0010	No
	April	0.0119	0.0120	2.05	12.4	0.0058	0.0058	0.0010	No
	May	0.0166	0.0166	1.97	18.8	0.0084	0.0084	0.0009	No
	June	0.0105	0.0105	1.95	15.2	0.0054	0.0054	0.0007	No
	July	0.0143	0.0143	1.84	11.1	0.0078	0.0078	0.0013	No
	August	0.779	0.779	1.84	9.57	0.424	0.424	0.0814	No
	September	0.0280	0.0280	1.89	11.4	0.0148	0.0148	0.0025	No
	October	0.0066	0.0102	1.97	13.6	0.0034	0.0052	0.0007	No
	November	0.0477	0.0824	2.09	10.8	0.0228	0.0394	0.0076	No
	December	0.0825	0.0825	2.09	10.8	0.0395	0.0395	0.0076	No
Operation 1 Phase (1-23)	January	0.0270	0.0270	2.09	12.6	0.0129	0.0129	0.0021	No
	February	0.0200	0.0200	1.75	9.12	0.0114	0.0114	0.0022	No
	March	0.0140	0.0140	2.05	14.1	0.0068	0.0068	0.0010	No
	April	0.0120	0.0120	2.05	12.4	0.0058	0.0059	0.0010	No
	May	0.0166	0.0166	1.97	18.8	0.0084	0.0084	0.0009	No
	June	0.0105	0.0105	1.95	15.2	0.0054	0.0054	0.0007	No
	July	0.0143	0.0143	1.84	11.1	0.0078	0.0078	0.0013	No
	August	0.779	0.779	1.84	9.57	0.424	0.424	0.0814	No
	September	0.0280	0.0280	1.89	11.4	0.0148	0.0148	0.0025	No
	October	0.0096	0.0103	1.97	13.6	0.0049	0.0052	0.0008	No
	November	0.0762	0.0825	2.09	10.8	0.0365	0.0395	0.0076	No
	December	0.0825	0.0825	2.09	10.8	0.0395	0.0395	0.0076	No
Operations 2 Phase (24-28)	January	0.0270	0.0270	2.09	12.6	0.0129	0.0129	0.0021	No
	February	0.0200	0.0200	1.75	9.12	0.0114	0.0114	0.0022	No
	March	0.0140	0.0140	2.05	14.1	0.0068	0.0068	0.0010	No
	April	0.0120	0.0120	2.05	12.4	0.0059	0.0059	0.0010	No
	May	0.0166	0.0166	1.97	18.8	0.0084	0.0084	0.0009	No
	June	0.0105	0.0105	1.95	15.2	0.0054	0.0054	0.0007	No
	July	0.0143	0.0143	1.84	11.1	0.0078	0.0078	0.0013	No
	August	0.779	0.779	1.84	9.57	0.424	0.424	0.0814	No
	September	0.0280	0.0280	1.89	11.4	0.0148	0.0148	0.0025	No
	October	0.0103	0.0103	1.97	13.6	0.0052	0.0052	0.0008	No
	November	0.0825	0.0825	2.09	10.8	0.0395	0.0395	0.0076	No
	December	0.0825	0.0825	2.09	10.8	0.0395	0.0395	0.0076	No
Closure Phase (29-35)	January	0.099	0.167	2.09	12.6	0.0474	0.0798	0.0132	No
	February	0.096	0.167	1.75	9.12	0.0548	0.0952	0.0183	No
	March	0.093	0.166	2.05	14.1	0.0455	0.0812	0.0118	No
	April	0.082	0.147	2.05	12.4	0.0400	0.0717	0.0119	No
	May	0.071	0.123	1.97	18.8	0.0362	0.0622	0.0065	No
	June	0.084	0.125	1.95	15.2	0.0429	0.0641	0.0082	No
	July	0.077	0.117	1.84	11.1	0.0418	0.0634	0.0105	No
	August	0.453	0.779	1.84	9.57	0.246	0.424	0.0814	No
	September	0.113	0.165	1.89	11.4	0.0599	0.0875	0.0145	No
	October	0.110	0.167	1.97	13.6	0.0556	0.0849	0.0123	No
	November	0.130	0.167	2.09	10.8	0.0622	0.0800	0.0155	No
	December	0.130	0.167	2.09	10.8	0.0622	0.0799	0.0155	No
Post-Closure Phase (36-99)	January	0.0376	0.132	2.09	12.6	0.0180	0.0632	0.0105	No
	February	0.0376	0.132	1.75	9.12	0.0215	0.0754	0.0145	No
	March	0.0375	0.132	2.05	14.1	0.0183	0.0643	0.0093	No
	April	0.0340	0.120	2.05	12.4	0.0166	0.0585	0.0097	No
	May	0.0306	0.0992	1.97	18.8	0.0155	0.0503	0.0053	No
	June	0.0288	0.0965	1.95	15.2	0.0147	0.0495	0.0064	No
	July	0.0297	0.0935	1.84	11.1	0.0161	0.0508	0.0084	No
	August	0.162	0.228	1.84	9.57	0.0881	0.124	0.0239	No
	September	0.0344	0.122	1.89	11.4	0.0182	0.0648	0.0107	No
	October	0.0344	0.124	1.97	13.6	0.0175	0.0630	0.0091	No
	November	0.0358	0.124	2.09	10.8	0.0171	0.0593	0.0115	No
	December	0.0357	0.124	2.09	10.8	0.0171	0.0593	0.0115	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Appendix 13-D21b. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Antimony Concentrations, Upper Bound Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE Working	Drinking Water Quality Guidelines BC Working DWQG	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Working Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC Working DWQG	Aquatic Life	Drinking Water
		Mean	Maximum						
Construction (-2 to-1)	January	0.00005	0.00005	0.020	0.014	0.00254	0.00362	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00124	0.00177	No	No
	May	0.00010	0.00010	0.020	0.014	0.00494	0.00705	No	No
	June	0.00009	0.00009	0.020	0.014	0.00465	0.00664	No	No
	July	0.00010	0.00011	0.020	0.014	0.00551	0.00787	No	No
	August	0.00011	0.00016	0.020	0.014	0.00795	0.0114	No	No
	September	0.00010	0.00018	0.020	0.014	0.00876	0.01252	No	No
	October	0.00008	0.00013	0.020	0.014	0.00652	0.00931	No	No
	November	0.00004	0.00006	0.020	0.014	0.00281	0.00401	No	No
	December	0.00004	0.00005	0.020	0.014	0.00257	0.00367	No	No
Operation 1 Phase (1-23)	January	0.00025	0.00054	0.020	0.014	0.0272	0.0389	No	No
	February	0.00028	0.00063	0.020	0.014	0.0315	0.0450	No	No
	March	0.00033	0.00076	0.020	0.014	0.0381	0.0545	No	No
	April	0.00011	0.00023	0.020	0.014	0.0117	0.0167	No	No
	May	0.00011	0.00014	0.020	0.014	0.00683	0.00976	No	No
	June	0.00012	0.00015	0.020	0.014	0.00733	0.0105	No	No
	July	0.00016	0.00025	0.020	0.014	0.0124	0.0177	No	No
	August	0.00021	0.00041	0.020	0.014	0.0205	0.0293	No	No
	September	0.00018	0.00038	0.020	0.014	0.0191	0.0272	No	No
	October	0.00018	0.00038	0.020	0.014	0.0189	0.0270	No	No
	November	0.00019	0.00040	0.020	0.014	0.0201	0.0287	No	No
	December	0.00023	0.00049	0.020	0.014	0.0243	0.0347	No	No
Operations 2 Phase (24-28)	January	0.00057	0.00062	0.020	0.014	0.0311	0.0444	No	No
	February	0.00065	0.00071	0.020	0.014	0.0354	0.0506	No	No
	March	0.00079	0.00086	0.020	0.014	0.0428	0.0612	No	No
	April	0.00024	0.00026	0.020	0.014	0.0131	0.0187	No	No
	May	0.00014	0.00014	0.020	0.014	0.00704	0.0101	No	No
	June	0.00015	0.00015	0.020	0.014	0.00752	0.0107	No	No
	July	0.00025	0.00026	0.020	0.014	0.0129	0.0185	No	No
	August	0.00041	0.00043	0.020	0.014	0.0216	0.0308	No	No
	September	0.00039	0.00042	0.020	0.014	0.0208	0.0297	No	No
	October	0.00038	0.00041	0.020	0.014	0.0206	0.0294	No	No
	November	0.00041	0.00044	0.020	0.014	0.0218	0.0311	No	No
	December	0.00049	0.00053	0.020	0.014	0.0263	0.0375	No	No
Closure Phase (29-35)	January	0.00122	0.00228	0.020	0.014	0.114	0.163	No	No
	February	0.00134	0.00252	0.020	0.014	0.126	0.180	No	No
	March	0.00149	0.00277	0.020	0.014	0.139	0.198	No	No
	April	0.00155	0.00281	0.020	0.014	0.141	0.201	No	No
	May	0.00124	0.00217	0.020	0.014	0.108	0.155	No	No
	June	0.00181	0.00258	0.020	0.014	0.129	0.184	No	No
	July	0.00108	0.00155	0.020	0.014	0.0776	0.111	No	No
	August	0.00065	0.00097	0.020	0.014	0.0483	0.0689	No	No
	September	0.00141	0.00211	0.020	0.014	0.106	0.151	No	No
	October	0.00188	0.00277	0.020	0.014	0.139	0.198	No	No
	November	0.00119	0.00181	0.020	0.014	0.0907	0.130	No	No
	December	0.00136	0.00206	0.020	0.014	0.103	0.147	No	No
Post-Closure Phase (36-99)	January	0.00166	0.00200	0.020	0.014	0.0999	0.143	No	No
	February	0.00279	0.00319	0.020	0.014	0.160	0.228	No	No
	March	0.00359	0.00404	0.020	0.014	0.202	0.288	No	No
	April	0.00279	0.00320	0.020	0.014	0.160	0.229	No	No
	May	0.00192	0.00219	0.020	0.014	0.110	0.157	No	No
	June	0.00227	0.00259	0.020	0.014	0.129	0.185	No	No
	July	0.00167	0.00187	0.020	0.014	0.0934	0.133	No	No
	August	0.00118	0.00138	0.020	0.014	0.0692	0.0988	No	No
	September	0.00154	0.00186	0.020	0.014	0.0932	0.133	No	No
	October	0.00214	0.00253	0.020	0.014	0.126	0.181	No	No
	November	0.00131	0.00158	0.020	0.014	0.0791	0.113	No	No
	December	0.00149	0.00180	0.020	0.014	0.0901	0.129	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D21d. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Barium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step										Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines		Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum	Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Maximum Predicted vs. Canadian DWQG			
Construction (-2 to-1)	January	0.0091	0.0098	1	5	1	0.0091	0.0098	0.0020		0.0098	No	No
	February	0.0098	0.0102	1	5	1	0.0098	0.0102	0.0020		0.0102	No	No
	March	0.0096	0.0102	1	5	1	0.0096	0.0102	0.0020		0.0102	No	No
	April	0.0106	0.0120	1	5	1	0.0106	0.0120	0.0024		0.0120	No	No
	May	0.0060	0.0063	1	5	1	0.0060	0.0063	0.0013		0.0063	No	No
	June	0.0059	0.0064	1	5	1	0.0059	0.0064	0.0013		0.0064	No	No
	July	0.0073	0.0079	1	5	1	0.0073	0.0079	0.0016		0.0079	No	No
	August	0.0106	0.0111	1	5	1	0.0106	0.0111	0.0022		0.0111	No	No
	September	0.0117	0.0129	1	5	1	0.0117	0.0129	0.0026		0.0129	No	No
	October	0.0107	0.0110	1	5	1	0.0107	0.0110	0.0022		0.0110	No	No
	November	0.0095	0.0104	1	5	1	0.0095	0.0104	0.0021		0.0104	No	No
	December	0.0093	0.0104	1	5	1	0.0093	0.0104	0.0021		0.0104	No	No
Operation 1 Phase (1-23)	January	0.0114	0.0121	1	5	1	0.0114	0.0121	0.0024		0.0121	No	No
	February	0.0116	0.0124	1	5	1	0.0116	0.0124	0.0025		0.0124	No	No
	March	0.0117	0.0127	1	5	1	0.0117	0.0127	0.0025		0.0127	No	No
	April	0.0097	0.0100	1	5	1	0.0097	0.0100	0.0020		0.0100	No	No
	May	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013		0.0065	No	No
	June	0.0065	0.0066	1	5	1	0.0065	0.0066	0.0013		0.0066	No	No
	July	0.0083	0.0085	1	5	1	0.0083	0.0085	0.0017		0.0085	No	No
	August	0.0108	0.0112	1	5	1	0.0108	0.0112	0.0022		0.0112	No	No
	September	0.0113	0.0118	1	5	1	0.0113	0.0118	0.0024		0.0118	No	No
	October	0.0112	0.0116	1	5	1	0.0112	0.0116	0.0023		0.0116	No	No
	November	0.0112	0.0116	1	5	1	0.0112	0.0116	0.0023		0.0116	No	No
	December	0.0114	0.0119	1	5	1	0.0114	0.0119	0.0024		0.0119	No	No
Operations 2 Phase (24-28)	January	0.0122	0.0122	1	5	1	0.0122	0.0122	0.0024		0.0122	No	No
	February	0.0125	0.0125	1	5	1	0.0125	0.0125	0.0025		0.0125	No	No
	March	0.0128	0.0128	1	5	1	0.0128	0.0128	0.0026		0.0128	No	No
	April	0.0100	0.0101	1	5	1	0.0100	0.0101	0.0020		0.0101	No	No
	May	0.0065	0.0065	1	5	1	0.0065	0.0065	0.0013		0.0065	No	No
	June	0.0066	0.0066	1	5	1	0.0066	0.0066	0.0013		0.0066	No	No
	July	0.0085	0.0085	1	5	1	0.0085	0.0085	0.0017		0.0085	No	No
	August	0.0112	0.0112	1	5	1	0.0112	0.0112	0.0022		0.0112	No	No
	September	0.0118	0.0118	1	5	1	0.0118	0.0118	0.0024		0.0118	No	No
	October	0.0117	0.0117	1	5	1	0.0117	0.0117	0.0023		0.0117	No	No
	November	0.0117	0.0117	1	5	1	0.0117	0.0117	0.0023		0.0117	No	No
	December	0.0120	0.0120	1	5	1	0.0120	0.0120	0.0024		0.0120	No	No
Closure Phase (29-35)	January	0.0146	0.0185	1	5	1	0.0146	0.0185	0.0037		0.0185	No	No
	February	0.0150	0.0194	1	5	1	0.0150	0.0194	0.0039		0.0194	No	No
	March	0.0155	0.0203	1	5	1	0.0155	0.0203	0.0041		0.0203	No	No
	April	0.0148	0.0197	1	5	1	0.0148	0.0197	0.0039		0.0197	No	No
	May	0.0109	0.0149	1	5	1	0.0109	0.0149	0.0030		0.0149	No	No
	June	0.0132	0.0166	1	5	1	0.0132	0.0166	0.0033		0.0166	No	No
	July	0.0117	0.0138	1	5	1	0.0117	0.0138	0.0028		0.0138	No	No
	August	0.0122	0.0134	1	5	1	0.0122	0.0134	0.0027		0.0134	No	No
	September	0.0153	0.0181	1	5	1	0.0153	0.0181	0.0036		0.0181	No	No
	October	0.0168	0.0203	1	5	1	0.0168	0.0203	0.0041		0.0203	No	No
	November	0.0144	0.0169	1	5	1	0.0144	0.0169	0.0034		0.0169	No	No
	December	0.0150	0.0178	1	5	1	0.0150	0.0178	0.0036		0.0178	No	No
Post-Closure Phase (36-99)	January	0.0147	0.0164	1	5	1	0.0147	0.0164	0.0033		0.0164	No	No
	February	0.0175	0.0200	1	5	1	0.0175	0.0200	0.0040		0.0200	No	No
	March	0.0194	0.0226	1	5	1	0.0194	0.0226	0.0045		0.0226	No	No
	April	0.0166	0.0195	1	5	1	0.0166	0.0195	0.0039		0.0195	No	No
	May	0.0120	0.0141	1	5	1	0.0120	0.0141	0.0028		0.0141	No	No
	June	0.0131	0.0155	1	5	1	0.0131	0.0155	0.0031		0.0155	No	No
	July	0.0125	0.0140	1	5	1	0.0125	0.0140	0.0028		0.0140	No	No
	August	0.0131	0.0142	1	5	1	0.0131	0.0142	0.0028		0.0142	No	No
	September	0.0144	0.0163	1	5	1	0.0144	0.0163	0.0033		0.0163	No	No
	October	0.0157	0.0182	1	5	1	0.0157	0.0182	0.0036		0.0182	No	No
	November	0.0138	0.0152	1	5	1	0.0138	0.0152	0.0030		0.0152	No	No
	December	0.0143	0.0159	1	5	1	0.0143	0.0159	0.0032		0.0159	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D21g. Harper Creek downstream of T Creek (HT) Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum			
Construction (-2 to-1)	January	12.5	14.0	1000	0.0140	No
	February	13.2	15.3	1000	0.0153	No
	March	13.7	15.6	1000	0.0156	No
	April	15.2	15.6	1000	0.0156	No
	May	8.31	10.1	1000	0.0101	No
	June	7.03	8.79	1000	0.0088	No
	July	9.98	11.7	1000	0.0117	No
	August	13.7	14.1	1000	0.0141	No
	September	15.0	15.2	1000	0.0152	No
	October	14.0	14.9	1000	0.0149	No
	November	12.8	14.8	1000	0.0148	No
	December	12.7	14.8	1000	0.0148	No
Operation 1 Phase (1-23)	January	15.7	17.2	1000	0.0172	No
	February	16.0	17.8	1000	0.0178	No
	March	16.4	18.6	1000	0.0186	No
	April	15.6	16.3	1000	0.0163	No
	May	9.90	10.0	1000	0.0100	No
	June	8.69	8.84	1000	0.0088	No
	July	12.2	12.6	1000	0.0126	No
	August	14.6	15.5	1000	0.0155	No
	September	15.2	16.3	1000	0.0163	No
	October	15.4	16.4	1000	0.0164	No
	November	15.4	16.5	1000	0.0165	No
	December	15.5	16.8	1000	0.0168	No
Operations 2 Phase (24-28)	January	17.5	17.6	1000	0.0176	No
	February	18.1	18.2	1000	0.0182	No
	March	18.9	19.0	1000	0.0190	No
	April	16.4	16.4	1000	0.0164	No
	May	10.0	10.0	1000	0.0100	No
	June	8.88	8.90	1000	0.0089	No
	July	12.7	12.7	1000	0.0127	No
	August	15.6	15.6	1000	0.0156	No
	September	16.4	16.4	1000	0.0164	No
	October	16.5	16.5	1000	0.0165	No
	November	16.6	16.6	1000	0.0166	No
	December	17.0	17.0	1000	0.0170	No
Closure Phase (29-35)	January	23.7	33.4	1000	0.0334	No
	February	24.9	35.5	1000	0.0355	No
	March	26.0	37.6	1000	0.0376	No
	April	27.5	38.7	1000	0.0387	No
	May	20.1	29.0	1000	0.0290	No
	June	24.4	31.9	1000	0.0319	No
	July	20.2	24.9	1000	0.0249	No
	August	18.2	21.2	1000	0.0212	No
	September	25.4	32.0	1000	0.0320	No
	October	29.4	37.8	1000	0.0378	No
	November	23.7	29.5	1000	0.0295	No
	December	24.9	31.5	1000	0.0315	No
Post-Closure Phase (36-99)	January	25.0	29.2	1000	0.0292	No
	February	32.6	38.5	1000	0.0385	No
	March	37.9	45.2	1000	0.0452	No
	April	33.0	39.4	1000	0.0394	No
	May	23.2	27.7	1000	0.0277	No
	June	25.0	30.2	1000	0.0302	No
	July	22.8	26.0	1000	0.0260	No
	August	21.1	23.7	1000	0.0237	No
	September	24.0	28.3	1000	0.0283	No
	October	28.1	33.6	1000	0.0336	No
	November	22.7	26.1	1000	0.0261	No
	December	23.8	27.6	1000	0.0276	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D211. Harper Creek downstream of T Creek (HT) Hazard Quotients for Dissolved and Total Iron Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines BC MOE Maximum Guideline for Dissolved Iron	Aquatic Life Guidelines BC MOE Maximum Guideline for Total Iron	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Aquatic Life	
		Dissolved Iron		Total Iron						Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0065	0.0075	0.0079	0.0080	0.35	1	0.0215	0.0080	No	No
	February	0.0041	0.0049	0.0065	0.0072	0.35	1	0.0140	0.0072	No	No
	March	0.0033	0.0034	0.0054	0.0058	0.35	1	0.0096	0.0058	No	No
	April	0.0147	0.0203	0.0418	0.0589	0.35	1	0.0580	0.0589	No	No
	May	0.0205	0.0212	0.124	0.127	0.35	1	0.0606	0.127	No	No
	June	0.0139	0.0145	0.140	0.145	0.35	1	0.0415	0.145	No	No
	July	0.0116	0.0130	0.0284	0.0323	0.35	1	0.0372	0.0323	No	No
	August	0.0115	0.0157	0.0162	0.0220	0.35	1	0.0449	0.0220	No	No
	September	0.0083	0.0119	0.0199	0.0321	0.35	1	0.0340	0.0321	No	No
	October	0.0102	0.0158	0.0166	0.0258	0.35	1	0.0450	0.0258	No	No
	November	0.0061	0.0078	0.0102	0.0135	0.35	1	0.0222	0.0135	No	No
	December	0.0060	0.0073	0.0094	0.0116	0.35	1	0.0209	0.0116	No	No
Operation 1 Phase (1-23)	January	0.0055	0.0064	0.0082	0.0091	0.35	1	0.0183	0.0091	No	No
	February	0.0054	0.0065	0.0081	0.0092	0.35	1	0.0186	0.0092	No	No
	March	0.0049	0.0062	0.0077	0.0090	0.35	1	0.0178	0.0090	No	No
	April	0.0100	0.0104	0.0267	0.0271	0.35	1	0.0297	0.0271	No	No
	May	0.0200	0.0200	0.124	0.124	0.35	1	0.0572	0.124	No	No
	June	0.0135	0.0135	0.142	0.143	0.35	1	0.0386	0.143	No	No
	July	0.0102	0.0103	0.0252	0.0255	0.35	1	0.0295	0.0255	No	No
	August	0.0077	0.0082	0.0110	0.0115	0.35	1	0.0236	0.0115	No	No
	September	0.0050	0.0056	0.0082	0.0088	0.35	1	0.0161	0.0088	No	No
	October	0.0051	0.0057	0.0079	0.0085	0.35	1	0.0164	0.0085	No	No
	November	0.0049	0.0056	0.0077	0.0083	0.35	1	0.0159	0.0083	No	No
	December	0.0052	0.0060	0.0079	0.0087	0.35	1	0.0171	0.0087	No	No
Operations 2 Phase (24-28)	January	0.0066	0.0066	0.0092	0.0093	0.35	1	0.0189	0.0093	No	No
	February	0.0067	0.0067	0.0093	0.0094	0.35	1	0.0192	0.0094	No	No
	March	0.0064	0.0065	0.0092	0.0092	0.35	1	0.0185	0.0092	No	No
	April	0.0105	0.0105	0.0272	0.0272	0.35	1	0.0299	0.0272	No	No
	May	0.0200	0.0200	0.124	0.124	0.35	1	0.0572	0.124	No	No
	June	0.0135	0.0135	0.142	0.142	0.35	1	0.0386	0.142	No	No
	July	0.0104	0.0104	0.0255	0.0255	0.35	1	0.0296	0.0255	No	No
	August	0.0083	0.0083	0.0115	0.0115	0.35	1	0.0238	0.0115	No	No
	September	0.0057	0.0057	0.0088	0.0088	0.35	1	0.0163	0.0088	No	No
	October	0.0058	0.0058	0.0086	0.0086	0.35	1	0.0166	0.0086	No	No
	November	0.0056	0.0056	0.0084	0.0084	0.35	1	0.0161	0.0084	No	No
	December	0.0061	0.0061	0.0088	0.0088	0.35	1	0.0174	0.0088	No	No
Closure Phase (29-35)	January	0.0077	0.0104	0.0111	0.0145	0.35	1	0.0296	0.0145	No	No
	February	0.0078	0.0108	0.0113	0.0151	0.35	1	0.0309	0.0151	No	No
	March	0.0076	0.0110	0.0113	0.0155	0.35	1	0.0315	0.0155	No	No
	April	0.0125	0.0149	0.0275	0.0283	0.35	1	0.0426	0.0283	No	No
	May	0.0204	0.0210	0.109	0.124	0.35	1	0.0599	0.124	No	No
	June	0.0157	0.0168	0.116	0.142	0.35	1	0.0480	0.142	No	No
	July	0.0118	0.0126	0.0259	0.0263	0.35	1	0.0361	0.0263	No	No
	August	0.0086	0.0093	0.0121	0.0130	0.35	1	0.0265	0.0130	No	No
	September	0.0080	0.0098	0.0120	0.0141	0.35	1	0.0279	0.0141	No	No
	October	0.0093	0.0115	0.0133	0.0160	0.35	1	0.0329	0.0160	No	No
	November	0.0073	0.0089	0.0108	0.0127	0.35	1	0.0254	0.0127	No	No
	December	0.0079	0.0096	0.0115	0.0136	0.35	1	0.0275	0.0136	No	No
Post-Closure Phase (36-99)	January	0.0096	0.0100	0.0142	0.0146	0.35	1	0.0286	0.0146	No	No
	February	0.0131	0.0139	0.0190	0.0200	0.35	1	0.0397	0.0200	No	No
	March	0.0152	0.0164	0.0221	0.0236	0.35	1	0.0470	0.0236	No	No
	April	0.0161	0.0170	0.0300	0.0313	0.35	1	0.0486	0.0313	No	No
	May	0.0212	0.0218	0.0980	0.0989	0.35	1	0.0624	0.0989	No	No
	June	0.0172	0.0180	0.105	0.106	0.35	1	0.0513	0.106	No	No
	July	0.0136	0.0142	0.0276	0.0283	0.35	1	0.0405	0.0283	No	No
	August	0.0103	0.0105	0.0146	0.0150	0.35	1	0.0301	0.0150	No	No
	September	0.0091	0.0095	0.0138	0.0143	0.35	1	0.0270	0.0143	No	No
	October	0.0110	0.0117	0.0162	0.0170	0.35	1	0.0333	0.0170	No	No
	November	0.0083	0.0086	0.0125	0.0128	0.35	1	0.0245	0.0128	No	No
	December	0.0090	0.0093	0.0134	0.0138	0.35	1	0.0266	0.0138	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

Appendix 13-D21n. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Lithium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step								Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline				
		Mean	Maximum	BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life	
Construction (-2 to-1)	January	0.0007	0.0008	0.096	0.87	0.0072	0.0081	0.0072	0.0009	No
	February	0.0008	0.0008	0.096	0.87	0.0080	0.0084	0.0080	0.0009	No
	March	0.0007	0.0008	0.096	0.87	0.0072	0.0084	0.0072	0.0009	No
	April	0.0006	0.0006	0.096	0.87	0.0064	0.0065	0.0064	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0057	0.0053	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0052	0.0057	0.0052	0.0006	No
	July	0.0006	0.0007	0.096	0.87	0.0064	0.0068	0.0064	0.0008	No
	August	0.0008	0.0009	0.096	0.87	0.0088	0.0092	0.0088	0.0010	No
	September	0.0009	0.0009	0.096	0.87	0.0090	0.0093	0.0090	0.0010	No
	October	0.0009	0.0009	0.096	0.87	0.0096	0.0098	0.0096	0.0011	No
	November	0.0007	0.0008	0.096	0.87	0.0070	0.0087	0.0070	0.0010	No
	December	0.0007	0.0008	0.096	0.87	0.0071	0.0086	0.0071	0.0010	No
Operation 1 Phase (1-23)	January	0.0011	0.0013	0.096	0.87	0.0113	0.0137	0.0113	0.0015	No
	February	0.0011	0.0014	0.096	0.87	0.0117	0.0146	0.0117	0.0016	No
	March	0.0012	0.0015	0.096	0.87	0.0122	0.0157	0.0122	0.0017	No
	April	0.0007	0.0008	0.096	0.87	0.0074	0.0084	0.0074	0.0009	No
	May	0.0006	0.0006	0.096	0.87	0.0059	0.0060	0.0059	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0060	0.0062	0.0060	0.0007	No
	July	0.0007	0.0008	0.096	0.87	0.0076	0.0082	0.0076	0.0009	No
	August	0.0010	0.0011	0.096	0.87	0.0100	0.0114	0.0100	0.0013	No
	September	0.0010	0.0012	0.096	0.87	0.0106	0.0122	0.0106	0.0013	No
	October	0.0011	0.0012	0.096	0.87	0.0110	0.0125	0.0110	0.0014	No
	November	0.0010	0.0012	0.096	0.87	0.0106	0.0123	0.0106	0.0014	No
	December	0.0011	0.0013	0.096	0.87	0.0111	0.0131	0.0111	0.0015	No
Operations 2 Phase (24-28)	January	0.0014	0.0014	0.096	0.87	0.0141	0.0142	0.0141	0.0016	No
	February	0.0014	0.0015	0.096	0.87	0.0150	0.0151	0.0150	0.0017	No
	March	0.0016	0.0016	0.096	0.87	0.0162	0.0163	0.0162	0.0018	No
	April	0.0008	0.0008	0.096	0.87	0.0085	0.0086	0.0085	0.0009	No
	May	0.0006	0.0006	0.096	0.87	0.0061	0.0061	0.0061	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0062	0.0062	0.0062	0.0007	No
	July	0.0008	0.0008	0.096	0.87	0.0083	0.0083	0.0083	0.0009	No
	August	0.0011	0.0011	0.096	0.87	0.0115	0.0115	0.0115	0.0013	No
	September	0.0012	0.0012	0.096	0.87	0.0124	0.0124	0.0124	0.0014	No
	October	0.0012	0.0012	0.096	0.87	0.0127	0.0128	0.0127	0.0014	No
	November	0.0012	0.0012	0.096	0.87	0.0125	0.0125	0.0125	0.0014	No
	December	0.0013	0.0013	0.096	0.87	0.0134	0.0134	0.0134	0.0015	No
Closure Phase (29-35)	January	0.0025	0.0041	0.096	0.87	0.0258	0.0430	0.0258	0.0047	No
	February	0.0027	0.0045	0.096	0.87	0.0277	0.0466	0.0277	0.0051	No
	March	0.0028	0.0048	0.096	0.87	0.0296	0.0503	0.0296	0.0055	No
	April	0.0028	0.0048	0.096	0.87	0.0293	0.0498	0.0293	0.0055	No
	May	0.0022	0.0037	0.096	0.87	0.0232	0.0385	0.0232	0.0042	No
	June	0.0031	0.0043	0.096	0.87	0.0321	0.0448	0.0321	0.0049	No
	July	0.0021	0.0029	0.096	0.87	0.0215	0.0297	0.0215	0.0033	No
	August	0.0016	0.0021	0.096	0.87	0.0164	0.0217	0.0164	0.0024	No
	September	0.0028	0.0039	0.096	0.87	0.0287	0.0405	0.0287	0.0045	No
	October	0.0035	0.0049	0.096	0.87	0.0359	0.0510	0.0359	0.0056	No
	November	0.0024	0.0034	0.096	0.87	0.0255	0.0359	0.0255	0.0040	No
	December	0.0027	0.0038	0.096	0.87	0.0279	0.0396	0.0279	0.0044	No
Post-Closure Phase (36-99)	January	0.0029	0.0036	0.096	0.87	0.0301	0.0375	0.0301	0.0041	No
	February	0.0043	0.0053	0.096	0.87	0.0450	0.0552	0.0450	0.0061	No
	March	0.0053	0.0065	0.096	0.87	0.0555	0.0675	0.0555	0.0074	No
	April	0.0042	0.0051	0.096	0.87	0.0438	0.0535	0.0438	0.0059	No
	May	0.0030	0.0036	0.096	0.87	0.0308	0.0375	0.0308	0.0041	No
	June	0.0034	0.0042	0.096	0.87	0.0357	0.0435	0.0357	0.0048	No
	July	0.0027	0.0032	0.096	0.87	0.0281	0.0337	0.0281	0.0037	No
	August	0.0022	0.0026	0.096	0.87	0.0228	0.0276	0.0228	0.0030	No
	September	0.0027	0.0034	0.096	0.87	0.0285	0.0354	0.0285	0.0039	No
	October	0.0035	0.0044	0.096	0.87	0.0366	0.0454	0.0366	0.0050	No
	November	0.0024	0.0030	0.096	0.87	0.0255	0.0316	0.0255	0.0035	No
	December	0.0027	0.0033	0.096	0.87	0.0279	0.0348	0.0279	0.0038	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D21o. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Manganese Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.0006	0.0006	0.759	0.926	0.0008	0.0009	0.0007	No
	February	0.0007	0.0007	0.760	0.929	0.0009	0.0009	0.0007	No
	March	0.0005	0.0007	0.770	0.953	0.0007	0.0009	0.0007	No
	April	0.0020	0.0027	0.810	1.05	0.0025	0.0033	0.0026	No
	May	0.0059	0.0061	0.693	0.761	0.0085	0.0089	0.0081	No
	June	0.0068	0.0068	0.676	0.719	0.0100	0.0101	0.0095	No
	July	0.0014	0.0016	0.713	0.811	0.0020	0.0022	0.0020	No
	August	0.0014	0.0018	0.788	1.00	0.0018	0.0023	0.0018	No
	September	0.0018	0.0028	0.814	1.06	0.0022	0.0034	0.0026	No
	October	0.0017	0.0026	0.783	0.986	0.0022	0.0033	0.0026	No
	November	0.0010	0.0011	0.753	0.910	0.0013	0.0014	0.0012	No
	December	0.0008	0.0008	0.754	0.913	0.0011	0.0011	0.0009	No
Operation 1 Phase (1-23)	January	0.0578	0.130	0.759	0.926	0.0761	0.171	0.140	No
	February	0.0680	0.153	0.760	0.929	0.0894	0.201	0.165	No
	March	0.0804	0.182	0.770	0.953	0.104	0.236	0.191	No
	April	0.0249	0.0545	0.810	1.05	0.0307	0.0673	0.0517	No
	May	0.0099	0.0150	0.693	0.761	0.0142	0.0216	0.0197	No
	June	0.0116	0.0176	0.676	0.719	0.0172	0.0260	0.0244	No
	July	0.0160	0.0332	0.713	0.811	0.0225	0.0466	0.0410	No
	August	0.0318	0.0692	0.788	1.00	0.0404	0.0878	0.0693	No
	September	0.0403	0.0883	0.814	1.06	0.0495	0.109	0.0831	No
	October	0.0400	0.0874	0.783	0.986	0.0510	0.112	0.0886	No
	November	0.0426	0.0929	0.753	0.910	0.0566	0.123	0.102	No
	December	0.0522	0.114	0.754	0.913	0.0693	0.151	0.125	No
Operations 2 Phase (24-28)	January	0.133	0.146	0.759	0.926	0.175	0.192	0.157	No
	February	0.156	0.171	0.760	0.929	0.205	0.224	0.183	No
	March	0.185	0.202	0.770	0.953	0.240	0.262	0.212	No
	April	0.0554	0.0604	0.810	1.05	0.0684	0.0746	0.0574	No
	May	0.0151	0.0159	0.693	0.761	0.0217	0.0229	0.0209	No
	June	0.0176	0.0185	0.676	0.719	0.0260	0.0273	0.0257	No
	July	0.0333	0.0357	0.713	0.811	0.0467	0.0501	0.0440	No
	August	0.0690	0.0739	0.788	1.00	0.0875	0.0998	0.0741	No
	September	0.0883	0.0959	0.814	1.06	0.108	0.118	0.0902	No
	October	0.0871	0.0946	0.783	0.986	0.111	0.121	0.0960	No
	November	0.0922	0.0999	0.753	0.910	0.122	0.133	0.110	No
	December	0.113	0.122	0.754	0.913	0.149	0.162	0.134	No
Closure Phase (29-35)	January	0.148	0.289	0.759	0.926	0.195	0.381	0.312	No
	February	0.163	0.320	0.760	0.929	0.215	0.421	0.344	No
	March	0.181	0.351	0.770	0.953	0.234	0.456	0.368	No
	April	0.193	0.360	0.810	1.05	0.239	0.444	0.341	No
	May	0.150	0.273	0.693	0.761	0.217	0.394	0.359	No
	June	0.224	0.326	0.676	0.719	0.332	0.482	0.454	No
	July	0.126	0.191	0.713	0.811	0.176	0.268	0.236	No
	August	0.0707	0.114	0.788	1.00	0.0897	0.144	0.114	No
	September	0.172	0.268	0.814	1.06	0.211	0.329	0.252	No
	October	0.231	0.353	0.783	0.986	0.296	0.451	0.358	No
	November	0.145	0.229	0.753	0.910	0.193	0.305	0.252	No
	December	0.165	0.260	0.754	0.913	0.219	0.345	0.285	No
Post-Closure Phase (36-99)	January	0.184	0.248	0.759	0.926	0.243	0.326	0.268	No
	February	0.312	0.400	0.760	0.929	0.411	0.526	0.431	No
	March	0.403	0.506	0.770	0.953	0.523	0.657	0.531	No
	April	0.315	0.400	0.810	1.05	0.388	0.493	0.379	No
	May	0.213	0.271	0.693	0.761	0.307	0.391	0.356	No
	June	0.254	0.322	0.676	0.719	0.375	0.476	0.448	No
	July	0.180	0.228	0.713	0.811	0.253	0.319	0.281	No
	August	0.125	0.166	0.788	1.00	0.159	0.210	0.166	No
	September	0.170	0.230	0.814	1.06	0.209	0.283	0.217	No
	October	0.238	0.315	0.783	0.986	0.304	0.402	0.319	No
	November	0.145	0.196	0.753	0.910	0.192	0.261	0.216	No
	December	0.165	0.224	0.754	0.913	0.219	0.297	0.245	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D21r. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Nickel Concentrations, Upper BoundCase

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0002	0.0002	0.025	1	0.0099	0.0002	No	No
	February	0.0001	0.0001	0.025	1	0.0033	0.0001	No	No
	March	0.0001	0.0001	0.025	1	0.0034	0.0001	No	No
	April	0.0001	0.0001	0.025	1	0.0056	0.0001	No	No
	May	0.0004	0.0005	0.025	1	0.0185	0.0005	No	No
	June	0.0005	0.0006	0.025	1	0.0222	0.0006	No	No
	July	0.0004	0.0005	0.025	1	0.0184	0.0005	No	No
	August	0.0004	0.0006	0.025	1	0.0230	0.0006	No	No
	September	0.0003	0.0005	0.025	1	0.0195	0.0005	No	No
	October	0.0003	0.0004	0.025	1	0.0165	0.0004	No	No
	November	0.0002	0.0003	0.025	1	0.0109	0.0003	No	No
	December	0.0002	0.0002	0.025	1	0.0100	0.0002	No	No
Operation 1 Phase (1-23)	January	0.0006	0.0012	0.025	1	0.0467	0.0012	No	No
	February	0.0007	0.0013	0.025	1	0.0523	0.0013	No	No
	March	0.0008	0.0016	0.025	1	0.0621	0.0016	No	No
	April	0.0003	0.0005	0.025	1	0.0211	0.0005	No	No
	May	0.0005	0.0005	0.025	1	0.0214	0.0005	No	No
	June	0.0006	0.0006	0.025	1	0.0250	0.0006	No	No
	July	0.0005	0.0007	0.025	1	0.0262	0.0007	No	No
	August	0.0005	0.0008	0.025	1	0.0337	0.0008	No	No
	September	0.0005	0.0008	0.025	1	0.0329	0.0008	No	No
	October	0.0005	0.0008	0.025	1	0.0329	0.0008	No	No
	November	0.0005	0.0009	0.025	1	0.0347	0.0009	No	No
	December	0.0006	0.0010	0.025	1	0.0415	0.0010	No	No
Operations 2 Phase (24-28)	January	0.0013	0.0013	0.025	1	0.0513	0.0013	No	No
	February	0.0014	0.0014	0.025	1	0.0572	0.0014	No	No
	March	0.0017	0.0017	0.025	1	0.0678	0.0017	No	No
	April	0.0006	0.0006	0.025	1	0.0228	0.0006	No	No
	May	0.0005	0.0005	0.025	1	0.0217	0.0005	No	No
	June	0.0006	0.0006	0.025	1	0.0254	0.0006	No	No
	July	0.0007	0.0007	0.025	1	0.0268	0.0007	No	No
	August	0.0009	0.0009	0.025	1	0.0350	0.0009	No	No
	September	0.0009	0.0009	0.025	1	0.0349	0.0009	No	No
	October	0.0009	0.0009	0.025	1	0.0348	0.0009	No	No
	November	0.0009	0.0009	0.025	1	0.0366	0.0009	No	No
	December	0.0011	0.0011	0.025	1	0.0437	0.0011	No	No
Closure Phase (29-35)	January	0.0022	0.0041	0.025	1	0.164	0.0041	No	No
	February	0.0024	0.0045	0.025	1	0.180	0.0045	No	No
	March	0.0026	0.0049	0.025	1	0.197	0.0049	No	No
	April	0.0028	0.0050	0.025	1	0.201	0.0050	No	No
	May	0.0024	0.0040	0.025	1	0.162	0.0040	No	No
	June	0.0035	0.0048	0.025	1	0.193	0.0048	No	No
	July	0.0021	0.0029	0.025	1	0.117	0.0029	No	No
	August	0.0013	0.0018	0.025	1	0.0726	0.0018	No	No
	September	0.0025	0.0038	0.025	1	0.152	0.0038	No	No
	October	0.0034	0.0050	0.025	1	0.198	0.0050	No	No
	November	0.0022	0.0033	0.025	1	0.131	0.0033	No	No
	December	0.0024	0.0037	0.025	1	0.148	0.0037	No	No
Post-Closure Phase (36-99)	January	0.0035	0.0042	0.025	1	0.170	0.0042	No	No
	February	0.0058	0.0070	0.025	1	0.279	0.0070	No	No
	March	0.0075	0.0089	0.025	1	0.357	0.0089	No	No
	April	0.0059	0.0070	0.025	1	0.278	0.0070	No	No
	May	0.0042	0.0049	0.025	1	0.197	0.0049	No	No
	June	0.0050	0.0058	0.025	1	0.234	0.0058	No	No
	July	0.0036	0.0043	0.025	1	0.170	0.0043	No	No
	August	0.0025	0.0030	0.025	1	0.120	0.0030	No	No
	September	0.0032	0.0039	0.025	1	0.156	0.0039	No	No
	October	0.0045	0.0054	0.025	1	0.215	0.0054	No	No
	November	0.0028	0.0034	0.025	1	0.137	0.0034	No	No
	December	0.0031	0.0039	0.025	1	0.156	0.0039	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guideline is hardness dependent

Appendix 13-D21t. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Silver Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.000009	0.000009	0.00005	0.0001	0.174	0.187	0.0933	No
	February	0.000005	0.000005	0.00005	0.0001	0.0920	0.100	0.0500	No
	March	0.000005	0.000005	0.00005	0.0001	0.0926	0.100	0.0500	No
	April	0.000006	0.000006	0.00005	0.0001	0.112	0.124	0.0620	No
	May	0.000013	0.000013	0.00005	0.0001	0.251	0.264	0.132	No
	June	0.000009	0.000010	0.00005	0.0001	0.185	0.198	0.0992	No
	July	0.000019	0.000023	0.00005	0.0001	0.390	0.454	0.227	No
	August	0.000019	0.000028	0.00005	0.0001	0.381	0.556	0.278	No
	September	0.000018	0.000031	0.00005	0.0001	0.367	0.613	0.307	No
	October	0.000015	0.000024	0.00005	0.0001	0.300	0.470	0.235	No
	November	0.000006	0.000007	0.00005	0.0001	0.125	0.140	0.0702	No
	December	0.000007	0.000008	0.00005	0.0001	0.143	0.159	0.0794	No
Operation 1 Phase (1-23)	January	0.000008	0.000009	0.00005	0.0001	0.156	0.188	0.0939	No
	February	0.000007	0.000009	0.00005	0.0001	0.136	0.174	0.0872	No
	March	0.000007	0.000009	0.00005	0.0001	0.143	0.189	0.0945	No
	April	0.000006	0.000006	0.00005	0.0001	0.113	0.126	0.0630	No
	May	0.000012	0.000012	0.00005	0.0001	0.243	0.244	0.122	No
	June	0.000010	0.000010	0.00005	0.0001	0.199	0.202	0.101	No
	July	0.000017	0.000017	0.00005	0.0001	0.335	0.342	0.171	No
	August	0.000011	0.000012	0.00005	0.0001	0.225	0.244	0.122	No
	September	0.000007	0.000008	0.00005	0.0001	0.136	0.157	0.0785	No
	October	0.000007	0.000008	0.00005	0.0001	0.142	0.163	0.0814	No
	November	0.000006	0.000008	0.00005	0.0001	0.129	0.152	0.0759	No
	December	0.000007	0.000009	0.00005	0.0001	0.143	0.170	0.0852	No
Operations 2 Phase (24-28)	January	0.000010	0.000010	0.00005	0.0001	0.194	0.195	0.0975	No
	February	0.000009	0.000009	0.00005	0.0001	0.180	0.182	0.0909	No
	March	0.000010	0.000010	0.00005	0.0001	0.196	0.198	0.0990	No
	April	0.000006	0.000006	0.00005	0.0001	0.128	0.129	0.0643	No
	May	0.000012	0.000012	0.00005	0.0001	0.244	0.244	0.122	No
	June	0.000010	0.000010	0.00005	0.0001	0.202	0.203	0.101	No
	July	0.000017	0.000017	0.00005	0.0001	0.342	0.343	0.171	No
	August	0.000012	0.000012	0.00005	0.0001	0.245	0.245	0.123	No
	September	0.000008	0.000008	0.00005	0.0001	0.159	0.160	0.0800	No
	October	0.000008	0.000008	0.00005	0.0001	0.165	0.166	0.0828	No
	November	0.000008	0.000008	0.00005	0.0001	0.154	0.155	0.0773	No
	December	0.000009	0.000009	0.00005	0.0001	0.173	0.174	0.0869	No
Closure Phase (29-35)	January	0.000015	0.000023	0.00005	0.0001	0.297	0.464	0.232	No
	February	0.000015	0.000024	0.00005	0.0001	0.295	0.484	0.242	No
	March	0.000016	0.000026	0.00005	0.0001	0.316	0.521	0.261	No
	April	0.000017	0.000027	0.00005	0.0001	0.331	0.532	0.266	No
	May	0.000020	0.000026	0.00005	0.0001	0.393	0.525	0.262	No
	June	0.000022	0.000028	0.00005	0.0001	0.438	0.552	0.276	No
	July	0.000022	0.000025	0.00005	0.0001	0.444	0.509	0.255	No
	August	0.000014	0.000016	0.00005	0.0001	0.283	0.330	0.165	No
	September	0.000016	0.000022	0.00005	0.0001	0.317	0.431	0.215	No
	October	0.000020	0.000027	0.00005	0.0001	0.392	0.536	0.268	No
	November	0.000014	0.000019	0.00005	0.0001	0.279	0.379	0.190	No
	December	0.000015	0.000021	0.00005	0.0001	0.310	0.423	0.211	No
Post-Closure Phase (36-99)	January	0.000017	0.000021	0.00005	0.0001	0.341	0.416	0.208	No
	February	0.000024	0.000029	0.00005	0.0001	0.478	0.582	0.291	No
	March	0.000029	0.000036	0.00005	0.0001	0.587	0.710	0.355	No
	April	0.000024	0.000029	0.00005	0.0001	0.479	0.581	0.291	No
	May	0.000023	0.000026	0.00005	0.0001	0.452	0.521	0.261	No
	June	0.000023	0.000027	0.00005	0.0001	0.465	0.546	0.273	No
	July	0.000024	0.000027	0.00005	0.0001	0.489	0.544	0.272	No
	August	0.000017	0.000019	0.00005	0.0001	0.340	0.387	0.193	No
	September	0.000016	0.000019	0.00005	0.0001	0.315	0.387	0.193	No
	October	0.000020	0.000025	0.00005	0.0001	0.400	0.491	0.246	No
	November	0.000014	0.000017	0.00005	0.0001	0.280	0.341	0.171	No
	December	0.000016	0.000019	0.00005	0.0001	0.310	0.381	0.190	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D21u. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Thallium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum						
Construction (-2 to-1)	January	0.000005	0.000005	0.0003	0.002	0.0169	0.00254	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00826	0.00124	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0329	0.00493	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0310	0.00464	No	No
	July	0.000010	0.000011	0.0003	0.002	0.0367	0.00551	No	No
	August	0.000011	0.000016	0.0003	0.002	0.0530	0.00795	No	No
	September	0.000010	0.000016	0.0003	0.002	0.0524	0.00786	No	No
	October	0.000008	0.000013	0.0003	0.002	0.0443	0.00664	No	No
	November	0.000004	0.000006	0.0003	0.002	0.0187	0.00281	No	No
	December	0.000004	0.000005	0.0003	0.002	0.0171	0.00257	No	No
Operation 1 Phase (1-23)	January	0.000004	0.000005	0.0003	0.002	0.0155	0.00233	No	No
	February	0.000003	0.000004	0.0003	0.002	0.0139	0.00208	No	No
	March	0.000003	0.000005	0.0003	0.002	0.0153	0.00229	No	No
	April	0.000002	0.000003	0.0003	0.002	0.00918	0.00138	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0332	0.00499	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0314	0.00470	No	No
	July	0.000008	0.000008	0.0003	0.002	0.0282	0.00424	No	No
	August	0.000006	0.000007	0.0003	0.002	0.0227	0.00341	No	No
	September	0.000003	0.000004	0.0003	0.002	0.0137	0.00205	No	No
	October	0.000003	0.000004	0.0003	0.002	0.0130	0.00195	No	No
	November	0.000003	0.000004	0.0003	0.002	0.0128	0.00191	No	No
	December	0.000003	0.000004	0.0003	0.002	0.0141	0.00212	No	No
Operations 2 Phase (24-28)	January	0.000005	0.000005	0.0003	0.002	0.0162	0.00243	No	No
	February	0.000004	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	March	0.000005	0.000005	0.0003	0.002	0.0161	0.00242	No	No
	April	0.000003	0.000003	0.0003	0.002	0.00942	0.00141	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00499	No	No
	June	0.000009	0.000009	0.0003	0.002	0.0314	0.00471	No	No
	July	0.000009	0.000009	0.0003	0.002	0.0284	0.00426	No	No
	August	0.000007	0.000007	0.0003	0.002	0.0230	0.00345	No	No
	September	0.000004	0.000004	0.0003	0.002	0.0140	0.00210	No	No
	October	0.000004	0.000004	0.0003	0.002	0.0133	0.00199	No	No
	November	0.000004	0.000004	0.0003	0.002	0.0130	0.00196	No	No
	December	0.000004	0.000004	0.0003	0.002	0.0144	0.00216	No	No
Closure Phase (29-35)	January	0.000008	0.000014	0.0003	0.002	0.0460	0.00689	No	No
	February	0.000008	0.000014	0.0003	0.002	0.0480	0.00720	No	No
	March	0.000009	0.000016	0.0003	0.002	0.0520	0.00780	No	No
	April	0.000009	0.000016	0.0003	0.002	0.0532	0.00798	No	No
	May	0.000014	0.000018	0.0003	0.002	0.0605	0.00907	No	No
	June	0.000016	0.000019	0.0003	0.002	0.0645	0.00967	No	No
	July	0.000012	0.000014	0.0003	0.002	0.0475	0.00712	No	No
	August	0.000008	0.000010	0.0003	0.002	0.0324	0.00485	No	No
	September	0.000009	0.000013	0.0003	0.002	0.0434	0.00651	No	No
	October	0.000011	0.000016	0.0003	0.002	0.0538	0.00807	No	No
	November	0.000008	0.000011	0.0003	0.002	0.0376	0.00564	No	No
	December	0.000009	0.000013	0.0003	0.002	0.0418	0.00627	No	No
Post-Closure Phase (36-99)	January	0.000010	0.000012	0.0003	0.002	0.0397	0.00595	No	No
	February	0.000015	0.000017	0.0003	0.002	0.0568	0.00851	No	No
	March	0.000019	0.000021	0.0003	0.002	0.0701	0.0105	No	No
	April	0.000015	0.000017	0.0003	0.002	0.0569	0.00853	No	No
	May	0.000016	0.000018	0.0003	0.002	0.0589	0.00883	No	No
	June	0.000017	0.000019	0.0003	0.002	0.0624	0.00936	No	No
	July	0.000014	0.000015	0.0003	0.002	0.0504	0.00756	No	No
	August	0.000010	0.000011	0.0003	0.002	0.0377	0.00565	No	No
	September	0.000010	0.000011	0.0003	0.002	0.0376	0.00564	No	No
	October	0.000012	0.000014	0.0003	0.002	0.0475	0.00713	No	No
	November	0.000008	0.000010	0.0003	0.002	0.0325	0.00488	No	No
	December	0.000009	0.000011	0.0003	0.002	0.0362	0.00544	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D21v. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Uranium Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0163	0.0016	No	No	No
	February	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0176	0.0018	No	No	No
	March	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0174	0.0017	No	No	No
	April	0.0003	0.0004	0.3	0.02	0.2	0.0013	0.0194	0.0019	No	No	No
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0159	0.0016	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0133	0.0013	No	No	No
	July	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0156	0.0016	No	No	No
	August	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0202	0.0020	No	No	No
	September	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0214	0.0021	No	No	No
	October	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0195	0.0019	No	No	No
	November	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0175	0.0017	No	No	No
	December	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0175	0.0018	No	No	No
Operation 1 Phase (1-23)	January	0.0005	0.0007	0.3	0.02	0.2	0.0022	0.0333	0.0033	No	No	No
	February	0.0005	0.0007	0.3	0.02	0.2	0.0024	0.0362	0.0036	No	No	No
	March	0.0006	0.0008	0.3	0.02	0.2	0.0026	0.0396	0.0040	No	No	No
	April	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0214	0.0021	No	No	No
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0164	0.0016	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0153	0.0015	No	No	No
	July	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0203	0.0020	No	No	No
	August	0.0004	0.0005	0.3	0.02	0.2	0.0018	0.0268	0.0027	No	No	No
	September	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0286	0.0029	No	No	No
	October	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0282	0.0028	No	No	No
	November	0.0005	0.0006	0.3	0.02	0.2	0.0019	0.0289	0.0029	No	No	No
	December	0.0005	0.0006	0.3	0.02	0.2	0.0021	0.0316	0.0032	No	No	No
Operations 2 Phase (24-28)	January	0.0007	0.0007	0.3	0.02	0.2	0.0023	0.0349	0.0035	No	No	No
	February	0.0007	0.0008	0.3	0.02	0.2	0.0025	0.0380	0.0038	No	No	No
	March	0.0008	0.0008	0.3	0.02	0.2	0.0028	0.0417	0.0042	No	No	No
	April	0.0004	0.0004	0.3	0.02	0.2	0.0015	0.0220	0.0022	No	No	No
	May	0.0003	0.0003	0.3	0.02	0.2	0.0011	0.0164	0.0016	No	No	No
	June	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0153	0.0015	No	No	No
	July	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0205	0.0021	No	No	No
	August	0.0005	0.0005	0.3	0.02	0.2	0.0018	0.0271	0.0027	No	No	No
	September	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0293	0.0029	No	No	No
	October	0.0006	0.0006	0.3	0.02	0.2	0.0019	0.0289	0.0029	No	No	No
	November	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0295	0.0030	No	No	No
	December	0.0006	0.0006	0.3	0.02	0.2	0.0022	0.0323	0.0032	No	No	No
Closure Phase (29-35)	January	0.0009	0.0015	0.3	0.02	0.2	0.0049	0.0734	0.0073	No	No	No
	February	0.0010	0.0016	0.3	0.02	0.2	0.0053	0.0794	0.0079	No	No	No
	March	0.0011	0.0017	0.3	0.02	0.2	0.0057	0.0854	0.0085	No	No	No
	April	0.0011	0.0017	0.3	0.02	0.2	0.0056	0.0844	0.0084	No	No	No
	May	0.0009	0.0013	0.3	0.02	0.2	0.0045	0.0670	0.0067	No	No	No
	June	0.0011	0.0015	0.3	0.02	0.2	0.0051	0.0763	0.0076	No	No	No
	July	0.0008	0.0011	0.3	0.02	0.2	0.0035	0.0527	0.0053	No	No	No
	August	0.0006	0.0008	0.3	0.02	0.2	0.0027	0.0401	0.0040	No	No	No
	September	0.0010	0.0014	0.3	0.02	0.2	0.0046	0.0692	0.0069	No	No	No
	October	0.0013	0.0017	0.3	0.02	0.2	0.0057	0.0851	0.0085	No	No	No
	November	0.0009	0.0012	0.3	0.02	0.2	0.0041	0.0618	0.0062	No	No	No
	December	0.0010	0.0014	0.3	0.02	0.2	0.0045	0.0679	0.0068	No	No	No
Post-Closure Phase (36-99)	January	0.0012	0.0014	0.3	0.02	0.2	0.0045	0.0682	0.0068	No	No	No
	February	0.0017	0.0020	0.3	0.02	0.2	0.0066	0.0987	0.0099	No	No	No
	March	0.0021	0.0024	0.3	0.02	0.2	0.0080	0.1202	0.0120	No	No	No
	April	0.0017	0.0019	0.3	0.02	0.2	0.0064	0.0954	0.0095	No	No	No
	May	0.0012	0.0014	0.3	0.02	0.2	0.0046	0.0688	0.0069	No	No	No
	June	0.0014	0.0016	0.3	0.02	0.2	0.0052	0.0781	0.0078	No	No	No
	July	0.0011	0.0012	0.3	0.02	0.2	0.0042	0.0623	0.0062	No	No	No
	August	0.0009	0.0010	0.3	0.02	0.2	0.0034	0.0517	0.0052	No	No	No
	September	0.0011	0.0013	0.3	0.02	0.2	0.0043	0.0643	0.0064	No	No	No
	October	0.0014	0.0016	0.3	0.02	0.2	0.0054	0.0807	0.0081	No	No	No
	November	0.0010	0.0012	0.3	0.02	0.2	0.0039	0.0578	0.0058	No	No	No
	December	0.0011	0.0013	0.3	0.02	0.2	0.0042	0.0636	0.0064	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D21w. Harper Creek downstream of T Creek (HT) Hazard Quotients for Total Vanadium Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline		
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline			
										Aquatic Life	Livestock
Construction (-2 to-1)	January	0.0005	0.0005	0.006	0.02	0.1	0.0845	0.0254	0.0051	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0413	0.0124	0.0025	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.153	0.0460	0.0092	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.157	0.0471	0.0094	No	No
	July	0.0008	0.0009	0.006	0.02	0.1	0.143	0.0428	0.0086	No	No
	August	0.0007	0.0009	0.006	0.02	0.1	0.151	0.0452	0.0090	No	No
	September	0.0007	0.0010	0.006	0.02	0.1	0.170	0.0509	0.0102	No	No
	October	0.0005	0.0007	0.006	0.02	0.1	0.122	0.0365	0.0073	No	No
	November	0.0004	0.0006	0.006	0.02	0.1	0.0936	0.0281	0.0056	No	No
	December	0.0004	0.0005	0.006	0.02	0.1	0.0856	0.0257	0.0051	No	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.006	0.02	0.1	0.0496	0.0149	0.0030	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0362	0.0109	0.0022	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0368	0.0110	0.0022	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0343	0.0103	0.0021	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.153	0.0458	0.0092	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.157	0.0470	0.0094	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0365	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0720	0.0216	0.0043	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0488	0.0147	0.0029	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0458	0.0138	0.0028	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0436	0.0131	0.0026	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0458	0.0137	0.0027	No	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.006	0.02	0.1	0.0499	0.0150	0.0030	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0365	0.0110	0.0022	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0372	0.0112	0.0022	No	No
	April	0.0002	0.0002	0.006	0.02	0.1	0.0345	0.0103	0.0021	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.153	0.0458	0.0092	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0469	0.0094	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.122	0.0365	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0728	0.0218	0.0044	No	No
	September	0.0003	0.0003	0.006	0.02	0.1	0.0491	0.0147	0.0029	No	No
	October	0.0003	0.0003	0.006	0.02	0.1	0.0459	0.0138	0.0028	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0437	0.0131	0.0026	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0459	0.0138	0.0028	No	No
Closure Phase (29-35)	January	0.0003	0.0004	0.006	0.02	0.1	0.0624	0.0187	0.0037	No	No
	February	0.0003	0.0003	0.006	0.02	0.1	0.0547	0.0164	0.0033	No	No
	March	0.0003	0.0003	0.006	0.02	0.1	0.0567	0.0170	0.0034	No	No
	April	0.0003	0.0003	0.006	0.02	0.1	0.0576	0.0173	0.0035	No	No
	May	0.0009	0.0009	0.006	0.02	0.1	0.153	0.0458	0.0092	No	No
	June	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0469	0.0094	No	No
	July	0.0007	0.0007	0.006	0.02	0.1	0.121	0.0363	0.0073	No	No
	August	0.0004	0.0004	0.006	0.02	0.1	0.0746	0.0224	0.0045	No	No
	September	0.0003	0.0004	0.006	0.02	0.1	0.0615	0.0184	0.0037	No	No
	October	0.0003	0.0004	0.006	0.02	0.1	0.0640	0.0192	0.0038	No	No
	November	0.0003	0.0003	0.006	0.02	0.1	0.0551	0.0165	0.0033	No	No
	December	0.0003	0.0003	0.006	0.02	0.1	0.0583	0.0175	0.0035	No	No
Post-Closure Phase (36-99)	January	0.0004	0.0005	0.006	0.02	0.1	0.0816	0.0245	0.0049	No	No
	February	0.0005	0.0006	0.006	0.02	0.1	0.0972	0.0292	0.0058	No	No
	March	0.0006	0.0007	0.006	0.02	0.1	0.1157	0.0347	0.0069	No	No
	April	0.0005	0.0006	0.006	0.02	0.1	0.0973	0.0292	0.0058	No	No
	May	0.0009	0.0010	0.006	0.02	0.1	0.161	0.0483	0.0097	No	No
	June	0.0009	0.0010	0.006	0.02	0.1	0.165	0.0494	0.0099	No	No
	July	0.0008	0.0008	0.006	0.02	0.1	0.136	0.0409	0.0082	No	No
	August	0.0005	0.0005	0.006	0.02	0.1	0.0900	0.0270	0.0054	No	No
	September	0.0004	0.0005	0.006	0.02	0.1	0.0786	0.0236	0.0047	No	No
	October	0.0005	0.0005	0.006	0.02	0.1	0.0888	0.0267	0.0053	No	No
	November	0.0004	0.0004	0.006	0.02	0.1	0.0700	0.0210	0.0042	No	No
	December	0.0004	0.0005	0.006	0.02	0.1	0.0755	0.0226	0.0045	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D21ac. Harper Creek downstream of T Creek (HT) Hazard Quotients for Ammonia Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
Construction (-2 to-1)	January	0.0177	0.0189	1.75	9.12	0.0101	0.0108	0.0021	No
	February	0.0227	0.0277	1.48	7.71	0.0153	0.0187	0.0036	No
	March	0.0142	0.0181	2.05	10.7	0.0069	0.0088	0.0017	No
	April	0.0159	0.0178	1.73	8.98	0.0092	0.0103	0.0020	No
	May	0.0107	0.0110	2.00	15.5	0.0054	0.0055	0.0007	No
	June	0.0094	0.0102	1.95	10.1	0.0048	0.0052	0.0010	No
	July	0.0258	0.0268	1.89	9.83	0.0136	0.0142	0.0027	No
	August	0.693	0.975	1.87	11.3	0.371	0.521	0.0863	No
	September	0.0259	0.0268	1.63	8.48	0.0159	0.0165	0.0032	No
	October	0.0163	0.0188	1.97	11.9	0.0083	0.0096	0.0016	No
	November	0.0196	0.0201	1.78	9.26	0.0110	0.0113	0.0022	No
	December	0.0184	0.0185	1.78	9.26	0.0103	0.0104	0.0020	No
Operation 1 Phase (1-23)	January	0.0232	0.0404	1.75	9.12	0.0133	0.0231	0.0044	No
	February	0.0285	0.0476	1.48	7.71	0.0192	0.0322	0.0062	No
	March	0.0251	0.0477	2.05	10.7	0.0122	0.0233	0.0045	No
	April	0.0162	0.0228	1.73	8.98	0.0094	0.0132	0.0025	No
	May	0.0111	0.0123	2.00	15.5	0.0056	0.0062	0.0008	No
	June	0.0109	0.0122	1.95	10.1	0.0056	0.0063	0.0012	No
	July	0.0276	0.0315	1.89	9.83	0.0146	0.0167	0.0032	No
	August	0.357	0.364	1.87	11.3	0.191	0.195	0.0322	No
	September	0.0271	0.0382	1.63	8.48	0.0166	0.0234	0.0045	No
	October	0.0222	0.0332	1.97	11.9	0.0113	0.0169	0.0028	No
	November	0.0223	0.0340	1.78	9.26	0.0126	0.0191	0.0037	No
	December	0.0231	0.0375	1.78	9.26	0.0130	0.0211	0.0040	No
Operations 2 Phase (24-28)	January	0.0192	0.0193	1.75	9.12	0.0110	0.0110	0.0021	No
	February	0.0239	0.0240	1.48	7.71	0.0162	0.0162	0.0031	No
	March	0.0196	0.0196	2.05	10.7	0.0095	0.0096	0.0018	No
	April	0.0146	0.0146	1.73	8.98	0.0084	0.0084	0.0016	No
	May	0.0108	0.0109	2.00	15.5	0.0054	0.0054	0.0007	No
	June	0.0104	0.0104	1.95	10.1	0.0053	0.0053	0.0010	No
	July	0.0260	0.0261	1.89	9.83	0.0138	0.0138	0.0027	No
	August	0.357	0.359	1.87	11.3	0.191	0.192	0.0318	No
	September	0.0243	0.0243	1.63	8.48	0.0149	0.0149	0.0029	No
	October	0.0194	0.0195	1.97	11.9	0.0099	0.0099	0.0016	No
	November	0.0193	0.0193	1.78	9.26	0.0108	0.0108	0.0021	No
	December	0.0194	0.0194	1.78	9.26	0.0109	0.0109	0.0021	No
Closure Phase (29-35)	January	0.0392	0.0617	1.75	9.12	0.0224	0.0353	0.0068	No
	February	0.0453	0.0695	1.48	7.71	0.0306	0.0470	0.0090	No
	March	0.0438	0.0709	2.05	10.7	0.0214	0.0346	0.0066	No
	April	0.0425	0.0697	1.73	8.98	0.0246	0.0403	0.0078	No
	May	0.0327	0.0533	2.00	15.5	0.0164	0.0267	0.0034	No
	June	0.0437	0.0611	1.95	10.1	0.0224	0.0313	0.0061	No
	July	0.0420	0.0528	1.89	9.83	0.0222	0.0279	0.0054	No
	August	0.345	0.359	1.87	11.3	0.185	0.192	0.0318	No
	September	0.0470	0.0627	1.63	8.48	0.0288	0.0385	0.0074	No
	October	0.0514	0.0720	1.97	11.9	0.0261	0.0366	0.0061	No
	November	0.0389	0.0530	1.78	9.26	0.0218	0.0298	0.0057	No
	December	0.0417	0.0576	1.78	9.26	0.0234	0.0324	0.0062	No
Post-Closure Phase (36-99)	January	0.0239	0.0479	1.75	9.12	0.0137	0.0274	0.0053	No
	February	0.0298	0.0693	1.48	7.71	0.0201	0.0468	0.0090	No
	March	0.0292	0.0798	2.05	10.7	0.0143	0.0389	0.0075	No
	April	0.0240	0.0649	1.73	8.98	0.0139	0.0375	0.0072	No
	May	0.0181	0.0454	2.00	15.5	0.0090	0.0227	0.0029	No
	June	0.0190	0.0509	1.95	10.1	0.0097	0.0261	0.0050	No
	July	0.0282	0.0495	1.89	9.83	0.0149	0.0262	0.0050	No
	August	0.309	0.319	1.87	11.3	0.165	0.171	0.0283	No
	September	0.0269	0.0487	1.63	8.48	0.0165	0.0299	0.0057	No
	October	0.0246	0.0546	1.97	11.9	0.0125	0.0277	0.0046	No
	November	0.0226	0.0403	1.78	9.26	0.0127	0.0226	0.0044	No
	December	0.0232	0.0434	1.78	9.26	0.0130	0.0244	0.0047	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are pH and temperature dependent

Appendix 13-D22b. Lower Harper Creek (HB) Hazard Quotients for Total Antimony Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00012	0.00013	0.020	0.014	0.00625	0.00893	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00013	0.00013	0.020	0.014	0.00667	0.00952	No	No
	August	0.00012	0.00013	0.020	0.014	0.00667	0.00952	No	No
	September	0.00012	0.00013	0.020	0.014	0.00667	0.00952	No	No
	October	0.00010	0.00011	0.020	0.014	0.00525	0.00750	No	No
	November	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	December	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
Operation 1 Phase (1-23)	January	0.00012	0.00023	0.020	0.014	0.0113	0.0161	No	No
	February	0.00011	0.00024	0.020	0.014	0.0118	0.0168	No	No
	March	0.00013	0.00028	0.020	0.014	0.0141	0.0201	No	No
	April	0.00003	0.00005	0.020	0.014	0.00265	0.00378	No	No
	May	0.00012	0.00013	0.020	0.014	0.00643	0.00918	No	No
	June	0.00011	0.00011	0.020	0.014	0.00573	0.00819	No	No
	July	0.00014	0.00017	0.020	0.014	0.00833	0.01189	No	No
	August	0.00016	0.00023	0.020	0.014	0.0114	0.0163	No	No
	September	0.00015	0.00021	0.020	0.014	0.0106	0.0151	No	No
	October	0.00012	0.00017	0.020	0.014	0.00864	0.0123	No	No
	November	0.00010	0.00015	0.020	0.014	0.00768	0.0110	No	No
	December	0.00011	0.00020	0.020	0.014	0.00990	0.0141	No	No
Operations 2 Phase (24-28)	January	0.00024	0.00025	0.020	0.014	0.0126	0.0180	No	No
	February	0.00024	0.00026	0.020	0.014	0.0132	0.0188	No	No
	March	0.00029	0.00032	0.020	0.014	0.0158	0.0225	No	No
	April	0.00005	0.00006	0.020	0.014	0.00285	0.00408	No	No
	May	0.00013	0.00013	0.020	0.014	0.00649	0.00928	No	No
	June	0.00011	0.00012	0.020	0.014	0.00579	0.00828	No	No
	July	0.00017	0.00017	0.020	0.014	0.00848	0.0121	No	No
	August	0.00023	0.00024	0.020	0.014	0.0118	0.0169	No	No
	September	0.00021	0.00022	0.020	0.014	0.0111	0.0159	No	No
	October	0.00017	0.00018	0.020	0.014	0.00905	0.0129	No	No
	November	0.00015	0.00016	0.020	0.014	0.00813	0.0116	No	No
	December	0.00020	0.00021	0.020	0.014	0.01054	0.0151	No	No
Closure Phase (29-35)	January	0.00054	0.00100	0.020	0.014	0.0500	0.0714	No	No
	February	0.00059	0.00113	0.020	0.014	0.0566	0.0809	No	No
	March	0.00067	0.00127	0.020	0.014	0.0637	0.0910	No	No
	April	0.00036	0.00064	0.020	0.014	0.0320	0.0457	No	No
	May	0.00055	0.00090	0.020	0.014	0.0450	0.0643	No	No
	June	0.00080	0.00111	0.020	0.014	0.0557	0.0795	No	No
	July	0.00045	0.00061	0.020	0.014	0.0303	0.0433	No	No
	August	0.00032	0.00044	0.020	0.014	0.0221	0.0316	No	No
	September	0.00062	0.00089	0.020	0.014	0.0447	0.0638	No	No
	October	0.00070	0.00100	0.020	0.014	0.0502	0.0718	No	No
	November	0.00043	0.00063	0.020	0.014	0.0317	0.0454	No	No
	December	0.00056	0.00084	0.020	0.014	0.0422	0.0603	No	No
Post-Closure Phase (36-99)	January	0.00071	0.00086	0.020	0.014	0.0429	0.0613	No	No
	February	0.00135	0.00156	0.020	0.014	0.0781	0.112	No	No
	March	0.00192	0.00219	0.020	0.014	0.110	0.157	No	No
	April	0.00069	0.00079	0.020	0.014	0.0394	0.0564	No	No
	May	0.00081	0.00092	0.020	0.014	0.0460	0.0658	No	No
	June	0.00100	0.00113	0.020	0.014	0.0565	0.0807	No	No
	July	0.00067	0.00074	0.020	0.014	0.0369	0.0527	No	No
	August	0.00053	0.00062	0.020	0.014	0.0309	0.0441	No	No
	September	0.00066	0.00079	0.020	0.014	0.0393	0.0562	No	No
	October	0.00077	0.00091	0.020	0.014	0.0454	0.0648	No	No
	November	0.00045	0.00055	0.020	0.014	0.0274	0.0392	No	No
	December	0.00060	0.00073	0.020	0.014	0.0365	0.0521	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D22c. Lower Harper Creek (HB) Hazard Quotients for Total Arsenic Concentrations, Upper Bound Case

		First Screening Step										Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE Maximum	Drinking Water Quality Guidelines BC DWQG	BC MOE Working Water Quality Guidelines for Wildlife Water Supply Maximum	BC MOE Livestock Watering Water Quality Guideline BC MOE Interim	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply Maximum Predicted vs. BC MOE Maximum Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Interim Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum												
Construction (-2 to-1)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0487	0.0097	0.0097	0.0097	No	No	No	No
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0480	0.0096	0.0096	0.0096	No	No	No	No
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0482	0.0096	0.0096	0.0096	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0423	0.0085	0.0085	0.0085	No	No	No	No
	May	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0928	0.0186	0.0186	0.0186	No	No	No	No
	June	0.0003	0.0004	0.005	0.025	0.025	0.025	0.0848	0.0170	0.0170	0.0170	No	No	No	No
	July	0.0007	0.0007	0.005	0.025	0.025	0.025	0.146	0.0292	0.0292	0.0292	No	No	No	No
	August	0.0006	0.0006	0.005	0.025	0.025	0.025	0.118	0.0237	0.0237	0.0237	No	No	No	No
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0493	0.0099	0.0099	0.0099	No	No	No	No
	October	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0752	0.0150	0.0150	0.0150	No	No	No	No
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0442	0.0088	0.0088	0.0088	No	No	No	No
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0482	0.0096	0.0096	0.0096	No	No	No	No
Operation 1 Phase (1-23)	January	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0631	0.0126	0.0126	0.0126	No	No	No	No
	February	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0637	0.0127	0.0127	0.0127	No	No	No	No
	March	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0669	0.0134	0.0134	0.0134	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0445	0.0089	0.0089	0.0089	No	No	No	No
	May	0.0004	0.0005	0.005	0.025	0.025	0.025	0.0901	0.0180	0.0180	0.0180	No	No	No	No
	June	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0801	0.0160	0.0160	0.0160	No	No	No	No
	July	0.0007	0.0007	0.005	0.025	0.025	0.025	0.136	0.0272	0.0272	0.0272	No	No	No	No
	August	0.0006	0.0006	0.005	0.025	0.025	0.025	0.124	0.0248	0.0248	0.0248	No	No	No	No
	September	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0572	0.0114	0.0114	0.0114	No	No	No	No
	October	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0805	0.0161	0.0161	0.0161	No	No	No	No
	November	0.0002	0.0003	0.005	0.025	0.025	0.025	0.0513	0.0103	0.0103	0.0103	No	No	No	No
	December	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0590	0.0118	0.0118	0.0118	No	No	No	No
Operations 2 Phase (24-28)	January	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0645	0.0129	0.0129	0.0129	No	No	No	No
	February	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0652	0.0130	0.0130	0.0130	No	No	No	No
	March	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0687	0.0137	0.0137	0.0137	No	No	No	No
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0447	0.0089	0.0089	0.0089	No	No	No	No
	May	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0901	0.0180	0.0180	0.0180	No	No	No	No
	June	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0791	0.0158	0.0158	0.0158	No	No	No	No
	July	0.0007	0.0007	0.005	0.025	0.025	0.025	0.136	0.0273	0.0273	0.0273	No	No	No	No
	August	0.0006	0.0006	0.005	0.025	0.025	0.025	0.125	0.0249	0.0249	0.0249	No	No	No	No
	September	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0578	0.0116	0.0116	0.0116	No	No	No	No
	October	0.0004	0.0004	0.005	0.025	0.025	0.025	0.0809	0.0162	0.0162	0.0162	No	No	No	No
	November	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0518	0.0104	0.0104	0.0104	No	No	No	No
	December	0.0003	0.0003	0.005	0.025	0.025	0.025	0.0596	0.0119	0.0119	0.0119	No	No	No	No
Closure Phase (29-35)	January	0.0005	0.0008	0.005	0.025	0.025	0.025	0.160	0.0319	0.0319	0.0319	No	No	No	No
	February	0.0006	0.0009	0.005	0.025	0.025	0.025	0.176	0.0352	0.0352	0.0352	No	No	No	No
	March	0.0006	0.0010	0.005	0.025	0.025	0.025	0.192	0.0384	0.0384	0.0384	No	No	No	No
	April	0.0004	0.0006	0.005	0.025	0.025	0.025	0.115	0.0229	0.0229	0.0229	No	No	No	No
	May	0.0007	0.0009	0.005	0.025	0.025	0.025	0.177	0.0355	0.0355	0.0355	No	No	No	No
	June	0.0008	0.0010	0.005	0.025	0.025	0.025	0.192	0.0385	0.0385	0.0385	No	No	No	No
	July	0.0008	0.0009	0.005	0.025	0.025	0.025	0.185	0.0370	0.0370	0.0370	No	No	No	No
	August	0.0007	0.0008	0.005	0.025	0.025	0.025	0.151	0.0302	0.0302	0.0302	No	No	No	No
	September	0.0005	0.0007	0.005	0.025	0.025	0.025	0.142	0.0284	0.0284	0.0284	No	No	No	No
	October	0.0007	0.0009	0.005	0.025	0.025	0.025	0.179	0.0357	0.0357	0.0357	No	No	No	No
	November	0.0004	0.0006	0.005	0.025	0.025	0.025	0.112	0.0224	0.0224	0.0224	No	No	No	No
	December	0.0005	0.0007	0.005	0.025	0.025	0.025	0.140	0.0280	0.0280	0.0280	No	No	No	No
Post-Closure Phase (36-99)	January	0.0007	0.0007	0.005	0.025	0.025	0.025	0.138	0.0277	0.0277	0.0277	No	No	No	No
	February	0.0011	0.0011	0.005	0.025	0.025	0.025	0.229	0.0458	0.0458	0.0458	No	No	No	No
	March	0.0015	0.0016	0.005	0.025	0.025	0.025	0.312	0.0625	0.0625	0.0625	No	No	No	No
	April	0.0006	0.0007	0.005	0.025	0.025	0.025	0.136	0.0272	0.0272	0.0272	No	No	No	No
	May	0.0009	0.0009	0.005	0.025	0.025	0.025	0.185	0.0370	0.0370	0.0370	No	No	No	No
	June	0.0010	0.0010	0.005	0.025	0.025	0.025	0.203	0.0406	0.0406	0.0406	No	No	No	No
	July	0.0010	0.0010	0.005	0.025	0.025	0.025	0.203	0.0407	0.0407	0.0407	No	No	No	No
	August	0.0008	0.0008	0.005	0.025	0.025	0.025	0.169	0.0337	0.0337	0.0337	No	No	No	No
	September	0.0006	0.0006	0.005	0.025	0.025	0.025	0.125	0.0249	0.0249	0.0249	No	No	No	No
	October	0.0008	0.0008	0.005	0.025	0.025	0.025	0.166	0.0333	0.0333	0.0333	No	No	No	No
	November	0.0005	0.0005	0.005	0.025	0.025	0.025	0.0989	0.0198	0.0198	0.0198	No	No	No	No
	December	0.0006	0.0006	0.005	0.025	0.025	0.025	0.123	0.0246	0.0246	0.0246	No	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

Appendix 13-D22d. Lower Harper Creek (HB) Hazard Quotients for Total Barium Concentrations, Upper Bound Case

		First Screening Step									Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines		
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum	Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Maximum Predicted vs. Canadian DWQG	Aquatic Life	Drinking Water
Construction (-2 to-1)	January	0.0071	0.0078	1	5	1	0.0071	0.0078	0.0016	0.0078	No	No
	February	0.0078	0.0084	1	5	1	0.0078	0.0084	0.0017	0.0084	No	No
	March	0.0075	0.0081	1	5	1	0.0075	0.0081	0.0016	0.0081	No	No
	April	0.0069	0.0071	1	5	1	0.0069	0.0071	0.0014	0.0071	No	No
	May	0.0053	0.0055	1	5	1	0.0053	0.0055	0.0011	0.0055	No	No
	June	0.0050	0.0053	1	5	1	0.0050	0.0053	0.0011	0.0053	No	No
	July	0.0053	0.0058	1	5	1	0.0053	0.0058	0.0012	0.0058	No	No
	August	0.0072	0.0079	1	5	1	0.0072	0.0079	0.0016	0.0079	No	No
	September	0.0078	0.0083	1	5	1	0.0078	0.0083	0.0017	0.0083	No	No
	October	0.0062	0.0068	1	5	1	0.0062	0.0068	0.0014	0.0068	No	No
	November	0.0066	0.0073	1	5	1	0.0066	0.0073	0.0015	0.0073	No	No
	December	0.0069	0.0076	1	5	1	0.0069	0.0076	0.0015	0.0076	No	No
Operation 1 Phase (1-23)	January	0.0081	0.0084	1	5	1	0.0081	0.0084	0.0017	0.0084	No	No
	February	0.0087	0.0090	1	5	1	0.0087	0.0090	0.0018	0.0090	No	No
	March	0.0086	0.0089	1	5	1	0.0086	0.0089	0.0018	0.0089	No	No
	April	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	No	No
	May	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	June	0.0053	0.0053	1	5	1	0.0053	0.0053	0.0011	0.0053	No	No
	July	0.0058	0.0059	1	5	1	0.0058	0.0059	0.0012	0.0059	No	No
	August	0.0080	0.0082	1	5	1	0.0080	0.0082	0.0016	0.0082	No	No
	September	0.0085	0.0087	1	5	1	0.0085	0.0087	0.0017	0.0087	No	No
	October	0.0069	0.0070	1	5	1	0.0069	0.0070	0.0014	0.0070	No	No
	November	0.0074	0.0075	1	5	1	0.0074	0.0075	0.0015	0.0075	No	No
	December	0.0079	0.0081	1	5	1	0.0079	0.0081	0.0016	0.0081	No	No
Operations 2 Phase (24-28)	January	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No
	February	0.0091	0.0091	1	5	1	0.0091	0.0091	0.0018	0.0091	No	No
	March	0.0090	0.0090	1	5	1	0.0090	0.0090	0.0018	0.0090	No	No
	April	0.0072	0.0072	1	5	1	0.0072	0.0072	0.0014	0.0072	No	No
	May	0.0055	0.0055	1	5	1	0.0055	0.0055	0.0011	0.0055	No	No
	June	0.0053	0.0053	1	5	1	0.0053	0.0053	0.0011	0.0053	No	No
	July	0.0059	0.0059	1	5	1	0.0059	0.0059	0.0012	0.0059	No	No
	August	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No
	September	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No
	October	0.0070	0.0070	1	5	1	0.0070	0.0070	0.0014	0.0070	No	No
	November	0.0076	0.0076	1	5	1	0.0076	0.0076	0.0015	0.0076	No	No
	December	0.0081	0.0081	1	5	1	0.0081	0.0081	0.0016	0.0081	No	No
Closure Phase (29-35)	January	0.0097	0.0116	1	5	1	0.0097	0.0116	0.0023	0.0116	No	No
	February	0.0105	0.0126	1	5	1	0.0105	0.0126	0.0025	0.0126	No	No
	March	0.0105	0.0130	1	5	1	0.0105	0.0130	0.0026	0.0130	No	No
	April	0.0084	0.0096	1	5	1	0.0084	0.0096	0.0019	0.0096	No	No
	May	0.0072	0.0088	1	5	1	0.0072	0.0088	0.0018	0.0088	No	No
	June	0.0081	0.0095	1	5	1	0.0081	0.0095	0.0019	0.0095	No	No
	July	0.0071	0.0078	1	5	1	0.0071	0.0078	0.0016	0.0078	No	No
	August	0.0086	0.0091	1	5	1	0.0086	0.0091	0.0018	0.0091	No	No
	September	0.0102	0.0114	1	5	1	0.0102	0.0114	0.0023	0.0114	No	No
	October	0.0091	0.0105	1	5	1	0.0091	0.0105	0.0021	0.0105	No	No
	November	0.0087	0.0096	1	5	1	0.0087	0.0096	0.0019	0.0096	No	No
	December	0.0095	0.0108	1	5	1	0.0095	0.0108	0.0022	0.0108	No	No
Post-Closure Phase (36-99)	January	0.0098	0.0106	1	5	1	0.0098	0.0106	0.0021	0.0106	No	No
	February	0.0121	0.0134	1	5	1	0.0121	0.0134	0.0027	0.0134	No	No
	March	0.0135	0.0154	1	5	1	0.0135	0.0154	0.0031	0.0154	No	No
	April	0.0091	0.0098	1	5	1	0.0091	0.0098	0.0020	0.0098	No	No
	May	0.0077	0.0085	1	5	1	0.0077	0.0085	0.0017	0.0085	No	No
	June	0.0082	0.0092	1	5	1	0.0082	0.0092	0.0018	0.0092	No	No
	July	0.0075	0.0080	1	5	1	0.0075	0.0080	0.0016	0.0080	No	No
	August	0.0091	0.0096	1	5	1	0.0091	0.0096	0.0019	0.0096	No	No
	September	0.0099	0.0106	1	5	1	0.0099	0.0106	0.0021	0.0106	No	No
	October	0.0088	0.0097	1	5	1	0.0088	0.0097	0.0019	0.0097	No	No
	November	0.0085	0.0089	1	5	1	0.0085	0.0089	0.0018	0.0089	No	No
	December	0.0093	0.0099	1	5	1	0.0093	0.0099	0.0020	0.0099	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D22e. Lower Harper Creek (HB) Hazard Quotients for Total Beryllium Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE Working (Chronic, 30-day mean)	Drinking Water Quality Guidelines BC DWQG	BC MOE Livestock Watering Water Quality Guideline BC MOE Working	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline					
Construction (-2 to-1)	January	0.00005	0.00006	0.0053	0.004	0.1	0.00950	0.0104	0.0138	0.00055	No	No	No
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.00010	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00223	0.00226	0.00300	0.00012	No	No	No
	May	0.00012	0.00013	0.0053	0.004	0.1	0.0228	0.0236	0.0313	0.00125	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0189	0.0250	0.00100	No	No	No
	July	0.00013	0.00013	0.0053	0.004	0.1	0.0236	0.0252	0.0333	0.00133	No	No	No
	August	0.00012	0.00013	0.0053	0.004	0.1	0.0225	0.0252	0.0333	0.00133	No	No	No
	September	0.00008	0.00009	0.0053	0.004	0.1	0.0145	0.0164	0.0217	0.00087	No	No	No
	October	0.00005	0.00006	0.0053	0.004	0.1	0.00995	0.0108	0.0144	0.00058	No	No	No
	November	0.00005	0.00006	0.0053	0.004	0.1	0.00939	0.0104	0.0138	0.00055	No	No	No
	December	0.00005	0.00006	0.0053	0.004	0.1	0.00933	0.0104	0.0138	0.00055	No	No	No
Operation 1 Phase (1-23)	January	0.00005	0.00005	0.0053	0.004	0.1	0.00882	0.00978	0.0130	0.00052	No	No	No
	February	0.00001	0.00002	0.0053	0.004	0.1	0.00280	0.00397	0.00526	0.00021	No	No	No
	March	0.00002	0.00002	0.0053	0.004	0.1	0.00297	0.00437	0.00579	0.00023	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00234	0.00252	0.00334	0.00013	No	No	No
	May	0.00012	0.00012	0.0053	0.004	0.1	0.0220	0.0221	0.0293	0.00117	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0184	0.0185	0.0245	0.00098	No	No	No
	July	0.00012	0.00012	0.0053	0.004	0.1	0.0223	0.0224	0.0297	0.00119	No	No	No
	August	0.00011	0.00011	0.0053	0.004	0.1	0.0202	0.0208	0.0275	0.00110	No	No	No
	September	0.00007	0.00007	0.0053	0.004	0.1	0.0128	0.0134	0.0178	0.00071	No	No	No
	October	0.00005	0.00005	0.0053	0.004	0.1	0.00934	0.00980	0.0130	0.00052	No	No	No
	November	0.00005	0.00005	0.0053	0.004	0.1	0.00879	0.00933	0.0124	0.00049	No	No	No
	December	0.00005	0.00005	0.0053	0.004	0.1	0.00869	0.00947	0.0126	0.00050	No	No	No
Operations 2 Phase (24-28)	January	0.00005	0.00005	0.0053	0.004	0.1	0.00984	0.0100	0.0132	0.00053	No	No	No
	February	0.00002	0.00002	0.0053	0.004	0.1	0.00401	0.00421	0.00558	0.00022	No	No	No
	March	0.00002	0.00002	0.0053	0.004	0.1	0.00442	0.00465	0.00617	0.00025	No	No	No
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00253	0.00256	0.00339	0.00014	No	No	No
	May	0.00012	0.00012	0.0053	0.004	0.1	0.0221	0.0221	0.0293	0.00117	No	No	No
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0185	0.0185	0.0245	0.00098	No	No	No
	July	0.00012	0.00012	0.0053	0.004	0.1	0.0225	0.0225	0.0298	0.00119	No	No	No
	August	0.00011	0.00011	0.0053	0.004	0.1	0.0208	0.0208	0.0276	0.00110	No	No	No
	September	0.00007	0.00007	0.0053	0.004	0.1	0.0134	0.0135	0.0179	0.00072	No	No	No
	October	0.00005	0.00005	0.0053	0.004	0.1	0.00980	0.00987	0.0131	0.00052	No	No	No
	November	0.00005	0.00005	0.0053	0.004	0.1	0.00932	0.00940	0.0125	0.00050	No	No	No
	December	0.00005	0.00005	0.0053	0.004	0.1	0.00946	0.00958	0.0127	0.00051	No	No	No
Closure Phase (29-35)	January	0.00006	0.00007	0.0053	0.004	0.1	0.0104	0.0127	0.0168	0.00067	No	No	No
	February	0.00003	0.00004	0.0053	0.004	0.1	0.00503	0.00818	0.0108	0.00043	No	No	No
	March	0.00003	0.00005	0.0053	0.004	0.1	0.00544	0.00897	0.0119	0.00048	No	No	No
	April	0.00002	0.00003	0.0053	0.004	0.1	0.00407	0.00570	0.00756	0.00030	No	No	No
	May	0.00012	0.00013	0.0053	0.004	0.1	0.0233	0.0244	0.0324	0.00129	No	No	No
	June	0.00011	0.00012	0.0053	0.004	0.1	0.0208	0.0219	0.0291	0.00116	No	No	No
	July	0.00012	0.00013	0.0053	0.004	0.1	0.0231	0.0236	0.0313	0.00125	No	No	No
	August	0.00011	0.00011	0.0053	0.004	0.1	0.0205	0.0210	0.0278	0.00111	No	No	No
	September	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0158	0.0210	0.00084	No	No	No
	October	0.00006	0.00007	0.0053	0.004	0.1	0.0118	0.0134	0.0177	0.00071	No	No	No
	November	0.00005	0.00006	0.0053	0.004	0.1	0.0101	0.0112	0.0148	0.00059	No	No	No
	December	0.00006	0.00006	0.0053	0.004	0.1	0.0105	0.0119	0.0158	0.00063	No	No	No
Post-Closure Phase (36-99)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0109	0.0119	0.0158	0.00063	No	No	No
	February	0.00005	0.00006	0.0053	0.004	0.1	0.00873	0.0104	0.0138	0.00055	No	No	No
	March	0.00006	0.00007	0.0053	0.004	0.1	0.0117	0.0140	0.0185	0.00074	No	No	No
	April	0.00003	0.00003	0.0053	0.004	0.1	0.00561	0.00644	0.00854	0.00034	No	No	No
	May	0.00012	0.00013	0.0053	0.004	0.1	0.0234	0.0243	0.0322	0.00129	No	No	No
	June	0.00011	0.00012	0.0053	0.004	0.1	0.0207	0.0218	0.0289	0.00116	No	No	No
	July	0.00012	0.00013	0.0053	0.004	0.1	0.0233	0.0239	0.0317	0.00127	No	No	No
	August	0.00011	0.00011	0.0053	0.004	0.1	0.0210	0.0215	0.0285	0.00114	No	No	No
	September	0.00008	0.00008	0.0053	0.004	0.1	0.0144	0.0152	0.0202	0.00081	No	No	No
	October	0.00006	0.00007	0.0053	0.004	0.1	0.0118	0.0128	0.0169	0.00068	No	No	No
	November	0.00005	0.00006	0.0053	0.004	0.1	0.0101	0.0107	0.0142	0.00057	No	No	No
	December	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0113	0.0149	0.00060	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D22f. Lower Harper Creek (HB) Hazard Quotients for Total Boron Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step									Retained as COPC?				
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE Maximum	BC DWQG	Maximum	Maximum	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0321	0.0341	1.2	5	5	5	0.0284	0.0068	0.0068	0.0068	No	No	No	No
	February	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	March	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	April	0.0500	0.0500	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0104	0.0108	1.2	5	5	5	0.0090	0.0022	0.0022	0.0022	No	No	No	No
	June	0.0106	0.0112	1.2	5	5	5	0.0093	0.0022	0.0022	0.0022	No	No	No	No
	July	0.0117	0.0134	1.2	5	5	5	0.0111	0.0027	0.0027	0.0027	No	No	No	No
	August	0.0143	0.0186	1.2	5	5	5	0.0155	0.0037	0.0037	0.0037	No	No	No	No
	September	0.0154	0.0208	1.2	5	5	5	0.0174	0.0042	0.0042	0.0042	No	No	No	No
	October	0.0233	0.0265	1.2	5	5	5	0.0221	0.0053	0.0053	0.0053	No	No	No	No
	November	0.0323	0.0346	1.2	5	5	5	0.0289	0.0069	0.0069	0.0069	No	No	No	No
	December	0.0325	0.0349	1.2	5	5	5	0.0291	0.0070	0.0070	0.0070	No	No	No	No
Operation 1 Phase (1-23)	January	0.0357	0.0360	1.2	5	5	5	0.0300	0.0072	0.0072	0.0072	No	No	No	No
	February	0.0503	0.0506	1.2	5	5	5	0.0422	0.0101	0.0101	0.0101	No	No	No	No
	March	0.0504	0.0508	1.2	5	5	5	0.0423	0.0102	0.0102	0.0102	No	No	No	No
	April	0.0500	0.0501	1.2	5	5	5	0.0417	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0109	0.0109	1.2	5	5	5	0.0091	0.0022	0.0022	0.0022	No	No	No	No
	June	0.0112	0.0112	1.2	5	5	5	0.0094	0.0022	0.0022	0.0022	No	No	No	No
	July	0.0135	0.0136	1.2	5	5	5	0.0113	0.0027	0.0027	0.0027	No	No	No	No
	August	0.0190	0.0192	1.2	5	5	5	0.0160	0.0038	0.0038	0.0038	No	No	No	No
	September	0.0214	0.0216	1.2	5	5	5	0.0180	0.0043	0.0043	0.0043	No	No	No	No
	October	0.0268	0.0269	1.2	5	5	5	0.0224	0.0054	0.0054	0.0054	No	No	No	No
	November	0.0349	0.0351	1.2	5	5	5	0.0292	0.0070	0.0070	0.0070	No	No	No	No
	December	0.0357	0.0359	1.2	5	5	5	0.0299	0.0072	0.0072	0.0072	No	No	No	No
Operations 2 Phase (24-28)	January	0.0360	0.0360	1.2	5	5	5	0.0300	0.0072	0.0072	0.0072	No	No	No	No
	February	0.0507	0.0507	1.2	5	5	5	0.0423	0.0101	0.0101	0.0101	No	No	No	No
	March	0.0508	0.0509	1.2	5	5	5	0.0424	0.0102	0.0102	0.0102	No	No	No	No
	April	0.0501	0.0501	1.2	5	5	5	0.0418	0.0100	0.0100	0.0100	No	No	No	No
	May	0.0109	0.0109	1.2	5	5	5	0.0091	0.0022	0.0022	0.0022	No	No	No	No
	June	0.0113	0.0113	1.2	5	5	5	0.0094	0.0023	0.0023	0.0023	No	No	No	No
	July	0.0136	0.0136	1.2	5	5	5	0.0113	0.0027	0.0027	0.0027	No	No	No	No
	August	0.0192	0.0192	1.2	5	5	5	0.0160	0.0038	0.0038	0.0038	No	No	No	No
	September	0.0216	0.0216	1.2	5	5	5	0.0180	0.0043	0.0043	0.0043	No	No	No	No
	October	0.0269	0.0269	1.2	5	5	5	0.0224	0.0054	0.0054	0.0054	No	No	No	No
	November	0.0351	0.0351	1.2	5	5	5	0.0293	0.0070	0.0070	0.0070	No	No	No	No
	December	0.0359	0.0360	1.2	5	5	5	0.0300	0.0072	0.0072	0.0072	No	No	No	No
Closure Phase (29-35)	January	0.0370	0.0390	1.2	5	5	5	0.0325	0.0078	0.0078	0.0078	No	No	No	No
	February	0.0508	0.0521	1.2	5	5	5	0.0434	0.0104	0.0104	0.0104	No	No	No	No
	March	0.0509	0.0524	1.2	5	5	5	0.0437	0.0105	0.0105	0.0105	No	No	No	No
	April	0.0505	0.0512	1.2	5	5	5	0.0427	0.0102	0.0102	0.0102	No	No	No	No
	May	0.0138	0.0165	1.2	5	5	5	0.0138	0.0033	0.0033	0.0033	No	No	No	No
	June	0.0160	0.0184	1.2	5	5	5	0.0153	0.0037	0.0037	0.0037	No	No	No	No
	July	0.0155	0.0168	1.2	5	5	5	0.0140	0.0034	0.0034	0.0034	No	No	No	No
	August	0.0199	0.0207	1.2	5	5	5	0.0172	0.0041	0.0041	0.0041	No	No	No	No
	September	0.0239	0.0258	1.2	5	5	5	0.0215	0.0052	0.0052	0.0052	No	No	No	No
	October	0.0294	0.0313	1.2	5	5	5	0.0261	0.0063	0.0063	0.0063	No	No	No	No
	November	0.0360	0.0371	1.2	5	5	5	0.0309	0.0074	0.0074	0.0074	No	No	No	No
	December	0.0372	0.0385	1.2	5	5	5	0.0321	0.0077	0.0077	0.0077	No	No	No	No
Post-Closure Phase (36-99)	January	0.0363	0.0376	1.2	5	5	5	0.0314	0.0075	0.0075	0.0075	No	No	No	No
	February	0.0490	0.0514	1.2	5	5	5	0.0428	0.0103	0.0103	0.0103	No	No	No	No
	March	0.0486	0.0520	1.2	5	5	5	0.0434	0.0104	0.0104	0.0104	No	No	No	No
	April	0.0493	0.0508	1.2	5	5	5	0.0423	0.0102	0.0102	0.0102	No	No	No	No
	May	0.0144	0.0160	1.2	5	5	5	0.0134	0.0032	0.0032	0.0032	No	No	No	No
	June	0.0157	0.0177	1.2	5	5	5	0.0148	0.0035	0.0035	0.0035	No	No	No	No
	July	0.0160	0.0171	1.2	5	5	5	0.0142	0.0034	0.0034	0.0034	No	No	No	No
	August	0.0204	0.0213	1.2	5	5	5	0.0178	0.0043	0.0043	0.0043	No	No	No	No
	September	0.0231	0.0245	1.2	5	5	5	0.0204	0.0049	0.0049	0.0049	No	No	No	No
	October	0.0283	0.0300	1.2	5	5	5	0.0250	0.0060	0.0060	0.0060	No	No	No	No
	November	0.0354	0.0362	1.2	5	5	5	0.0302	0.0072	0.0072	0.0072	No	No	No	No
	December	0.0362	0.0373	1.2	5	5	5	0.0311	0.0075	0.0075	0.0075	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D22g. Lower Harper Creek (HB) Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum			
Construction (-2 to-1)	January	9.24	10.5	1000	0.0105	No
	February	9.86	11.2	1000	0.0112	No
	March	9.60	11.1	1000	0.0111	No
	April	7.78	8.48	1000	0.0085	No
	May	5.17	6.14	1000	0.0061	No
	June	4.48	5.34	1000	0.0053	No
	July	6.24	7.24	1000	0.0072	No
	August	8.54	9.74	1000	0.0097	No
	September	8.91	10.1	1000	0.0101	No
	October	7.22	8.37	1000	0.0084	No
	November	7.99	9.13	1000	0.0091	No
	December	6.57	8.26	1000	0.0083	No
Operation 1 Phase (1-23)	January	10.6	11.2	1000	0.0112	No
	February	11.2	11.8	1000	0.0118	No
	March	11.1	11.8	1000	0.0118	No
	April	8.39	8.49	1000	0.0085	No
	May	5.97	6.00	1000	0.0060	No
	June	5.23	5.26	1000	0.0053	No
	July	7.26	7.37	1000	0.0074	No
	August	9.83	10.1	1000	0.0101	No
	September	10.1	10.4	1000	0.0104	No
	October	8.38	8.63	1000	0.0086	No
	November	9.18	9.48	1000	0.0095	No
	December	8.33	8.75	1000	0.0088	No
Operations 2 Phase (24-28)	January	11.3	11.3	1000	0.0113	No
	February	11.9	12.0	1000	0.0120	No
	March	12.0	12.0	1000	0.0120	No
	April	8.50	8.51	1000	0.0085	No
	May	6.00	6.00	1000	0.0060	No
	June	5.27	5.28	1000	0.0053	No
	July	7.38	7.39	1000	0.0074	No
	August	10.2	10.2	1000	0.0102	No
	September	10.5	10.5	1000	0.0105	No
	October	8.66	8.66	1000	0.0087	No
	November	9.51	9.52	1000	0.0095	No
	December	8.80	8.81	1000	0.0088	No
Closure Phase (29-35)	January	14.3	18.7	1000	0.0187	No
	February	15.4	20.5	1000	0.0205	No
	March	15.8	21.6	1000	0.0216	No
	April	11.3	14.1	1000	0.0141	No
	May	10.1	13.6	1000	0.0136	No
	June	11.9	15.2	1000	0.0152	No
	July	10.1	11.8	1000	0.0118	No
	August	11.3	12.5	1000	0.0125	No
	September	14.3	17.1	1000	0.0171	No
	October	13.6	16.8	1000	0.0168	No
	November	12.2	14.3	1000	0.0143	No
	December	12.4	15.3	1000	0.0153	No
Post-Closure Phase (36-99)	January	14.9	16.7	1000	0.0167	No
	February	20.0	23.1	1000	0.0231	No
	March	24.0	28.2	1000	0.0282	No
	April	13.3	14.9	1000	0.0149	No
	May	11.5	13.2	1000	0.0132	No
	June	12.5	14.6	1000	0.0146	No
	July	11.3	12.5	1000	0.0125	No
	August	12.6	13.7	1000	0.0137	No
	September	13.8	15.5	1000	0.0155	No
	October	13.3	15.2	1000	0.0152	No
	November	11.9	13.0	1000	0.0130	No
	December	12.0	13.6	1000	0.0136	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D22i. Lower Harper Creek (HB) Hazard Quotients for Total Chromium Concentrations, Upper Bound Case

		First Screening Step										Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	CCME Cr VI Guideline	CCME CR III Guideline	Canadian DWQG	BC MOE Working	Maximum Predicted vs. CCME Cr VI Guideline	Maximum Predicted vs. CCME Cr III Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.188	0.0211	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.191	0.0215	0.0038	0.0038	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.170	0.0191	0.0034	0.0034	No	No	No
	August	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.143	0.0161	0.0029	0.0029	No	No	No
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.180	0.0202	0.0036	0.0036	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.135	0.0152	0.0027	0.0027	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0113	0.0020	0.0020	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.100	0.0112	0.0020	0.0020	No	No	No
Operation 1 Phase (1-23)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.133	0.0150	0.0027	0.0027	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.141	0.0158	0.0028	0.0028	No	No	No
	March	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.149	0.0167	0.0030	0.0030	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.106	0.0119	0.0021	0.0021	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.190	0.0213	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.192	0.0216	0.0038	0.0038	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.161	0.0181	0.0032	0.0032	No	No	No
	August	0.0001	0.0002	0.001	0.0089	0.05	0.05	0.151	0.0170	0.0030	0.0030	No	No	No
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.176	0.0198	0.0035	0.0035	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.144	0.0162	0.0029	0.0029	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.119	0.0134	0.0024	0.0024	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.128	0.0144	0.0026	0.0026	No	No	No
Operations 2 Phase (24-28)	January	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.137	0.0154	0.0027	0.0027	No	No	No
	February	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.145	0.0163	0.0029	0.0029	No	No	No
	March	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.154	0.0173	0.0031	0.0031	No	No	No
	April	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.107	0.0120	0.0021	0.0021	No	No	No
	May	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.190	0.0214	0.0038	0.0038	No	No	No
	June	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.193	0.0216	0.0039	0.0039	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.161	0.0181	0.0032	0.0032	No	No	No
	August	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.152	0.0171	0.0030	0.0030	No	No	No
	September	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.178	0.0199	0.0036	0.0036	No	No	No
	October	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.145	0.0163	0.0029	0.0029	No	No	No
	November	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.121	0.0135	0.0024	0.0024	No	No	No
	December	0.0001	0.0001	0.001	0.0089	0.05	0.05	0.130	0.0146	0.0026	0.0026	No	No	No
Closure Phase (29-35)	January	0.0002	0.0003	0.001	0.0089	0.05	0.05	0.278	0.0312	0.0056	0.0056	No	No	No
	February	0.0002	0.0003	0.001	0.0089	0.05	0.05	0.308	0.0346	0.0062	0.0062	No	No	No
	March	0.0002	0.0003	0.001	0.0089	0.05	0.05	0.334	0.0375	0.0067	0.0067	No	No	No
	April	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.216	0.0243	0.0043	0.0043	No	No	No
	May	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.328	0.0368	0.0066	0.0066	No	No	No
	June	0.0003	0.0004	0.001	0.0089	0.05	0.05	0.369	0.0415	0.0074	0.0074	No	No	No
	July	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.242	0.0272	0.0048	0.0048	No	No	No
	August	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.192	0.0216	0.0038	0.0038	No	No	No
	September	0.0002	0.0003	0.001	0.0089	0.05	0.05	0.300	0.0337	0.0060	0.0060	No	No	No
	October	0.0002	0.0003	0.001	0.0089	0.05	0.05	0.298	0.0335	0.0060	0.0060	No	No	No
	November	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.210	0.0236	0.0042	0.0042	No	No	No
	December	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.249	0.0280	0.0050	0.0050	No	No	No
Post-Closure Phase (36-99)	January	0.0002	0.0003	0.001	0.0089	0.05	0.05	0.261	0.0293	0.0052	0.0052	No	No	No
	February	0.0004	0.0004	0.001	0.0089	0.05	0.05	0.406	0.0457	0.0081	0.0081	No	No	No
	March	0.0005	0.0005	0.001	0.0089	0.05	0.05	0.535	0.0601	0.0107	0.0107	No	No	No
	April	0.0002	0.0003	0.001	0.0089	0.05	0.05	0.251	0.0282	0.0050	0.0050	No	No	No
	May	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.338	0.0380	0.0068	0.0068	No	No	No
	June	0.0004	0.0004	0.001	0.0089	0.05	0.05	0.383	0.0430	0.0077	0.0077	No	No	No
	July	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.274	0.0308	0.0055	0.0055	No	No	No
	August	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.232	0.0260	0.0046	0.0046	No	No	No
	September	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.285	0.0320	0.0057	0.0057	No	No	No
	October	0.0003	0.0003	0.001	0.0089	0.05	0.05	0.286	0.0321	0.0057	0.0057	No	No	No
	November	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.200	0.0225	0.0040	0.0040	No	No	No
	December	0.0002	0.0002	0.001	0.0089	0.05	0.05	0.236	0.0266	0.0047	0.0047	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
 CCME = Canadian Council of Ministers of the Environment

Appendix 13-D22L. Lower Harper Creek (HB) Hazard Quotients for Dissolved and Total Iron Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?		
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines BC MOE Maximum Guideline for Dissolved Iron	Aquatic Life Guidelines BC MOE Maximum Guideline for Total Iron	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Aquatic Life	
		Dissolved Iron		Total Iron						Dissolved Iron	Total Iron
		Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0079	0.0085	0.0100	0.0105	0.35	1	0.0243	0.0105	No	No
	February	0.0058	0.0060	0.0087	0.0090	0.35	1	0.0171	0.0090	No	No
	March	0.0047	0.0050	0.0076	0.0080	0.35	1	0.0143	0.0080	No	No
	April	0.0198	0.0208	0.0483	0.0505	0.35	1	0.0594	0.0505	No	No
	May	0.0257	0.0269	0.130	0.132	0.35	1	0.0768	0.132	No	No
	June	0.0153	0.0158	0.173	0.179	0.35	1	0.0450	0.179	No	No
	July	0.0115	0.0118	0.0300	0.0310	0.35	1	0.0336	0.0310	No	No
	August	0.0106	0.0113	0.0154	0.0165	0.35	1	0.0321	0.0165	No	No
	September	0.0078	0.0084	0.0136	0.0148	0.35	1	0.0240	0.0148	No	No
	October	0.0137	0.0150	0.0175	0.0190	0.35	1	0.0429	0.0190	No	No
	November	0.0079	0.0085	0.0151	0.0165	0.35	1	0.0243	0.0165	No	No
	December	0.0079	0.0085	0.0286	0.0330	0.35	1	0.0243	0.0330	No	No
Operation 1 Phase (1-23)	January	0.0075	0.0078	0.0097	0.0100	0.35	1	0.0222	0.0100	No	No
	February	0.0058	0.0062	0.0087	0.0091	0.35	1	0.0177	0.0091	No	No
	March	0.0050	0.0054	0.0079	0.0083	0.35	1	0.0155	0.0083	No	No
	April	0.0191	0.0192	0.0468	0.0469	0.35	1	0.0549	0.0469	No	No
	May	0.0247	0.0248	0.130	0.130	0.35	1	0.0708	0.130	No	No
	June	0.0150	0.0150	0.167	0.167	0.35	1	0.0430	0.167	No	No
	July	0.0113	0.0113	0.0293	0.0294	0.35	1	0.0324	0.0294	No	No
	August	0.0100	0.0102	0.0146	0.0148	0.35	1	0.0292	0.0148	No	No
	September	0.0073	0.0075	0.0127	0.0129	0.35	1	0.0215	0.0129	No	No
	October	0.0125	0.0127	0.0162	0.0164	0.35	1	0.0363	0.0164	No	No
	November	0.0075	0.0077	0.0141	0.0143	0.35	1	0.0220	0.0143	No	No
	December	0.0074	0.0077	0.0249	0.0251	0.35	1	0.0220	0.0251	No	No
Operations 2 Phase (24-28)	January	0.0078	0.0079	0.0101	0.0101	0.35	1	0.0224	0.0101	No	No
	February	0.0062	0.0063	0.0091	0.0091	0.35	1	0.0179	0.0091	No	No
	March	0.0055	0.0055	0.0084	0.0084	0.35	1	0.0158	0.0084	No	No
	April	0.0192	0.0192	0.0469	0.0469	0.35	1	0.0549	0.0469	No	No
	May	0.0248	0.0248	0.130	0.130	0.35	1	0.0708	0.130	No	No
	June	0.0150	0.0150	0.167	0.167	0.35	1	0.0430	0.167	No	No
	July	0.0114	0.0114	0.0294	0.0294	0.35	1	0.0324	0.0294	No	No
	August	0.0102	0.0102	0.0148	0.0148	0.35	1	0.0292	0.0148	No	No
	September	0.0075	0.0076	0.0129	0.0129	0.35	1	0.0216	0.0129	No	No
	October	0.0127	0.0127	0.0164	0.0164	0.35	1	0.0363	0.0164	No	No
	November	0.0077	0.0077	0.0143	0.0143	0.35	1	0.0220	0.0143	No	No
	December	0.0077	0.0077	0.0252	0.0252	0.35	1	0.0221	0.0252	No	No
Closure Phase (29-35)	January	0.0083	0.0093	0.0108	0.0122	0.35	1	0.0265	0.0122	No	No
	February	0.0068	0.0082	0.0101	0.0117	0.35	1	0.0233	0.0117	No	No
	March	0.0062	0.0077	0.0095	0.0114	0.35	1	0.0221	0.0114	No	No
	April	0.0193	0.0195	0.0461	0.0468	0.35	1	0.0557	0.0468	No	No
	May	0.0247	0.0247	0.124	0.130	0.35	1	0.0707	0.130	No	No
	June	0.0158	0.0162	0.154	0.167	0.35	1	0.0462	0.167	No	No
	July	0.0118	0.0120	0.0294	0.0294	0.35	1	0.0344	0.0294	No	No
	August	0.0103	0.0105	0.0149	0.0152	0.35	1	0.0300	0.0152	No	No
	September	0.0083	0.0089	0.0139	0.0145	0.35	1	0.0255	0.0145	No	No
	October	0.0133	0.0138	0.0174	0.0180	0.35	1	0.0395	0.0180	No	No
	November	0.0082	0.0086	0.0148	0.0153	0.35	1	0.0246	0.0153	No	No
	December	0.0083	0.0089	0.0252	0.0254	0.35	1	0.0256	0.0254	No	No
Post-Closure Phase (36-99)	January	0.0090	0.0091	0.0120	0.0121	0.35	1	0.0260	0.0121	No	No
	February	0.0094	0.0098	0.0138	0.0142	0.35	1	0.0279	0.0142	No	No
	March	0.0105	0.0111	0.0155	0.0163	0.35	1	0.0316	0.0163	No	No
	April	0.0197	0.0199	0.0456	0.0459	0.35	1	0.0568	0.0459	No	No
	May	0.0247	0.0250	0.119	0.120	0.35	1	0.0713	0.120	No	No
	June	0.0163	0.0167	0.148	0.149	0.35	1	0.0476	0.149	No	No
	July	0.0124	0.0126	0.0298	0.0301	0.35	1	0.0360	0.0301	No	No
	August	0.0109	0.0110	0.0158	0.0159	0.35	1	0.0314	0.0159	No	No
	September	0.0087	0.0088	0.0144	0.0146	0.35	1	0.0251	0.0146	No	No
	October	0.0137	0.0139	0.0181	0.0184	0.35	1	0.0398	0.0184	No	No
	November	0.0084	0.0085	0.0152	0.0154	0.35	1	0.0244	0.0154	No	No
	December	0.0087	0.0088	0.0256	0.0258	0.35	1	0.0251	0.0258	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D22n. Lower Harper Creek (HB) Hazard Quotients for Total Lithium Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.0014	0.0016	0.096	0.87	0.0148	0.0166	0.0018	No
	February	0.0016	0.0018	0.096	0.87	0.0167	0.0188	0.0021	No
	March	0.0014	0.0016	0.096	0.87	0.0151	0.0167	0.0018	No
	April	0.0013	0.0014	0.096	0.87	0.0135	0.0142	0.0016	No
	May	0.0007	0.0007	0.096	0.87	0.0073	0.0077	0.0008	No
	June	0.0007	0.0007	0.096	0.87	0.0071	0.0074	0.0008	No
	July	0.0009	0.0009	0.096	0.87	0.0091	0.0095	0.0010	No
	August	0.0013	0.0014	0.096	0.87	0.0136	0.0147	0.0016	No
	September	0.0014	0.0015	0.096	0.87	0.0149	0.0161	0.0018	No
	October	0.0012	0.0012	0.096	0.87	0.0123	0.0128	0.0014	No
	November	0.0014	0.0015	0.096	0.87	0.0148	0.0158	0.0017	No
	December	0.0014	0.0015	0.096	0.87	0.0147	0.0160	0.0018	No
Operation 1 Phase (1-23)	January	0.0014	0.0015	0.096	0.87	0.0147	0.0156	0.0017	No
	February	0.0016	0.0017	0.096	0.87	0.0162	0.0173	0.0019	No
	March	0.0014	0.0016	0.096	0.87	0.0151	0.0163	0.0018	No
	April	0.0013	0.0013	0.096	0.87	0.0131	0.0133	0.0015	No
	May	0.0007	0.0007	0.096	0.87	0.0071	0.0072	0.0008	No
	June	0.0007	0.0007	0.096	0.87	0.0069	0.0070	0.0008	No
	July	0.0009	0.0009	0.096	0.87	0.0089	0.0091	0.0010	No
	August	0.0013	0.0013	0.096	0.87	0.0131	0.0136	0.0015	No
	September	0.0014	0.0014	0.096	0.87	0.0144	0.0149	0.0016	No
	October	0.0012	0.0012	0.096	0.87	0.0123	0.0127	0.0014	No
	November	0.0014	0.0014	0.096	0.87	0.0144	0.0148	0.0016	No
	December	0.0014	0.0014	0.096	0.87	0.0144	0.0151	0.0017	No
Operations 2 Phase (24-28)	January	0.0015	0.0015	0.096	0.87	0.0157	0.0158	0.0017	No
	February	0.0017	0.0017	0.096	0.87	0.0174	0.0175	0.0019	No
	March	0.0016	0.0016	0.096	0.87	0.0165	0.0166	0.0018	No
	April	0.0013	0.0013	0.096	0.87	0.0133	0.0133	0.0015	No
	May	0.0007	0.0007	0.096	0.87	0.0072	0.0072	0.0008	No
	June	0.0007	0.0007	0.096	0.87	0.0070	0.0070	0.0008	No
	July	0.0009	0.0009	0.096	0.87	0.0092	0.0092	0.0010	No
	August	0.0013	0.0013	0.096	0.87	0.0136	0.0136	0.0015	No
	September	0.0014	0.0014	0.096	0.87	0.0149	0.0149	0.0016	No
	October	0.0012	0.0012	0.096	0.87	0.0128	0.0128	0.0014	No
	November	0.0014	0.0014	0.096	0.87	0.0149	0.0149	0.0016	No
	December	0.0015	0.0015	0.096	0.87	0.0151	0.0151	0.0017	No
Closure Phase (29-35)	January	0.0020	0.0027	0.096	0.87	0.0206	0.0277	0.0031	No
	February	0.0022	0.0030	0.096	0.87	0.0230	0.0311	0.0034	No
	March	0.0022	0.0031	0.096	0.87	0.0227	0.0320	0.0035	No
	April	0.0017	0.0021	0.096	0.87	0.0177	0.0221	0.0024	No
	May	0.0013	0.0019	0.096	0.87	0.0136	0.0194	0.0021	No
	June	0.0017	0.0022	0.096	0.87	0.0175	0.0227	0.0025	No
	July	0.0013	0.0016	0.096	0.87	0.0135	0.0162	0.0018	No
	August	0.0015	0.0017	0.096	0.87	0.0154	0.0173	0.0019	No
	September	0.0020	0.0024	0.096	0.87	0.0210	0.0255	0.0028	No
	October	0.0020	0.0025	0.096	0.87	0.0206	0.0257	0.0028	No
	November	0.0018	0.0021	0.096	0.87	0.0190	0.0224	0.0025	No
	December	0.0020	0.0024	0.096	0.87	0.0207	0.0252	0.0028	No
Post-Closure Phase (36-99)	January	0.0021	0.0024	0.096	0.87	0.0220	0.0252	0.0028	No
	February	0.0030	0.0035	0.096	0.87	0.0313	0.0365	0.0040	No
	March	0.0036	0.0042	0.096	0.87	0.0374	0.0441	0.0049	No
	April	0.0020	0.0023	0.096	0.87	0.0213	0.0237	0.0026	No
	May	0.0016	0.0018	0.096	0.87	0.0166	0.0191	0.0021	No
	June	0.0018	0.0021	0.096	0.87	0.0191	0.0223	0.0025	No
	July	0.0015	0.0017	0.096	0.87	0.0160	0.0179	0.0020	No
	August	0.0017	0.0019	0.096	0.87	0.0178	0.0197	0.0022	No
	September	0.0020	0.0022	0.096	0.87	0.0207	0.0234	0.0026	No
	October	0.0020	0.0023	0.096	0.87	0.0206	0.0236	0.0026	No
	November	0.0018	0.0020	0.096	0.87	0.0189	0.0208	0.0023	No
	December	0.0020	0.0022	0.096	0.87	0.0205	0.0232	0.0026	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D22o. Lower Harper Creek (HB) Hazard Quotients for Total Manganese Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.0005	0.0005	0.72	0.82	0.0006	0.0007	0.0006	No
	February	0.0005	0.0005	0.72	0.83	0.0007	0.0007	0.0006	No
	March	0.0005	0.0005	0.72	0.83	0.0007	0.0007	0.0006	No
	April	0.0019	0.0019	0.71	0.79	0.0027	0.0027	0.0024	No
	May	0.0059	0.0059	0.67	0.71	0.0087	0.0088	0.0083	No
	June	0.0058	0.0060	0.66	0.68	0.0088	0.0091	0.0089	No
	July	0.0013	0.0013	0.69	0.74	0.0019	0.0019	0.0017	No
	August	0.0010	0.0010	0.71	0.82	0.0014	0.0014	0.0013	No
	September	0.0008	0.0009	0.72	0.84	0.0012	0.0012	0.0010	No
	October	0.0008	0.0008	0.71	0.80	0.0011	0.0011	0.0010	No
	November	0.0007	0.0007	0.70	0.79	0.0010	0.0010	0.0009	No
	December	0.0007	0.0007	0.67	0.71	0.0011	0.0011	0.0010	No
Operation 1 Phase (1-23)	January	0.0201	0.0447	0.72	0.82	0.0280	0.0624	0.0546	No
	February	0.0243	0.0544	0.72	0.83	0.0336	0.0752	0.0652	No
	March	0.0287	0.0644	0.72	0.83	0.0399	0.0895	0.0779	No
	April	0.0055	0.0100	0.71	0.79	0.0077	0.0142	0.0126	No
	May	0.0071	0.0087	0.67	0.71	0.0106	0.0129	0.0123	No
	June	0.0075	0.0094	0.66	0.68	0.0114	0.0142	0.0139	No
	July	0.0056	0.0105	0.69	0.74	0.0081	0.0153	0.0141	No
	August	0.0116	0.0245	0.71	0.82	0.0163	0.0342	0.0300	No
	September	0.0132	0.0283	0.72	0.84	0.0183	0.0391	0.0338	No
	October	0.0105	0.0223	0.71	0.80	0.0149	0.0314	0.0279	No
	November	0.0121	0.0259	0.70	0.79	0.0173	0.0368	0.0329	No
	December	0.0174	0.0373	0.67	0.71	0.0259	0.0555	0.0527	No
Operations 2 Phase (24-28)	January	0.0458	0.0501	0.72	0.82	0.0640	0.0700	0.0612	No
	February	0.0553	0.0605	0.72	0.83	0.0766	0.0838	0.0726	No
	March	0.0656	0.0716	0.72	0.83	0.0912	0.0996	0.0867	No
	April	0.0102	0.0109	0.71	0.79	0.0144	0.0155	0.0138	No
	May	0.0087	0.0090	0.67	0.71	0.0130	0.0133	0.0127	No
	June	0.0094	0.0097	0.66	0.68	0.0143	0.0147	0.0143	No
	July	0.0105	0.0112	0.69	0.74	0.0153	0.0163	0.0151	No
	August	0.0245	0.0262	0.71	0.82	0.0343	0.0367	0.0322	No
	September	0.0283	0.0308	0.72	0.84	0.0391	0.0424	0.0366	No
	October	0.0222	0.0241	0.71	0.80	0.0313	0.0339	0.0301	No
	November	0.0257	0.0278	0.70	0.79	0.0365	0.0395	0.0354	No
	December	0.0369	0.0400	0.67	0.71	0.0550	0.0595	0.0565	No
Closure Phase (29-35)	January	0.0610	0.1222	0.72	0.82	0.0851	0.171	0.149	No
	February	0.0709	0.1426	0.72	0.83	0.0982	0.197	0.171	No
	March	0.0800	0.1603	0.72	0.83	0.111	0.223	0.194	No
	April	0.0438	0.0813	0.71	0.79	0.0620	0.115	0.102	No
	May	0.0607	0.1075	0.67	0.71	0.0903	0.160	0.152	No
	June	0.0945	0.1367	0.66	0.68	0.143	0.207	0.202	No
	July	0.0424	0.0645	0.69	0.74	0.0619	0.0940	0.0869	No
	August	0.0265	0.0428	0.71	0.82	0.0371	0.0598	0.0525	No
	September	0.0657	0.1035	0.72	0.84	0.0907	0.143	0.123	No
	October	0.0776	0.1198	0.71	0.80	0.109	0.169	0.150	No
	November	0.0472	0.0756	0.70	0.79	0.0671	0.107	0.0961	No
	December	0.0641	0.1026	0.67	0.71	0.0954	0.153	0.145	No
Post-Closure Phase (36-99)	January	0.0748	0.1024	0.72	0.82	0.104	0.143	0.125	No
	February	0.1498	0.1948	0.72	0.83	0.207	0.270	0.234	No
	March	0.2152	0.2741	0.72	0.83	0.299	0.381	0.332	No
	April	0.0770	0.0981	0.71	0.79	0.109	0.139	0.124	No
	May	0.0854	0.1079	0.67	0.71	0.127	0.160	0.152	No
	June	0.1082	0.1364	0.66	0.68	0.164	0.207	0.202	No
	July	0.0635	0.0803	0.69	0.74	0.0926	0.117	0.108	No
	August	0.0488	0.0648	0.71	0.82	0.0682	0.0907	0.0796	No
	September	0.0640	0.0875	0.72	0.84	0.0884	0.121	0.104	No
	October	0.0786	0.1047	0.71	0.80	0.111	0.148	0.131	No
	November	0.0462	0.0635	0.70	0.79	0.0657	0.0903	0.0807	No
	December	0.0626	0.0865	0.67	0.71	0.0932	0.129	0.122	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D22r. Lower Harper Creek (HB) Hazard Quotients for Total Nickel Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0003	0.0003	0.025	1	0.0110	0.0003	No	No
	February	0.0003	0.0004	0.025	1	0.0160	0.0004	No	No
	March	0.0000	0.0001	0.025	1	0.0023	0.0001	No	No
	April	0.0001	0.0001	0.025	1	0.0033	0.0001	No	No
	May	0.0006	0.0007	0.025	1	0.0267	0.0007	No	No
	June	0.0005	0.0005	0.025	1	0.0207	0.0005	No	No
	July	0.0004	0.0004	0.025	1	0.0173	0.0004	No	No
	August	0.0004	0.0004	0.025	1	0.0160	0.0004	No	No
	September	0.0003	0.0004	0.025	1	0.0141	0.0004	No	No
	October	0.0003	0.0003	0.025	1	0.0127	0.0003	No	No
	November	0.0003	0.0003	0.025	1	0.0112	0.0003	No	No
	December	0.0003	0.0003	0.025	1	0.0111	0.0003	No	No
Operation 1 Phase (1-23)	January	0.0004	0.0006	0.025	1	0.0232	0.0006	No	No
	February	0.0005	0.0007	0.025	1	0.0288	0.0007	No	No
	March	0.0003	0.0006	0.025	1	0.0229	0.0006	No	No
	April	0.0001	0.0001	0.025	1	0.0059	0.0001	No	No
	May	0.0006	0.0006	0.025	1	0.0251	0.0006	No	No
	June	0.0005	0.0005	0.025	1	0.0216	0.0005	No	No
	July	0.0005	0.0005	0.025	1	0.0199	0.0005	No	No
	August	0.0004	0.0006	0.025	1	0.0221	0.0006	No	No
	September	0.0004	0.0005	0.025	1	0.0200	0.0005	No	No
	October	0.0004	0.0004	0.025	1	0.0177	0.0004	No	No
	November	0.0003	0.0004	0.025	1	0.0176	0.0004	No	No
	December	0.0004	0.0005	0.025	1	0.0209	0.0005	No	No
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.025	1	0.0248	0.0006	No	No
	February	0.0008	0.0008	0.025	1	0.0306	0.0008	No	No
	March	0.0006	0.0006	0.025	1	0.0250	0.0006	No	No
	April	0.0002	0.0002	0.025	1	0.0061	0.0002	No	No
	May	0.0006	0.0006	0.025	1	0.0251	0.0006	No	No
	June	0.0005	0.0005	0.025	1	0.0217	0.0005	No	No
	July	0.0005	0.0005	0.025	1	0.0201	0.0005	No	No
	August	0.0006	0.0006	0.025	1	0.0226	0.0006	No	No
	September	0.0005	0.0005	0.025	1	0.0207	0.0005	No	No
	October	0.0005	0.0005	0.025	1	0.0182	0.0005	No	No
	November	0.0005	0.0005	0.025	1	0.0182	0.0005	No	No
	December	0.0005	0.0005	0.025	1	0.0216	0.0005	No	No
Closure Phase (29-35)	January	0.0011	0.0019	0.025	1	0.0756	0.0019	No	No
	February	0.0013	0.0022	0.025	1	0.0889	0.0022	No	No
	March	0.0012	0.0023	0.025	1	0.0908	0.0023	No	No
	April	0.0007	0.0012	0.025	1	0.0470	0.0012	No	No
	May	0.0013	0.0020	0.025	1	0.0781	0.0020	No	No
	June	0.0017	0.0023	0.025	1	0.0905	0.0023	No	No
	July	0.0010	0.0013	0.025	1	0.0506	0.0013	No	No
	August	0.0007	0.0009	0.025	1	0.0370	0.0009	No	No
	September	0.0012	0.0017	0.025	1	0.0670	0.0017	No	No
	October	0.0013	0.0019	0.025	1	0.0754	0.0019	No	No
	November	0.0009	0.0013	0.025	1	0.0504	0.0013	No	No
	December	0.0011	0.0016	0.025	1	0.0648	0.0016	No	No
Post-Closure Phase (36-99)	January	0.0016	0.0019	0.025	1	0.0764	0.0019	No	No
	February	0.0030	0.0036	0.025	1	0.143	0.0036	No	No
	March	0.0040	0.0048	0.025	1	0.192	0.0048	No	No
	April	0.0015	0.0017	0.025	1	0.0694	0.0017	No	No
	May	0.0020	0.0023	0.025	1	0.0920	0.0023	No	No
	June	0.0023	0.0027	0.025	1	0.1083	0.0027	No	No
	July	0.0015	0.0018	0.025	1	0.0704	0.0018	No	No
	August	0.0012	0.0014	0.025	1	0.0564	0.0014	No	No
	September	0.0014	0.0017	0.025	1	0.0679	0.0017	No	No
	October	0.0017	0.0020	0.025	1	0.0791	0.0020	No	No
	November	0.0011	0.0013	0.025	1	0.0516	0.0013	No	No
	December	0.0014	0.0017	0.025	1	0.0667	0.0017	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guideline is hardness dependent

Appendix 13-D22t. Lower Harper Creek (HB) Hazard Quotients for Total Silver Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean	Maximum Predicted vs. BC MOE 30-Day	Maximum Predicted vs. BC MOE	Aquatic Life
		Mean	Maximum			Guideline	Mean Guideline	Maximum Guideline	
Construction (-2 to-1)	January	0.00001	0.00001	0.00005	0.0001	0.264	0.290	0.145	No
	February	0.00000	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	March	0.00000	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	April	0.00000	0.00001	0.00005	0.0001	0.100	0.100	0.0500	No
	May	0.00002	0.00002	0.00005	0.0001	0.415	0.450	0.225	No
	June	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	July	0.00002	0.00002	0.00005	0.0001	0.445	0.467	0.233	No
	August	0.00002	0.00002	0.00005	0.0001	0.420	0.467	0.233	No
	September	0.00002	0.00002	0.00005	0.0001	0.410	0.467	0.233	No
	October	0.00002	0.00002	0.00005	0.0001	0.343	0.375	0.188	No
	November	0.00001	0.00001	0.00005	0.0001	0.144	0.150	0.0750	No
	December	0.00001	0.00001	0.00005	0.0001	0.204	0.220	0.110	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00005	0.0001	0.244	0.255	0.128	No
	February	0.00001	0.00001	0.00005	0.0001	0.113	0.126	0.0631	No
	March	0.00001	0.00001	0.00005	0.0001	0.115	0.131	0.0657	No
	April	0.00001	0.00001	0.00005	0.0001	0.102	0.104	0.0520	No
	May	0.00002	0.00002	0.00005	0.0001	0.386	0.387	0.193	No
	June	0.00001	0.00001	0.00005	0.0001	0.200	0.201	0.100	No
	July	0.00002	0.00002	0.00005	0.0001	0.428	0.431	0.215	No
	August	0.00002	0.00002	0.00005	0.0001	0.384	0.390	0.195	No
	September	0.00002	0.00002	0.00005	0.0001	0.363	0.369	0.185	No
	October	0.00002	0.00002	0.00005	0.0001	0.317	0.322	0.161	No
	November	0.00001	0.00001	0.00005	0.0001	0.144	0.150	0.0752	No
	December	0.00001	0.00001	0.00005	0.0001	0.195	0.204	0.102	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00005	0.0001	0.257	0.257	0.129	No
	February	0.00001	0.00001	0.00005	0.0001	0.128	0.129	0.0645	No
	March	0.00001	0.00001	0.00005	0.0001	0.134	0.135	0.0673	No
	April	0.00001	0.00001	0.00005	0.0001	0.104	0.104	0.0522	No
	May	0.00002	0.00002	0.00005	0.0001	0.387	0.387	0.193	No
	June	0.00001	0.00001	0.00005	0.0001	0.201	0.201	0.100	No
	July	0.00002	0.00002	0.00005	0.0001	0.431	0.431	0.215	No
	August	0.00002	0.00002	0.00005	0.0001	0.390	0.390	0.195	No
	September	0.00002	0.00002	0.00005	0.0001	0.370	0.370	0.185	No
	October	0.00002	0.00002	0.00005	0.0001	0.323	0.323	0.162	No
	November	0.00001	0.00001	0.00005	0.0001	0.151	0.151	0.0756	No
	December	0.00001	0.00001	0.00005	0.0001	0.205	0.205	0.103	No
Closure Phase (29-35)	January	0.00001	0.00002	0.00005	0.0001	0.298	0.363	0.182	No
	February	0.00001	0.00001	0.00005	0.0001	0.185	0.271	0.135	No
	March	0.00001	0.00001	0.00005	0.0001	0.195	0.292	0.146	No
	April	0.00001	0.00001	0.00005	0.0001	0.151	0.196	0.0979	No
	May	0.00002	0.00002	0.00005	0.0001	0.435	0.478	0.239	No
	June	0.00001	0.00002	0.00005	0.0001	0.297	0.344	0.172	No
	July	0.00002	0.00002	0.00005	0.0001	0.461	0.481	0.240	No
	August	0.00002	0.00002	0.00005	0.0001	0.401	0.416	0.208	No
	September	0.00002	0.00002	0.00005	0.0001	0.416	0.453	0.226	No
	October	0.00002	0.00002	0.00005	0.0001	0.387	0.429	0.215	No
	November	0.00001	0.00001	0.00005	0.0001	0.192	0.225	0.113	No
	December	0.00001	0.00001	0.00005	0.0001	0.257	0.300	0.150	No
Post-Closure Phase (36-99)	January	0.00002	0.00002	0.00005	0.0001	0.311	0.342	0.171	No
	February	0.00001	0.00002	0.00005	0.0001	0.281	0.335	0.167	No
	March	0.00002	0.00002	0.00005	0.0001	0.360	0.430	0.215	No
	April	0.00001	0.00001	0.00005	0.0001	0.191	0.216	0.108	No
	May	0.00002	0.00002	0.00005	0.0001	0.451	0.477	0.239	No
	June	0.00002	0.00002	0.00005	0.0001	0.309	0.343	0.172	No
	July	0.00002	0.00002	0.00005	0.0001	0.474	0.494	0.247	No
	August	0.00002	0.00002	0.00005	0.0001	0.418	0.436	0.218	No
	September	0.00002	0.00002	0.00005	0.0001	0.410	0.437	0.218	No
	October	0.00002	0.00002	0.00005	0.0001	0.383	0.413	0.207	No
	November	0.00001	0.00001	0.00005	0.0001	0.191	0.211	0.106	No
	December	0.00001	0.00001	0.00005	0.0001	0.254	0.282	0.141	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D22u. Lower Harper Creek (HB) Hazard Quotients for Total Thallium Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE Working	Drinking Water Quality Guidelines BC DWQG	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Working Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines Maximum predicted vs. BC DWQG	Aquatic Life	Drinking Water
		Mean	Maximum						
Construction (-2 to-1)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	May	0.000012	0.000013	0.0003	0.002	0.0417	0.00625	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000013	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	August	0.000012	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	September	0.000012	0.000013	0.0003	0.002	0.0444	0.00667	No	No
	October	0.000010	0.000011	0.0003	0.002	0.0350	0.00525	No	No
	November	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	December	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
Operation 1 Phase (1-23)	January	0.000005	0.000006	0.0003	0.002	0.0185	0.00277	No	No
	February	0.000002	0.000003	0.0003	0.002	0.00920	0.00138	No	No
	March	0.000002	0.000003	0.0003	0.002	0.00970	0.00146	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00705	0.00106	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0391	0.00586	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0327	0.00491	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0398	0.00597	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0370	0.00555	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0348	0.00522	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0295	0.00443	No	No
	November	0.000005	0.000005	0.0003	0.002	0.0180	0.00270	No	No
	December	0.000005	0.000005	0.0003	0.002	0.0181	0.00271	No	No
Operations 2 Phase (24-28)	January	0.000006	0.000006	0.0003	0.002	0.0187	0.00280	No	No
	February	0.000003	0.000003	0.0003	0.002	0.00946	0.00142	No	No
	March	0.000003	0.000003	0.0003	0.002	0.0100	0.00150	No	No
	April	0.000002	0.000002	0.0003	0.002	0.00709	0.00106	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0391	0.00586	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0327	0.00491	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0398	0.00597	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0370	0.00555	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0349	0.00523	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0296	0.00444	No	No
	November	0.000005	0.000005	0.0003	0.002	0.0181	0.00271	No	No
	December	0.000005	0.000005	0.0003	0.002	0.0182	0.00273	No	No
Closure Phase (29-35)	January	0.000007	0.000009	0.0003	0.002	0.0310	0.00464	No	No
	February	0.000005	0.000008	0.0003	0.002	0.0251	0.00376	No	No
	March	0.000005	0.000008	0.0003	0.002	0.0273	0.00410	No	No
	April	0.000004	0.000005	0.0003	0.002	0.0170	0.00255	No	No
	May	0.000013	0.000015	0.0003	0.002	0.0488	0.00732	No	No
	June	0.000012	0.000014	0.0003	0.002	0.0461	0.00691	No	No
	July	0.000013	0.000014	0.0003	0.002	0.0455	0.00682	No	No
	August	0.000011	0.000012	0.0003	0.002	0.0400	0.00600	No	No
	September	0.000012	0.000013	0.0003	0.002	0.0440	0.00661	No	No
	October	0.000011	0.000012	0.0003	0.002	0.0414	0.00620	No	No
	November	0.000007	0.000008	0.0003	0.002	0.0258	0.00386	No	No
	December	0.000007	0.000009	0.0003	0.002	0.0286	0.00428	No	No
Post-Closure Phase (36-99)	January	0.000008	0.000008	0.0003	0.002	0.0281	0.00422	No	No
	February	0.000008	0.000009	0.0003	0.002	0.0310	0.00465	No	No
	March	0.000011	0.000012	0.0003	0.002	0.0410	0.00615	No	No
	April	0.000005	0.000006	0.0003	0.002	0.0188	0.00282	No	No
	May	0.000014	0.000014	0.0003	0.002	0.0483	0.00724	No	No
	June	0.000013	0.000014	0.0003	0.002	0.0454	0.00680	No	No
	July	0.000014	0.000014	0.0003	0.002	0.0465	0.00698	No	No
	August	0.000012	0.000013	0.0003	0.002	0.0418	0.00627	No	No
	September	0.000012	0.000013	0.0003	0.002	0.0419	0.00628	No	No
	October	0.000011	0.000012	0.0003	0.002	0.0391	0.00587	No	No
	November	0.000007	0.000007	0.0003	0.002	0.0240	0.00360	No	No
	December	0.000007	0.000008	0.0003	0.002	0.0262	0.00394	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D22ac. Lower Harper Creek (HB) Hazard Quotients for Ammonia Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Aquatic Life Guidelines ¹				Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day		Maximum Predicted			Aquatic Life
		Mean	Maximum	Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Construction (-2 to-1)	January	0.0190	0.0190	2.05	17.8	0.0093	0.0093	0.0011	No
	February	0.0247	0.0255	1.75	9.12	0.0141	0.0145	0.0028	No
	March	0.0221	0.0230	2.05	10.7	0.0108	0.0112	0.0021	No
	April	0.0081	0.0087	1.98	10.3	0.0041	0.0044	0.0008	No
	May	0.0132	0.0137	1.92	18.3	0.0069	0.0071	0.0007	No
	June	0.0114	0.0116	1.90	14.8	0.0060	0.0061	0.0008	No
	July	0.0159	0.0176	1.82	12.5	0.0088	0.0096	0.0014	No
	August	0.162	0.216	1.82	11.0	0.0890	0.119	0.0196	No
	September	0.0174	0.0192	1.86	9.65	0.0093	0.0103	0.0020	No
	October	0.0096	0.0110	1.95	13.4	0.0049	0.0056	0.0008	No
	November	0.0405	0.0441	2.09	10.8	0.0194	0.0211	0.0041	No
	December	0.0293	0.0316	2.09	10.8	0.0140	0.0151	0.0029	No
Operation 1 Phase (1-23)	January	0.0204	0.0263	2.05	17.8	0.0100	0.0128	0.0015	No
	February	0.0256	0.0324	1.75	9.12	0.0146	0.0185	0.0035	No
	March	0.0237	0.0317	2.05	10.7	0.0116	0.0155	0.0030	No
	April	0.0089	0.0099	1.98	10.3	0.0045	0.0050	0.0010	No
	May	0.0129	0.0133	1.92	18.3	0.0067	0.0069	0.0007	No
	June	0.0114	0.0118	1.90	14.8	0.0060	0.0062	0.0008	No
	July	0.0182	0.0193	1.82	12.5	0.0100	0.0106	0.0015	No
	August	0.194	0.196	1.82	11.0	0.107	0.108	0.0178	No
	September	0.0191	0.0226	1.86	9.65	0.0103	0.0122	0.0023	No
	October	0.0117	0.0145	1.95	13.4	0.0060	0.0074	0.0011	No
	November	0.0381	0.0413	2.09	10.8	0.0182	0.0198	0.0038	No
	December	0.0288	0.0335	2.09	10.8	0.0138	0.0160	0.0031	No
Operations 2 Phase (24-28)	January	0.0191	0.0191	2.05	17.8	0.0093	0.0093	0.0011	No
	February	0.0240	0.0240	1.75	9.12	0.0137	0.0137	0.0026	No
	March	0.0218	0.0218	2.05	10.7	0.0106	0.0106	0.0020	No
	April	0.0087	0.0087	1.98	10.3	0.0044	0.0044	0.0008	No
	May	0.0128	0.0128	1.92	18.3	0.0067	0.0067	0.0007	No
	June	0.0112	0.0112	1.90	14.8	0.0059	0.0059	0.0008	No
	July	0.0177	0.0177	1.82	12.5	0.0097	0.0097	0.0014	No
	August	0.194	0.195	1.82	11.0	0.107	0.107	0.0177	No
	September	0.0183	0.0183	1.86	9.65	0.0098	0.0098	0.0019	No
	October	0.0110	0.0110	1.95	13.4	0.0057	0.0057	0.0008	No
	November	0.0373	0.0373	2.09	10.8	0.0178	0.0179	0.0035	No
	December	0.0276	0.0276	2.09	10.8	0.0132	0.0132	0.0026	No
Closure Phase (29-35)	January	0.0273	0.0370	2.05	17.8	0.0133	0.0181	0.0021	No
	February	0.0333	0.0442	1.75	9.12	0.0190	0.0253	0.0049	No
	March	0.0324	0.0448	2.05	10.7	0.0158	0.0219	0.0042	No
	April	0.0151	0.0214	1.98	10.3	0.0076	0.0108	0.0021	No
	May	0.0210	0.0288	1.92	18.3	0.0109	0.0150	0.0016	No
	June	0.0247	0.0318	1.90	14.8	0.0130	0.0167	0.0021	No
	July	0.0234	0.0271	1.82	12.5	0.0128	0.0149	0.0022	No
	August	0.193	0.195	1.82	11.0	0.106	0.107	0.0177	No
	September	0.0273	0.0337	1.86	9.65	0.0147	0.0181	0.0035	No
	October	0.0224	0.0298	1.95	13.4	0.0115	0.0153	0.0022	No
	November	0.0428	0.0470	2.09	10.8	0.0205	0.0225	0.0044	No
	December	0.0357	0.0418	2.09	10.8	0.0171	0.0200	0.0039	No
Post-Closure Phase (36-99)	January	0.0210	0.0309	2.05	17.8	0.0103	0.0151	0.0017	No
	February	0.0268	0.0459	1.75	9.12	0.0153	0.0263	0.0050	No
	March	0.0264	0.0536	2.05	10.7	0.0129	0.0262	0.0050	No
	April	0.0115	0.0215	1.98	10.3	0.0058	0.0108	0.0021	No
	May	0.0154	0.0259	1.92	18.3	0.0080	0.0135	0.0014	No
	June	0.0147	0.0279	1.90	14.8	0.0077	0.0147	0.0019	No
	July	0.0192	0.0266	1.82	12.5	0.0105	0.0146	0.0021	No
	August	0.185	0.190	1.82	11.0	0.102	0.104	0.0173	No
	September	0.0198	0.0280	1.86	9.65	0.0106	0.0151	0.0029	No
	October	0.0136	0.0236	1.95	13.4	0.0070	0.0121	0.0018	No
	November	0.0373	0.0429	2.09	10.8	0.0179	0.0205	0.0040	No
	December	0.0284	0.0361	2.09	10.8	0.0136	0.0173	0.0033	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH and temperature dependent

Appendix 13-D23b. Lower Jones Creek (J1) Hazard Quotients for Total Antimony Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	March	0.00009	0.00010	0.020	0.014	0.00479	0.00684	No	No
	April	0.00003	0.00004	0.020	0.014	0.00185	0.00265	No	No
	May	0.00012	0.00012	0.020	0.014	0.00610	0.00872	No	No
	June	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	July	0.00012	0.00012	0.020	0.014	0.00620	0.00886	No	No
	August	0.00010	0.00010	0.020	0.014	0.00518	0.00740	No	No
	September	0.00010	0.00010	0.020	0.014	0.00505	0.00722	No	No
	October	0.00009	0.00009	0.020	0.014	0.00444	0.00634	No	No
	November	0.00008	0.00008	0.020	0.014	0.00406	0.00581	No	No
	December	0.00009	0.00009	0.020	0.014	0.00469	0.00670	No	No
Operation 1 Phase (1-23)	January	0.00010	0.00011	0.020	0.014	0.00527	0.00752	No	No
	February	0.00010	0.00011	0.020	0.014	0.00539	0.00770	No	No
	March	0.00010	0.00010	0.020	0.014	0.00503	0.00718	No	No
	April	0.00003	0.00003	0.020	0.014	0.00163	0.00233	No	No
	May	0.00013	0.00013	0.020	0.014	0.00653	0.00933	No	No
	June	0.00011	0.00011	0.020	0.014	0.00573	0.00819	No	No
	July	0.00013	0.00014	0.020	0.014	0.00683	0.00975	No	No
	August	0.00010	0.00011	0.020	0.014	0.00528	0.00754	No	No
	September	0.00010	0.00011	0.020	0.014	0.00527	0.00754	No	No
	October	0.00009	0.00009	0.020	0.014	0.00455	0.00650	No	No
	November	0.00008	0.00008	0.020	0.014	0.00416	0.00594	No	No
	December	0.00010	0.00010	0.020	0.014	0.00493	0.00705	No	No
Operations 2 Phase (24-28)	January	0.00011	0.00011	0.020	0.014	0.00529	0.00756	No	No
	February	0.00011	0.00011	0.020	0.014	0.00542	0.00775	No	No
	March	0.00010	0.00010	0.020	0.014	0.00506	0.00723	No	No
	April	0.00003	0.00003	0.020	0.014	0.00164	0.00234	No	No
	May	0.00013	0.00013	0.020	0.014	0.00651	0.00930	No	No
	June	0.00011	0.00011	0.020	0.014	0.00569	0.00813	No	No
	July	0.00013	0.00014	0.020	0.014	0.00679	0.00970	No	No
	August	0.00011	0.00011	0.020	0.014	0.00530	0.00757	No	No
	September	0.00011	0.00011	0.020	0.014	0.00529	0.00756	No	No
	October	0.00009	0.00009	0.020	0.014	0.00455	0.00650	No	No
	November	0.00008	0.00008	0.020	0.014	0.00416	0.00595	No	No
	December	0.00010	0.00010	0.020	0.014	0.00494	0.00706	No	No
Closure Phase (29-35)	January	0.00015	0.00021	0.020	0.014	0.0105	0.0149	No	No
	February	0.00016	0.00024	0.020	0.014	0.0120	0.0171	No	No
	March	0.00015	0.00022	0.020	0.014	0.0109	0.0155	No	No
	April	0.00004	0.00005	0.020	0.014	0.00247	0.00353	No	No
	May	0.00013	0.00014	0.020	0.014	0.00723	0.0103	No	No
	June	0.00011	0.00013	0.020	0.014	0.00660	0.00943	No	No
	July	0.00014	0.00016	0.020	0.014	0.00787	0.0112	No	No
	August	0.00012	0.00014	0.020	0.014	0.00700	0.00999	No	No
	September	0.00014	0.00017	0.020	0.014	0.00846	0.0121	No	No
	October	0.00011	0.00013	0.020	0.014	0.00644	0.00920	No	No
	November	0.00010	0.00012	0.020	0.014	0.00595	0.00850	No	No
	December	0.00013	0.00017	0.020	0.014	0.00841	0.01202	No	No
Post-Closure Phase (36-99)	January	0.00013	0.00014	0.020	0.014	0.00689	0.00984	No	No
	February	0.00014	0.00015	0.020	0.014	0.00763	0.0109	No	No
	March	0.00013	0.00014	0.020	0.014	0.00685	0.00978	No	No
	April	0.00004	0.00004	0.020	0.014	0.00190	0.00271	No	No
	May	0.00012	0.00012	0.020	0.014	0.00622	0.00888	No	No
	June	0.00010	0.00010	0.020	0.014	0.00510	0.00729	No	No
	July	0.00013	0.00013	0.020	0.014	0.00640	0.00915	No	No
	August	0.00011	0.00012	0.020	0.014	0.00585	0.00835	No	No
	September	0.00012	0.00013	0.020	0.014	0.00634	0.00905	No	No
	October	0.00010	0.00010	0.020	0.014	0.00514	0.00735	No	No
	November	0.00009	0.00009	0.020	0.014	0.00473	0.00676	No	No
	December	0.00012	0.00012	0.020	0.014	0.00606	0.00865	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D23g, Lower Jones Creek (J1) Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

		First Screening Step			Retained as COPC?	
Project Phase	Months	Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Livestock
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
		Construction (-2 to-1)	January	4.71	5.22	
	February	4.30	4.40	1000	0.0044	No
	March	6.68	7.16	1000	0.0072	No
	April	30.2	31.1	1000	0.0311	No
	May	15.7	15.8	1000	0.0158	No
	June	13.1	13.2	1000	0.0132	No
	July	23.2	23.5	1000	0.0235	No
	August	16.3	16.7	1000	0.0167	No
	September	8.03	8.23	1000	0.0082	No
	October	16.7	17.0	1000	0.0170	No
	November	18.9	19.3	1000	0.0193	No
	December	6.96	7.07	1000	0.0071	No
Operation 1 Phase (1-23)	January	5.45	5.51	1000	0.0055	No
	February	4.60	4.70	1000	0.0047	No
	March	7.80	7.97	1000	0.0080	No
	April	31.5	31.5	1000	0.0315	No
	May	15.9	16.0	1000	0.0160	No
	June	13.4	13.5	1000	0.0135	No
	July	23.6	23.8	1000	0.0238	No
	August	16.9	16.9	1000	0.0169	No
	September	8.29	8.31	1000	0.0083	No
	October	17.1	17.2	1000	0.0172	No
	November	19.3	19.5	1000	0.0195	No
	December	7.15	7.16	1000	0.0072	No
Operations 2 Phase (24-28)	January	5.54	5.55	1000	0.0055	No
	February	4.72	4.72	1000	0.0047	No
	March	7.91	8.00	1000	0.0080	No
	April	31.5	31.5	1000	0.0315	No
	May	15.9	15.9	1000	0.0159	No
	June	13.4	13.5	1000	0.0135	No
	July	23.4	23.4	1000	0.0234	No
	August	16.9	16.9	1000	0.0169	No
	September	8.33	8.37	1000	0.0084	No
	October	17.1	17.2	1000	0.0172	No
	November	19.3	19.4	1000	0.0194	No
	December	7.20	7.23	1000	0.0072	No
Closure Phase (29-35)	January	6.30	8.09	1000	0.0081	No
	February	5.63	7.84	1000	0.0078	No
	March	8.71	10.71	1000	0.0107	No
	April	31.6	31.8	1000	0.0318	No
	May	16.1	16.5	1000	0.0165	No
	June	13.6	14.2	1000	0.0142	No
	July	23.8	24.5	1000	0.0245	No
	August	17.2	17.8	1000	0.0178	No
	September	8.94	9.98	1000	0.0100	No
	October	17.6	18.2	1000	0.0182	No
	November	19.8	20.4	1000	0.0204	No
	December	7.82	8.96	1000	0.0090	No
Post-Closure Phase (36-99)	January	5.62	5.69	1000	0.0057	No
	February	4.79	4.88	1000	0.0049	No
	March	7.93	8.09	1000	0.0081	No
	April	31.5	31.5	1000	0.0315	No
	May	15.8	15.8	1000	0.0158	No
	June	13.2	13.2	1000	0.0132	No
	July	23.5	23.6	1000	0.0236	No
	August	17.1	17.1	1000	0.0171	No
	September	8.54	8.59	1000	0.0086	No
	October	17.3	17.4	1000	0.0174	No
	November	19.6	19.6	1000	0.0196	No
	December	7.34	7.39	1000	0.0074	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D23n. Lower Jones Creek (J1) Hazard Quotients for Total Lithium Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Aquatic Life Guidelines			Hazard Quotient relative to Aquatic Life Guideline				
Project Phase	Months	Predicted Concentrations		BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0056	0.0057	0.0006	No
	April	0.0009	0.0009	0.096	0.87	0.0093	0.0094	0.0010	No
	May	0.0006	0.0006	0.096	0.87	0.0063	0.0064	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0063	0.0063	0.0007	No
	July	0.0007	0.0008	0.096	0.87	0.0078	0.0078	0.0009	No
	August	0.0007	0.0007	0.096	0.87	0.0076	0.0077	0.0008	No
	September	0.0005	0.0005	0.096	0.87	0.0057	0.0057	0.0006	No
	October	0.0007	0.0007	0.096	0.87	0.0074	0.0075	0.0008	No
	November	0.0008	0.0008	0.096	0.87	0.0079	0.0080	0.0009	No
	December	0.0006	0.0006	0.096	0.87	0.0061	0.0062	0.0007	No
Operation 1 Phase (1-23)	January	0.0006	0.0006	0.096	0.87	0.0060	0.0065	0.0007	No
	February	0.0006	0.0006	0.096	0.87	0.0060	0.0065	0.0007	No
	March	0.0006	0.0007	0.096	0.87	0.0065	0.0070	0.0008	No
	April	0.0009	0.0009	0.096	0.87	0.0096	0.0097	0.0011	No
	May	0.0007	0.0007	0.096	0.87	0.0071	0.0077	0.0009	No
	June	0.0007	0.0008	0.096	0.87	0.0074	0.0085	0.0009	No
	July	0.0009	0.0009	0.096	0.87	0.0089	0.0098	0.0011	No
	August	0.0008	0.0008	0.096	0.87	0.0079	0.0081	0.0009	No
	September	0.0006	0.0006	0.096	0.87	0.0061	0.0064	0.0007	No
	October	0.0007	0.0008	0.096	0.87	0.0078	0.0079	0.0009	No
	November	0.0008	0.0008	0.096	0.87	0.0083	0.0084	0.0009	No
	December	0.0006	0.0007	0.096	0.87	0.0066	0.0069	0.0008	No
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	February	0.0006	0.0006	0.096	0.87	0.0066	0.0066	0.0007	No
	March	0.0007	0.0007	0.096	0.87	0.0071	0.0071	0.0008	No
	April	0.0009	0.0009	0.096	0.87	0.0097	0.0097	0.0011	No
	May	0.0007	0.0007	0.096	0.87	0.0074	0.0077	0.0008	No
	June	0.0008	0.0008	0.096	0.87	0.0080	0.0084	0.0009	No
	July	0.0009	0.0009	0.096	0.87	0.0093	0.0097	0.0011	No
	August	0.0008	0.0008	0.096	0.87	0.0081	0.0081	0.0009	No
	September	0.0006	0.0006	0.096	0.87	0.0064	0.0064	0.0007	No
	October	0.0008	0.0008	0.096	0.87	0.0079	0.0080	0.0009	No
	November	0.0008	0.0008	0.096	0.87	0.0084	0.0084	0.0009	No
	December	0.0007	0.0007	0.096	0.87	0.0070	0.0070	0.0008	No
Closure Phase (29-35)	January	0.0008	0.0014	0.096	0.87	0.0084	0.0143	0.0016	No
	February	0.0009	0.0016	0.096	0.87	0.0089	0.0162	0.0018	No
	March	0.0009	0.0015	0.096	0.87	0.0091	0.0157	0.0017	No
	April	0.0010	0.0010	0.096	0.87	0.0100	0.0109	0.0012	No
	May	0.0007	0.0009	0.096	0.87	0.0075	0.0090	0.0010	No
	June	0.0008	0.0010	0.096	0.87	0.0080	0.0101	0.0011	No
	July	0.0009	0.0011	0.096	0.87	0.0095	0.0116	0.0013	No
	August	0.0008	0.0010	0.096	0.87	0.0087	0.0106	0.0012	No
	September	0.0007	0.0011	0.096	0.87	0.0076	0.0111	0.0012	No
	October	0.0008	0.0010	0.096	0.87	0.0087	0.0108	0.0012	No
	November	0.0009	0.0011	0.096	0.87	0.0091	0.0111	0.0012	No
	December	0.0008	0.0012	0.096	0.87	0.0083	0.0121	0.0013	No
Post-Closure Phase (36-99)	January	0.0006	0.0006	0.096	0.87	0.0059	0.0060	0.0007	No
	February	0.0006	0.0006	0.096	0.87	0.0058	0.0060	0.0007	No
	March	0.0006	0.0006	0.096	0.87	0.0063	0.0064	0.0007	No
	April	0.0009	0.0009	0.096	0.87	0.0096	0.0096	0.0011	No
	May	0.0006	0.0006	0.096	0.87	0.0064	0.0064	0.0007	No
	June	0.0006	0.0006	0.096	0.87	0.0063	0.0063	0.0007	No
	July	0.0008	0.0008	0.096	0.87	0.0079	0.0079	0.0009	No
	August	0.0008	0.0008	0.096	0.87	0.0079	0.0079	0.0009	No
	September	0.0006	0.0006	0.096	0.87	0.0060	0.0061	0.0007	No
	October	0.0007	0.0007	0.096	0.87	0.0077	0.0078	0.0009	No
	November	0.0008	0.0008	0.096	0.87	0.0082	0.0083	0.0009	No
	December	0.0006	0.0006	0.096	0.87	0.0065	0.0066	0.0007	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D230. Lower Jones Creek (J1) Hazard Quotients for Total Manganese Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.0004	0.0004	1.23	2.11	0.0003	0.0003	0.0002	No
	February	0.0004	0.0004	1.24	2.13	0.0003	0.0003	0.0002	No
	March	0.0004	0.0004	1.25	2.15	0.0004	0.0004	0.0002	No
	April	0.0005	0.0005	1.23	2.09	0.0004	0.0004	0.0002	No
	May	0.0233	0.0235	0.877	1.22	0.0266	0.0269	0.0193	No
	June	0.0220	0.0222	0.850	1.15	0.0259	0.0261	0.0192	No
	July	0.0011	0.0011	1.10	1.78	0.0010	0.0010	0.0006	No
	August	0.0004	0.0004	1.26	2.18	0.0003	0.0003	0.0002	No
	September	0.0004	0.0004	1.26	2.17	0.0003	0.0004	0.0002	No
	October	0.0007	0.0007	1.17	1.94	0.0006	0.0006	0.0003	No
	November	0.0007	0.0007	1.27	2.20	0.0006	0.0006	0.0003	No
	December	0.0004	0.0004	0.973	1.46	0.0004	0.0004	0.0003	No
Operation 1 Phase (1-23)	January	0.0009	0.0012	1.23	2.11	0.0007	0.0010	0.0006	No
	February	0.0010	0.0014	1.24	2.13	0.0008	0.0011	0.0006	No
	March	0.0010	0.0014	1.25	2.15	0.0008	0.0011	0.0006	No
	April	0.0005	0.0006	1.23	2.09	0.0004	0.0005	0.0003	No
	May	0.0240	0.0241	0.877	1.22	0.0273	0.0275	0.0198	No
	June	0.0228	0.0232	0.850	1.15	0.0269	0.0273	0.0201	No
	July	0.0019	0.0026	1.10	1.78	0.0017	0.0023	0.0014	No
	August	0.0006	0.0007	1.26	2.18	0.0005	0.0006	0.0003	No
	September	0.0008	0.0010	1.26	2.17	0.0006	0.0008	0.0004	No
	October	0.0009	0.0010	1.17	1.94	0.0007	0.0008	0.0005	No
	November	0.0009	0.0010	1.27	2.20	0.0007	0.0008	0.0005	No
	December	0.0008	0.0010	0.973	1.46	0.0008	0.0011	0.0007	No
Operations 2 Phase (24-28)	January	0.0012	0.0013	1.23	2.11	0.0010	0.0010	0.0006	No
	February	0.0014	0.0014	1.24	2.13	0.0012	0.0012	0.0007	No
	March	0.0014	0.0014	1.25	2.15	0.0011	0.0011	0.0007	No
	April	0.0006	0.0006	1.23	2.09	0.0005	0.0005	0.0003	No
	May	0.0240	0.0241	0.877	1.22	0.0274	0.0275	0.0197	No
	June	0.0229	0.0231	0.850	1.15	0.0269	0.0271	0.0200	No
	July	0.0022	0.0025	1.10	1.78	0.0020	0.0023	0.0014	No
	August	0.0007	0.0007	1.26	2.18	0.0006	0.0006	0.0003	No
	September	0.0010	0.0010	1.26	2.17	0.0008	0.0008	0.0005	No
	October	0.0010	0.0010	1.17	1.94	0.0009	0.0009	0.0005	No
	November	0.0010	0.0010	1.27	2.20	0.0008	0.0008	0.0005	No
	December	0.0010	0.0010	0.973	1.46	0.0011	0.0011	0.0007	No
Closure Phase (29-35)	January	0.0060	0.0121	1.23	2.11	0.0049	0.0098	0.0057	No
	February	0.0076	0.0153	1.24	2.13	0.0062	0.0124	0.0072	No
	March	0.0068	0.0136	1.25	2.15	0.0054	0.0109	0.0063	No
	April	0.0014	0.0023	1.23	2.09	0.0011	0.0019	0.0011	No
	May	0.0245	0.0256	0.877	1.22	0.0279	0.0292	0.0210	No
	June	0.0234	0.0249	0.850	1.15	0.0276	0.0294	0.0216	No
	July	0.0026	0.0042	1.10	1.78	0.0024	0.0038	0.0023	No
	August	0.0025	0.0042	1.26	2.18	0.0020	0.0034	0.0019	No
	September	0.0044	0.0076	1.26	2.17	0.0035	0.0060	0.0035	No
	October	0.0031	0.0050	1.17	1.94	0.0026	0.0043	0.0026	No
	November	0.0030	0.0048	1.27	2.20	0.0024	0.0038	0.0022	No
	December	0.0049	0.0083	0.973	1.46	0.0050	0.0085	0.0057	No
Post-Closure Phase (36-99)	January	0.0041	0.0054	1.23	2.11	0.0033	0.0044	0.0026	No
	February	0.0054	0.0071	1.24	2.13	0.0044	0.0058	0.0033	No
	March	0.0045	0.0061	1.25	2.15	0.0036	0.0049	0.0028	No
	April	0.0011	0.0013	1.23	2.09	0.0009	0.0011	0.0006	No
	May	0.0238	0.0239	0.877	1.22	0.0272	0.0273	0.0196	No
	June	0.0224	0.0225	0.850	1.15	0.0263	0.0264	0.0195	No
	July	0.0015	0.0016	1.10	1.78	0.0013	0.0014	0.0009	No
	August	0.0016	0.0021	1.26	2.18	0.0013	0.0017	0.0010	No
	September	0.0028	0.0037	1.26	2.17	0.0022	0.0030	0.0017	No
	October	0.0021	0.0026	1.17	1.94	0.0018	0.0022	0.0013	No
	November	0.0021	0.0026	1.27	2.20	0.0016	0.0021	0.0012	No
	December	0.0030	0.0040	0.973	1.46	0.0031	0.0041	0.0027	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D23r. Lower Jones Creek (J1) Hazard Quotients for Total Nickel Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0008	0.0008	0.11	1	0.0074	0.0008	No	No
	February	0.0008	0.0008	0.11	1	0.0074	0.0008	No	No
	March	0.0008	0.0008	0.11	1	0.0070	0.0008	No	No
	April	0.0003	0.0003	0.11	1	0.0025	0.0003	No	No
	May	0.0013	0.0013	0.065	1	0.0205	0.0013	No	No
	June	0.0016	0.0016	0.025	1	0.0647	0.0016	No	No
	July	0.0009	0.0009	0.065	1	0.0135	0.0009	No	No
	August	0.0008	0.0008	0.11	1	0.0069	0.0008	No	No
	September	0.0007	0.0007	0.11	1	0.0068	0.0007	No	No
	October	0.0006	0.0006	0.11	1	0.0056	0.0006	No	No
	November	0.0006	0.0006	0.11	1	0.0052	0.0006	No	No
	December	0.0007	0.0007	0.065	1	0.0112	0.0007	No	No
Operation 1 Phase (1-23)	January	0.0008	0.0008	0.11	1	0.0072	0.0008	No	No
	February	0.0008	0.0008	0.11	1	0.0073	0.0008	No	No
	March	0.0007	0.0007	0.11	1	0.0068	0.0007	No	No
	April	0.0002	0.0002	0.11	1	0.0020	0.0002	No	No
	May	0.0013	0.0013	0.065	1	0.0206	0.0013	No	No
	June	0.0016	0.0016	0.025	1	0.0652	0.0016	No	No
	July	0.0008	0.0009	0.065	1	0.0133	0.0009	No	No
	August	0.0008	0.0008	0.11	1	0.0069	0.0008	No	No
	September	0.0007	0.0007	0.11	1	0.0068	0.0007	No	No
	October	0.0006	0.0006	0.11	1	0.0055	0.0006	No	No
	November	0.0006	0.0006	0.11	1	0.0051	0.0006	No	No
	December	0.0007	0.0007	0.065	1	0.0112	0.0007	No	No
Operations 2 Phase (24-28)	January	0.0008	0.0008	0.11	1	0.0072	0.0008	No	No
	February	0.0008	0.0008	0.11	1	0.0073	0.0008	No	No
	March	0.0007	0.0007	0.11	1	0.0067	0.0007	No	No
	April	0.0002	0.0002	0.11	1	0.0020	0.0002	No	No
	May	0.0013	0.0013	0.065	1	0.0204	0.0013	No	No
	June	0.0016	0.0016	0.025	1	0.0640	0.0016	No	No
	July	0.0008	0.0008	0.065	1	0.0130	0.0008	No	No
	August	0.0008	0.0008	0.11	1	0.0069	0.0008	No	No
	September	0.0007	0.0007	0.11	1	0.0068	0.0007	No	No
	October	0.0006	0.0006	0.11	1	0.0055	0.0006	No	No
	November	0.0006	0.0006	0.11	1	0.0051	0.0006	No	No
	December	0.0007	0.0007	0.065	1	0.0111	0.0007	No	No
Closure Phase (29-35)	January	0.0009	0.0010	0.11	1	0.0090	0.0010	No	No
	February	0.0009	0.0011	0.11	1	0.0096	0.0011	No	No
	March	0.0008	0.0010	0.11	1	0.0088	0.0010	No	No
	April	0.0002	0.0003	0.11	1	0.0023	0.0003	No	No
	May	0.0013	0.0014	0.065	1	0.0212	0.0014	No	No
	June	0.0016	0.0017	0.025	1	0.0670	0.0017	No	No
	July	0.0009	0.0009	0.065	1	0.0144	0.0009	No	No
	August	0.0008	0.0008	0.11	1	0.0074	0.0008	No	No
	September	0.0008	0.0009	0.11	1	0.0078	0.0009	No	No
	October	0.0006	0.0007	0.11	1	0.0061	0.0007	No	No
	November	0.0006	0.0006	0.11	1	0.0057	0.0006	No	No
	December	0.0008	0.0009	0.065	1	0.0132	0.0009	No	No
Post-Closure Phase (36-99)	January	0.0009	0.0009	0.11	1	0.0079	0.0009	No	No
	February	0.0009	0.0009	0.11	1	0.0082	0.0009	No	No
	March	0.0008	0.0008	0.11	1	0.0075	0.0008	No	No
	April	0.0002	0.0002	0.11	1	0.0021	0.0002	No	No
	May	0.0013	0.0013	0.065	1	0.0206	0.0013	No	No
	June	0.0016	0.0016	0.025	1	0.0649	0.0016	No	No
	July	0.0009	0.0009	0.065	1	0.0136	0.0009	No	No
	August	0.0008	0.0008	0.11	1	0.0071	0.0008	No	No
	September	0.0008	0.0008	0.11	1	0.0072	0.0008	No	No
	October	0.0006	0.0006	0.11	1	0.0057	0.0006	No	No
	November	0.0006	0.0006	0.11	1	0.0053	0.0006	No	No
	December	0.0008	0.0008	0.065	1	0.0119	0.0008	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guideline is hardness dependent

Appendix 13-D23t. Lower Jones Creek (J1) Hazard Quotients for Total Silver Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Aquatic Life Guidelines ¹				Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.00001	0.00001	0.00150	0.00300	0.00665	0.00667	0.00333	No
	February	0.00001	0.00001	0.00150	0.00300	0.00666	0.00667	0.00333	No
	March	0.00001	0.00001	0.00150	0.00300	0.00646	0.00650	0.00325	No
	April	0.00001	0.00001	0.00150	0.00300	0.00395	0.00404	0.00202	No
	May	0.00002	0.00002	0.00005	0.00010	0.375	0.376	0.188	No
	June	0.00001	0.00001	0.00005	0.00010	0.212	0.212	0.106	No
	July	0.00002	0.00002	0.00150	0.00300	0.0130	0.0131	0.00654	No
	August	0.00001	0.00001	0.00150	0.00300	0.00761	0.00763	0.00382	No
	September	0.00001	0.00001	0.00150	0.00300	0.00695	0.00696	0.00348	No
	October	0.00001	0.00001	0.00150	0.00300	0.00663	0.00665	0.00332	No
	November	0.00001	0.00001	0.00150	0.00300	0.00586	0.00589	0.00294	No
	December	0.00001	0.00001	0.00005	0.00010	0.194	0.194	0.0969	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.00150	0.00300	0.00658	0.00663	0.00331	No
	February	0.00001	0.00001	0.00150	0.00300	0.00660	0.00665	0.00332	No
	March	0.00001	0.00001	0.00150	0.00300	0.00633	0.00639	0.00319	No
	April	0.00001	0.00001	0.00150	0.00300	0.00380	0.00382	0.00191	No
	May	0.00002	0.00002	0.00005	0.00010	0.374	0.379	0.190	No
	June	0.00001	0.00001	0.00005	0.00010	0.209	0.212	0.106	No
	July	0.00002	0.00002	0.00150	0.00300	0.0130	0.0132	0.00660	No
	August	0.00001	0.00001	0.00150	0.00300	0.00750	0.00761	0.00380	No
	September	0.00001	0.00001	0.00150	0.00300	0.00689	0.00695	0.00347	No
	October	0.00001	0.00001	0.00150	0.00300	0.00657	0.00660	0.00330	No
	November	0.00001	0.00001	0.00150	0.00300	0.00583	0.00584	0.00292	No
	December	0.00001	0.00001	0.00005	0.00010	0.192	0.193	0.0965	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.00150	0.00300	0.00653	0.00654	0.00327	No
	February	0.00001	0.00001	0.00150	0.00300	0.00653	0.00654	0.00327	No
	March	0.00001	0.00001	0.00150	0.00300	0.00627	0.00628	0.00314	No
	April	0.00001	0.00001	0.00150	0.00300	0.00380	0.00380	0.00190	No
	May	0.00002	0.00002	0.00005	0.00010	0.372	0.373	0.186	No
	June	0.00001	0.00001	0.00005	0.00010	0.207	0.209	0.104	No
	July	0.00002	0.00002	0.00150	0.00300	0.0128	0.0129	0.00644	No
	August	0.00001	0.00001	0.00150	0.00300	0.00749	0.00753	0.00377	No
	September	0.00001	0.00001	0.00150	0.00300	0.00686	0.00687	0.00344	No
	October	0.00001	0.00001	0.00150	0.00300	0.00655	0.00655	0.00328	No
	November	0.00001	0.00001	0.00150	0.00300	0.00581	0.00582	0.00291	No
	December	0.00001	0.00001	0.00005	0.00010	0.191	0.191	0.0957	No
Closure Phase (29-35)	January	0.00001	0.00001	0.00150	0.00300	0.00682	0.00733	0.00367	No
	February	0.00001	0.00001	0.00150	0.00300	0.00690	0.00754	0.00377	No
	March	0.00001	0.00001	0.00150	0.00300	0.00660	0.00718	0.00359	No
	April	0.00001	0.00001	0.00150	0.00300	0.00385	0.00393	0.00197	No
	May	0.00002	0.00002	0.00005	0.00010	0.377	0.381	0.191	No
	June	0.00001	0.00001	0.00005	0.00010	0.214	0.219	0.110	No
	July	0.00002	0.00002	0.00150	0.00300	0.0131	0.0133	0.00665	No
	August	0.00001	0.00001	0.00150	0.00300	0.00771	0.00787	0.00394	No
	September	0.00001	0.00001	0.00150	0.00300	0.00710	0.00739	0.00370	No
	October	0.00001	0.00001	0.00150	0.00300	0.00671	0.00689	0.00345	No
	November	0.00001	0.00001	0.00150	0.00300	0.00592	0.00608	0.00304	No
	December	0.00001	0.00001	0.00005	0.00010	0.198	0.207	0.104	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.00150	0.00300	0.00675	0.00677	0.00339	No
	February	0.00001	0.00001	0.00150	0.00300	0.00682	0.00685	0.00343	No
	March	0.00001	0.00001	0.00150	0.00300	0.00652	0.00655	0.00328	No
	April	0.00001	0.00001	0.00150	0.00300	0.00383	0.00384	0.00192	No
	May	0.00002	0.00002	0.00005	0.00010	0.377	0.377	0.189	No
	June	0.00001	0.00001	0.00005	0.00010	0.213	0.213	0.106	No
	July	0.00002	0.00002	0.00150	0.00300	0.0131	0.0131	0.00656	No
	August	0.00001	0.00001	0.00150	0.00300	0.00771	0.00772	0.00386	No
	September	0.00001	0.00001	0.00150	0.00300	0.00705	0.00707	0.00354	No
	October	0.00001	0.00001	0.00150	0.00300	0.00669	0.00670	0.00335	No
	November	0.00001	0.00001	0.00150	0.00300	0.00588	0.00589	0.00294	No
	December	0.00001	0.00001	0.00005	0.00010	0.196	0.196	0.0981	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D23u. Lower Jones Creek (J1) Hazard Quotients for Total Thallium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum predicted vs. BC DWQG		
Construction (-2 to-1)	January	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	February	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	March	0.000009	0.000010	0.0003	0.002	0.0319	0.00479	No	No
	April	0.000003	0.000004	0.0003	0.002	0.0123	0.00185	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0407	0.00610	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0414	0.00620	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0345	0.00518	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0337	0.00505	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0296	0.00444	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0271	0.00406	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0313	0.00469	No	No
Operation 1 Phase (1-23)	January	0.000010	0.000010	0.0003	0.002	0.0330	0.00495	No	No
	February	0.000010	0.000010	0.0003	0.002	0.0334	0.00501	No	No
	March	0.000009	0.000009	0.0003	0.002	0.0311	0.00467	No	No
	April	0.000003	0.000003	0.0003	0.002	0.0105	0.00158	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0409	0.00614	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0338	0.00508	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0417	0.00625	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0345	0.00518	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0338	0.00507	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0294	0.00441	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0269	0.00403	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0313	0.00469	No	No
Operations 2 Phase (24-28)	January	0.000010	0.000010	0.0003	0.002	0.0330	0.00494	No	No
	February	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	March	0.000009	0.000009	0.0003	0.002	0.0311	0.00466	No	No
	April	0.000003	0.000003	0.0003	0.002	0.0106	0.00158	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0407	0.00611	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0336	0.00503	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0414	0.00620	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0345	0.00518	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0338	0.00506	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0294	0.00441	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0269	0.00403	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0312	0.00469	No	No
Closure Phase (29-35)	January	0.000010	0.000012	0.0003	0.002	0.0397	0.00596	No	No
	February	0.000011	0.000013	0.0003	0.002	0.0417	0.00625	No	No
	March	0.000010	0.000012	0.0003	0.002	0.0387	0.00580	No	No
	April	0.000003	0.000003	0.0003	0.002	0.0116	0.00175	No	No
	May	0.000012	0.000013	0.0003	0.002	0.0427	0.00640	No	No
	June	0.000010	0.000011	0.0003	0.002	0.0363	0.00545	No	No
	July	0.000013	0.000013	0.0003	0.002	0.0442	0.00664	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0368	0.00552	No	No
	September	0.000010	0.000011	0.0003	0.002	0.0379	0.00568	No	No
	October	0.000009	0.000010	0.0003	0.002	0.0318	0.00477	No	No
	November	0.000008	0.000009	0.0003	0.002	0.0291	0.00436	No	No
	December	0.000010	0.000011	0.0003	0.002	0.0357	0.00535	No	No
Post-Closure Phase (36-99)	January	0.000010	0.000010	0.0003	0.002	0.0332	0.00498	No	No
	February	0.000010	0.000010	0.0003	0.002	0.0337	0.00506	No	No
	March	0.000009	0.000009	0.0003	0.002	0.0313	0.00470	No	No
	April	0.000003	0.000003	0.0003	0.002	0.0106	0.00159	No	No
	May	0.000012	0.000012	0.0003	0.002	0.0407	0.00611	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0334	0.00500	No	No
	July	0.000012	0.000012	0.0003	0.002	0.0414	0.00621	No	No
	August	0.000010	0.000010	0.0003	0.002	0.0347	0.00521	No	No
	September	0.000010	0.000010	0.0003	0.002	0.0340	0.00509	No	No
	October	0.000009	0.000009	0.0003	0.002	0.0294	0.00441	No	No
	November	0.000008	0.000008	0.0003	0.002	0.0268	0.00402	No	No
	December	0.000009	0.000009	0.0003	0.002	0.0313	0.00470	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D23w. Lower Jones Creek (J1) Hazard Quotients for Total Vanadium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step								Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline			
Construction (-2 to-1)	January	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	February	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	March	0.0009	0.0010	0.006	0.02	0.1	0.160	0.0479	0.0096	No	No
	April	0.0003	0.0004	0.006	0.02	0.1	0.0617	0.0185	0.0037	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.168	0.0503	0.0101	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.181	0.0542	0.0108	No	No
	July	0.0008	0.0008	0.006	0.02	0.1	0.130	0.0389	0.0078	No	No
	August	0.0008	0.0009	0.006	0.02	0.1	0.142	0.0427	0.0085	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0496	0.0099	No	No
	October	0.0009	0.0009	0.006	0.02	0.1	0.147	0.0441	0.0088	No	No
	November	0.0008	0.0008	0.006	0.02	0.1	0.135	0.0406	0.0081	No	No
	December	0.0009	0.0009	0.006	0.02	0.1	0.156	0.0469	0.0094	No	No
Operation 1 Phase (1-23)	January	0.0010	0.0010	0.006	0.02	0.1	0.164	0.0492	0.0098	No	No
	February	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No
	March	0.0009	0.0009	0.006	0.02	0.1	0.155	0.0464	0.0093	No	No
	April	0.0003	0.0003	0.006	0.02	0.1	0.0526	0.0158	0.0032	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.168	0.0503	0.0101	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.181	0.0543	0.0109	No	No
	July	0.0008	0.0008	0.006	0.02	0.1	0.128	0.0385	0.0077	No	No
	August	0.0008	0.0008	0.006	0.02	0.1	0.141	0.0423	0.0085	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0495	0.0099	No	No
	October	0.0009	0.0009	0.006	0.02	0.1	0.146	0.0438	0.0088	No	No
	November	0.0008	0.0008	0.006	0.02	0.1	0.134	0.0401	0.0080	No	No
	December	0.0009	0.0009	0.006	0.02	0.1	0.155	0.0466	0.0093	No	No
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0487	0.0097	No	No
	February	0.0010	0.0010	0.006	0.02	0.1	0.163	0.0490	0.0098	No	No
	March	0.0009	0.0009	0.006	0.02	0.1	0.152	0.0457	0.0091	No	No
	April	0.0003	0.0003	0.006	0.02	0.1	0.0523	0.0157	0.0031	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.178	0.0534	0.0107	No	No
	July	0.0008	0.0008	0.006	0.02	0.1	0.127	0.0381	0.0076	No	No
	August	0.0008	0.0008	0.006	0.02	0.1	0.141	0.0422	0.0084	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.164	0.0492	0.0098	No	No
	October	0.0009	0.0009	0.006	0.02	0.1	0.146	0.0437	0.0087	No	No
	November	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
	December	0.0009	0.0009	0.006	0.02	0.1	0.154	0.0463	0.0093	No	No
Closure Phase (29-35)	January	0.0010	0.0010	0.006	0.02	0.1	0.169	0.0508	0.0102	No	No
	February	0.0010	0.0010	0.006	0.02	0.1	0.172	0.0517	0.0103	No	No
	March	0.0009	0.0010	0.006	0.02	0.1	0.160	0.0481	0.0096	No	No
	April	0.0003	0.0003	0.006	0.02	0.1	0.0536	0.0161	0.0032	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.170	0.0510	0.0102	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.184	0.0553	0.0111	No	No
	July	0.0008	0.0008	0.006	0.02	0.1	0.132	0.0397	0.0079	No	No
	August	0.0008	0.0009	0.006	0.02	0.1	0.142	0.0426	0.0085	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.168	0.0505	0.0101	No	No
	October	0.0009	0.0009	0.006	0.02	0.1	0.148	0.0443	0.0089	No	No
	November	0.0008	0.0008	0.006	0.02	0.1	0.135	0.0406	0.0081	No	No
	December	0.0009	0.0010	0.006	0.02	0.1	0.159	0.0477	0.0095	No	No
Post-Closure Phase (36-99)	January	0.0010	0.0010	0.006	0.02	0.1	0.164	0.0492	0.0098	No	No
	February	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0498	0.0100	No	No
	March	0.0009	0.0009	0.006	0.02	0.1	0.155	0.0464	0.0093	No	No
	April	0.0003	0.0003	0.006	0.02	0.1	0.0527	0.0158	0.0032	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.168	0.0503	0.0101	No	No
	June	0.0011	0.0011	0.006	0.02	0.1	0.181	0.0542	0.0108	No	No
	July	0.0008	0.0008	0.006	0.02	0.1	0.128	0.0385	0.0077	No	No
	August	0.0008	0.0008	0.006	0.02	0.1	0.140	0.0420	0.0084	No	No
	September	0.0010	0.0010	0.006	0.02	0.1	0.165	0.0495	0.0099	No	No
	October	0.0009	0.0009	0.006	0.02	0.1	0.145	0.0436	0.0087	No	No
	November	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
	December	0.0009	0.0009	0.006	0.02	0.1	0.155	0.0466	0.0093	No	No

Notes:

All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D23ab. Lower Jones Creek (J1) Hazard Quotients for Nitrite Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step											Retained as COPC?					
		Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0010	0.0011	0.02	0.06	1	10	10	0.0517	0.0534	0.0178	0.0011	0.0001	0.0001	No	No	No	No
	February	0.0010	0.0010	0.02	0.06	1	10	10	0.0504	0.0509	0.0170	0.0010	0.0001	0.0001	No	No	No	No
	March	0.0013	0.0013	0.02	0.06	1	10	10	0.0632	0.0658	0.0219	0.0013	0.0001	0.0001	No	No	No	No
	April	0.0043	0.0044	0.02	0.06	1	10	10	0.213	0.219	0.0729	0.0044	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0518	0.0518	0.0173	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0500	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0016	0.0016	0.02	0.06	1	10	10	0.0798	0.0806	0.0269	0.0016	0.0002	0.0002	No	No	No	No
	November	0.0021	0.0022	0.02	0.06	1	10	10	0.107	0.108	0.0360	0.0022	0.0002	0.0002	No	No	No	No
	December	0.0013	0.0014	0.02	0.06	1	10	10	0.0674	0.0682	0.0227	0.0014	0.0001	0.0001	No	No	No	No
Operation 1 Phase (1-23)	January	0.0011	0.0011	0.02	0.06	1	10	10	0.0529	0.0537	0.0179	0.0011	0.0001	0.0001	No	No	No	No
	February	0.0010	0.0010	0.02	0.06	1	10	10	0.0501	0.0510	0.0170	0.0010	0.0001	0.0001	No	No	No	No
	March	0.0013	0.0014	0.02	0.06	1	10	10	0.0675	0.0685	0.0228	0.0014	0.0001	0.0001	No	No	No	No
	April	0.0044	0.0044	0.02	0.06	1	10	10	0.221	0.221	0.0738	0.0044	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0491	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0485	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0487	0.0500	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0513	0.0517	0.0172	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0495	0.0499	0.0166	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0016	0.0016	0.02	0.06	1	10	10	0.0800	0.0807	0.0269	0.0016	0.0002	0.0002	No	No	No	No
	November	0.0021	0.0022	0.02	0.06	1	10	10	0.107	0.108	0.0362	0.0022	0.0002	0.0002	No	No	No	No
	December	0.0013	0.0014	0.02	0.06	1	10	10	0.0674	0.0683	0.0228	0.0014	0.0001	0.0001	No	No	No	No
Operations 2 Phase (24-28)	January	0.0010	0.0010	0.02	0.06	1	10	10	0.0522	0.0522	0.0174	0.0010	0.0001	0.0001	No	No	No	No
	February	0.0010	0.0010	0.02	0.06	1	10	10	0.0492	0.0492	0.0164	0.0010	0.0001	0.0001	No	No	No	No
	March	0.0013	0.0013	0.02	0.06	1	10	10	0.0666	0.0671	0.0224	0.0013	0.0001	0.0001	No	No	No	No
	April	0.0044	0.0044	0.02	0.06	1	10	10	0.221	0.221	0.0737	0.0044	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0486	0.0490	0.0163	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0478	0.0483	0.0161	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0480	0.0485	0.0162	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0010	0.02	0.06	1	10	10	0.0511	0.0512	0.0171	0.0010	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0010	0.02	0.06	1	10	10	0.0490	0.0491	0.0164	0.0010	0.0001	0.0001	No	No	No	No
	October	0.0016	0.0016	0.02	0.06	1	10	10	0.0797	0.0799	0.0266	0.0016	0.0002	0.0002	No	No	No	No
	November	0.0021	0.0021	0.02	0.06	1	10	10	0.107	0.107	0.0358	0.0021	0.0002	0.0002	No	No	No	No
	December	0.0013	0.0013	0.02	0.06	1	10	10	0.0668	0.0670	0.0223	0.0013	0.0001	0.0001	No	No	No	No
Closure Phase (29-35)	January	0.0012	0.0012	0.02	0.06	1	10	10	0.0580	0.0616	0.0205	0.0012	0.0001	0.0001	No	No	No	No
	February	0.0011	0.0012	0.02	0.06	1	10	10	0.0568	0.0615	0.0205	0.0012	0.0001	0.0001	No	No	No	No
	March	0.0015	0.0015	0.02	0.06	1	10	10	0.0731	0.0772	0.0257	0.0015	0.0002	0.0002	No	No	No	No
	April	0.0044	0.0044	0.02	0.06	1	10	10	0.222	0.222	0.0740	0.0044	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0499	0.0504	0.0168	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0497	0.0503	0.0168	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0501	0.0506	0.0169	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0011	0.0011	0.02	0.06	1	10	10	0.0536	0.0545	0.0182	0.0011	0.0001	0.0001	No	No	No	No
	September	0.0011	0.0011	0.02	0.06	1	10	10	0.0534	0.0552	0.0184	0.0011	0.0001	0.0001	No	No	No	No
	October	0.0017	0.0017	0.02	0.06	1	10	10	0.0830	0.0840	0.0280	0.0017	0.0002	0.0002	No	No	No	No
	November	0.0022	0.0022	0.02	0.06	1	10	10	0.110	0.111	0.0371	0.0022	0.0002	0.0002	No	No	No	No
	December	0.0014	0.0015	0.02	0.06	1	10	10	0.0723	0.0741	0.0247	0.0015	0.0001	0.0001	No	No	No	No
Post-Closure Phase (36-99)	January	0.0011	0.0012	0.02	0.06	1	10	10	0.0550	0.0595	0.0198	0.0012	0.0001	0.0001	No	No	No	No
	February	0.0011	0.0012	0.02	0.06	1	10	10	0.0526	0.0587	0.0196	0.0012	0.0001	0.0001	No	No	No	No
	March	0.0014	0.0015	0.02	0.06	1	10	10	0.0696	0.0746	0.0249	0.0015	0.0001	0.0001	No	No	No	No
	April	0.0044	0.0044	0.02	0.06	1	10	10	0.221	0.222	0.0740	0.0044	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0501	0.0503	0.0168	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0010	0.0010	0.02	0.06	1	10	10	0.0501	0.0503	0.0168	0.0010	0.0001	0.0001	No	No	No	No
	July	0.0010	0.0010	0.02	0.06	1	10	10	0.0501	0.0505	0.0168	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0010	0.0011	0.02	0.06	1	10	10	0.0522	0.0536	0.0179	0.0011	0.0001	0.0001	No	No	No	No
	September	0.0010	0.0011	0.02	0.06	1	10	10	0.0507	0.0534	0.0178	0.0011	0.0001	0.0001	No	No	No	No
	October	0.0016	0.0017	0.02	0.06	1	10	10	0.0818	0.0833	0.0278	0.0017	0.0002	0.0002	No	No	No	No
	November	0.0022	0.0022	0.02	0.06	1	10	10	0.109	0.111	0.0369	0.0022	0.0002	0.0002	No	No	No	No
	December	0.0014	0.0014	0.02	0.06	1	10	10	0.0695	0.0724	0.0241	0.0014	0.0001	0.0001	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are chloride dependent

Appendix 13-D23ac. Lower Jones Creek (J1) Hazard Quotients for Ammonia Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day	Maximum Predicted vs. BC MOE Working 30-Day	Maximum Predicted vs. BC MOE Working Maximum	Aquatic Life
		Mean	Maximum			Mean Guideline	Mean Guideline	Guideline	
Construction (-2 to-1)	January	0.0089	0.0090	0.628	3.22	0.0141	0.0143	0.0028	No
	February	0.0088	0.0088	0.636	3.31	0.0138	0.0138	0.0027	No
	March	0.0087	0.0087	0.788	4.09	0.0111	0.0111	0.0021	No
	April	0.0059	0.0060	0.606	3.15	0.0097	0.0099	0.0019	No
	May	0.0106	0.0106	1.67	8.67	0.0063	0.0064	0.0012	No
	June	0.0077	0.0077	1.38	7.17	0.0056	0.0056	0.0011	No
	July	0.0124	0.0124	0.709	3.69	0.0175	0.0175	0.0034	No
	August	0.0132	0.0134	0.566	2.94	0.0234	0.0236	0.0045	No
	September	0.0101	0.0102	0.568	2.96	0.0179	0.0180	0.0034	No
	October	0.0089	0.0089	0.942	4.90	0.0094	0.0094	0.0018	No
	November	0.0113	0.0113	0.788	4.09	0.0143	0.0144	0.0028	No
	December	0.0181	0.0185	1.50	7.82	0.0121	0.0123	0.0024	No
Operation 1 Phase (1-23)	January	0.0089	0.0090	0.628	3.22	0.0141	0.0143	0.0028	No
	February	0.0086	0.0088	0.636	3.31	0.0135	0.0138	0.0026	No
	March	0.0086	0.0087	0.788	4.09	0.0109	0.0111	0.0021	No
	April	0.0057	0.0057	0.606	3.15	0.0094	0.0095	0.0018	No
	May	0.0104	0.0106	1.67	8.67	0.0062	0.0064	0.0012	No
	June	0.0074	0.0076	1.38	7.17	0.0054	0.0055	0.0011	No
	July	0.0121	0.0124	0.709	3.69	0.0170	0.0175	0.0034	No
	August	0.0129	0.0133	0.566	2.94	0.0227	0.0234	0.0045	No
	September	0.0101	0.0102	0.568	2.96	0.0177	0.0180	0.0034	No
	October	0.0088	0.0089	0.942	4.90	0.0094	0.0094	0.0018	No
	November	0.0113	0.0114	0.788	4.09	0.0143	0.0144	0.0028	No
	December	0.0183	0.0186	1.50	7.82	0.0122	0.0124	0.0024	No
Operations 2 Phase (24-28)	January	0.0087	0.0087	0.628	3.22	0.0139	0.0139	0.0027	No
	February	0.0085	0.0085	0.636	3.31	0.0133	0.0133	0.0026	No
	March	0.0084	0.0084	0.788	4.09	0.0107	0.0107	0.0021	No
	April	0.0057	0.0057	0.606	3.15	0.0094	0.0094	0.0018	No
	May	0.0103	0.0104	1.67	8.67	0.0062	0.0062	0.0012	No
	June	0.0073	0.0074	1.38	7.17	0.0053	0.0053	0.0010	No
	July	0.0119	0.0121	0.709	3.69	0.0168	0.0170	0.0033	No
	August	0.0128	0.0130	0.566	2.94	0.0227	0.0230	0.0044	No
	September	0.0100	0.0100	0.568	2.96	0.0176	0.0176	0.0034	No
	October	0.0088	0.0088	0.942	4.90	0.0093	0.0093	0.0018	No
	November	0.0112	0.0112	0.788	4.09	0.0142	0.0143	0.0027	No
	December	0.0181	0.0183	1.50	7.82	0.0121	0.0122	0.0023	No
Closure Phase (29-35)	January	0.0094	0.0098	0.628	3.22	0.0150	0.0156	0.0030	No
	February	0.0093	0.0099	0.636	3.31	0.0147	0.0155	0.0030	No
	March	0.0092	0.0097	0.788	4.09	0.0117	0.0123	0.0024	No
	April	0.0058	0.0059	0.606	3.15	0.0096	0.0097	0.0019	No
	May	0.0106	0.0107	1.67	8.67	0.0063	0.0064	0.0012	No
	June	0.0076	0.0077	1.38	7.17	0.0055	0.0056	0.0011	No
	July	0.0124	0.0125	0.709	3.69	0.0175	0.0177	0.0034	No
	August	0.0136	0.0138	0.566	2.94	0.0240	0.0243	0.0047	No
	September	0.0106	0.0108	0.568	2.96	0.0186	0.0190	0.0036	No
	October	0.0091	0.0092	0.942	4.90	0.0096	0.0098	0.0019	No
	November	0.0115	0.0117	0.788	4.09	0.0146	0.0148	0.0028	No
	December	0.0190	0.0192	1.50	7.82	0.0127	0.0128	0.0025	No
Post-Closure Phase (36-99)	January	0.0091	0.0096	0.628	3.22	0.0146	0.0153	0.0030	No
	February	0.0090	0.0096	0.636	3.31	0.0141	0.0151	0.0029	No
	March	0.0089	0.0094	0.788	4.09	0.0113	0.0119	0.0023	No
	April	0.0058	0.0058	0.606	3.15	0.0095	0.0096	0.0019	No
	May	0.0106	0.0107	1.67	8.67	0.0064	0.0064	0.0012	No
	June	0.0077	0.0077	1.38	7.17	0.0056	0.0056	0.0011	No
	July	0.0125	0.0125	0.709	3.69	0.0176	0.0177	0.0034	No
	August	0.0136	0.0137	0.566	2.94	0.0240	0.0243	0.0047	No
	September	0.0104	0.0106	0.568	2.96	0.0182	0.0187	0.0036	No
	October	0.0089	0.0091	0.942	4.90	0.0095	0.0097	0.0019	No
	November	0.0114	0.0115	0.788	4.09	0.0145	0.0147	0.0028	No
	December	0.0189	0.0192	1.50	7.82	0.0126	0.0128	0.0024	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH and temperature dependent

Appendix 13-D23ad. Lower Jones Creek (J1) Hazard Quotients for Sulphate Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step								Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum	BC MOE 30-Day Mean Guideline	BC DWQG	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	5.28	5.59	309	500	1000	0.0171	0.0181	0.0112	0.0056	No	No	No
	February	5.04	5.10	309	500	1000	0.0163	0.0165	0.0102	0.0051	No	No	No
	March	6.41	6.68	309	500	1000	0.0207	0.0216	0.0134	0.0067	No	No	No
	April	14.6	14.9	309	500	1000	0.0471	0.0482	0.0298	0.0149	No	No	No
	May	6.51	6.53	218	500	1000	0.0298	0.0299	0.0131	0.0065	No	No	No
	June	6.37	6.39	218	500	1000	0.0292	0.0293	0.0128	0.0064	No	No	No
	July	10.2	10.3	309	500	1000	0.0331	0.0333	0.0206	0.0103	No	No	No
	August	10.9	11.1	309	500	1000	0.0354	0.0360	0.0223	0.0111	No	No	No
	September	6.85	6.95	309	500	1000	0.0222	0.0225	0.0139	0.0069	No	No	No
	October	10.8	11.0	309	500	1000	0.0350	0.0356	0.0220	0.0110	No	No	No
	November	13.6	13.8	309	500	1000	0.0439	0.0447	0.0276	0.0138	No	No	No
	December	6.13	6.18	309	500	1000	0.0198	0.0200	0.0124	0.0062	No	No	No
Operation 1 Phase (1-23)	January	6.01	6.25	309	500	1000	0.0195	0.0202	0.0125	0.0062	No	No	No
	February	5.57	5.86	309	500	1000	0.0180	0.0190	0.0117	0.0059	No	No	No
	March	7.39	7.67	309	500	1000	0.0239	0.0248	0.0153	0.0077	No	No	No
	April	15.1	15.2	309	500	1000	0.0489	0.0491	0.0303	0.0152	No	No	No
	May	6.98	7.37	218	500	1000	0.0320	0.0338	0.0147	0.0074	No	No	No
	June	7.13	7.77	218	500	1000	0.0327	0.0356	0.0155	0.0078	No	No	No
	July	10.9	11.4	309	500	1000	0.0353	0.0369	0.0228	0.0114	No	No	No
	August	11.3	11.4	309	500	1000	0.0366	0.0368	0.0228	0.0114	No	No	No
	September	7.19	7.32	309	500	1000	0.0233	0.0237	0.0146	0.0073	No	No	No
	October	11.1	11.2	309	500	1000	0.0360	0.0362	0.0224	0.0112	No	No	No
	November	13.9	13.9	309	500	1000	0.0451	0.0451	0.0279	0.0139	No	No	No
	December	6.47	6.62	309	500	1000	0.0209	0.0214	0.0132	0.0066	No	No	No
Operations 2 Phase (24-28)	January	6.29	6.30	309	500	1000	0.0204	0.0204	0.0126	0.0063	No	No	No
	February	5.91	5.92	309	500	1000	0.0191	0.0192	0.0118	0.0059	No	No	No
	March	7.72	7.77	309	500	1000	0.0250	0.0252	0.0155	0.0078	No	No	No
	April	15.2	15.2	309	500	1000	0.0490	0.0491	0.0303	0.0152	No	No	No
	May	7.17	7.33	218	500	1000	0.0329	0.0336	0.0147	0.0073	No	No	No
	June	7.43	7.69	218	500	1000	0.0341	0.0353	0.0154	0.0077	No	No	No
	July	11.1	11.3	309	500	1000	0.0360	0.0367	0.0227	0.0113	No	No	No
	August	11.4	11.4	309	500	1000	0.0369	0.0369	0.0228	0.0114	No	No	No
	September	7.35	7.37	309	500	1000	0.0238	0.0238	0.0147	0.0074	No	No	No
	October	11.2	11.3	309	500	1000	0.0363	0.0364	0.0225	0.0113	No	No	No
	November	14.0	14.0	309	500	1000	0.0453	0.0455	0.0281	0.0140	No	No	No
	December	6.65	6.65	309	500	1000	0.0215	0.0215	0.0133	0.0067	No	No	No
Closure Phase (29-35)	January	8.66	13.09	309	500	1000	0.0280	0.0424	0.0262	0.0131	No	No	No
	February	8.93	14.43	309	500	1000	0.0289	0.0467	0.0289	0.0144	No	No	No
	March	10.3	15.3	309	500	1000	0.0335	0.0496	0.0306	0.0153	No	No	No
	April	15.5	16.2	309	500	1000	0.0502	0.0525	0.0324	0.0162	No	No	No
	May	7.29	8.27	218	500	1000	0.0334	0.0379	0.0165	0.0083	No	No	No
	June	7.51	8.90	218	500	1000	0.0344	0.0408	0.0178	0.0089	No	No	No
	July	11.4	12.8	309	500	1000	0.0370	0.0415	0.0256	0.0128	No	No	No
	August	12.3	13.6	309	500	1000	0.0398	0.0441	0.0273	0.0136	No	No	No
	September	9.04	11.5	309	500	1000	0.0293	0.0373	0.0230	0.0115	No	No	No
	October	12.3	13.8	309	500	1000	0.0398	0.0446	0.0276	0.0138	No	No	No
	November	15.1	16.5	309	500	1000	0.0487	0.0533	0.0329	0.0165	No	No	No
	December	8.49	11.2	309	500	1000	0.0275	0.0363	0.0224	0.0112	No	No	No
Post-Closure Phase (36-99)	January	7.00	7.53	309	500	1000	0.0227	0.0244	0.0151	0.0075	No	No	No
	February	6.93	7.61	309	500	1000	0.0224	0.0246	0.0152	0.0076	No	No	No
	March	8.44	9.04	309	500	1000	0.0273	0.0292	0.0181	0.0090	No	No	No
	April	15.2	15.3	309	500	1000	0.0493	0.0496	0.0307	0.0153	No	No	No
	May	6.60	6.63	218	500	1000	0.0303	0.0304	0.0133	0.0066	No	No	No
	June	6.44	6.47	218	500	1000	0.0296	0.0297	0.0129	0.0065	No	No	No
	July	10.4	10.5	309	500	1000	0.0338	0.0339	0.0210	0.0105	No	No	No
	August	11.7	11.9	309	500	1000	0.0379	0.0384	0.0237	0.0119	No	No	No
	September	7.88	8.20	309	500	1000	0.0255	0.0265	0.0164	0.0082	No	No	No
	October	11.6	11.8	309	500	1000	0.0375	0.0381	0.0236	0.0118	No	No	No
	November	14.4	14.6	309	500	1000	0.0466	0.0472	0.0292	0.0146	No	No	No
	December	7.16	7.52	309	500	1000	0.0232	0.0243	0.0150	0.0075	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent

Appendix 13-D24b. Middle Baker Creek (BK1) Hazard Quotients for Total Antimony Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step					Retained as COPC?		
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum	BC MOE Working	BC Working DWQG	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC Working DWQG		
Construction (-2 to-1)	January	0.00004	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00001	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00499	0.00713	No	No
	June	0.00010	0.00010	0.020	0.014	0.00494	0.00705	No	No
	July	0.00010	0.00010	0.020	0.014	0.00483	0.00690	No	No
	August	0.00011	0.00011	0.020	0.014	0.00575	0.00821	No	No
	September	0.00008	0.00009	0.020	0.014	0.00447	0.00638	No	No
	October	0.00007	0.00007	0.020	0.014	0.00350	0.00501	No	No
	November	0.00009	0.00009	0.020	0.014	0.00464	0.00662	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operation 1 Phase (1-23)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00501	0.00716	No	No
	June	0.00010	0.00010	0.020	0.014	0.00497	0.00709	No	No
	July	0.00010	0.00010	0.020	0.014	0.00490	0.00699	No	No
	August	0.00012	0.00012	0.020	0.014	0.00609	0.00870	No	No
	September	0.00012	0.00013	0.020	0.014	0.00637	0.00910	No	No
	October	0.00007	0.00007	0.020	0.014	0.00370	0.00529	No	No
	November	0.00010	0.00010	0.020	0.014	0.00486	0.00694	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00503	0.00718	No	No
	July	0.00010	0.00010	0.020	0.014	0.00507	0.00725	No	No
	August	0.00013	0.00014	0.020	0.014	0.00676	0.00966	No	No
	September	0.00013	0.00014	0.020	0.014	0.00684	0.00977	No	No
	October	0.00008	0.00008	0.020	0.014	0.00407	0.00582	No	No
	November	0.00010	0.00010	0.020	0.014	0.00514	0.00734	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Closure Phase (29-35)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00503	0.00719	No	No
	July	0.00010	0.00010	0.020	0.014	0.00508	0.00726	No	No
	August	0.00013	0.00014	0.020	0.014	0.00677	0.00967	No	No
	September	0.00013	0.00014	0.020	0.014	0.00683	0.00976	No	No
	October	0.00008	0.00008	0.020	0.014	0.00406	0.00580	No	No
	November	0.00010	0.00010	0.020	0.014	0.00512	0.00732	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No
Post-Closure Phase (36-99)	January	0.00006	0.00006	0.020	0.014	0.00300	0.00429	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00500	0.00714	No	No
	June	0.00010	0.00010	0.020	0.014	0.00501	0.00715	No	No
	July	0.00010	0.00010	0.020	0.014	0.00501	0.00716	No	No
	August	0.00012	0.00013	0.020	0.014	0.00653	0.00933	No	No
	September	0.00012	0.00013	0.020	0.014	0.00655	0.00936	No	No
	October	0.00007	0.00008	0.020	0.014	0.00394	0.00563	No	No
	November	0.00010	0.00010	0.020	0.014	0.00503	0.00719	No	No
	December	0.00008	0.00008	0.020	0.014	0.00400	0.00571	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D24c. Middle Baker Creek (BK1) Hazard Quotients for Total Arsenic Concentrations, Upper Bound Case

		First Screening Step											Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE Maximum	Drinking Water Quality Guidelines BC DWQG	BC MOE Working Water Quality Guidelines for Wildlife Water Supply Maximum	BC MOE Livestock Watering Water Quality Guideline BC MOE Interim	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply Maximum Predicted vs. BC MOE Maximum Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs. BC MOE Interim Guideline	Retained as COPC?				
		Mean	Maximum									Aquatic Life	Drinking Water	Wildlife	Livestock	
Construction (-2 to-1)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No	
	March	0.0001	0.0002	0.005	0.025	0.025	0.025	0.0300	0.0060	0.0060	0.0060	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0324	0.0065	0.0065	0.0065	No	No	No	No	
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.112	0.0224	0.0224	0.0224	No	No	No	No	
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.140	0.0280	0.0280	0.0280	No	No	No	No	
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0443	0.0089	0.0089	0.0089	No	No	No	No	
	August	0.0012	0.0012	0.005	0.025	0.025	0.025	0.245	0.0491	0.0491	0.0491	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0379	0.0076	0.0076	0.0076	No	No	No	No	
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0386	0.0077	0.0077	0.0077	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0372	0.0074	0.0074	0.0074	No	No	No	No	
Operation 1 Phase (1-23)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0300	0.0060	0.0060	0.0060	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0324	0.0065	0.0065	0.0065	No	No	No	No	
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.113	0.0226	0.0226	0.0226	No	No	No	No	
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.141	0.0282	0.0282	0.0282	No	No	No	No	
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0467	0.0093	0.0093	0.0093	No	No	No	No	
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.260	0.0521	0.0521	0.0521	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0466	0.0093	0.0093	0.0093	No	No	No	No	
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0412	0.0082	0.0082	0.0082	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0370	0.0074	0.0074	0.0074	No	No	No	No	
Operations 2 Phase (24-28)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0300	0.0060	0.0060	0.0060	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0324	0.0065	0.0065	0.0065	No	No	No	No	
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.112	0.0225	0.0225	0.0225	No	No	No	No	
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.141	0.0281	0.0281	0.0281	No	No	No	No	
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0445	0.0089	0.0089	0.0089	No	No	No	No	
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.261	0.0522	0.0522	0.0522	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0378	0.0076	0.0076	0.0076	No	No	No	No	
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0393	0.0079	0.0079	0.0079	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0390	0.0078	0.0078	0.0078	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0370	0.0074	0.0074	0.0074	No	No	No	No	
Closure Phase (29-35)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0300	0.0060	0.0060	0.0060	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0324	0.0065	0.0065	0.0065	No	No	No	No	
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.112	0.0225	0.0225	0.0225	No	No	No	No	
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.141	0.0281	0.0281	0.0281	No	No	No	No	
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0445	0.0089	0.0089	0.0089	No	No	No	No	
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.260	0.0521	0.0521	0.0521	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0381	0.0076	0.0076	0.0076	No	No	No	No	
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0393	0.0079	0.0079	0.0079	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0390	0.0078	0.0078	0.0078	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0370	0.0074	0.0074	0.0074	No	No	No	No	
Post-Closure Phase (36-99)	January	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0360	0.0072	0.0072	0.0072	No	No	No	No	
	February	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0380	0.0076	0.0076	0.0076	No	No	No	No	
	March	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0300	0.0060	0.0060	0.0060	No	No	No	No	
	April	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0324	0.0065	0.0065	0.0065	No	No	No	No	
	May	0.0006	0.0006	0.005	0.025	0.025	0.025	0.112	0.0225	0.0225	0.0225	No	No	No	No	
	June	0.0007	0.0007	0.005	0.025	0.025	0.025	0.141	0.0281	0.0281	0.0281	No	No	No	No	
	July	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0444	0.0089	0.0089	0.0089	No	No	No	No	
	August	0.0013	0.0013	0.005	0.025	0.025	0.025	0.259	0.0519	0.0519	0.0519	No	No	No	No	
	September	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0381	0.0076	0.0076	0.0076	No	No	No	No	
	October	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0392	0.0078	0.0078	0.0078	No	No	No	No	
	November	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0389	0.0078	0.0078	0.0078	No	No	No	No	
	December	0.0002	0.0002	0.005	0.025	0.025	0.025	0.0370	0.0074	0.0074	0.0074	No	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D24d. Middle Baker Creek (BK1) Hazard Quotients for Total Barium Concentrations, Upper Bound Case

		First Screening Step										Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water	
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum	Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Maximum Predicted vs. Canadian DWQG			
Construction (-2 to-1)	January	0.0093	0.0096	1	5	1	0.0093	0.0096	0.0019	0.0096	No	No	
	February	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	March	0.0047	0.0094	1	5	1	0.0047	0.0094	0.0019	0.0094	No	No	
	April	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	May	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	June	0.0084	0.0085	1	5	1	0.0084	0.0085	0.0017	0.0085	No	No	
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No	
	August	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	September	0.0099	0.0099	1	5	1	0.0099	0.0099	0.0020	0.0099	No	No	
	October	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	No	No	
	November	0.0086	0.0087	1	5	1	0.0086	0.0087	0.0017	0.0087	No	No	
	December	0.0088	0.0088	1	5	1	0.0088	0.0088	0.0018	0.0088	No	No	
Operation 1 Phase (1-23)	January	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No	
	February	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	March	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	April	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	May	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	June	0.0084	0.0085	1	5	1	0.0084	0.0085	0.0017	0.0085	No	No	
	July	0.0082	0.0083	1	5	1	0.0082	0.0083	0.0017	0.0083	No	No	
	August	0.0096	0.0099	1	5	1	0.0096	0.0099	0.0020	0.0099	No	No	
	September	0.0102	0.0104	1	5	1	0.0102	0.0104	0.0021	0.0104	No	No	
	October	0.0093	0.0094	1	5	1	0.0093	0.0094	0.0019	0.0094	No	No	
	November	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	December	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No	
Operations 2 Phase (24-28)	January	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No	
	February	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	March	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	April	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	May	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	June	0.0085	0.0085	1	5	1	0.0085	0.0085	0.0017	0.0085	No	No	
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No	
	August	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No	
	September	0.0102	0.0102	1	5	1	0.0102	0.0102	0.0020	0.0102	No	No	
	October	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	No	No	
	November	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	December	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No	
Closure Phase (29-35)	January	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No	
	February	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	March	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	April	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	May	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	June	0.0085	0.0085	1	5	1	0.0085	0.0085	0.0017	0.0085	No	No	
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No	
	August	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No	
	September	0.0102	0.0102	1	5	1	0.0102	0.0102	0.0020	0.0102	No	No	
	October	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	No	No	
	November	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	December	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No	
Post-Closure Phase (36-99)	January	0.0089	0.0089	1	5	1	0.0089	0.0089	0.0018	0.0089	No	No	
	February	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	March	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	April	0.0094	0.0094	1	5	1	0.0094	0.0094	0.0019	0.0094	No	No	
	May	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	June	0.0084	0.0085	1	5	1	0.0084	0.0085	0.0017	0.0085	No	No	
	July	0.0082	0.0082	1	5	1	0.0082	0.0082	0.0016	0.0082	No	No	
	August	0.0096	0.0097	1	5	1	0.0096	0.0097	0.0019	0.0097	No	No	
	September	0.0102	0.0102	1	5	1	0.0102	0.0102	0.0020	0.0102	No	No	
	October	0.0093	0.0093	1	5	1	0.0093	0.0093	0.0019	0.0093	No	No	
	November	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	December	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D24e. Middle Baker Creek (BK1) Hazard Quotients for Total Beryllium Concentrations, Upper Bound Case

		First Screening Step										Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock	
		Mean	Maximum	BC MOE Working (Chronic, 30-day mean)	BC DWQG	BC MOE Working	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC DWQG	Maximum Predicted vs BC MOE Working Guideline				
Construction (-2 to-1)	January	0.00003	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.0055	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00094	0.00189	0.00250	0.0010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0188	0.0188	0.0249	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0186	0.0186	0.0246	0.00098	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0181	0.0181	0.0240	0.00096	No	No	No	
	August	0.00011	0.00011	0.0053	0.004	0.1	0.0210	0.0212	0.0281	0.00113	No	No	No	
	September	0.00005	0.00005	0.0053	0.004	0.1	0.00952	0.0102	0.0135	0.00054	No	No	No	
	October	0.00006	0.00006	0.0053	0.004	0.1	0.0116	0.0118	0.0157	0.00063	No	No	No	
	November	0.00009	0.00009	0.0053	0.004	0.1	0.0171	0.0173	0.0230	0.00092	No	No	No	
	December	0.00007	0.00008	0.0053	0.004	0.1	0.0136	0.0146	0.0194	0.00078	No	No	No	
Operation 1 Phase (1-23)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.0055	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0183	0.0243	0.00097	No	No	No	
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0224	0.0228	0.0302	0.00121	No	No	No	
	September	0.00007	0.00008	0.0053	0.004	0.1	0.0136	0.0150	0.0199	0.00079	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0125	0.0127	0.0168	0.00067	No	No	No	
	November	0.00010	0.00010	0.0053	0.004	0.1	0.0180	0.0183	0.0242	0.00097	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Operations 2 Phase (24-28)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.0055	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0183	0.0243	0.00097	No	No	No	
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0227	0.0227	0.0301	0.00120	No	No	No	
	September	0.00008	0.00008	0.0053	0.004	0.1	0.0145	0.0147	0.0194	0.00078	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0126	0.0126	0.0168	0.00067	No	No	No	
	November	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0241	0.00097	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Closure Phase (29-35)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.0055	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0183	0.0243	0.00097	No	No	No	
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0226	0.0227	0.0301	0.00120	No	No	No	
	September	0.00007	0.00008	0.0053	0.004	0.1	0.0141	0.0143	0.0189	0.00076	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0126	0.0126	0.0167	0.00067	No	No	No	
	November	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0241	0.00096	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	
Post-Closure Phase (36-99)	January	0.00006	0.00006	0.0053	0.004	0.1	0.0104	0.0104	0.0138	0.0055	No	No	No	
	February	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	March	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	April	0.00001	0.00001	0.0053	0.004	0.1	0.00189	0.00189	0.00250	0.0010	No	No	No	
	May	0.00010	0.00010	0.0053	0.004	0.1	0.0189	0.0189	0.0250	0.00100	No	No	No	
	June	0.00010	0.00010	0.0053	0.004	0.1	0.0187	0.0187	0.0248	0.00099	No	No	No	
	July	0.00010	0.00010	0.0053	0.004	0.1	0.0183	0.0183	0.0242	0.00097	No	No	No	
	August	0.00012	0.00012	0.0053	0.004	0.1	0.0226	0.0226	0.0300	0.00120	No	No	No	
	September	0.00007	0.00008	0.0053	0.004	0.1	0.0141	0.0143	0.0190	0.00076	No	No	No	
	October	0.00007	0.00007	0.0053	0.004	0.1	0.0126	0.0126	0.0167	0.00067	No	No	No	
	November	0.00010	0.00010	0.0053	0.004	0.1	0.0182	0.0182	0.0241	0.00096	No	No	No	
	December	0.00008	0.00008	0.0053	0.004	0.1	0.0146	0.0146	0.0194	0.00078	No	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D24g. Middle Baker Creek (BK1) Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step			Retained as COPC?	
		Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline
		Mean	Maximum			
Construction (-2 to-1)	January	35.9	37.0	1000	0.0370	No
	February	37.0	37.0	1000	0.0370	No
	March	18.8	37.6	1000	0.0376	No
	April	36.9	36.9	1000	0.0369	No
	May	21.5	21.6	1000	0.0216	No
	June	17.7	17.8	1000	0.0178	No
	July	28.4	28.5	1000	0.0285	No
	August	34.9	35.2	1000	0.0352	No
	September	36.6	36.8	1000	0.0368	No
	October	35.0	35.1	1000	0.0351	No
	November	37.0	37.0	1000	0.0370	No
	December	35.9	36.0	1000	0.0360	No
Operation 1 Phase (1-23)	January	34.7	34.7	1000	0.0347	No
	February	37.0	37.0	1000	0.0370	No
	March	37.6	37.6	1000	0.0376	No
	April	36.9	36.9	1000	0.0369	No
	May	21.4	21.5	1000	0.0215	No
	June	17.7	17.7	1000	0.0177	No
	July	28.3	28.4	1000	0.0284	No
	August	34.9	35.0	1000	0.0350	No
	September	37.0	37.0	1000	0.0370	No
	October	35.0	35.1	1000	0.0351	No
	November	37.0	37.0	1000	0.0370	No
	December	35.9	35.9	1000	0.0359	No
Operations 2 Phase (24-28)	January	34.7	34.7	1000	0.0347	No
	February	37.0	37.0	1000	0.0370	No
	March	37.6	37.6	1000	0.0376	No
	April	36.9	36.9	1000	0.0369	No
	May	21.5	21.5	1000	0.0215	No
	June	17.7	17.7	1000	0.0177	No
	July	28.4	28.4	1000	0.0284	No
	August	35.1	35.2	1000	0.0352	No
	September	37.2	37.3	1000	0.0373	No
	October	35.1	35.1	1000	0.0351	No
	November	37.1	37.1	1000	0.0371	No
	December	35.9	35.9	1000	0.0359	No
Closure Phase (29-35)	January	34.7	34.7	1000	0.0347	No
	February	37.0	37.0	1000	0.0370	No
	March	37.6	37.6	1000	0.0376	No
	April	36.9	36.9	1000	0.0369	No
	May	21.5	21.5	1000	0.0215	No
	June	17.7	17.7	1000	0.0177	No
	July	28.4	28.4	1000	0.0284	No
	August	35.1	35.2	1000	0.0352	No
	September	37.2	37.3	1000	0.0373	No
	October	35.1	35.1	1000	0.0351	No
	November	37.1	37.1	1000	0.0371	No
	December	35.9	35.9	1000	0.0359	No
Post-Closure Phase (36-99)	January	34.7	34.7	1000	0.0347	No
	February	37.0	37.0	1000	0.0370	No
	March	37.6	37.6	1000	0.0376	No
	April	36.9	36.9	1000	0.0369	No
	May	21.5	21.5	1000	0.0215	No
	June	17.7	17.7	1000	0.0177	No
	July	28.4	28.4	1000	0.0284	No
	August	35.0	35.1	1000	0.0351	No
	September	37.1	37.2	1000	0.0372	No
	October	35.0	35.1	1000	0.0351	No
	November	37.0	37.1	1000	0.0371	No
	December	35.9	35.9	1000	0.0359	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D24L Middle Baker Creek (BK1) Hazard Quotients for Dissolved and Total Iron Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines BC MOE Maximum Guideline for Dissolved Iron	Aquatic Life Guidelines BC MOE Maximum Guideline for Total Iron	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline for Dissolved Iron	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Maximum Guideline for Total Iron	Aquatic Life	
		Dissolved Iron		Total Iron						Disslved Iron	Total Iron
		Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0033	0.0055	0.0045	0.0070	0.35	1	0.0157	0.0070	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0005	0.0010	0.0005	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0010	0.0010	0.0034	0.0034	0.35	1	0.0029	0.0034	No	No
	May	0.0138	0.0138	0.545	0.547	0.35	1	0.0394	0.547	No	No
	June	0.0140	0.0140	0.749	0.749	0.35	1	0.0399	0.749	No	No
	July	0.0102	0.0102	0.0208	0.0208	0.35	1	0.0292	0.0208	No	No
	August	0.0070	0.0071	0.0088	0.0089	0.35	1	0.0203	0.0089	No	No
	September	0.0039	0.0041	0.0055	0.0058	0.35	1	0.0118	0.0058	No	No
	October	0.0065	0.0066	0.0066	0.0067	0.35	1	0.0188	0.0067	No	No
	November	0.0090	0.0092	0.0091	0.0093	0.35	1	0.0262	0.0093	No	No
	December	0.0072	0.0078	0.0080	0.0085	0.35	1	0.0221	0.0085	No	No
Operation 1 Phase (1-23)	January	0.0055	0.0055	0.0070	0.0070	0.35	1	0.0157	0.0070	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0010	0.0010	0.0034	0.0034	0.35	1	0.0029	0.0034	No	No
	May	0.0138	0.0138	0.549	0.549	0.35	1	0.0395	0.549	No	No
	June	0.0140	0.0141	0.754	0.755	0.35	1	0.0402	0.755	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0296	0.0210	No	No
	August	0.0075	0.0076	0.0093	0.0094	0.35	1	0.0217	0.0094	No	No
	September	0.0054	0.0059	0.0073	0.0080	0.35	1	0.0169	0.0080	No	No
	October	0.0069	0.0070	0.0070	0.0071	0.35	1	0.0201	0.0071	No	No
	November	0.0096	0.0097	0.0096	0.0097	0.35	1	0.0277	0.0097	No	No
	December	0.0078	0.0078	0.0085	0.0085	0.35	1	0.0221	0.0085	No	No
Operations 2 Phase (24-28)	January	0.0055	0.0055	0.0070	0.0070	0.35	1	0.0157	0.0070	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0010	0.0010	0.0034	0.0034	0.35	1	0.0029	0.0034	No	No
	May	0.0138	0.0138	0.549	0.549	0.35	1	0.0395	0.549	No	No
	June	0.0141	0.0141	0.754	0.754	0.35	1	0.0402	0.754	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0295	0.0210	No	No
	August	0.0075	0.0076	0.0094	0.0094	0.35	1	0.0216	0.0094	No	No
	September	0.0057	0.0058	0.0077	0.0078	0.35	1	0.0166	0.0078	No	No
	October	0.0070	0.0070	0.0070	0.0071	0.35	1	0.0200	0.0071	No	No
	November	0.0096	0.0097	0.0097	0.0097	0.35	1	0.0276	0.0097	No	No
	December	0.0078	0.0078	0.0085	0.0085	0.35	1	0.0221	0.0085	No	No
Closure Phase (29-35)	January	0.0055	0.0055	0.0070	0.0070	0.35	1	0.0157	0.0070	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0010	0.0010	0.0034	0.0034	0.35	1	0.0029	0.0034	No	No
	May	0.0138	0.0138	0.549	0.549	0.35	1	0.0395	0.549	No	No
	June	0.0140	0.0141	0.754	0.754	0.35	1	0.0401	0.754	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0295	0.0210	No	No
	August	0.0075	0.0075	0.0093	0.0093	0.35	1	0.0215	0.0093	No	No
	September	0.0056	0.0056	0.0075	0.0076	0.35	1	0.0161	0.0076	No	No
	October	0.0070	0.0070	0.0070	0.0070	0.35	1	0.0199	0.0070	No	No
	November	0.0096	0.0096	0.0097	0.0097	0.35	1	0.0275	0.0097	No	No
	December	0.0078	0.0078	0.0085	0.0085	0.35	1	0.0221	0.0085	No	No
Post-Closure Phase (36-99)	January	0.0055	0.0055	0.0070	0.0070	0.35	1	0.0157	0.0070	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0010	0.0010	0.0034	0.0034	0.35	1	0.0029	0.0034	No	No
	May	0.0138	0.0138	0.549	0.549	0.35	1	0.0395	0.549	No	No
	June	0.0141	0.0141	0.754	0.754	0.35	1	0.0402	0.754	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0295	0.0210	No	No
	August	0.0075	0.0075	0.0093	0.0094	0.35	1	0.0215	0.0094	No	No
	September	0.0056	0.0057	0.0076	0.0077	0.35	1	0.0162	0.0077	No	No
	October	0.0070	0.0070	0.0070	0.0070	0.35	1	0.0200	0.0070	No	No
	November	0.0096	0.0096	0.0097	0.0097	0.35	1	0.0275	0.0097	No	No
	December	0.0077	0.0078	0.0085	0.0085	0.35	1	0.0221	0.0085	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D24n. Middle Baker Creek (BK1) Hazard Quotients for Total Lithium Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Aquatic Life Guidelines			Hazard Quotient relative to Aquatic Life Guideline				
Project Phase	Months	Predicted Concentrations		BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0003	0.0005	0.096	0.87	0.0026	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	August	0.0009	0.0009	0.096	0.87	0.0095	0.0096	0.0011	No
	September	0.0004	0.0004	0.096	0.87	0.0045	0.0045	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operation 1 Phase (1-23)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0054	0.0006	No
	August	0.0009	0.0010	0.096	0.87	0.0098	0.0100	0.0011	No
	September	0.0004	0.0005	0.096	0.87	0.0041	0.0048	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0052	0.0054	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Operations 2 Phase (24-28)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	August	0.0010	0.0010	0.096	0.87	0.0102	0.0103	0.0011	No
	September	0.0004	0.0004	0.096	0.87	0.0043	0.0045	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Closure Phase (29-35)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	August	0.0010	0.0010	0.096	0.87	0.0102	0.0103	0.0011	No
	September	0.0004	0.0004	0.096	0.87	0.0045	0.0045	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0054	0.0054	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
Post-Closure Phase (36-99)	January	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	April	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	May	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0052	0.0053	0.0006	No
	August	0.0010	0.0010	0.096	0.87	0.0099	0.0102	0.0011	No
	September	0.0004	0.0004	0.096	0.87	0.0041	0.0045	0.0005	No
	October	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0052	0.0054	0.0006	No
	December	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D24o. Middle Baker Creek (BK1) Hazard Quotients for Total Manganese Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
		Aquatic Life							
Construction (-2 to-1)	January	0.00013	0.00017	1.08	1.73	0.00012	0.00016	0.00010	No
	February	0.00008	0.00008	1.12	1.83	0.00007	0.00007	0.00004	No
	March	0.00015	0.00029	1.12	1.84	0.00013	0.00026	0.00016	No
	April	0.00023	0.00023	1.11	1.80	0.00021	0.00021	0.00013	No
	May	0.0140	0.0141	0.896	1.27	0.0157	0.0157	0.0111	No
	June	0.0255	0.0256	0.843	1.14	0.0303	0.0303	0.0225	No
	July	0.00099	0.00101	0.983	1.49	0.00101	0.00103	0.00068	No
	August	0.00084	0.00089	1.09	1.76	0.00077	0.00082	0.00051	No
	September	0.00029	0.00036	1.11	1.80	0.00026	0.00032	0.00020	No
	October	0.00021	0.00024	1.08	1.72	0.00020	0.00022	0.00014	No
	November	0.00024	0.00025	1.11	1.80	0.00022	0.00022	0.00014	No
	December	0.00021	0.00022	1.09	1.76	0.00019	0.00020	0.00012	No
Operation 1 Phase (1-23)	January	0.00017	0.00017	1.08	1.73	0.00016	0.00016	0.00010	No
	February	0.00008	0.00008	1.12	1.83	0.00007	0.00007	0.00004	No
	March	0.00029	0.00029	1.12	1.84	0.00026	0.00026	0.00016	No
	April	0.00023	0.00023	1.11	1.80	0.00021	0.00021	0.00013	No
	May	0.0141	0.0141	0.896	1.27	0.0157	0.0157	0.0111	No
	June	0.0257	0.0257	0.843	1.14	0.0305	0.0305	0.0226	No
	July	0.00100	0.00112	0.983	1.49	0.00102	0.00114	0.00075	No
	August	0.00088	0.00117	1.09	1.76	0.00081	0.00107	0.00067	No
	September	0.00035	0.00077	1.11	1.80	0.00031	0.00069	0.00043	No
	October	0.00022	0.00035	1.08	1.72	0.00020	0.00032	0.00020	No
	November	0.00025	0.00026	1.11	1.80	0.00023	0.00023	0.00014	No
	December	0.00022	0.00022	1.09	1.76	0.00020	0.00020	0.00012	No
Operations 2 Phase (24-28)	January	0.00017	0.00017	1.08	1.73	0.00016	0.00016	0.00010	No
	February	0.00008	0.00008	1.12	1.83	0.00007	0.00007	0.00004	No
	March	0.00029	0.00029	1.12	1.84	0.00026	0.00026	0.00016	No
	April	0.00023	0.00023	1.11	1.80	0.00021	0.00021	0.00013	No
	May	0.0141	0.0141	0.896	1.27	0.0157	0.0157	0.0111	No
	June	0.0259	0.0260	0.843	1.14	0.0307	0.0309	0.0229	No
	July	0.00154	0.00197	0.983	1.49	0.00157	0.00201	0.00133	No
	August	0.00278	0.00425	1.09	1.76	0.00254	0.00389	0.00241	No
	September	0.00231	0.00410	1.11	1.80	0.00208	0.00370	0.00228	No
	October	0.00127	0.00207	1.08	1.72	0.00118	0.00192	0.00120	No
	November	0.00109	0.00171	1.11	1.80	0.00099	0.00154	0.00095	No
	December	0.00022	0.00022	1.09	1.76	0.00020	0.00020	0.00012	No
Closure Phase (29-35)	January	0.00017	0.00017	1.08	1.73	0.00016	0.00016	0.00010	No
	February	0.00008	0.00008	1.12	1.83	0.00007	0.00007	0.00004	No
	March	0.00029	0.00029	1.12	1.84	0.00026	0.00026	0.00016	No
	April	0.00023	0.00023	1.11	1.80	0.00021	0.00021	0.00013	No
	May	0.0141	0.0141	0.896	1.27	0.0157	0.0157	0.0111	No
	June	0.0260	0.0261	0.843	1.14	0.0308	0.0309	0.0229	No
	July	0.00186	0.00203	0.983	1.49	0.00189	0.00207	0.00137	No
	August	0.00379	0.00435	1.09	1.76	0.00346	0.00397	0.00246	No
	September	0.00380	0.00423	1.11	1.80	0.00343	0.00381	0.00235	No
	October	0.00176	0.00204	1.08	1.72	0.00164	0.00189	0.00118	No
	November	0.00144	0.00165	1.11	1.80	0.00130	0.00149	0.00092	No
	December	0.00022	0.00022	1.09	1.76	0.00020	0.00020	0.00012	No
Post-Closure Phase (36-99)	January	0.00017	0.00017	1.08	1.73	0.00016	0.00016	0.00010	No
	February	0.00008	0.00008	1.12	1.83	0.00007	0.00007	0.00004	No
	March	0.00029	0.00029	1.12	1.84	0.00026	0.00026	0.00016	No
	April	0.00023	0.00023	1.11	1.80	0.00021	0.00021	0.00013	No
	May	0.0141	0.0141	0.896	1.27	0.0157	0.0157	0.0111	No
	June	0.0258	0.0259	0.843	1.14	0.0306	0.0308	0.0228	No
	July	0.00114	0.00169	0.983	1.49	0.00116	0.00172	0.00114	No
	August	0.00137	0.00325	1.09	1.76	0.00125	0.00297	0.00184	No
	September	0.00095	0.00339	1.11	1.80	0.00086	0.00306	0.00188	No
	October	0.00047	0.00150	1.08	1.72	0.00044	0.00139	0.00087	No
	November	0.00046	0.00124	1.11	1.80	0.00041	0.00112	0.00069	No
	December	0.00022	0.00022	1.09	1.76	0.00020	0.00020	0.00012	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D24r. Middle Baker Creek (BK1) Hazard Quotients for Total Nickel Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0002	0.0004	0.065	1	0.0054	0.0004	No	No
	February	0.0001	0.0001	0.065	1	0.0015	0.0001	No	No
	March	0.0000	0.0001	0.065	1	0.0014	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0016	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0206	0.0013	No	No
	June	0.0017	0.0017	0.025	1	0.0696	0.0017	No	No
	July	0.0005	0.0005	0.065	1	0.0074	0.0005	No	No
	August	0.0006	0.0007	0.065	1	0.0101	0.0007	No	No
	September	0.0003	0.0003	0.065	1	0.0041	0.0003	No	No
	October	0.0003	0.0003	0.065	1	0.0053	0.0003	No	No
	November	0.0005	0.0005	0.065	1	0.0071	0.0005	No	No
	December	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
Operation 1 Phase (1-23)	January	0.0004	0.0004	0.065	1	0.0054	0.0004	No	No
	February	0.0001	0.0001	0.065	1	0.0015	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0014	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0016	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0207	0.0013	No	No
	June	0.0017	0.0018	0.025	1	0.0700	0.0018	No	No
	July	0.0005	0.0005	0.065	1	0.0075	0.0005	No	No
	August	0.0007	0.0007	0.065	1	0.0108	0.0007	No	No
	September	0.0003	0.0004	0.065	1	0.0055	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0056	0.0004	No	No
	November	0.0005	0.0005	0.065	1	0.0075	0.0005	No	No
	December	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
Operations 2 Phase (24-28)	January	0.0004	0.0004	0.065	1	0.0054	0.0004	No	No
	February	0.0001	0.0001	0.065	1	0.0015	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0014	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0016	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0207	0.0013	No	No
	June	0.0018	0.0018	0.025	1	0.0702	0.0018	No	No
	July	0.0005	0.0005	0.065	1	0.0078	0.0005	No	No
	August	0.0007	0.0008	0.065	1	0.0118	0.0008	No	No
	September	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0062	0.0004	No	No
	November	0.0005	0.0005	0.065	1	0.0079	0.0005	No	No
	December	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
Closure Phase (29-35)	January	0.0004	0.0004	0.065	1	0.0054	0.0004	No	No
	February	0.0001	0.0001	0.065	1	0.0015	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0014	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0016	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0207	0.0013	No	No
	June	0.0018	0.0018	0.025	1	0.0703	0.0018	No	No
	July	0.0005	0.0005	0.065	1	0.0078	0.0005	No	No
	August	0.0008	0.0008	0.065	1	0.0118	0.0008	No	No
	September	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0061	0.0004	No	No
	November	0.0005	0.0005	0.065	1	0.0079	0.0005	No	No
	December	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No
Post-Closure Phase (36-99)	January	0.0004	0.0004	0.065	1	0.0054	0.0004	No	No
	February	0.0001	0.0001	0.065	1	0.0015	0.0001	No	No
	March	0.0001	0.0001	0.065	1	0.0014	0.0001	No	No
	April	0.0001	0.0001	0.065	1	0.0016	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0207	0.0013	No	No
	June	0.0018	0.0018	0.025	1	0.0701	0.0018	No	No
	July	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	August	0.0007	0.0007	0.065	1	0.0114	0.0007	No	No
	September	0.0004	0.0004	0.065	1	0.0062	0.0004	No	No
	October	0.0004	0.0004	0.065	1	0.0060	0.0004	No	No
	November	0.0005	0.0005	0.065	1	0.0077	0.0005	No	No
	December	0.0004	0.0004	0.065	1	0.0065	0.0004	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guideline is hardness dependent

Appendix 13-D24t. Middle Baker Creek (BK1) Hazard Quotients for Total Silver Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.00001	0.00001	0.0015	0.003	0.00467	0.00600	0.00300	No
	February	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	March	0.00000	0.00001	0.0015	0.003	0.00167	0.00333	0.00167	No
	April	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.0001	0.199	0.200	0.0998	No
	June	0.00001	0.00001	0.00005	0.0001	0.270	0.270	0.135	No
	July	0.00001	0.00001	0.00005	0.0001	0.195	0.195	0.0977	No
	August	0.00002	0.00002	0.0015	0.003	0.0134	0.0135	0.00673	No
	September	0.00002	0.00002	0.0015	0.003	0.0101	0.0107	0.00533	No
	October	0.00001	0.00001	0.0015	0.003	0.00524	0.00527	0.00263	No
	November	0.00001	0.00001	0.0015	0.003	0.00631	0.00636	0.00318	No
	December	0.00001	0.00001	0.0015	0.003	0.00609	0.00633	0.00317	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.0015	0.003	0.00600	0.00600	0.00300	No
	February	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.271	0.272	0.136	No
	July	0.00001	0.00001	0.00005	0.0001	0.196	0.197	0.0983	No
	August	0.00002	0.00002	0.0015	0.003	0.0141	0.0143	0.00716	No
	September	0.00002	0.00002	0.0015	0.003	0.0136	0.0149	0.00745	No
	October	0.00001	0.00001	0.0015	0.003	0.00541	0.00545	0.00273	No
	November	0.00001	0.00001	0.0015	0.003	0.00650	0.00655	0.00328	No
	December	0.00001	0.00001	0.0015	0.003	0.00633	0.00633	0.00317	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.0015	0.003	0.00600	0.00600	0.00300	No
	February	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.272	0.272	0.136	No
	July	0.00001	0.00001	0.00005	0.0001	0.198	0.198	0.0989	No
	August	0.00002	0.00002	0.0015	0.003	0.0143	0.0144	0.00718	No
	September	0.00002	0.00002	0.0015	0.003	0.0145	0.0146	0.00732	No
	October	0.00001	0.00001	0.0015	0.003	0.00550	0.00551	0.00275	No
	November	0.00001	0.00001	0.0015	0.003	0.00658	0.00658	0.00329	No
	December	0.00001	0.00001	0.0015	0.003	0.00633	0.00633	0.00317	No
Closure Phase (29-35)	January	0.00001	0.00001	0.0015	0.003	0.00600	0.00600	0.00300	No
	February	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.272	0.272	0.136	No
	July	0.00001	0.00001	0.00005	0.0001	0.197	0.198	0.0988	No
	August	0.00002	0.00002	0.0015	0.003	0.0143	0.0143	0.00716	No
	September	0.00002	0.00002	0.0015	0.003	0.0141	0.0143	0.00716	No
	October	0.00001	0.00001	0.0015	0.003	0.00549	0.00550	0.00275	No
	November	0.00001	0.00001	0.0015	0.003	0.00657	0.00658	0.00329	No
	December	0.00001	0.00001	0.0015	0.003	0.00633	0.00633	0.00317	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.0015	0.003	0.00600	0.00600	0.00300	No
	February	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.0001	0.200	0.200	0.100	No
	June	0.00001	0.00001	0.00005	0.0001	0.271	0.272	0.136	No
	July	0.00001	0.00001	0.00005	0.0001	0.197	0.197	0.0986	No
	August	0.00002	0.00002	0.0015	0.003	0.0142	0.0142	0.00712	No
	September	0.00002	0.00002	0.0015	0.003	0.0142	0.0143	0.00717	No
	October	0.00001	0.00001	0.0015	0.003	0.00544	0.00547	0.00274	No
	November	0.00001	0.00001	0.0015	0.003	0.00653	0.00655	0.00328	No
	December	0.00001	0.00001	0.0015	0.003	0.00633	0.00633	0.00317	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D24u. Middle Baker Creek (BK1) Hazard Quotients for Total Thallium Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum						
Construction (-2 to-1)	January	0.000004	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000001	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00499	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0329	0.00493	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0321	0.00482	No	No
	August	0.000011	0.000011	0.0003	0.002	0.0381	0.00572	No	No
	September	0.000008	0.000009	0.0003	0.002	0.0295	0.00442	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0223	0.00334	No	No
	November	0.000009	0.000009	0.0003	0.002	0.0309	0.00464	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operation 1 Phase (1-23)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0331	0.00496	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0325	0.00487	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0406	0.00609	No	No
	September	0.000012	0.000013	0.0003	0.002	0.0424	0.00637	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0236	0.00354	No	No
	November	0.000010	0.000010	0.0003	0.002	0.0324	0.00486	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Operations 2 Phase (24-28)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0331	0.00496	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0325	0.00488	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0407	0.00611	No	No
	September	0.000012	0.000012	0.0003	0.002	0.0416	0.00624	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0237	0.00355	No	No
	November	0.000010	0.000010	0.0003	0.002	0.0324	0.00486	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Closure Phase (29-35)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0331	0.00496	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0325	0.00488	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0406	0.00609	No	No
	September	0.000012	0.000012	0.0003	0.002	0.0406	0.00609	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0236	0.00355	No	No
	November	0.000010	0.000010	0.0003	0.002	0.0323	0.00485	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No
Post-Closure Phase (36-99)	January	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000006	0.000006	0.0003	0.002	0.0200	0.00300	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0333	0.00500	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0331	0.00496	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0325	0.00487	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0404	0.00606	No	No
	September	0.000012	0.000012	0.0003	0.002	0.0407	0.00610	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0235	0.00353	No	No
	November	0.000010	0.000010	0.0003	0.002	0.0323	0.00484	No	No
	December	0.000008	0.000008	0.0003	0.002	0.0267	0.00400	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D24w. Middle Baker Creek (BK1) Hazard Quotients for Total Vanadium Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working Secondary Chronic Value		Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. BC MOE Working Secondary Chronic Value Guideline			
Construction (-2 to-1)	January	0.0004	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0001	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.166	0.0499	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.197	0.0591	0.0118	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.160	0.0481	0.0096	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.109	0.0328	0.0066	No	No
	September	0.0005	0.0005	0.006	0.02	0.1	0.0816	0.0245	0.0049	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.111	0.0334	0.0067	No	No
	November	0.0009	0.0009	0.006	0.02	0.1	0.155	0.0464	0.0093	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Operation 1 Phase (1-23)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0595	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0487	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.116	0.0347	0.0069	No	No
	September	0.0006	0.0007	0.006	0.02	0.1	0.110	0.0329	0.0066	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.118	0.0354	0.0071	No	No
	November	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0486	0.0097	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Operations 2 Phase (24-28)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0595	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0487	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.116	0.0347	0.0069	No	No
	September	0.0006	0.0006	0.006	0.02	0.1	0.108	0.0323	0.0065	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.118	0.0354	0.0071	No	No
	November	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0485	0.0097	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Closure Phase (29-35)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0595	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0487	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.116	0.0347	0.0069	No	No
	September	0.0006	0.0006	0.006	0.02	0.1	0.106	0.0318	0.0064	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.118	0.0353	0.0071	No	No
	November	0.0010	0.0010	0.006	0.02	0.1	0.161	0.0484	0.0097	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No
Post-Closure Phase (36-99)	January	0.0006	0.0006	0.006	0.02	0.1	0.100	0.0300	0.0060	No	No
	February	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	March	0.0002	0.0002	0.006	0.02	0.1	0.0333	0.0100	0.0020	No	No
	April	0.0006	0.0006	0.006	0.02	0.1	0.1000	0.0300	0.0060	No	No
	May	0.0010	0.0010	0.006	0.02	0.1	0.167	0.0500	0.0100	No	No
	June	0.0012	0.0012	0.006	0.02	0.1	0.198	0.0594	0.0119	No	No
	July	0.0010	0.0010	0.006	0.02	0.1	0.162	0.0486	0.0097	No	No
	August	0.0007	0.0007	0.006	0.02	0.1	0.115	0.0345	0.0069	No	No
	September	0.0006	0.0006	0.006	0.02	0.1	0.106	0.0318	0.0064	No	No
	October	0.0007	0.0007	0.006	0.02	0.1	0.117	0.0352	0.0070	No	No
	November	0.0010	0.0010	0.006	0.02	0.1	0.161	0.0484	0.0097	No	No
	December	0.0008	0.0008	0.006	0.02	0.1	0.133	0.0400	0.0080	No	No

Notes:
All concentrations in mg/L.
Grey shading indicates a hazard quotient > 1.0
BC MOE = British Columbia Ministry of Environment
DWQG = Drinking water quality guideline

Appendix 13-D24ac. Middle Baker Creek (BK1) Hazard Quotients for Ammonia Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Aquatic Life Guidelines ¹				Hazard Quotient relative to Aquatic Life Guideline			
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE Working 30-Day Mean	Maximum Predicted vs. BC MOE Working 30-Day Mean	Maximum Predicted vs. BC MOE Working Maximum	Aquatic Life
		Mean	Maximum			Guideline	Guideline	Guideline	
Construction (-2 to-1)	January	0.0165	0.0210	0.788	4.09	0.0209	0.0266	0.0051	No
	February	0.0210	0.0210	0.628	3.27	0.0334	0.0334	0.0064	No
	March	0.0060	0.0120	0.788	4.09	0.0076	0.0152	0.0029	No
	April	0.0145	0.0145	0.620	3.22	0.0234	0.0234	0.0045	No
	May	0.0170	0.0170	1.73	8.98	0.0098	0.0098	0.0019	No
	June	0.0088	0.0088	1.41	7.33	0.0062	0.0063	0.0012	No
	July	0.0120	0.0121	0.906	4.71	0.0133	0.0133	0.0026	No
	August	0.0662	0.0667	0.724	3.76	0.0915	0.0921	0.0177	No
	September	0.0238	0.0239	0.736	3.83	0.0323	0.0324	0.0062	No
	October	0.0122	0.0124	0.759	3.95	0.0160	0.0163	0.0031	No
	November	0.0067	0.0070	0.636	3.31	0.0105	0.0109	0.0021	No
	December	0.0095	0.0106	0.799	4.15	0.0119	0.0132	0.0025	No
Operation 1 Phase (1-23)	January	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	February	0.0210	0.0210	0.628	3.27	0.0334	0.0334	0.0064	No
	March	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	April	0.0145	0.0145	0.620	3.22	0.0234	0.0234	0.0045	No
	May	0.0170	0.0170	1.73	8.98	0.0098	0.0098	0.0019	No
	June	0.0087	0.0088	1.41	7.33	0.0062	0.0062	0.0012	No
	July	0.0120	0.0120	0.906	4.71	0.0132	0.0132	0.0025	No
	August	0.0698	0.0706	0.724	3.76	0.0964	0.0975	0.0188	No
	September	0.0256	0.0262	0.736	3.83	0.0348	0.0356	0.0068	No
	October	0.0115	0.0118	0.759	3.95	0.0152	0.0155	0.0030	No
	November	0.0058	0.0063	0.636	3.31	0.0091	0.0098	0.0019	No
	December	0.0085	0.0085	0.799	4.15	0.0106	0.0106	0.0020	No
Operations 2 Phase (24-28)	January	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	February	0.0210	0.0210	0.628	3.27	0.0334	0.0334	0.0064	No
	March	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	April	0.0145	0.0145	0.620	3.22	0.0234	0.0234	0.0045	No
	May	0.0170	0.0170	1.73	8.98	0.0098	0.0098	0.0019	No
	June	0.0087	0.0087	1.41	7.33	0.0062	0.0062	0.0012	No
	July	0.0120	0.0120	0.906	4.71	0.0132	0.0132	0.0025	No
	August	0.0703	0.0704	0.724	3.76	0.0970	0.0973	0.0187	No
	September	0.0260	0.0261	0.736	3.83	0.0353	0.0354	0.0068	No
	October	0.0114	0.0114	0.759	3.95	0.0150	0.0151	0.0029	No
	November	0.0057	0.0057	0.636	3.31	0.0089	0.0089	0.0017	No
	December	0.0085	0.0085	0.799	4.15	0.0106	0.0106	0.0020	No
Closure Phase (29-35)	January	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	February	0.0210	0.0210	0.628	3.27	0.0334	0.0334	0.0064	No
	March	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	April	0.0145	0.0145	0.620	3.22	0.0234	0.0234	0.0045	No
	May	0.0170	0.0170	1.73	8.98	0.0098	0.0098	0.0019	No
	June	0.0087	0.0087	1.41	7.33	0.0062	0.0062	0.0012	No
	July	0.0120	0.0120	0.906	4.71	0.0132	0.0132	0.0025	No
	August	0.0700	0.0701	0.724	3.76	0.0967	0.0968	0.0186	No
	September	0.0258	0.0259	0.736	3.83	0.0351	0.0352	0.0068	No
	October	0.0115	0.0115	0.759	3.95	0.0151	0.0151	0.0029	No
	November	0.0057	0.0057	0.636	3.31	0.0090	0.0090	0.0017	No
	December	0.0085	0.0085	0.799	4.15	0.0106	0.0106	0.0020	No
Post-Closure Phase (36-99)	January	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	February	0.0210	0.0210	0.628	3.27	0.0334	0.0334	0.0064	No
	March	0.0120	0.0120	0.788	4.09	0.0152	0.0152	0.0029	No
	April	0.0145	0.0145	0.620	3.22	0.0234	0.0234	0.0045	No
	May	0.0170	0.0170	1.73	8.98	0.0098	0.0098	0.0019	No
	June	0.0087	0.0087	1.41	7.33	0.0062	0.0062	0.0012	No
	July	0.0120	0.0120	0.906	4.71	0.0132	0.0132	0.0025	No
	August	0.0701	0.0702	0.724	3.76	0.0968	0.0970	0.0187	No
	September	0.0259	0.0260	0.736	3.83	0.0351	0.0353	0.0068	No
	October	0.0114	0.0115	0.759	3.95	0.0151	0.0151	0.0029	No
	November	0.0057	0.0057	0.636	3.31	0.0089	0.0090	0.0017	No
	December	0.0085	0.0085	0.799	4.15	0.0106	0.0106	0.0020	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH and temperature dependent

Appendix 13-D24ad. Middle Baker Creek (BK1) Hazard Quotients for Sulphate Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹ BC MOE 30-Day Mean Guideline	Drinking Water Quality Guidelines BC DWQG	BC MOE Livestock Watering Water Quality Guideline BC MOE Maximum	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines Maximum predicted vs. BC DWQG	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline Maximum Predicted vs BC MOE Maximum Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline					
Construction (-2 to-1)	January	8.57	8.76	309	500	1000	0.0277	0.0283	0.0175	0.0088	No	No	No
	February	8.76	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	March	4.84	9.69	309	500	1000	0.0157	0.0313	0.0194	0.0097	No	No	No
	April	8.08	8.08	309	500	1000	0.0261	0.0261	0.0162	0.0081	No	No	No
	May	4.71	4.72	218	500	1000	0.0216	0.0217	0.0094	0.0047	No	No	No
	June	4.37	4.38	218	500	1000	0.0201	0.0201	0.0088	0.0044	No	No	No
	July	5.55	5.56	309	500	1000	0.0180	0.0180	0.0111	0.0056	No	No	No
	August	7.29	7.33	309	500	1000	0.0236	0.0237	0.0147	0.0073	No	No	No
	September	8.08	8.14	309	500	1000	0.0261	0.0264	0.0163	0.0081	No	No	No
	October	7.67	7.69	309	500	1000	0.0248	0.0249	0.0154	0.0077	No	No	No
	November	8.68	8.68	309	500	1000	0.0281	0.0281	0.0174	0.0087	No	No	No
	December	8.55	8.57	309	500	1000	0.0277	0.0277	0.0171	0.0086	No	No	No
Operation 1 Phase (1-23)	January	8.39	8.39	309	500	1000	0.0271	0.0271	0.0168	0.0084	No	No	No
	February	8.76	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	March	9.69	9.69	309	500	1000	0.0313	0.0313	0.0194	0.0097	No	No	No
	April	8.08	8.08	309	500	1000	0.0261	0.0261	0.0162	0.0081	No	No	No
	May	4.69	4.71	218	500	1000	0.0215	0.0216	0.0094	0.0047	No	No	No
	June	4.35	4.39	218	500	1000	0.0200	0.0202	0.0088	0.0044	No	No	No
	July	5.53	5.61	309	500	1000	0.0179	0.0182	0.0112	0.0056	No	No	No
	August	7.21	7.41	309	500	1000	0.0233	0.0240	0.0148	0.0074	No	No	No
	September	7.83	8.19	309	500	1000	0.0253	0.0265	0.0164	0.0082	No	No	No
	October	7.61	7.71	309	500	1000	0.0246	0.0249	0.0154	0.0077	No	No	No
	November	8.67	8.68	309	500	1000	0.0281	0.0281	0.0174	0.0087	No	No	No
	December	8.53	8.53	309	500	1000	0.0276	0.0276	0.0171	0.0085	No	No	No
Operations 2 Phase (24-28)	January	8.39	8.39	309	500	1000	0.0271	0.0271	0.0168	0.0084	No	No	No
	February	8.76	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	March	9.69	9.69	309	500	1000	0.0313	0.0313	0.0194	0.0097	No	No	No
	April	8.08	8.08	309	500	1000	0.0261	0.0261	0.0162	0.0081	No	No	No
	May	4.69	4.69	218	500	1000	0.0215	0.0215	0.0094	0.0047	No	No	No
	June	4.40	4.41	218	500	1000	0.0202	0.0202	0.0088	0.0044	No	No	No
	July	5.67	5.72	309	500	1000	0.0184	0.0185	0.0114	0.0057	No	No	No
	August	7.70	7.85	309	500	1000	0.0249	0.0254	0.0157	0.0078	No	No	No
	September	8.25	8.48	309	500	1000	0.0267	0.0274	0.0170	0.0085	No	No	No
	October	7.86	7.94	309	500	1000	0.0254	0.0257	0.0159	0.0079	No	No	No
	November	8.88	8.94	309	500	1000	0.0288	0.0289	0.0179	0.0089	No	No	No
	December	8.53	8.53	309	500	1000	0.0276	0.0276	0.0171	0.0085	No	No	No
Closure Phase (29-35)	January	8.39	8.39	309	500	1000	0.0271	0.0271	0.0168	0.0084	No	No	No
	February	8.76	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	March	9.69	9.69	309	500	1000	0.0313	0.0313	0.0194	0.0097	No	No	No
	April	8.08	8.08	309	500	1000	0.0261	0.0261	0.0162	0.0081	No	No	No
	May	4.69	4.69	218	500	1000	0.0215	0.0215	0.0094	0.0047	No	No	No
	June	4.40	4.41	218	500	1000	0.0202	0.0202	0.0088	0.0044	No	No	No
	July	5.69	5.71	309	500	1000	0.0184	0.0185	0.0114	0.0057	No	No	No
	August	7.75	7.83	309	500	1000	0.0251	0.0253	0.0157	0.0078	No	No	No
	September	8.43	8.48	309	500	1000	0.0273	0.0274	0.0170	0.0085	No	No	No
	October	7.89	7.93	309	500	1000	0.0255	0.0257	0.0159	0.0079	No	No	No
	November	8.89	8.93	309	500	1000	0.0288	0.0289	0.0179	0.0089	No	No	No
	December	8.53	8.53	309	500	1000	0.0276	0.0276	0.0171	0.0085	No	No	No
Post-Closure Phase (36-99)	January	8.39	8.39	309	500	1000	0.0271	0.0271	0.0168	0.0084	No	No	No
	February	8.76	8.76	309	500	1000	0.0283	0.0283	0.0175	0.0088	No	No	No
	March	9.68	9.69	309	500	1000	0.0313	0.0313	0.0194	0.0097	No	No	No
	April	8.08	8.08	309	500	1000	0.0261	0.0261	0.0162	0.0081	No	No	No
	May	4.69	4.69	218	500	1000	0.0215	0.0215	0.0094	0.0047	No	No	No
	June	4.36	4.40	218	500	1000	0.0200	0.0202	0.0088	0.0044	No	No	No
	July	5.56	5.66	309	500	1000	0.0180	0.0183	0.0113	0.0057	No	No	No
	August	7.30	7.67	309	500	1000	0.0236	0.0248	0.0153	0.0077	No	No	No
	September	7.90	8.39	309	500	1000	0.0256	0.0271	0.0168	0.0084	No	No	No
	October	7.65	7.85	309	500	1000	0.0248	0.0254	0.0157	0.0078	No	No	No
	November	8.72	8.86	309	500	1000	0.0282	0.0287	0.0177	0.0089	No	No	No
	December	8.53	8.53	309	500	1000	0.0276	0.0276	0.0171	0.0085	No	No	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

DWQG = Drinking water quality guideline

¹ Guidelines are hardness dependent

Appendix 13-D25b. Lower Baker Creek (BK0) Hazard Quotients for Total Antimony Concentrations, Upper Bound Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines BC MOE Working	Drinking Water Quality Guidelines BC Working DWQG	Hazard Quotient relative to Aquatic Life Guideline Maximum Predicted vs. BC MOE Working Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines Maximum Predicted vs. BC Working DWQG	Aquatic Life	Drinking Water
		Mean	Maximum						
Construction (-2 to-1)	January	0.00002	0.00003	0.020	0.014	0.00129	0.00184	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00498	0.00711	No	No
	June	0.00010	0.00010	0.020	0.014	0.00489	0.00699	No	No
	July	0.00009	0.00010	0.020	0.014	0.00476	0.00680	No	No
	August	0.00010	0.00011	0.020	0.014	0.00530	0.00758	No	No
	September	0.00006	0.00007	0.020	0.014	0.00346	0.00495	No	No
	October	0.00006	0.00007	0.020	0.014	0.00328	0.00469	No	No
	November	0.00008	0.00009	0.020	0.014	0.00432	0.00617	No	No
	December	0.00005	0.00006	0.020	0.014	0.00296	0.00423	No	No
Operation 1 Phase (1-23)	January	0.00004	0.00005	0.020	0.014	0.00231	0.00330	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00504	0.00720	No	No
	June	0.00010	0.00010	0.020	0.014	0.00495	0.00707	No	No
	July	0.00010	0.00010	0.020	0.014	0.00487	0.00696	No	No
	August	0.00012	0.00012	0.020	0.014	0.00600	0.00857	No	No
	September	0.00010	0.00012	0.020	0.014	0.00583	0.00833	No	No
	October	0.00007	0.00007	0.020	0.014	0.00361	0.00516	No	No
	November	0.00009	0.00009	0.020	0.014	0.00469	0.00670	No	No
	December	0.00007	0.00007	0.020	0.014	0.00348	0.00497	No	No
Operations 2 Phase (24-28)	January	0.00007	0.00009	0.020	0.014	0.00445	0.00636	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00504	0.00720	No	No
	June	0.00010	0.00010	0.020	0.014	0.00503	0.00719	No	No
	July	0.00010	0.00010	0.020	0.014	0.00509	0.00727	No	No
	August	0.00013	0.00014	0.020	0.014	0.00678	0.00968	No	No
	September	0.00013	0.00014	0.020	0.014	0.00692	0.00988	No	No
	October	0.00008	0.00008	0.020	0.014	0.00420	0.00600	No	No
	November	0.00010	0.00010	0.020	0.014	0.00525	0.00750	No	No
	December	0.00008	0.00009	0.020	0.014	0.00471	0.00673	No	No
Closure Phase (29-35)	January	0.00009	0.00010	0.020	0.014	0.00500	0.00714	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00504	0.00720	No	No
	June	0.00010	0.00010	0.020	0.014	0.00504	0.00720	No	No
	July	0.00010	0.00010	0.020	0.014	0.00510	0.00729	No	No
	August	0.00013	0.00014	0.020	0.014	0.00679	0.00970	No	No
	September	0.00013	0.00014	0.020	0.014	0.00693	0.00989	No	No
	October	0.00008	0.00008	0.020	0.014	0.00419	0.00598	No	No
	November	0.00010	0.00010	0.020	0.014	0.00522	0.00746	No	No
	December	0.00009	0.00009	0.020	0.014	0.00465	0.00664	No	No
Post-Closure Phase (36-99)	January	0.00005	0.00008	0.020	0.014	0.00414	0.00591	No	No
	February	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	March	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	April	0.00002	0.00002	0.020	0.014	0.00100	0.00143	No	No
	May	0.00010	0.00010	0.020	0.014	0.00504	0.00720	No	No
	June	0.00010	0.00010	0.020	0.014	0.00501	0.00715	No	No
	July	0.00010	0.00010	0.020	0.014	0.00502	0.00717	No	No
	August	0.00012	0.00013	0.020	0.014	0.00651	0.00930	No	No
	September	0.00011	0.00013	0.020	0.014	0.00644	0.00920	No	No
	October	0.00007	0.00008	0.020	0.014	0.00400	0.00572	No	No
	November	0.00009	0.00010	0.020	0.014	0.00505	0.00721	No	No
	December	0.00007	0.00009	0.020	0.014	0.00428	0.00611	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D25d. Lower Baker Creek (BK0) Hazard Quotients for Total Barium Concentrations, Upper Bound Case

		First Screening Step										Retained as COPC?	
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water	
		Mean	Maximum	BC MOE Working 30-Day Mean	BC MOE Working Maximum	Canadian DWQG	Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Maximum Predicted vs. Canadian DWQG			
		Construction (-2 to-1)	January	0.0145	0.0147	1	5	1	0.0145	0.0147			0.0029
	February	0.0155	0.0155	1	5	1	0.0155	0.0155	0.0031	0.0155	No	No	
	March	0.0156	0.0156	1	5	1	0.0156	0.0156	0.0031	0.0156	No	No	
	April	0.0116	0.0117	1	5	1	0.0116	0.0117	0.0023	0.0117	No	No	
	May	0.0085	0.0086	1	5	1	0.0085	0.0086	0.0017	0.0086	No	No	
	June	0.0087	0.0087	1	5	1	0.0087	0.0087	0.0017	0.0087	No	No	
	July	0.0085	0.0086	1	5	1	0.0085	0.0086	0.0017	0.0086	No	No	
	August	0.0105	0.0108	1	5	1	0.0105	0.0108	0.0022	0.0108	No	No	
	September	0.0120	0.0124	1	5	1	0.0120	0.0124	0.0025	0.0124	No	No	
	October	0.0101	0.0104	1	5	1	0.0101	0.0104	0.0021	0.0104	No	No	
	November	0.0095	0.0098	1	5	1	0.0095	0.0098	0.0020	0.0098	No	No	
	December	0.0116	0.0121	1	5	1	0.0116	0.0121	0.0024	0.0121	No	No	
Operation 1 Phase (1-23)	January	0.0119	0.0138	1	5	1	0.0119	0.0138	0.0028	0.0138	No	No	
	February	0.0104	0.0151	1	5	1	0.0104	0.0151	0.0030	0.0151	No	No	
	March	0.0154	0.0154	1	5	1	0.0154	0.0154	0.0031	0.0154	No	No	
	April	0.0115	0.0115	1	5	1	0.0115	0.0115	0.0023	0.0115	No	No	
	May	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No	
	June	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	July	0.0082	0.0084	1	5	1	0.0082	0.0084	0.0017	0.0084	No	No	
	August	0.0098	0.0101	1	5	1	0.0098	0.0101	0.0020	0.0101	No	No	
	September	0.0108	0.0113	1	5	1	0.0108	0.0113	0.0023	0.0113	No	No	
	October	0.0095	0.0097	1	5	1	0.0095	0.0097	0.0019	0.0097	No	No	
	November	0.0089	0.0090	1	5	1	0.0089	0.0090	0.0018	0.0090	No	No	
	December	0.0100	0.0105	1	5	1	0.0100	0.0105	0.0021	0.0105	No	No	
Operations 2 Phase (24-28)	January	0.0116	0.0118	1	5	1	0.0116	0.0118	0.0024	0.0118	No	No	
	February	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No	
	March	0.0154	0.0154	1	5	1	0.0154	0.0154	0.0031	0.0154	No	No	
	April	0.0115	0.0115	1	5	1	0.0115	0.0115	0.0023	0.0115	No	No	
	May	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No	
	June	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	July	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	August	0.0098	0.0099	1	5	1	0.0098	0.0099	0.0020	0.0099	No	No	
	September	0.0109	0.0110	1	5	1	0.0109	0.0110	0.0022	0.0110	No	No	
	October	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	November	0.0089	0.0090	1	5	1	0.0089	0.0090	0.0018	0.0090	No	No	
	December	0.0101	0.0101	1	5	1	0.0101	0.0101	0.0020	0.0101	No	No	
Closure Phase (29-35)	January	0.0119	0.0119	1	5	1	0.0119	0.0119	0.0024	0.0119	No	No	
	February	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No	
	March	0.0154	0.0154	1	5	1	0.0154	0.0154	0.0031	0.0154	No	No	
	April	0.0115	0.0115	1	5	1	0.0115	0.0115	0.0023	0.0115	No	No	
	May	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No	
	June	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	July	0.0083	0.0083	1	5	1	0.0083	0.0083	0.0017	0.0083	No	No	
	August	0.0099	0.0099	1	5	1	0.0099	0.0099	0.0020	0.0099	No	No	
	September	0.0109	0.0110	1	5	1	0.0109	0.0110	0.0022	0.0110	No	No	
	October	0.0096	0.0096	1	5	1	0.0096	0.0096	0.0019	0.0096	No	No	
	November	0.0090	0.0090	1	5	1	0.0090	0.0090	0.0018	0.0090	No	No	
	December	0.0101	0.0101	1	5	1	0.0101	0.0101	0.0020	0.0101	No	No	
Post-Closure Phase (36-99)	January	0.0116	0.0119	1	5	1	0.0116	0.0119	0.0024	0.0119	No	No	
	February	0.0097	0.0097	1	5	1	0.0097	0.0097	0.0019	0.0097	No	No	
	March	0.0154	0.0154	1	5	1	0.0154	0.0154	0.0031	0.0154	No	No	
	April	0.0115	0.0115	1	5	1	0.0115	0.0115	0.0023	0.0115	No	No	
	May	0.0084	0.0084	1	5	1	0.0084	0.0084	0.0017	0.0084	No	No	
	June	0.0086	0.0086	1	5	1	0.0086	0.0086	0.0017	0.0086	No	No	
	July	0.0082	0.0083	1	5	1	0.0082	0.0083	0.0017	0.0083	No	No	
	August	0.0098	0.0098	1	5	1	0.0098	0.0098	0.0020	0.0098	No	No	
	September	0.0108	0.0109	1	5	1	0.0108	0.0109	0.0022	0.0109	No	No	
	October	0.0095	0.0096	1	5	1	0.0095	0.0096	0.0019	0.0096	No	No	
	November	0.0089	0.0090	1	5	1	0.0089	0.0090	0.0018	0.0090	No	No	
	December	0.0100	0.0101	1	5	1	0.0100	0.0101	0.0020	0.0101	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D25g, Lower Baker Creek (BK0) Hazard Quotients for Dissolved Calcium Concentrations, Upper Bound Case

		First Screening Step			Retained as COPC?	
Project Phase	Months	Predicted Concentrations		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Livestock
		Mean	Maximum	BC MOE Working	Maximum Predicted vs BC MOE Working Guideline	
		Construction (-2 to-1)	January	46.3	46.6	
	February	48.2	48.2	1000	0.0482	No
	March	48.2	48.3	1000	0.0483	No
	April	41.9	42.0	1000	0.0420	No
	May	22.4	22.7	1000	0.0227	No
	June	18.5	18.8	1000	0.0188	No
	July	29.1	29.5	1000	0.0295	No
	August	36.9	37.8	1000	0.0378	No
	September	40.9	41.9	1000	0.0419	No
	October	36.8	37.5	1000	0.0375	No
	November	38.4	38.8	1000	0.0388	No
	December	41.1	41.9	1000	0.0419	No
Operation 1 Phase (1-23)	January	40.8	44.7	1000	0.0447	No
	February	38.5	47.5	1000	0.0475	No
	March	47.3	47.6	1000	0.0476	No
	April	41.7	41.7	1000	0.0417	No
	May	21.8	21.8	1000	0.0218	No
	June	17.9	17.9	1000	0.0179	No
	July	28.5	28.6	1000	0.0286	No
	August	35.3	35.5	1000	0.0355	No
	September	38.4	38.6	1000	0.0386	No
	October	35.5	35.6	1000	0.0356	No
	November	37.6	37.7	1000	0.0377	No
	December	38.3	39.1	1000	0.0391	No
Operations 2 Phase (24-28)	January	40.2	40.7	1000	0.0407	No
	February	37.0	37.0	1000	0.0370	No
	March	47.3	47.3	1000	0.0473	No
	April	41.7	41.7	1000	0.0417	No
	May	21.8	21.8	1000	0.0218	No
	June	17.9	17.9	1000	0.0179	No
	July	28.5	28.6	1000	0.0286	No
	August	35.5	35.6	1000	0.0356	No
	September	38.6	38.8	1000	0.0388	No
	October	35.6	35.7	1000	0.0357	No
	November	37.6	37.7	1000	0.0377	No
	December	38.4	38.5	1000	0.0385	No
Closure Phase (29-35)	January	40.8	40.9	1000	0.0409	No
	February	37.0	37.0	1000	0.0370	No
	March	47.3	47.3	1000	0.0473	No
	April	41.7	41.7	1000	0.0417	No
	May	21.8	21.8	1000	0.0218	No
	June	17.9	17.9	1000	0.0179	No
	July	28.6	28.6	1000	0.0286	No
	August	35.5	35.6	1000	0.0356	No
	September	38.7	38.8	1000	0.0388	No
	October	35.6	35.7	1000	0.0357	No
	November	37.7	37.7	1000	0.0377	No
	December	38.5	38.5	1000	0.0385	No
Post-Closure Phase (36-99)	January	40.2	40.9	1000	0.0409	No
	February	37.0	37.0	1000	0.0370	No
	March	47.3	47.3	1000	0.0473	No
	April	41.7	41.7	1000	0.0417	No
	May	21.8	21.8	1000	0.0218	No
	June	17.9	17.9	1000	0.0179	No
	July	28.5	28.6	1000	0.0286	No
	August	35.4	35.5	1000	0.0355	No
	September	38.4	38.7	1000	0.0387	No
	October	35.5	35.6	1000	0.0356	No
	November	37.6	37.6	1000	0.0376	No
	December	38.2	38.4	1000	0.0384	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D25j. Lower Baker Creek (BK0) Hazard Quotients for Total Cobalt Concentrations, Upper Bound Case

Project Phase	Months	Predicted Concentrations Mean Maximum	First Screening Step							Retained as COPC?		
			Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
			BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Working	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30- Day Mean Guideline				Maximum Predicted vs. BC MOE Maximum Guideline
			BC MOE 30-Day Mean	BC MOE Maximum	BC MOE Working	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30- Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Working Guideline			
Construction (-2 to-1)	January February March April May June July August September October November December	0.00002 0.00001 0.00001 0.00001 0.00037 0.00056 0.00009 0.00010 0.00003 0.00006 0.00008 0.00005	0.00002 0.00001 0.00001 0.00001 0.00037 0.00056 0.00009 0.00010 0.00004 0.00006 0.00008 0.00005	0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004	0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110	1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	0.00375 0.00299 0.00274 0.00343 0.0916 0.141 0.0233 0.0244 0.00834 0.0143 0.0203 0.0120	0.00456 0.00299 0.00284 0.00344 0.0928 0.142 0.0236 0.0260 0.00948 0.0151 0.0212 0.0137	0.00017 0.00011 0.00010 0.00013 0.00337 0.00517 0.00086 0.00094 0.00034 0.00055 0.00077 0.00050	0.00002 0.00001 0.00001 0.00001 0.00037 0.00057 0.00009 0.00010 0.00004 0.00006 0.00008 0.00005	No No No No No No No No No No No No	No No No No No No No No No No No No
Operation 1 Phase (1-23)	January February March April May June July August September October November December	0.00004 0.00001 0.00001 0.00001 0.00038 0.00058 0.00010 0.00012 0.00006 0.00007 0.00009 0.00006	0.00004 0.00001 0.00001 0.00001 0.00038 0.00058 0.00010 0.00012 0.00006 0.00007 0.00009 0.00006	0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004	0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110	1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	0.00903 0.00278 0.00226 0.00345 0.0940 0.144 0.0242 0.0292 0.0141 0.0166 0.0229 0.0162	0.01003 0.00298 0.00241 0.00345 0.0941 0.145 0.0242 0.0297 0.0157 0.0169 0.0233 0.0165	0.00036 0.00011 0.00009 0.00013 0.00342 0.00526 0.00088 0.00108 0.00057 0.00061 0.00085 0.00060	0.00004 0.00001 0.00001 0.00001 0.00038 0.00058 0.00010 0.00012 0.00006 0.00007 0.00009 0.00007	No No No No No No No No No No No No	No No No No No No No No No No No No
Operations 2 Phase (24-28)	January February March April May June July August September October November December	0.00013 0.00001 0.00001 0.00001 0.00038 0.00058 0.00011 0.00016 0.00013 0.00010 0.00012 0.00012	0.00013 0.00001 0.00001 0.00001 0.00038 0.00058 0.00011 0.00016 0.00013 0.00010 0.00012 0.00012	0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004	0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110	1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	0.03305 0.00275 0.00225 0.00345 0.0941 0.146 0.0272 0.0400 0.0315 0.0243 0.0303 0.0311	0.05225 0.00275 0.00225 0.00345 0.0941 0.146 0.0284 0.0442 0.0397 0.0273 0.0331 0.0374	0.00190 0.00010 0.00008 0.00013 0.00342 0.00531 0.00103 0.00161 0.00144 0.00099 0.00120 0.00136	0.00021 0.00001 0.00008 0.00001 0.00038 0.00058 0.00011 0.00018 0.00016 0.00011 0.00013 0.00015	No No No No No No No No No No No No	No No No No No No No No No No No No
Closure Phase (29-35)	January February March April May June July August September October November December	0.00019 0.00001 0.00001 0.00001 0.00038 0.00058 0.00011 0.00017 0.00014 0.00010 0.00012 0.00013	0.00019 0.00001 0.00001 0.00001 0.00038 0.00058 0.00011 0.00017 0.00014 0.00010 0.00012 0.00013	0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004	0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110	1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	0.04839 0.00275 0.00225 0.00345 0.0941 0.146 0.0276 0.0413 0.0357 0.0252 0.0310 0.0330	0.05570 0.00275 0.00225 0.00345 0.0941 0.146 0.0283 0.0437 0.0392 0.0268 0.0325 0.0362	0.00203 0.00010 0.00008 0.00013 0.00342 0.00531 0.00103 0.00161 0.00144 0.00099 0.00120 0.00132	0.00022 0.00001 0.00001 0.00001 0.00038 0.00058 0.00011 0.00017 0.00016 0.00011 0.00013 0.00014	No No No No No No No No No No No No	No No No No No No No No No No No No
Post-Closure Phase (36-99)	January February March April May June July August September October November December	0.00007 0.00001 0.00001 0.00001 0.00038 0.00058 0.00010 0.00013 0.00007 0.00010 0.00007 0.00008	0.00007 0.00001 0.00001 0.00001 0.00038 0.00058 0.00010 0.00013 0.00007 0.00010 0.00007 0.00008	0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004 0.004	0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110 0.110	1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	0.01636 0.00275 0.00225 0.00345 0.0941 0.145 0.0248 0.0314 0.0184 0.0182 0.0245 0.0192	0.04083 0.00275 0.00225 0.00345 0.0941 0.146 0.0269 0.0390 0.0323 0.0236 0.0295 0.0298	0.00148 0.00010 0.00008 0.00013 0.00342 0.00529 0.00098 0.00142 0.00117 0.00086 0.00107 0.00108	0.00016 0.00001 0.00008 0.00001 0.00038 0.00058 0.00011 0.00016 0.00013 0.00009 0.00012 0.00012	No No No No No No No No No No No No	No No No No No No No No No No No No

Notes:
All concentrations in mg/L.
Grey shading indicates a hazard quotient > 1.0
BC MOE = British Columbia Ministry of Environment

Appendix 13-D251. Lower Baker Creek (BK0) Hazard Quotients for Dissolved and Total Iron Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?	
Project Phase	Months	Predicted Concentrations				Aquatic Life Guidelines	Aquatic Life Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Aquatic Life Guideline	Aquatic Life	
		Dissolved Iron		Total Iron						BC MOE Maximum Guideline for Dissolved Iron	BC MOE Maximum Guideline for Total Iron
		Mean	Maximum	Mean	Maximum						
Construction (-2 to-1)	January	0.0013	0.0017	0.0024	0.0027	0.35	1	0.0027	0.0027	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0017	0.0018	0.35	1	0.0029	0.0018	No	No
	April	0.0039	0.0040	0.0054	0.0054	0.35	1	0.0114	0.0054	No	No
	May	0.0137	0.0139	0.528	0.535	0.35	1	0.0396	0.535	No	No
	June	0.0137	0.0138	0.740	0.746	0.35	1	0.0394	0.746	No	No
	July	0.0099	0.0100	0.0201	0.0204	0.35	1	0.0287	0.0204	No	No
	August	0.0062	0.0065	0.0078	0.0082	0.35	1	0.0187	0.0082	No	No
	September	0.0029	0.0032	0.0043	0.0047	0.35	1	0.0093	0.0047	No	No
	October	0.0057	0.0061	0.0060	0.0063	0.35	1	0.0173	0.0063	No	No
	November	0.0081	0.0085	0.0083	0.0086	0.35	1	0.0242	0.0086	No	No
	December	0.0047	0.0054	0.0056	0.0063	0.35	1	0.0155	0.0063	No	No
Operation 1 Phase (1-23)	January	0.0035	0.0039	0.0048	0.0053	0.35	1	0.0113	0.0053	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0012	0.35	1	0.0029	0.0012	No	No
	April	0.0041	0.0042	0.0056	0.0056	0.35	1	0.0119	0.0056	No	No
	May	0.0141	0.0141	0.542	0.542	0.35	1	0.0402	0.542	No	No
	June	0.0140	0.0140	0.758	0.760	0.35	1	0.0400	0.760	No	No
	July	0.0103	0.0103	0.0209	0.0210	0.35	1	0.0295	0.0210	No	No
	August	0.0073	0.0075	0.0091	0.0093	0.35	1	0.0214	0.0093	No	No
	September	0.0049	0.0054	0.0067	0.0074	0.35	1	0.0155	0.0074	No	No
	October	0.0067	0.0068	0.0068	0.0069	0.35	1	0.0195	0.0069	No	No
	November	0.0092	0.0093	0.0092	0.0094	0.35	1	0.0266	0.0094	No	No
	December	0.0065	0.0066	0.0073	0.0074	0.35	1	0.0188	0.0074	No	No
Operations 2 Phase (24-28)	January	0.0038	0.0039	0.0052	0.0053	0.35	1	0.0112	0.0053	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0042	0.0042	0.0056	0.0056	0.35	1	0.0119	0.0056	No	No
	May	0.0141	0.0141	0.542	0.542	0.35	1	0.0402	0.542	No	No
	June	0.0140	0.0140	0.759	0.760	0.35	1	0.0400	0.760	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0294	0.0210	No	No
	August	0.0074	0.0074	0.0092	0.0093	0.35	1	0.0213	0.0093	No	No
	September	0.0052	0.0053	0.0071	0.0073	0.35	1	0.0152	0.0073	No	No
	October	0.0068	0.0068	0.0069	0.0069	0.35	1	0.0195	0.0069	No	No
	November	0.0092	0.0093	0.0093	0.0094	0.35	1	0.0265	0.0094	No	No
	December	0.0065	0.0066	0.0073	0.0074	0.35	1	0.0187	0.0074	No	No
Closure Phase (29-35)	January	0.0037	0.0038	0.0051	0.0051	0.35	1	0.0108	0.0051	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0042	0.0042	0.0056	0.0056	0.35	1	0.0119	0.0056	No	No
	May	0.0141	0.0141	0.542	0.542	0.35	1	0.0402	0.542	No	No
	June	0.0140	0.0140	0.759	0.759	0.35	1	0.0399	0.759	No	No
	July	0.0103	0.0103	0.0209	0.0210	0.35	1	0.0294	0.0210	No	No
	August	0.0074	0.0074	0.0092	0.0092	0.35	1	0.0211	0.0092	No	No
	September	0.0051	0.0051	0.0069	0.0070	0.35	1	0.0146	0.0070	No	No
	October	0.0068	0.0068	0.0069	0.0069	0.35	1	0.0194	0.0069	No	No
	November	0.0092	0.0092	0.0093	0.0093	0.35	1	0.0264	0.0093	No	No
	December	0.0065	0.0065	0.0073	0.0073	0.35	1	0.0186	0.0073	No	No
Post-Closure Phase (36-99)	January	0.0038	0.0038	0.0051	0.0051	0.35	1	0.0109	0.0051	No	No
	February	0.0010	0.0010	0.0020	0.0020	0.35	1	0.0029	0.0020	No	No
	March	0.0010	0.0010	0.0010	0.0010	0.35	1	0.0029	0.0010	No	No
	April	0.0041	0.0042	0.0056	0.0056	0.35	1	0.0119	0.0056	No	No
	May	0.0141	0.0141	0.542	0.542	0.35	1	0.0402	0.542	No	No
	June	0.0140	0.0140	0.759	0.759	0.35	1	0.0399	0.759	No	No
	July	0.0103	0.0103	0.0210	0.0210	0.35	1	0.0294	0.0210	No	No
	August	0.0074	0.0074	0.0092	0.0092	0.35	1	0.0212	0.0092	No	No
	September	0.0051	0.0052	0.0070	0.0071	0.35	1	0.0149	0.0071	No	No
	October	0.0068	0.0068	0.0069	0.0069	0.35	1	0.0194	0.0069	No	No
	November	0.0092	0.0093	0.0093	0.0093	0.35	1	0.0264	0.0093	No	No
	December	0.0065	0.0065	0.0073	0.0073	0.35	1	0.0187	0.0073	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D25n. Lower Baker Creek (BK0) Hazard Quotients for Total Lithium Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Aquatic Life Guidelines			Hazard Quotient relative to Aquatic Life Guideline				
Project Phase	Months	Predicted Concentrations		BC MOE Working Final Chronic Value Guideline	BC MOE Working Maximum Guideline	Mean Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Final Chronic Value Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.0008	0.0008	0.096	0.87	0.0086	0.0088	0.0010	No
	February	0.0009	0.0009	0.096	0.87	0.0092	0.0092	0.0010	No
	March	0.0009	0.0009	0.096	0.87	0.0094	0.0094	0.0010	No
	April	0.0006	0.0006	0.096	0.87	0.0066	0.0067	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0056	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0054	0.0054	0.0006	No
	August	0.0009	0.0009	0.096	0.87	0.0095	0.0096	0.0011	No
	September	0.0006	0.0006	0.096	0.87	0.0062	0.0066	0.0007	No
	October	0.0006	0.0006	0.096	0.87	0.0058	0.0059	0.0007	No
	November	0.0005	0.0006	0.096	0.87	0.0057	0.0059	0.0006	No
	December	0.0007	0.0007	0.096	0.87	0.0069	0.0072	0.0008	No
Operation 1 Phase (1-23)	January	0.0007	0.0008	0.096	0.87	0.0070	0.0082	0.0009	No
	February	0.0006	0.0009	0.096	0.87	0.0057	0.0090	0.0010	No
	March	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	April	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	August	0.0009	0.0010	0.096	0.87	0.0098	0.0100	0.0011	No
	September	0.0005	0.0005	0.096	0.87	0.0047	0.0055	0.0006	No
	October	0.0005	0.0005	0.096	0.87	0.0054	0.0056	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0054	0.0055	0.0006	No
	December	0.0006	0.0006	0.096	0.87	0.0060	0.0063	0.0007	No
Operations 2 Phase (24-28)	January	0.0007	0.0008	0.096	0.87	0.0075	0.0083	0.0009	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	April	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	August	0.0010	0.0010	0.096	0.87	0.0102	0.0104	0.0011	No
	September	0.0005	0.0005	0.096	0.87	0.0051	0.0055	0.0006	No
	October	0.0005	0.0006	0.096	0.87	0.0056	0.0058	0.0006	No
	November	0.0005	0.0006	0.096	0.87	0.0056	0.0058	0.0006	No
	December	0.0006	0.0007	0.096	0.87	0.0065	0.0068	0.0007	No
Closure Phase (29-35)	January	0.0008	0.0008	0.096	0.87	0.0084	0.0086	0.0010	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	April	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0054	0.0054	0.0006	No
	August	0.0010	0.0010	0.096	0.87	0.0103	0.0104	0.0011	No
	September	0.0005	0.0005	0.096	0.87	0.0055	0.0056	0.0006	No
	October	0.0005	0.0006	0.096	0.87	0.0057	0.0058	0.0006	No
	November	0.0005	0.0006	0.096	0.87	0.0057	0.0058	0.0006	No
	December	0.0006	0.0006	0.096	0.87	0.0067	0.0068	0.0007	No
Post-Closure Phase (36-99)	January	0.0007	0.0008	0.096	0.87	0.0071	0.0082	0.0009	No
	February	0.0005	0.0005	0.096	0.87	0.0052	0.0052	0.0006	No
	March	0.0009	0.0009	0.096	0.87	0.0093	0.0093	0.0010	No
	April	0.0006	0.0006	0.096	0.87	0.0065	0.0065	0.0007	No
	May	0.0005	0.0005	0.096	0.87	0.0053	0.0053	0.0006	No
	June	0.0005	0.0005	0.096	0.87	0.0055	0.0055	0.0006	No
	July	0.0005	0.0005	0.096	0.87	0.0053	0.0054	0.0006	No
	August	0.0010	0.0010	0.096	0.87	0.0099	0.0102	0.0011	No
	September	0.0005	0.0005	0.096	0.87	0.0048	0.0054	0.0006	No
	October	0.0005	0.0005	0.096	0.87	0.0054	0.0057	0.0006	No
	November	0.0005	0.0005	0.096	0.87	0.0055	0.0057	0.0006	No
	December	0.0006	0.0006	0.096	0.87	0.0061	0.0066	0.0007	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D25o. Lower Baker Creek (BK0) Hazard Quotients for Total Manganese Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step							Retained as COPC?
		Predicted Concentrations		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline			
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	
Construction (-2 to-1)	January	0.0001	0.0002	1.28	2.23	0.0001	0.0001	0.0001	No
	February	0.0001	0.0001	1.32	2.34	0.0001	0.0001	0.0001	No
	March	0.0003	0.0004	1.30	2.28	0.0002	0.0003	0.0002	No
	April	0.0003	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	May	0.0137	0.0138	1.01	1.56	0.0135	0.0137	0.0089	No
	June	0.0252	0.0254	0.967	1.45	0.0260	0.0263	0.0176	No
	July	0.0010	0.0010	1.16	1.92	0.0008	0.0009	0.0005	No
	August	0.0007	0.0008	1.28	2.23	0.0006	0.0006	0.0004	No
	September	0.0002	0.0003	1.25	2.17	0.0002	0.0002	0.0001	No
	October	0.0002	0.0002	1.31	2.30	0.0002	0.0002	0.0001	No
	November	0.0002	0.0002	1.38	2.48	0.0002	0.0002	0.0001	No
	December	0.0002	0.0002	1.15	1.90	0.0002	0.0002	0.0001	No
Operation 1 Phase (1-23)	January	0.0002	0.0002	1.28	2.23	0.0001	0.0001	0.0001	No
	February	0.0001	0.0001	1.32	2.34	0.0001	0.0001	0.0001	No
	March	0.0006	0.0006	1.30	2.28	0.0005	0.0005	0.0003	No
	April	0.0003	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	May	0.0140	0.0140	1.01	1.56	0.0138	0.0139	0.0090	No
	June	0.0258	0.0258	0.967	1.45	0.0267	0.0267	0.0179	No
	July	0.0010	0.0011	1.16	1.92	0.0009	0.0010	0.0006	No
	August	0.0009	0.0011	1.28	2.23	0.0007	0.0009	0.0005	No
	September	0.0003	0.0007	1.25	2.17	0.0003	0.0005	0.0003	No
	October	0.0002	0.0003	1.31	2.30	0.0002	0.0003	0.0001	No
	November	0.0003	0.0003	1.38	2.48	0.0002	0.0002	0.0001	No
	December	0.0002	0.0002	1.15	1.90	0.0002	0.0002	0.0001	No
Operations 2 Phase (24-28)	January	0.0048	0.0102	1.28	2.23	0.0037	0.0080	0.0046	No
	February	0.0001	0.0001	1.32	2.34	0.0001	0.0001	0.0000	No
	March	0.0006	0.0006	1.30	2.28	0.0005	0.0005	0.0003	No
	April	0.0003	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	May	0.0140	0.0141	1.01	1.56	0.0139	0.0139	0.0090	No
	June	0.0260	0.0262	0.967	1.45	0.0269	0.0271	0.0181	No
	July	0.0016	0.0021	1.16	1.92	0.0014	0.0018	0.0011	No
	August	0.0030	0.0048	1.28	2.23	0.0024	0.0038	0.0022	No
	September	0.0038	0.0071	1.25	2.17	0.0031	0.0056	0.0033	No
	October	0.0018	0.0031	1.31	2.30	0.0014	0.0024	0.0013	No
	November	0.0018	0.0030	1.38	2.48	0.0013	0.0022	0.0012	No
	December	0.0034	0.0062	1.15	1.90	0.0030	0.0054	0.0033	No
Closure Phase (29-35)	January	0.0112	0.0133	1.28	2.23	0.0088	0.0104	0.0060	No
	February	0.0001	0.0001	1.32	2.34	0.0001	0.0001	0.0000	No
	March	0.0006	0.0006	1.30	2.28	0.0005	0.0005	0.0003	No
	April	0.0003	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	May	0.0141	0.0141	1.01	1.56	0.0139	0.0139	0.0090	No
	June	0.0262	0.0262	0.967	1.45	0.0271	0.0271	0.0181	No
	July	0.0020	0.0022	1.16	1.92	0.0017	0.0019	0.0011	No
	August	0.0043	0.0049	1.28	2.23	0.0034	0.0039	0.0022	No
	September	0.0063	0.0073	1.25	2.17	0.0051	0.0058	0.0034	No
	October	0.0026	0.0031	1.31	2.30	0.0020	0.0023	0.0013	No
	November	0.0025	0.0029	1.38	2.48	0.0018	0.0021	0.0012	No
	December	0.0049	0.0059	1.15	1.90	0.0043	0.0051	0.0031	No
Post-Closure Phase (36-99)	January	0.0021	0.0091	1.28	2.23	0.0017	0.0071	0.0041	No
	February	0.0001	0.0001	1.32	2.34	0.0001	0.0001	0.0000	No
	March	0.0006	0.0006	1.30	2.28	0.0005	0.0005	0.0003	No
	April	0.0003	0.0003	1.31	2.30	0.0002	0.0002	0.0001	No
	May	0.0140	0.0141	1.01	1.56	0.0139	0.0139	0.0090	No
	June	0.0259	0.0261	0.967	1.45	0.0268	0.0270	0.0180	No
	July	0.0012	0.0018	1.16	1.92	0.0010	0.0015	0.0009	No
	August	0.0014	0.0037	1.28	2.23	0.0011	0.0029	0.0016	No
	September	0.0014	0.0054	1.25	2.17	0.0011	0.0043	0.0025	No
	October	0.0006	0.0022	1.31	2.30	0.0005	0.0017	0.0010	No
	November	0.0006	0.0021	1.38	2.48	0.0005	0.0015	0.0008	No
	December	0.0010	0.0041	1.15	1.90	0.0009	0.0035	0.0021	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are hardness dependent

Appendix 13-D25r. Lower Baker Creek (BK0) Hazard Quotients for Total Nickel Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step						Retained as COPC?	
		Predicted Concentrations		Aquatic Life Guidelines ¹	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock
		Mean	Maximum	BC MOE Working	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs BC MOE Working Guideline		
Construction (-2 to-1)	January	0.0001	0.0001	0.11	1	0.0010	0.0001	No	No
	February	0.0001	0.0001	0.11	1	0.0006	0.0001	No	No
	March	0.0001	0.0001	0.11	1	0.0006	0.0001	No	No
	April	0.0001	0.0001	0.11	1	0.0010	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0203	0.0013	No	No
	June	0.0017	0.0017	0.065	1	0.0267	0.0017	No	No
	July	0.0005	0.0005	0.11	1	0.0043	0.0005	No	No
	August	0.0006	0.0006	0.11	1	0.0055	0.0006	No	No
	September	0.0002	0.0002	0.11	1	0.0019	0.0002	No	No
	October	0.0003	0.0003	0.11	1	0.0029	0.0003	No	No
	November	0.0004	0.0004	0.11	1	0.0039	0.0004	No	No
	December	0.0003	0.0003	0.11	1	0.0027	0.0003	No	No
Operation 1 Phase (1-23)	January	0.0002	0.0003	0.11	1	0.0023	0.0003	No	No
	February	0.0001	0.0001	0.11	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.11	1	0.0006	0.0001	No	No
	April	0.0001	0.0001	0.11	1	0.0010	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0205	0.0013	No	No
	June	0.0018	0.0018	0.065	1	0.0272	0.0018	No	No
	July	0.0005	0.0005	0.11	1	0.0044	0.0005	No	No
	August	0.0007	0.0007	0.11	1	0.0063	0.0007	No	No
	September	0.0003	0.0003	0.11	1	0.0030	0.0003	No	No
	October	0.0003	0.0004	0.11	1	0.0032	0.0004	No	No
	November	0.0005	0.0005	0.11	1	0.0043	0.0005	No	No
	December	0.0004	0.0004	0.11	1	0.0033	0.0004	No	No
Operations 2 Phase (24-28)	January	0.0003	0.0005	0.11	1	0.0041	0.0005	No	No
	February	0.0001	0.0001	0.11	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.11	1	0.0005	0.0001	No	No
	April	0.0001	0.0001	0.11	1	0.0010	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0205	0.0013	No	No
	June	0.0018	0.0018	0.065	1	0.0273	0.0018	No	No
	July	0.0005	0.0005	0.11	1	0.0046	0.0005	No	No
	August	0.0007	0.0008	0.11	1	0.0069	0.0008	No	No
	September	0.0004	0.0005	0.11	1	0.0041	0.0005	No	No
	October	0.0004	0.0004	0.11	1	0.0037	0.0004	No	No
	November	0.0005	0.0005	0.11	1	0.0048	0.0005	No	No
	December	0.0004	0.0005	0.11	1	0.0044	0.0005	No	No
Closure Phase (29-35)	January	0.0005	0.0005	0.11	1	0.0047	0.0005	No	No
	February	0.0001	0.0001	0.11	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.11	1	0.0005	0.0001	No	No
	April	0.0001	0.0001	0.11	1	0.0010	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0205	0.0013	No	No
	June	0.0018	0.0018	0.065	1	0.0273	0.0018	No	No
	July	0.0005	0.0005	0.11	1	0.0046	0.0005	No	No
	August	0.0008	0.0008	0.11	1	0.0070	0.0008	No	No
	September	0.0004	0.0005	0.11	1	0.0042	0.0005	No	No
	October	0.0004	0.0004	0.11	1	0.0037	0.0004	No	No
	November	0.0005	0.0005	0.11	1	0.0047	0.0005	No	No
	December	0.0005	0.0005	0.11	1	0.0044	0.0005	No	No
Post-Closure Phase (36-99)	January	0.0003	0.0004	0.11	1	0.0039	0.0004	No	No
	February	0.0001	0.0001	0.11	1	0.0009	0.0001	No	No
	March	0.0001	0.0001	0.11	1	0.0005	0.0001	No	No
	April	0.0001	0.0001	0.11	1	0.0010	0.0001	No	No
	May	0.0013	0.0013	0.065	1	0.0205	0.0013	No	No
	June	0.0018	0.0018	0.065	1	0.0272	0.0018	No	No
	July	0.0005	0.0005	0.11	1	0.0046	0.0005	No	No
	August	0.0007	0.0007	0.11	1	0.0067	0.0007	No	No
	September	0.0003	0.0004	0.11	1	0.0038	0.0004	No	No
	October	0.0004	0.0004	0.11	1	0.0036	0.0004	No	No
	November	0.0005	0.0005	0.11	1	0.0046	0.0005	No	No
	December	0.0004	0.0004	0.11	1	0.0040	0.0004	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guideline is hardness dependent

Appendix 13-D25t. Lower Baker Creek (BK0) Hazard Quotients for Total Silver Concentrations, Upper Bound Case

		First Screening Step						Retained as COPC?	
		Aquatic Life Guidelines ¹		Hazard Quotient relative to Aquatic Life Guideline					
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day Mean	BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Aquatic Life
		Mean	Maximum						
Construction (-2 to-1)	January	0.00001	0.00001	0.0015	0.003	0.00353	0.00372	0.00186	No
	February	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.0001	0.218	0.219	0.110	No
	June	0.00001	0.00001	0.00005	0.0001	0.267	0.269	0.134	No
	July	0.00001	0.00001	0.0015	0.003	0.00643	0.00647	0.00323	No
	August	0.00002	0.00002	0.0015	0.003	0.0119	0.0125	0.00626	No
	September	0.00001	0.00001	0.0015	0.003	0.00768	0.00854	0.00427	No
	October	0.00001	0.00001	0.0015	0.003	0.00499	0.00510	0.00255	No
	November	0.00001	0.00001	0.0015	0.003	0.00595	0.00610	0.00305	No
	December	0.00001	0.00001	0.0015	0.003	0.00498	0.00530	0.00265	No
Operation 1 Phase (1-23)	January	0.00001	0.00001	0.0015	0.003	0.00483	0.00508	0.00254	No
	February	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.0001	0.222	0.223	0.112	No
	June	0.00001	0.00001	0.00005	0.0001	0.271	0.272	0.136	No
	July	0.00001	0.00001	0.0015	0.003	0.00658	0.00659	0.00330	No
	August	0.00002	0.00002	0.0015	0.003	0.0139	0.0141	0.00706	No
	September	0.00002	0.00002	0.0015	0.003	0.0124	0.0138	0.00688	No
	October	0.00001	0.00001	0.0015	0.003	0.00534	0.00539	0.00270	No
	November	0.00001	0.00001	0.0015	0.003	0.00635	0.00641	0.00320	No
	December	0.00001	0.00001	0.0015	0.003	0.00576	0.00581	0.00291	No
Operations 2 Phase (24-28)	January	0.00001	0.00001	0.0015	0.003	0.00528	0.00544	0.00272	No
	February	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.0001	0.223	0.223	0.112	No
	June	0.00001	0.00001	0.00005	0.0001	0.272	0.272	0.136	No
	July	0.00001	0.00001	0.0015	0.003	0.00662	0.00663	0.00332	No
	August	0.00002	0.00002	0.0015	0.003	0.0141	0.0142	0.00708	No
	September	0.00002	0.00002	0.0015	0.003	0.0134	0.0135	0.00676	No
	October	0.00001	0.00001	0.0015	0.003	0.00546	0.00549	0.00274	No
	November	0.00001	0.00001	0.0015	0.003	0.00647	0.00649	0.00324	No
	December	0.00001	0.00001	0.0015	0.003	0.00596	0.00601	0.00301	No
Closure Phase (29-35)	January	0.00001	0.00001	0.0015	0.003	0.00537	0.00547	0.00273	No
	February	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.0001	0.223	0.223	0.112	No
	June	0.00001	0.00001	0.00005	0.0001	0.272	0.272	0.136	No
	July	0.00001	0.00001	0.0015	0.003	0.00662	0.00663	0.00331	No
	August	0.00002	0.00002	0.0015	0.003	0.0141	0.0141	0.00705	No
	September	0.00002	0.00002	0.0015	0.003	0.0130	0.0132	0.00661	No
	October	0.00001	0.00001	0.0015	0.003	0.00546	0.00548	0.00274	No
	November	0.00001	0.00001	0.0015	0.003	0.00646	0.00648	0.00324	No
	December	0.00001	0.00001	0.0015	0.003	0.00596	0.00600	0.00300	No
Post-Closure Phase (36-99)	January	0.00001	0.00001	0.0015	0.003	0.00505	0.00528	0.00264	No
	February	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	March	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	April	0.00001	0.00001	0.0015	0.003	0.00333	0.00333	0.00167	No
	May	0.00001	0.00001	0.00005	0.0001	0.223	0.223	0.112	No
	June	0.00001	0.00001	0.00005	0.0001	0.272	0.272	0.136	No
	July	0.00001	0.00001	0.0015	0.003	0.00659	0.00661	0.00331	No
	August	0.00002	0.00002	0.0015	0.003	0.0140	0.0140	0.00701	No
	September	0.00002	0.00002	0.0015	0.003	0.0130	0.0132	0.00659	No
	October	0.00001	0.00001	0.0015	0.003	0.00539	0.00544	0.00272	No
	November	0.00001	0.00001	0.0015	0.003	0.00640	0.00644	0.00322	No
	December	0.00001	0.00001	0.0015	0.003	0.00582	0.00593	0.00296	No

Notes:

All concentrations in mg/L.

Grey shading indicates a hazard quotient > 1.0

BC MOE = British Columbia Ministry of Environment

¹ Guidelines are hardness dependent

Appendix 13-D25u. Lower Baker Creek (BK0) Hazard Quotients for Total Thallium Concentrations, Upper Bound Case

		First Screening Step					Retained as COPC?		
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Aquatic Life	Drinking Water
		Mean	Maximum						
Construction (-2 to-1)	January	0.000002	0.000003	0.0003	0.002	0.00860	0.00129	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0332	0.00498	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0326	0.00489	No	No
	July	0.000009	0.000009	0.0003	0.002	0.0316	0.00474	No	No
	August	0.000010	0.000011	0.0003	0.002	0.0352	0.00527	No	No
	September	0.000006	0.000007	0.0003	0.002	0.0229	0.00343	No	No
	October	0.000006	0.000006	0.0003	0.002	0.0209	0.00313	No	No
	November	0.000008	0.000009	0.0003	0.002	0.0288	0.00432	No	No
	December	0.000005	0.000006	0.0003	0.002	0.0198	0.00296	No	No
Operation 1 Phase (1-23)	January	0.000004	0.000005	0.0003	0.002	0.0154	0.00231	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0147	0.00221	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0336	0.00504	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00495	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0324	0.00486	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0400	0.00600	No	No
	September	0.000010	0.000012	0.0003	0.002	0.0389	0.00583	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0231	0.00346	No	No
	November	0.000009	0.000009	0.0003	0.002	0.0313	0.00469	No	No
	December	0.000007	0.000007	0.0003	0.002	0.0232	0.00348	No	No
Operations 2 Phase (24-28)	January	0.000005	0.000005	0.0003	0.002	0.0162	0.00243	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0336	0.00504	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00495	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0325	0.00487	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0401	0.00601	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0381	0.00572	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0232	0.00348	No	No
	November	0.000009	0.000009	0.0003	0.002	0.0314	0.00471	No	No
	December	0.000007	0.000007	0.0003	0.002	0.0236	0.00355	No	No
Closure Phase (29-35)	January	0.000005	0.000005	0.0003	0.002	0.0162	0.00243	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0336	0.00504	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00495	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0325	0.00487	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0399	0.00599	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0372	0.00558	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0232	0.00348	No	No
	November	0.000009	0.000009	0.0003	0.002	0.0313	0.00470	No	No
	December	0.000007	0.000007	0.0003	0.002	0.0236	0.00354	No	No
Post-Closure Phase (36-99)	January	0.000005	0.000005	0.0003	0.002	0.0157	0.00236	No	No
	February	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	March	0.000002	0.000002	0.0003	0.002	0.00667	0.00100	No	No
	April	0.000004	0.000004	0.0003	0.002	0.0146	0.00219	No	No
	May	0.000010	0.000010	0.0003	0.002	0.0336	0.00504	No	No
	June	0.000010	0.000010	0.0003	0.002	0.0330	0.00495	No	No
	July	0.000010	0.000010	0.0003	0.002	0.0324	0.00486	No	No
	August	0.000012	0.000012	0.0003	0.002	0.0397	0.00596	No	No
	September	0.000011	0.000011	0.0003	0.002	0.0371	0.00557	No	No
	October	0.000007	0.000007	0.0003	0.002	0.0230	0.00346	No	No
	November	0.000009	0.000009	0.0003	0.002	0.0312	0.00468	No	No
	December	0.000007	0.000007	0.0003	0.002	0.0234	0.00351	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D25v. Lower Baker Creek (BK0) Hazard Quotients for Total Uranium Concentrations, Upper Bound Case

Project Phase		First Screening Step										Retained as COPC?												
		Predicted Concentrations		Aquatic Life Guidelines	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline	Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline															
		Mean	Maximum	BC MOE Working	Canadian DWQG	BC MOE Working	Maximum Predicted vs. BC MOE Working Guideline	Maximum Predicted vs. Canadian DWQG	Maximum Predicted vs BC MOE Working Guideline	Aquatic Life	Drinking Water	Livestock												
Construction (-2 to 1)													January	0.0009	0.0010	0.3	0.02	0.2	0.0032	0.0484	0.0048	No	No	No
													February	0.0011	0.0011	0.3	0.02	0.2	0.0035	0.0531	0.0053	No	No	No
													March	0.0010	0.0011	0.3	0.02	0.2	0.0035	0.0529	0.0053	No	No	No
													April	0.0005	0.0005	0.3	0.02	0.2	0.0018	0.0263	0.0026	No	No	No
													May	0.0002	0.0002	0.3	0.02	0.2	0.0007	0.0100	0.0010	No	No	No
													June	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0053	0.0005	No	No	No
													July	0.0001	0.0002	0.3	0.02	0.2	0.0005	0.0080	0.0008	No	No	No
													August	0.0003	0.0004	0.3	0.02	0.2	0.0013	0.0193	0.0019	No	No	No
													September	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0307	0.0031	No	No	No
													October	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0186	0.0019	No	No	No
													November	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0175	0.0017	No	No	No
													December	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0319	0.0032	No	No	No
Operation 1 Phase (1-23)													January	0.0006	0.0009	0.3	0.02	0.2	0.0029	0.0429	0.0043	No	No	No
													February	0.0004	0.0010	0.3	0.02	0.2	0.0034	0.0508	0.0051	No	No	No
													March	0.0009	0.0010	0.3	0.02	0.2	0.0032	0.0486	0.0049	No	No	No
													April	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0249	0.0025	No	No	No
													May	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0087	0.0009	No	No	No
													June	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0041	0.0004	No	No	No
													July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0060	0.0006	No	No	No
													August	0.0002	0.0003	0.3	0.02	0.2	0.0009	0.0129	0.0013	No	No	No
													September	0.0003	0.0004	0.3	0.02	0.2	0.0013	0.0202	0.0020	No	No	No
													October	0.0002	0.0003	0.3	0.02	0.2	0.0009	0.0134	0.0013	No	No	No
													November	0.0002	0.0003	0.3	0.02	0.2	0.0009	0.0131	0.0013	No	No	No
													December	0.0004	0.0004	0.3	0.02	0.2	0.0015	0.0225	0.0022	No	No	No
Operations 2 Phase (24-28)													January	0.0006	0.0006	0.3	0.02	0.2	0.0020	0.0307	0.0031	No	No	No
													February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0015	No	No	No
													March	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0470	0.0047	No	No	No
													April	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0249	0.0025	No	No	No
													May	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0085	0.0009	No	No	No
													June	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0040	0.0004	No	No	No
													July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0058	0.0006	No	No	No
													August	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0122	0.0012	No	No	No
													September	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0175	0.0017	No	No	No
													October	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0128	0.0013	No	No	No
													November	0.0003	0.0003	0.3	0.02	0.2	0.0008	0.0127	0.0013	No	No	No
													December	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0203	0.0020	No	No	No
Closure Phase (29-35)													January	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0314	0.0031	No	No	No
													February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0015	No	No	No
													March	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0470	0.0047	No	No	No
													April	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0248	0.0025	No	No	No
													May	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0085	0.0009	No	No	No
													June	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0040	0.0004	No	No	No
													July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0058	0.0006	No	No	No
													August	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0122	0.0012	No	No	No
													September	0.0003	0.0004	0.3	0.02	0.2	0.0012	0.0176	0.0018	No	No	No
													October	0.0003	0.0003	0.3	0.02	0.2	0.0009	0.0128	0.0013	No	No	No
													November	0.0003	0.0003	0.3	0.02	0.2	0.0008	0.0127	0.0013	No	No	No
													December	0.0004	0.0004	0.3	0.02	0.2	0.0014	0.0203	0.0020	No	No	No
Post-Closure Phase (36-99)													January	0.0006	0.0006	0.3	0.02	0.2	0.0021	0.0313	0.0031	No	No	No
													February	0.0003	0.0003	0.3	0.02	0.2	0.0010	0.0145	0.0015	No	No	No
													March	0.0009	0.0009	0.3	0.02	0.2	0.0031	0.0470	0.0047	No	No	No
													April	0.0005	0.0005	0.3	0.02	0.2	0.0017	0.0248	0.0025	No	No	No
													May	0.0002	0.0002	0.3	0.02	0.2	0.0006	0.0085	0.0009	No	No	No
													June	0.0001	0.0001	0.3	0.02	0.2	0.0003	0.0040	0.0004	No	No	No
													July	0.0001	0.0001	0.3	0.02	0.2	0.0004	0.0058	0.0006	No	No	No
													August	0.0002	0.0002	0.3	0.02	0.2	0.0008	0.0121	0.0012	No	No	No
													September	0.0003	0.0003	0.3	0.02	0.2	0.0012	0.0175	0.0017	No	No	No
													October	0.0002	0.0003	0.3	0.02	0.2	0.0008	0.0127	0.0013	No	No	No
													November	0.0002	0.0003	0.3	0.02	0.2	0.0008	0.0126	0.0013	No	No	No
													December	0.0004	0.0004	0.3	0.02	0.2	0.0013	0.0201	0.0020	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D25x. Lower Baker Creek (BK0) Hazard Quotients for Total Zinc Concentrations, Upper Bound Case

		First Screening Step								Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Livestock	
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline				Maximum Predicted vs. BC MOE Maximum Guideline
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum		BC MOE Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline				Maximum Predicted vs. BC MOE Maximum Guideline
Construction (-2 to-1)	January	0.0003	0.0004	0.0548	0.0803	2	0.0052	0.0072	0.0049	0.0002	No	No	
	February	0.0002	0.0002	0.0623	0.0878	2	0.0032	0.0032	0.0022	0.0001	No	No	
	March	0.0003	0.0003	0.0581	0.0836	2	0.0046	0.0051	0.0035	0.0001	No	No	
	April	0.0017	0.0018	0.0600	0.0855	2	0.0291	0.0296	0.0208	0.0009	No	No	
	May	0.0039	0.0039	0.0095	0.0350	2	0.407	0.412	0.112	0.0020	No	No	
	June	0.0044	0.0045	0.0075	0.0330	2	0.589	0.594	0.135	0.0022	No	No	
	July	0.0029	0.0029	0.0338	0.0593	2	0.0849	0.0862	0.0491	0.0015	No	No	
	August	0.0019	0.0021	0.0548	0.0803	2	0.0352	0.0376	0.0256	0.0010	No	No	
	September	0.0008	0.0010	0.0506	0.0761	2	0.0164	0.0191	0.0127	0.0005	No	No	
	October	0.0016	0.0017	0.0600	0.0855	2	0.0261	0.0276	0.0194	0.0008	No	No	
	November	0.0024	0.0025	0.0720	0.0975	2	0.0332	0.0350	0.0258	0.0013	No	No	
	December	0.0013	0.0016	0.0323	0.0578	2	0.0414	0.0483	0.0270	0.0008	No	No	
Operation 1 Phase (1-23)	January	0.0010	0.0011	0.0548	0.0803	2	0.0175	0.0198	0.0135	0.0005	No	No	
	February	0.0001	0.0002	0.0623	0.0878	2	0.0018	0.0031	0.0022	0.0001	No	No	
	March	0.0004	0.0004	0.0581	0.0836	2	0.0068	0.0069	0.0048	0.0002	No	No	
	April	0.0018	0.0018	0.0600	0.0855	2	0.0301	0.0301	0.0211	0.0009	No	No	
	May	0.0040	0.0040	0.0095	0.0350	2	0.417	0.417	0.113	0.0020	No	No	
	June	0.0045	0.0045	0.0075	0.0330	2	0.603	0.604	0.137	0.0023	No	No	
	July	0.0030	0.0030	0.0338	0.0593	2	0.0884	0.0887	0.0505	0.0015	No	No	
	August	0.0023	0.0024	0.0548	0.0803	2	0.0424	0.0433	0.0295	0.0012	No	No	
	September	0.0016	0.0018	0.0506	0.0761	2	0.0308	0.0347	0.0231	0.0009	No	No	
	October	0.0018	0.0019	0.0600	0.0855	2	0.0307	0.0314	0.0221	0.0009	No	No	
	November	0.0027	0.0028	0.0720	0.0975	2	0.0380	0.0386	0.0285	0.0014	No	No	
	December	0.0019	0.0019	0.0323	0.0578	2	0.0582	0.0593	0.0331	0.0010	No	No	
Operations 2 Phase (24-28)	January	0.0012	0.0014	0.0548	0.0803	2	0.0225	0.0261	0.0178	0.0007	No	No	
	February	0.0001	0.0001	0.0623	0.0878	2	0.0016	0.0016	0.0011	0.0001	No	No	
	March	0.0004	0.0004	0.0581	0.0836	2	0.0069	0.0069	0.0048	0.0002	No	No	
	April	0.0018	0.0018	0.0600	0.0855	2	0.0300	0.0301	0.0211	0.0009	No	No	
	May	0.0040	0.0040	0.0095	0.0350	2	0.417	0.417	0.113	0.0020	No	No	
	June	0.0045	0.0045	0.0075	0.0330	2	0.604	0.605	0.138	0.0023	No	No	
	July	0.0030	0.0030	0.0338	0.0593	2	0.0892	0.0897	0.0511	0.0015	No	No	
	August	0.0024	0.0025	0.0548	0.0803	2	0.0444	0.0455	0.0311	0.0012	No	No	
	September	0.0018	0.0019	0.0506	0.0761	2	0.0358	0.0376	0.0250	0.0010	No	No	
	October	0.0019	0.0020	0.0600	0.0855	2	0.0322	0.0330	0.0231	0.0010	No	No	
	November	0.0028	0.0029	0.0720	0.0975	2	0.0392	0.0398	0.0294	0.0014	No	No	
	December	0.0020	0.0021	0.0323	0.0578	2	0.0629	0.0660	0.0369	0.0011	No	No	
Closure Phase (29-35)	January	0.0015	0.0015	0.0548	0.0803	2	0.0266	0.0281	0.0192	0.0008	No	No	
	February	0.0001	0.0001	0.0623	0.0878	2	0.0016	0.0016	0.0011	0.0001	No	No	
	March	0.0004	0.0004	0.0581	0.0836	2	0.0069	0.0069	0.0048	0.0002	No	No	
	April	0.0018	0.0018	0.0600	0.0855	2	0.0301	0.0301	0.0211	0.0009	No	No	
	May	0.0040	0.0040	0.0095	0.0350	2	0.417	0.417	0.113	0.0020	No	No	
	June	0.0045	0.0045	0.0075	0.0330	2	0.605	0.605	0.138	0.0023	No	No	
	July	0.0030	0.0030	0.0338	0.0593	2	0.0895	0.0898	0.0511	0.0015	No	No	
	August	0.0025	0.0025	0.0548	0.0803	2	0.0451	0.0456	0.0311	0.0012	No	No	
	September	0.0019	0.0019	0.0506	0.0761	2	0.0366	0.0376	0.0250	0.0010	No	No	
	October	0.0020	0.0020	0.0600	0.0855	2	0.0326	0.0329	0.0231	0.0010	No	No	
	November	0.0028	0.0029	0.0720	0.0975	2	0.0395	0.0397	0.0293	0.0014	No	No	
	December	0.0021	0.0021	0.0323	0.0578	2	0.0645	0.0656	0.0366	0.0011	No	No	
Post-Closure Phase (36-99)	January	0.0011	0.0014	0.0548	0.0803	2	0.0203	0.0250	0.0170	0.0007	No	No	
	February	0.0001	0.0001	0.0623	0.0878	2	0.0016	0.0016	0.0011	0.0001	No	No	
	March	0.0004	0.0004	0.0581	0.0836	2	0.0069	0.0069	0.0048	0.0002	No	No	
	April	0.0018	0.0018	0.0600	0.0855	2	0.0301	0.0301	0.0211	0.0009	No	No	
	May	0.0040	0.0040	0.0095	0.0350	2	0.417	0.417	0.113	0.0020	No	No	
	June	0.0045	0.0045	0.0075	0.0330	2	0.604	0.604	0.137	0.0023	No	No	
	July	0.0030	0.0030	0.0338	0.0593	2	0.0886	0.0893	0.0508	0.0015	No	No	
	August	0.0024	0.0024	0.0548	0.0803	2	0.0431	0.0445	0.0304	0.0012	No	No	
	September	0.0017	0.0018	0.0506	0.0761	2	0.0332	0.0355	0.0236	0.0009	No	No	
	October	0.0019	0.0019	0.0600	0.0855	2	0.0314	0.0323	0.0227	0.0010	No	No	
	November	0.0028	0.0028	0.0720	0.0975	2	0.0385	0.0392	0.0289	0.0014	No	No	
	December	0.0019	0.0020	0.0323	0.0578	2	0.0599	0.0634	0.0354	0.0010	No	No	

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 1 Guidelines are hardness dependent

Appendix 13-D25y. Lower Baker Creek (BK0) Hazard Quotients for Chloride Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step										Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines		BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to BC MOE Working Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	Maximum	Maximum	Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline			
Construction (-2 to-1)	January	0.778	0.800	150	600	600	600	0.0052	0.0053	0.0013	0.0013	0.0013	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.696	0.735	150	600	600	600	0.0046	0.0049	0.0012	0.0012	0.0012	No	No	No
	April	0.569	0.574	150	600	600	600	0.0038	0.0038	0.0010	0.0010	0.0010	No	No	No
	May	0.557	0.560	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.510	0.514	150	600	600	600	0.0034	0.0034	0.0009	0.0009	0.0009	No	No	No
	July	0.614	0.619	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.601	0.620	150	600	600	600	0.0040	0.0041	0.0010	0.0010	0.0010	No	No	No
	September	0.722	0.740	150	600	600	600	0.0048	0.0049	0.0012	0.0012	0.0012	No	No	No
	October	0.572	0.589	150	600	600	600	0.0038	0.0039	0.0010	0.0010	0.0010	No	No	No
	November	0.564	0.578	150	600	600	600	0.0038	0.0039	0.0010	0.0010	0.0010	No	No	No
	December	0.635	0.667	150	600	600	600	0.0042	0.0044	0.0011	0.0011	0.0011	No	No	No
Operation 1 Phase (1-23)	January	0.632	0.717	150	600	600	600	0.0042	0.0048	0.0012	0.0012	0.0012	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.503	0.564	150	600	600	600	0.0034	0.0038	0.0009	0.0009	0.0009	No	No	No
	April	0.560	0.561	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	May	0.550	0.551	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.504	0.505	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.608	0.609	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.562	0.569	150	600	600	600	0.0037	0.0038	0.0009	0.0009	0.0009	No	No	No
	September	0.650	0.681	150	600	600	600	0.0043	0.0045	0.0011	0.0011	0.0011	No	No	No
	October	0.530	0.543	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	November	0.528	0.540	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	December	0.557	0.577	150	600	600	600	0.0037	0.0038	0.0010	0.0010	0.0010	No	No	No
Operations 2 Phase (24-28)	January	0.652	0.690	150	600	600	600	0.0043	0.0046	0.0012	0.0012	0.0012	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.561	0.561	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	May	0.550	0.550	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.506	0.507	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.613	0.615	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.579	0.587	150	600	600	600	0.0039	0.0039	0.0010	0.0010	0.0010	No	No	No
	September	0.668	0.686	150	600	600	600	0.0045	0.0046	0.0011	0.0011	0.0011	No	No	No
	October	0.539	0.545	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	November	0.538	0.543	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	December	0.580	0.592	150	600	600	600	0.0039	0.0039	0.0010	0.0010	0.0010	No	No	No
Closure Phase (29-35)	January	0.688	0.698	150	600	600	600	0.0046	0.0047	0.0012	0.0012	0.0012	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.561	0.561	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	May	0.550	0.550	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.506	0.507	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.614	0.615	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.583	0.586	150	600	600	600	0.0039	0.0039	0.0010	0.0010	0.0010	No	No	No
	September	0.683	0.687	150	600	600	600	0.0046	0.0046	0.0011	0.0011	0.0011	No	No	No
	October	0.543	0.545	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	November	0.540	0.542	150	600	600	600	0.0036	0.0036	0.0009	0.0009	0.0009	No	No	No
	December	0.585	0.590	150	600	600	600	0.0039	0.0039	0.0010	0.0010	0.0010	No	No	No
Post-Closure Phase (36-99)	January	0.629	0.678	150	600	600	600	0.0042	0.0045	0.0011	0.0011	0.0011	No	No	No
	February	0.800	0.800	150	600	600	600	0.0053	0.0053	0.0013	0.0013	0.0013	No	No	No
	March	0.500	0.500	150	600	600	600	0.0033	0.0033	0.0008	0.0008	0.0008	No	No	No
	April	0.561	0.561	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	May	0.550	0.550	150	600	600	600	0.0037	0.0037	0.0009	0.0009	0.0009	No	No	No
	June	0.504	0.506	150	600	600	600	0.0034	0.0034	0.0008	0.0008	0.0008	No	No	No
	July	0.609	0.613	150	600	600	600	0.0041	0.0041	0.0010	0.0010	0.0010	No	No	No
	August	0.564	0.580	150	600	600	600	0.0038	0.0039	0.0010	0.0010	0.0010	No	No	No
	September	0.650	0.680	150	600	600	600	0.0043	0.0045	0.0011	0.0011	0.0011	No	No	No
	October	0.530	0.541	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	November	0.528	0.538	150	600	600	600	0.0035	0.0036	0.0009	0.0009	0.0009	No	No	No
	December	0.560	0.580	150	600	600	600	0.0037	0.0039	0.0010	0.0010	0.0010	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment

Appendix 13-D25aa. Lower Baker Creek (BK0) Hazard Quotients for Nitrate Concentrations, Upper Bound Case

		First Screening Step											Retained as COPC?					
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				BC DWQG	Maximum	BC MOE Maximum							
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean Predicted vs BC MOE 30-Day Mean	Maximum Predicted vs BC MOE 30-Day Mean	Maximum Predicted vs BC MOE Maximum	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0617	0.0657	3	32.8	10	100	100	0.0206	0.0219	0.0020	0.0066	0.0007	0.0007	No	No	No	No
	February	0.0550	0.0552	3	32.8	10	100	100	0.0183	0.0184	0.0017	0.0055	0.0006	0.0006	No	No	No	No
	March	0.0420	0.0461	3	32.8	10	100	100	0.0140	0.0154	0.0014	0.0046	0.0005	0.0005	No	No	No	No
	April	0.0459	0.0461	3	32.8	10	100	100	0.0153	0.0154	0.0014	0.0046	0.0005	0.0005	No	No	No	No
	May	0.0247	0.0254	3	32.8	10	100	100	0.0082	0.0085	0.0008	0.0025	0.0003	0.0003	No	No	No	No
	June	0.0076	0.0082	3	32.8	10	100	100	0.0025	0.0027	0.0003	0.0008	0.0001	0.0001	No	No	No	No
	July	0.0121	0.0131	3	32.8	10	100	100	0.0040	0.0044	0.0004	0.0013	0.0001	0.0001	No	No	No	No
	August	0.0468	0.0485	3	32.8	10	100	100	0.0156	0.0162	0.0015	0.0049	0.0005	0.0005	No	No	No	No
	September	0.0676	0.0683	3	32.8	10	100	100	0.0225	0.0228	0.0021	0.0068	0.0007	0.0007	No	No	No	No
	October	0.0428	0.0446	3	32.8	10	100	100	0.0143	0.0149	0.0014	0.0045	0.0004	0.0004	No	No	No	No
	November	0.0707	0.0708	3	32.8	10	100	100	0.0236	0.0236	0.0022	0.0071	0.0007	0.0007	No	No	No	No
	December	0.0684	0.0685	3	32.8	10	100	100	0.0228	0.0228	0.0021	0.0068	0.0007	0.0007	No	No	No	No
Operation 1 Phase (1-23)	January	0.0706	0.0736	3	32.8	10	100	100	0.0235	0.0245	0.0022	0.0074	0.0007	0.0007	No	No	No	No
	February	0.102	0.109	3	32.8	10	100	100	0.0340	0.0363	0.0033	0.0109	0.0011	0.0011	No	No	No	No
	March	0.0217	0.0282	3	32.8	10	100	100	0.0072	0.0094	0.0009	0.0028	0.0003	0.0003	No	No	No	No
	April	0.0451	0.0456	3	32.8	10	100	100	0.0150	0.0152	0.0014	0.0046	0.0005	0.0005	No	No	No	No
	May	0.0237	0.0238	3	32.8	10	100	100	0.0079	0.0079	0.0007	0.0024	0.0002	0.0002	No	No	No	No
	June	0.0063	0.0066	3	32.8	10	100	100	0.0021	0.0022	0.0002	0.0007	0.0001	0.0001	No	No	No	No
	July	0.0099	0.0104	3	32.8	10	100	100	0.0033	0.0035	0.0003	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0421	0.0435	3	32.8	10	100	100	0.0140	0.0145	0.0013	0.0044	0.0004	0.0004	No	No	No	No
	September	0.0600	0.0659	3	32.8	10	100	100	0.0200	0.0220	0.0020	0.0066	0.0007	0.0007	No	No	No	No
	October	0.0368	0.0394	3	32.8	10	100	100	0.0123	0.0131	0.0012	0.0039	0.0004	0.0004	No	No	No	No
	November	0.0700	0.0708	3	32.8	10	100	100	0.0233	0.0236	0.0022	0.0071	0.0007	0.0007	No	No	No	No
	December	0.0721	0.0725	3	32.8	10	100	100	0.0240	0.0242	0.0022	0.0072	0.0007	0.0007	No	No	No	No
Operations 2 Phase (24-28)	January	0.0728	0.0734	3	32.8	10	100	100	0.0243	0.0245	0.0022	0.0073	0.0007	0.0007	No	No	No	No
	February	0.109	0.109	3	32.8	10	100	100	0.0363	0.0363	0.0033	0.0109	0.0011	0.0011	No	No	No	No
	March	0.0213	0.0214	3	32.8	10	100	100	0.0071	0.0071	0.0007	0.0021	0.0002	0.0002	No	No	No	No
	April	0.0450	0.0450	3	32.8	10	100	100	0.0150	0.0150	0.0014	0.0045	0.0005	0.0005	No	No	No	No
	May	0.0236	0.0237	3	32.8	10	100	100	0.0079	0.0079	0.0007	0.0024	0.0002	0.0002	No	No	No	No
	June	0.0062	0.0063	3	32.8	10	100	100	0.0021	0.0021	0.0002	0.0006	0.0001	0.0001	No	No	No	No
	July	0.0099	0.0100	3	32.8	10	100	100	0.0033	0.0033	0.0003	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0416	0.0418	3	32.8	10	100	100	0.0139	0.0139	0.0013	0.0042	0.0004	0.0004	No	No	No	No
	September	0.0574	0.0582	3	32.8	10	100	100	0.0191	0.0194	0.0018	0.0058	0.0006	0.0006	No	No	No	No
	October	0.0359	0.0361	3	32.8	10	100	100	0.0120	0.0120	0.0011	0.0036	0.0004	0.0004	No	No	No	No
	November	0.0697	0.0697	3	32.8	10	100	100	0.0232	0.0232	0.0021	0.0070	0.0007	0.0007	No	No	No	No
	December	0.0723	0.0724	3	32.8	10	100	100	0.0241	0.0241	0.0022	0.0072	0.0007	0.0007	No	No	No	No
Closure Phase (29-35)	January	0.0719	0.0721	3	32.8	10	100	100	0.0240	0.0240	0.0022	0.0072	0.0007	0.0007	No	No	No	No
	February	0.109	0.109	3	32.8	10	100	100	0.0363	0.0363	0.0033	0.0109	0.0011	0.0011	No	No	No	No
	March	0.0214	0.0214	3	32.8	10	100	100	0.0071	0.0071	0.0007	0.0021	0.0002	0.0002	No	No	No	No
	April	0.0450	0.0450	3	32.8	10	100	100	0.0150	0.0150	0.0014	0.0045	0.0005	0.0005	No	No	No	No
	May	0.0237	0.0237	3	32.8	10	100	100	0.0079	0.0079	0.0007	0.0024	0.0002	0.0002	No	No	No	No
	June	0.0063	0.0063	3	32.8	10	100	100	0.0021	0.0021	0.0002	0.0006	0.0001	0.0001	No	No	No	No
	July	0.0100	0.0101	3	32.8	10	100	100	0.0033	0.0034	0.0003	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0420	0.0421	3	32.8	10	100	100	0.0140	0.0140	0.0013	0.0042	0.0004	0.0004	No	No	No	No
	September	0.0588	0.0593	3	32.8	10	100	100	0.0196	0.0198	0.0018	0.0059	0.0006	0.0006	No	No	No	No
	October	0.0362	0.0364	3	32.8	10	100	100	0.0121	0.0121	0.0011	0.0036	0.0004	0.0004	No	No	No	No
	November	0.0698	0.0698	3	32.8	10	100	100	0.0233	0.0233	0.0021	0.0070	0.0007	0.0007	No	No	No	No
	December	0.0722	0.0722	3	32.8	10	100	100	0.0241	0.0241	0.0022	0.0072	0.0007	0.0007	No	No	No	No
Post-Closure Phase (36-99)	January	0.0722	0.0727	3	32.8	10	100	100	0.0241	0.0242	0.0022	0.0073	0.0007	0.0007	No	No	No	No
	February	0.109	0.109	3	32.8	10	100	100	0.0363	0.0363	0.0033	0.0109	0.0011	0.0011	No	No	No	No
	March	0.0214	0.0214	3	32.8	10	100	100	0.0071	0.0071	0.0007	0.0021	0.0002	0.0002	No	No	No	No
	April	0.0450	0.0450	3	32.8	10	100	100	0.0150	0.0150	0.0014	0.0045	0.0005	0.0005	No	No	No	No
	May	0.0237	0.0237	3	32.8	10	100	100	0.0079	0.0079	0.0007	0.0024	0.0002	0.0002	No	No	No	No
	June	0.0063	0.0063	3	32.8	10	100	100	0.0021	0.0021	0.0002	0.0006	0.0001	0.0001	No	No	No	No
	July	0.0100	0.0101	3	32.8	10	100	100	0.0033	0.0034	0.0003	0.0010	0.0001	0.0001	No	No	No	No
	August	0.0419	0.0422	3	32.8	10	100	100	0.0140	0.0141	0.0013	0.0042	0.0004	0.0004	No	No	No	No
	September	0.0584	0.0594	3	32.8	10	100	100	0.0195	0.0198	0.0018	0.0059	0.0006	0.0006	No	No	No	No
	October	0.0361	0.0364	3	32.8	10	100	100	0.0120	0.0121	0.0011	0.0036	0.0004	0.0004	No	No	No	No
	November	0.0697	0.0698	3	32.8	10	100	100	0.0232	0.0233	0.0021	0.0070	0.0007	0.0007	No	No	No	No
	December	0.0723	0.0724	3	32.8	10	100	100	0.0241	0.0241	0.0022	0.0072	0.0007	0.0007	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline

Appendix 13-D25ab. Lower Baker Creek (BK0) Hazard Quotients for Nitrite Concentrations, Upper Bound Case

		First Screening Step													Retained as COPC?			
Project Phase	Months	Predicted Concentrations		Aquatic Life Guidelines ¹		Drinking Water Quality Guidelines	BC MOE Working Water Quality Guidelines for Wildlife Water Supply	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline			Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Water Quality Guidelines for Wildlife Water Supply	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Wildlife	Livestock
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum				BC DWQG	Maximum	BC MOE Maximum							
		Mean	Maximum	BC MOE 30-Day Mean	BC MOE Maximum	BC DWQG	Maximum	BC MOE Maximum	Mean Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE 30-Day Mean Guideline	Maximum Predicted vs BC MOE Maximum Guideline	Maximum predicted vs. BC DWQG	Maximum Predicted vs. BC MOE Maximum Guideline	Maximum Predicted vs BC MOE Maximum Guideline				
Construction (-2 to-1)	January	0.0049	0.0050	0.02	0.06	1	10	10	0.243	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0038	0.0039	0.02	0.06	1	10	10	0.192	0.193	0.0643	0.0039	0.0004	0.0004	No	No	No	No
	May	0.0011	0.0012	0.02	0.06	1	10	10	0.0555	0.0583	0.0194	0.0012	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0012	0.02	0.06	1	10	10	0.0571	0.0592	0.0197	0.0012	0.0001	0.0001	No	No	No	No
	July	0.0013	0.0014	0.02	0.06	1	10	10	0.0653	0.0689	0.0230	0.0014	0.0001	0.0001	No	No	No	No
	August	0.0024	0.0026	0.02	0.06	1	10	10	0.119	0.130	0.0433	0.0026	0.0003	0.0003	No	No	No	No
	September	0.0035	0.0038	0.02	0.06	1	10	10	0.176	0.192	0.0640	0.0038	0.0004	0.0004	No	No	No	No
	October	0.0030	0.0031	0.02	0.06	1	10	10	0.149	0.156	0.0521	0.0031	0.0003	0.0003	No	No	No	No
	November	0.0019	0.0020	0.02	0.06	1	10	10	0.0929	0.102	0.0340	0.0020	0.0002	0.0002	No	No	No	No
	December	0.0034	0.0037	0.02	0.06	1	10	10	0.168	0.184	0.0612	0.0037	0.0004	0.0004	No	No	No	No
Operation 1 Phase (1-23)	January	0.0039	0.0044	0.02	0.06	1	10	10	0.194	0.222	0.0741	0.0044	0.0004	0.0004	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0038	0.0038	0.02	0.06	1	10	10	0.190	0.191	0.0635	0.0038	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0503	0.0511	0.0170	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0011	0.02	0.06	1	10	10	0.0528	0.0537	0.0179	0.0011	0.0001	0.0001	No	No	No	No
	July	0.0012	0.0012	0.02	0.06	1	10	10	0.0578	0.0592	0.0197	0.0012	0.0001	0.0001	No	No	No	No
	August	0.0018	0.0020	0.02	0.06	1	10	10	0.0917	0.0991	0.0330	0.0020	0.0002	0.0002	No	No	No	No
	September	0.0020	0.0028	0.02	0.06	1	10	10	0.100	0.139	0.0463	0.0028	0.0003	0.0003	No	No	No	No
	October	0.0026	0.0027	0.02	0.06	1	10	10	0.130	0.136	0.0453	0.0027	0.0003	0.0003	No	No	No	No
	November	0.0014	0.0015	0.02	0.06	1	10	10	0.0688	0.0769	0.0256	0.0015	0.0002	0.0002	No	No	No	No
	December	0.0026	0.0028	0.02	0.06	1	10	10	0.129	0.139	0.0462	0.0028	0.0003	0.0003	No	No	No	No
Operations 2 Phase (24-28)	January	0.0037	0.0038	0.02	0.06	1	10	10	0.187	0.188	0.0628	0.0038	0.0004	0.0004	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0038	0.0038	0.02	0.06	1	10	10	0.190	0.191	0.0635	0.0038	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0502	0.0502	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0011	0.02	0.06	1	10	10	0.0526	0.0527	0.0176	0.0011	0.0001	0.0001	No	No	No	No
	July	0.0012	0.0012	0.02	0.06	1	10	10	0.0577	0.0578	0.0193	0.0012	0.0001	0.0001	No	No	No	No
	August	0.0018	0.0018	0.02	0.06	1	10	10	0.0899	0.0905	0.0302	0.0018	0.0002	0.0002	No	No	No	No
	September	0.0018	0.0018	0.02	0.06	1	10	10	0.0884	0.0920	0.0307	0.0018	0.0002	0.0002	No	No	No	No
	October	0.0026	0.0026	0.02	0.06	1	10	10	0.128	0.129	0.0428	0.0026	0.0003	0.0003	No	No	No	No
	November	0.0013	0.0013	0.02	0.06	1	10	10	0.0667	0.0671	0.0224	0.0013	0.0001	0.0001	No	No	No	No
	December	0.0025	0.0025	0.02	0.06	1	10	10	0.127	0.127	0.0425	0.0025	0.0003	0.0003	No	No	No	No
Closure Phase (29-35)	January	0.0038	0.0038	0.02	0.06	1	10	10	0.189	0.190	0.0634	0.0038	0.0004	0.0004	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0038	0.0038	0.02	0.06	1	10	10	0.190	0.190	0.0635	0.0038	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0502	0.0502	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0011	0.02	0.06	1	10	10	0.0527	0.0528	0.0176	0.0011	0.0001	0.0001	No	No	No	No
	July	0.0012	0.0012	0.02	0.06	1	10	10	0.0580	0.0581	0.0194	0.0012	0.0001	0.0001	No	No	No	No
	August	0.0018	0.0018	0.02	0.06	1	10	10	0.0910	0.0914	0.0305	0.0018	0.0002	0.0002	No	No	No	No
	September	0.0019	0.0019	0.02	0.06	1	10	10	0.0948	0.0967	0.0322	0.0019	0.0002	0.0002	No	No	No	No
	October	0.0026	0.0026	0.02	0.06	1	10	10	0.129	0.129	0.0430	0.0026	0.0003	0.0003	No	No	No	No
	November	0.0013	0.0014	0.02	0.06	1	10	10	0.0675	0.0677	0.0226	0.0014	0.0001	0.0001	No	No	No	No
	December	0.0026	0.0026	0.02	0.06	1	10	10	0.128	0.128	0.0426	0.0026	0.0003	0.0003	No	No	No	No
Post-Closure Phase (36-99)	January	0.0038	0.0038	0.02	0.06	1	10	10	0.189	0.191	0.0635	0.0038	0.0004	0.0004	No	No	No	No
	February	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	March	0.0050	0.0050	0.02	0.06	1	10	10	0.250	0.250	0.0833	0.0050	0.0005	0.0005	No	No	No	No
	April	0.0038	0.0038	0.02	0.06	1	10	10	0.190	0.190	0.0635	0.0038	0.0004	0.0004	No	No	No	No
	May	0.0010	0.0010	0.02	0.06	1	10	10	0.0502	0.0502	0.0167	0.0010	0.0001	0.0001	No	No	No	No
	June	0.0011	0.0011	0.02	0.06	1	10	10	0.0527	0.0528	0.0176	0.0011	0.0001	0.0001	No	No	No	No
	July	0.0012	0.0012	0.02	0.06	1	10	10	0.0579	0.0581	0.0194	0.0012	0.0001	0.0001	No	No	No	No
	August	0.0018	0.0018	0.02	0.06	1	10	10	0.0906	0.0915	0.0305	0.0018	0.0002	0.0002	No	No	No	No
	September	0.0018	0.0019	0.02	0.06	1	10	10	0.0924	0.0975	0.0325	0.0019	0.0002	0.0002	No	No	No	No
	October	0.0026	0.0026	0.02	0.06	1	10	10	0.129	0.129	0.0431	0.0026	0.0003	0.0003	No	No	No	No
	November	0.0013	0.0014	0.02	0.06	1	10	10	0.0670	0.0678	0.0226	0.0014	0.0001	0.0001	No	No	No	No
	December	0.0025	0.0026	0.02	0.06	1	10	10	0.127	0.128	0.0427	0.0026	0.0003	0.0003	No	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are chloride dependent

Appendix 13-D25ac. Lower Baker Creek (BK0) Hazard Quotients for Ammonia Concentrations, Upper Bound Case

		First Screening Step							Retained as COPC?
		Aquatic Life Guidelines ¹			Hazard Quotient relative to Aquatic Life Guideline				
Project Phase	Months	Predicted Concentrations		BC MOE 30-Day	BC MOE Maximum	Maximum Predicted			Aquatic Life
		Mean	Maximum			Mean Predicted vs. BC MOE Working 30-Day Mean Guideline	vs. BC MOE Working 30-Day Mean Guideline	Maximum Predicted vs. BC MOE Working Maximum Guideline	
Construction (-2 to-1)	January	0.0220	0.0225	0.636	3.27	0.0346	0.0354	0.0069	No
	February	0.0229	0.0229	0.508	2.64	0.0451	0.0451	0.0087	No
	March	0.0168	0.0191	0.620	3.22	0.0271	0.0308	0.0059	No
	April	0.0115	0.0117	0.759	3.15	0.0151	0.0155	0.0037	No
	May	0.0170	0.0171	1.18	6.14	0.0144	0.0145	0.0028	No
	June	0.0091	0.0092	0.914	4.75	0.0099	0.0101	0.0019	No
	July	0.0124	0.0127	0.714	3.71	0.0174	0.0177	0.0034	No
	August	0.0599	0.0623	0.571	2.97	0.105	0.109	0.0210	No
	September	0.0235	0.0236	0.575	2.99	0.0408	0.0411	0.0079	No
	October	0.0136	0.0142	0.594	3.09	0.0229	0.0239	0.0046	No
	November	0.0087	0.0095	0.636	3.31	0.0137	0.0150	0.0029	No
	December	0.0150	0.0164	0.628	3.27	0.0239	0.0262	0.0050	No
Operation 1 Phase (1-23)	January	0.0168	0.0199	0.636	3.27	0.0265	0.0314	0.0061	No
	February	0.0213	0.0228	0.508	2.64	0.0418	0.0449	0.0086	No
	March	0.0052	0.0089	0.620	3.22	0.0085	0.0144	0.0028	No
	April	0.0109	0.0110	0.759	3.15	0.0144	0.0146	0.0035	No
	May	0.0169	0.0169	1.18	6.14	0.0143	0.0143	0.0028	No
	June	0.0088	0.0088	0.914	4.75	0.0096	0.0096	0.0019	No
	July	0.0121	0.0121	0.714	3.71	0.0169	0.0169	0.0033	No
	August	0.0683	0.0694	0.571	2.97	0.120	0.122	0.0234	No
	September	0.0252	0.0258	0.575	2.99	0.0439	0.0449	0.0086	No
	October	0.0119	0.0124	0.594	3.09	0.0201	0.0209	0.0040	No
	November	0.0067	0.0073	0.636	3.31	0.0105	0.0116	0.0022	No
	December	0.0113	0.0123	0.628	3.27	0.0181	0.0195	0.0038	No
Operations 2 Phase (24-28)	January	0.0161	0.0162	0.636	3.27	0.0253	0.0255	0.0050	No
	February	0.0210	0.0210	0.508	2.64	0.0413	0.0413	0.0080	No
	March	0.0051	0.0051	0.620	3.22	0.0082	0.0082	0.0016	No
	April	0.0109	0.0109	0.759	3.15	0.0143	0.0143	0.0034	No
	May	0.0169	0.0169	1.18	6.14	0.0143	0.0143	0.0027	No
	June	0.0088	0.0088	0.914	4.75	0.0096	0.0096	0.0018	No
	July	0.0121	0.0121	0.714	3.71	0.0169	0.0169	0.0033	No
	August	0.0690	0.0692	0.571	2.97	0.121	0.121	0.0233	No
	September	0.0256	0.0257	0.575	2.99	0.0445	0.0447	0.0086	No
	October	0.0118	0.0118	0.594	3.09	0.0199	0.0199	0.0038	No
	November	0.0065	0.0066	0.636	3.31	0.0103	0.0103	0.0020	No
	December	0.0112	0.0112	0.628	3.27	0.0178	0.0179	0.0034	No
Closure Phase (29-35)	January	0.0164	0.0165	0.636	3.27	0.0257	0.0259	0.0050	No
	February	0.0210	0.0210	0.508	2.64	0.0413	0.0413	0.0080	No
	March	0.0051	0.0051	0.620	3.22	0.0082	0.0082	0.0016	No
	April	0.0109	0.0109	0.759	3.15	0.0143	0.0143	0.0035	No
	May	0.0169	0.0169	1.18	6.14	0.0143	0.0143	0.0027	No
	June	0.0088	0.0088	0.914	4.75	0.0096	0.0096	0.0018	No
	July	0.0121	0.0121	0.714	3.71	0.0169	0.0169	0.0033	No
	August	0.0686	0.0688	0.571	2.97	0.120	0.120	0.0232	No
	September	0.0254	0.0255	0.575	2.99	0.0442	0.0444	0.0085	No
	October	0.0119	0.0119	0.594	3.09	0.0200	0.0200	0.0038	No
	November	0.0066	0.0066	0.636	3.31	0.0104	0.0104	0.0020	No
	December	0.0112	0.0113	0.628	3.27	0.0179	0.0179	0.0034	No
Post-Closure Phase (36-99)	January	0.0163	0.0165	0.636	3.27	0.0256	0.0259	0.0050	No
	February	0.0210	0.0210	0.508	2.64	0.0413	0.0413	0.0080	No
	March	0.0051	0.0051	0.620	3.22	0.0082	0.0082	0.0016	No
	April	0.0109	0.0109	0.759	3.15	0.0143	0.0143	0.0035	No
	May	0.0169	0.0169	1.18	6.14	0.0143	0.0143	0.0027	No
	June	0.0088	0.0088	0.914	4.75	0.0096	0.0096	0.0018	No
	July	0.0121	0.0121	0.714	3.71	0.0169	0.0169	0.0033	No
	August	0.0687	0.0690	0.571	2.97	0.120	0.121	0.0232	No
	September	0.0255	0.0256	0.575	2.99	0.0443	0.0445	0.0086	No
	October	0.0118	0.0119	0.594	3.09	0.0199	0.0200	0.0038	No
	November	0.0065	0.0066	0.636	3.31	0.0103	0.0104	0.0020	No
	December	0.0112	0.0113	0.628	3.27	0.0178	0.0180	0.0034	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
¹ Guidelines are pH and temperature dependent

Appendix 13-D25ad. Lower Baker Creek (BK0) Hazard Quotients for Sulphate Concentrations, Upper Bound Case

Project Phase	Months	First Screening Step								Retained as COPC?			
		Predicted Concentrations		Aquatic Life Guidelines ¹	Drinking Water Quality Guidelines	BC MOE Livestock Watering Water Quality Guideline	Hazard Quotient relative to Aquatic Life Guideline		Hazard Quotient relative to Drinking Water Quality Guidelines	Hazard Quotient relative to BC MOE Livestock Watering Water Quality Guideline	Aquatic Life	Drinking Water	Livestock
		Mean	Maximum				Mean Predicted vs. BC MOE 30-Day Mean Guideline	Maximum Predicted vs. BC MOE 30-Day Mean Guideline					
Construction (-2 to-1)	January	18.4	18.9	309	500	1000	0.0597	0.0612	0.0378	0.0189	No	No	No
	February	20.3	20.3	309	500	1000	0.0656	0.0657	0.0406	0.0203	No	No	No
	March	20.2	20.4	309	500	1000	0.0654	0.0660	0.0408	0.0204	No	No	No
	April	11.4	11.6	309	500	1000	0.0368	0.0374	0.0231	0.0116	No	No	No
	May	5.14	5.32	309	500	1000	0.0166	0.0172	0.0106	0.0053	No	No	No
	June	4.71	4.85	309	500	1000	0.0152	0.0157	0.0097	0.0049	No	No	No
	July	6.12	6.35	309	500	1000	0.0198	0.0206	0.0127	0.0064	No	No	No
	August	9.24	9.95	309	500	1000	0.0299	0.0322	0.0199	0.0099	No	No	No
	September	12.6	13.6	309	500	1000	0.0409	0.0439	0.0272	0.0136	No	No	No
	October	9.41	10.0	309	500	1000	0.0304	0.0323	0.0199	0.0100	No	No	No
	November	10.1	10.6	309	500	1000	0.0328	0.0342	0.0211	0.0106	No	No	No
	December	13.5	14.3	309	500	1000	0.0437	0.0462	0.0285	0.0143	No	No	No
Operation 1 Phase (1-23)	January	13.8	17.3	309	500	1000	0.0447	0.0559	0.0346	0.0173	No	No	No
	February	10.3	19.6	309	500	1000	0.0332	0.0634	0.0392	0.0196	No	No	No
	March	19.3	19.6	309	500	1000	0.0624	0.0633	0.0391	0.0196	No	No	No
	April	11.0	11.1	309	500	1000	0.0357	0.0358	0.0221	0.0111	No	No	No
	May	4.79	4.86	309	500	1000	0.0155	0.0157	0.0097	0.0049	No	No	No
	June	4.42	4.49	309	500	1000	0.0143	0.0145	0.0090	0.0045	No	No	No
	July	5.64	5.77	309	500	1000	0.0182	0.0187	0.0115	0.0058	No	No	No
	August	7.59	8.05	309	500	1000	0.0246	0.0260	0.0161	0.0080	No	No	No
	September	9.39	10.5	309	500	1000	0.0304	0.0341	0.0211	0.0105	No	No	No
	October	8.11	8.43	309	500	1000	0.0263	0.0273	0.0169	0.0084	No	No	No
	November	9.24	9.41	309	500	1000	0.0299	0.0305	0.0188	0.0094	No	No	No
	December	10.9	11.7	309	500	1000	0.0351	0.0377	0.0233	0.0117	No	No	No
Operations 2 Phase (24-28)	January	14.2	15.3	309	500	1000	0.0459	0.0495	0.0306	0.0153	No	No	No
	February	8.78	8.78	309	500	1000	0.0284	0.0284	0.0176	0.0088	No	No	No
	March	19.3	19.3	309	500	1000	0.0624	0.0624	0.0386	0.0193	No	No	No
	April	11.1	11.1	309	500	1000	0.0358	0.0358	0.0221	0.0111	No	No	No
	May	4.78	4.79	309	500	1000	0.0155	0.0155	0.0096	0.0048	No	No	No
	June	4.46	4.48	309	500	1000	0.0144	0.0145	0.0090	0.0045	No	No	No
	July	5.78	5.84	309	500	1000	0.0187	0.0189	0.0117	0.0058	No	No	No
	August	8.08	8.28	309	500	1000	0.0262	0.0268	0.0166	0.0083	No	No	No
	September	10.1	10.5	309	500	1000	0.0325	0.0340	0.0210	0.0105	No	No	No
	October	8.46	8.61	309	500	1000	0.0274	0.0279	0.0172	0.0086	No	No	No
	November	9.60	9.73	309	500	1000	0.0311	0.0315	0.0195	0.0097	No	No	No
	December	11.5	11.8	309	500	1000	0.0372	0.0383	0.0236	0.0118	No	No	No
Closure Phase (29-35)	January	15.3	15.6	309	500	1000	0.0496	0.0503	0.0311	0.0156	No	No	No
	February	8.78	8.78	309	500	1000	0.0284	0.0284	0.0176	0.0088	No	No	No
	March	19.3	19.3	309	500	1000	0.0624	0.0624	0.0386	0.0193	No	No	No
	April	11.1	11.1	309	500	1000	0.0358	0.0358	0.0221	0.0111	No	No	No
	May	4.79	4.79	309	500	1000	0.0155	0.0155	0.0096	0.0048	No	No	No
	June	4.47	4.48	309	500	1000	0.0145	0.0145	0.0090	0.0045	No	No	No
	July	5.81	5.84	309	500	1000	0.0188	0.0189	0.0117	0.0058	No	No	No
	August	8.18	8.28	309	500	1000	0.0265	0.0268	0.0166	0.0083	No	No	No
	September	10.4	10.5	309	500	1000	0.0336	0.0341	0.0211	0.0105	No	No	No
	October	8.53	8.59	309	500	1000	0.0276	0.0278	0.0172	0.0086	No	No	No
	November	9.65	9.71	309	500	1000	0.0312	0.0314	0.0194	0.0097	No	No	No
	December	11.7	11.8	309	500	1000	0.0377	0.0382	0.0236	0.0118	No	No	No
Post-Closure Phase (36-99)	January	13.6	15.1	309	500	1000	0.0439	0.0488	0.0302	0.0151	No	No	No
	February	8.78	8.78	309	500	1000	0.0284	0.0284	0.0176	0.0088	No	No	No
	March	19.3	19.3	309	500	1000	0.0624	0.0624	0.0385	0.0193	No	No	No
	April	11.0	11.1	309	500	1000	0.0358	0.0358	0.0221	0.0111	No	No	No
	May	4.78	4.79	309	500	1000	0.0155	0.0155	0.0096	0.0048	No	No	No
	June	4.42	4.47	309	500	1000	0.0143	0.0145	0.0089	0.0045	No	No	No
	July	5.66	5.79	309	500	1000	0.0183	0.0187	0.0116	0.0058	No	No	No
	August	7.65	8.10	309	500	1000	0.0247	0.0262	0.0162	0.0081	No	No	No
	September	9.44	10.3	309	500	1000	0.0305	0.0333	0.0206	0.0103	No	No	No
	October	8.15	8.47	309	500	1000	0.0264	0.0274	0.0169	0.0085	No	No	No
	November	9.30	9.59	309	500	1000	0.0301	0.0310	0.0192	0.0096	No	No	No
	December	10.9	11.5	309	500	1000	0.0353	0.0373	0.0231	0.0115	No	No	No

Notes:
 All concentrations in mg/L.
 Grey shading indicates a hazard quotient > 1.0
 BC MOE = British Columbia Ministry of Environment
 DWQG = Drinking water quality guideline
¹ Guidelines are hardness dependent