

## **Appendix K**

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### **Food Web Model Tables**

Table K-1. Food-web model exposure results for Arctic fox exposed to mean CoPC concentrations at reference site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammals (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	514	3,650	22.6	0.145	11.3	2.49	13.9	4.35	1.9	19	2.3	0.23
Antimony	0.045	0.208	0.004	0.0000127	0.000642	0.000442	0.00110	0.000343	0.66	--	0.00052	--
Arsenic (arsenate)	0.717	3.61	0.118	0.000202	0.0112	0.0130	0.0244	0.00761	0.40	1.6	0.019	0.0048
Arsenic (arsenite)	0.717	3.61	0.118	0.000202	0.0112	0.0130	0.0244	0.00761	0.13	1.3	0.059	0.0059
Barium	125	346	45.4	0.0353	1.07	5.01	6.12	1.91	5.1	20	0.37	0.096
Cadmium	0.0333	0.379	0.326	0.00000940	0.00117	0.0360	0.0372	0.0116	1.0	10	0.012	0.0012
Chromium	1.17	6.76	0.975	0.000329	0.0209	0.108	0.129	0.0403	3.3	69	0.012	0.00058
Cobalt	0.693	7.97	0.177	0.000196	0.0247	0.0196	0.0444	0.0139	0.50	2.0	0.028	0.0069
Lead	0.512	10.2	4.64	0.000144	0.0317	0.512	0.544	0.170	11	90	0.015	0.0019
Mercury	0.05	0.0935	0.0288	0.0000141	0.000289	0.00318	0.00348	0.00109	0.032	0.16	0.034	0.0068
Molybdenum	0.0883	0.689	0.457	0.0000249	0.00213	0.0505	0.0527	0.0165	0.26	2.6	0.063	0.0063
Selenium	0.267	0.594	0.825	0.0000752	0.00184	0.0912	0.0931	0.0291	0.20	0.33	0.15	0.088
Thallium	0.011	0.0769	0.00625	0.00000310	0.000238	0.000691	0.000932	0.000291	0.074	0.74	0.0039	0.00039
Vanadium	1.57	14.5	0.4	0.000442	0.0447	0.0442	0.0894	0.0279	0.21	2.1	0.13	0.013
Zinc	3.16	60.8	110	0.000892	0.188	12.2	12.4	3.87	160	320	0.024	0.012

**Note:** The following data were used to develop this scenario: PHASE2RA Reference Investigation Unit (Terrestrial) creek/pond water, tundra soil, and small mammal data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-2. Food-web model exposure results for Arctic fox exposed to 95% UCL CoPC concentrations at reference site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammals (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	2,770 <sup>a</sup>	5,590	78.4 <sup>a</sup>	0.781	17.3	8.66	26.7	8.36	1.9	19	4.4	0.44
Antimony	0.0765	0.241	0.00635	0.0000216	0.000747	0.000702	0.00147	0.000460	0.66	--	0.00070	--
Arsenic (arsenate)	1.36	5.31	0.14 <sup>a</sup>	0.000384	0.0164	0.0155	0.0323	0.0101	0.40	1.6	0.025	0.0063
Arsenic (arsenite)	1.36	5.31	0.14 <sup>a</sup>	0.000384	0.0164	0.0155	0.0323	0.0101	0.13	1.3	0.078	0.0078
Barium	177	417	55.7 <sup>a</sup>	0.0499	1.29	6.16	7.50	2.34	5.1	20	0.46	0.12
Cadmium	0.0580	0.477	0.730	0.0000163	0.00147	0.0806	0.0821	0.0257	1.0	10	0.026	0.0026
Chromium	3.71 <sup>a</sup>	11.8	1.63	0.00105	0.0366	0.180	0.218	0.0680	3.3	69	0.021	0.00099
Cobalt	1.79	11.3	0.201	0.000505	0.0351	0.0222	0.0578	0.0180	0.50	2.0	0.036	0.0090
Lead	1.91 <sup>a</sup>	12.5	15.9	0.000539 <sup>a</sup>	0.0388	1.76	1.80	0.561	11	90	0.051	0.0062
Mercury	0.05 <sup>a</sup>	0.109	0.039	0.0000141 <sup>a</sup>	0.000337	0.00431	0.00466	0.00146	0.032	0.16	0.046	0.0091
Molybdenum	0.158	0.881	0.605	0.0000447	0.00273	0.0668	0.0696	0.0217	0.26	2.6	0.084	0.0084
Selenium	0.366	0.693	1.1	0.000103 <sup>a</sup>	0.00214	0.122	0.124	0.0387	0.20	0.33	0.19	0.12
Thallium	0.04 <sup>a</sup>	0.0919	0.007	0.0000113 <sup>a</sup>	0.000285	0.000774	0.00107	0.000334	0.074	0.74	0.0045	0.00045
Vanadium	5.57 <sup>a</sup>	19.0	0.4	0.00157 <sup>a</sup>	0.0587	0.0442	0.104	0.0326	0.21	2.1	0.16	0.016
Zinc	6.26	68.4	120	0.00176	0.212	13.2	13.4	4.20	160	320	0.026	0.013

**Note:** The following data were used to develop this scenario: PHASE2RA Reference Investigation Unit (Terrestrial) creek/pond water, tundra soil, and small mammal data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL concentration.

Table K-3. Food-web model exposure results for Arctic fox exposed to mean CoPC concentrations at port site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammals (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	35.5	5,610	474	0.0100	17.4	52.4	69.7	21.8	1.9	19	11	1.1
Antimony	0.307	5.83	0.0308	0.0000865	0.0180	0.00341	0.0215	0.00673	0.66	--	0.010	--
Arsenic (arsenate)	0.494	16.7	0.125	0.000139	0.0515	0.0139	0.0655	0.0205	0.40	1.6	0.051	0.013
Arsenic (arsenite)	0.494	16.7	0.125	0.000139	0.0515	0.0139	0.0655	0.0205	0.13	1.3	0.16	0.016
Barium	44.8	597	43.2	0.0126	1.85	4.77	6.63	2.07	5.1	20	0.41	0.10
Cadmium	0.120	15.1	0.271	0.0000337	0.0467	0.0300	0.0767	0.0240	1.0	10	0.024	0.0024
Chromium	0.799	11.1	2.72	0.000225	0.0344	0.301	0.335	0.105	3.3	69	0.032	0.0015
Cobalt	0.903	11.4	0.264	0.000255	0.0354	0.0291	0.0648	0.0202	0.50	2.0	0.040	0.010
Lead	0.462	792	11.6	0.000130	2.45	1.28	3.73	1.17	11	90	0.11	0.013
Mercury	0.0393	0.779	0.0298	0.0000111	0.00241	0.00330	0.00572	0.00179	0.032	0.16	0.056	0.011
Molybdenum	0.793	1.41	0.708	0.000224	0.00435	0.0782	0.0828	0.0259	0.26	2.6	0.099	0.0099
Selenium	0.523	7.71	0.308	0.000148	0.0239	0.0340	0.0580	0.0181	0.20	0.33	0.091	0.055
Thallium	0.0095	0.354	0.0115	0.00000268	0.00110	0.00127	0.00237	0.000739	0.074	0.74	0.010	0.0010
Vanadium	0.285	14.1	0.462	0.0000804	0.0437	0.0510	0.0948	0.0296	0.21	2.1	0.14	0.014
Zinc	22.2	2,490	124	0.00627	7.71	13.7	21.4	6.68	160	320	0.042	0.021

**Note:** The following data were used to develop this scenario: PHASE2RA Port Investigation Unit creek/pond water, tundra soil, and small mammal data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-4. Food-web model exposure results for Arctic fox exposed to 95% UCL CoPC concentrations at port site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammals (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	103	7,820	940	0.0290	24.2	104	128	40.0	1.9	19	21	2.1
Antimony	0.630 <sup>a</sup>	8.20	0.0426	0.000178	0.0254	0.00471	0.0303	0.00946	0.66	--	0.014	--
Arsenic (arsenate)	0.6 <sup>a</sup>	22.9	0.139	0.000169	0.0707	0.0154	0.0863	0.0270	0.40	1.6	0.067	0.017
Arsenic (arsenite)	0.6 <sup>a</sup>	22.9	0.139	0.000169	0.0707	0.0154	0.0863	0.0270	0.13	1.3	0.21	0.021
Barium	70.3 <sup>a</sup>	817	58.2	0.0198	2.53	6.43	8.97	2.80	5.1	20	0.55	0.14
Cadmium	0.245	27.6	0.393	0.0000691	0.0855	0.0434	0.129	0.0403	1.0	10	0.040	0.0040
Chromium	1.56 <sup>a</sup>	16.4	3.15	0.000440	0.0508	0.348	0.399	0.125	3.3	69	0.038	0.0018
Cobalt	1.56 <sup>a</sup>	14.3	0.313	0.000440	0.0443	0.0346	0.0793	0.0248	0.50	2.0	0.050	0.012
Lead	1.63 <sup>a</sup>	2,100	18.1	0.000460	6.51	2.00	8.51	2.66	11	90	0.24	0.030
Mercury	0.05 <sup>a</sup>	3.23	0.0447	0.0000141	0.00999	0.00494	0.0149	0.00467	0.032	0.16	0.15	0.029
Molybdenum	2.27 <sup>a</sup>	1.68	0.824	0.000640	0.00520	0.0911	0.0969	0.0303	0.26	2.6	0.12	0.012
Selenium	1.17 <sup>a</sup>	20.3	0.397	0.000330	0.0627	0.0438	0.107	0.0334	0.20	0.33	0.17	0.10
Thallium	0.0155 <sup>a</sup>	0.581	0.0173	0.00000437	0.00180	0.00191	0.00372	0.00116	0.074	0.74	0.016	0.0016
Vanadium	0.335 <sup>a</sup>	19.0	0.536	0.0000945	0.0589	0.0592	0.118	0.0369	0.21	2.1	0.18	0.018
Zinc	72.6	4,590	136	0.0205	14.2	15.0	29.2	9.12	160	320	0.057	0.029

**Note:** The following data were used to develop this scenario: PHASE2RA Port Investigation Unit creek/pond water, tundra soil, and small mammal data.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL concentration.

Table K-5. Food-web model exposure results for Arctic fox exposed to mean CoPC concentrations at road site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammals (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	167	1,510	113	0.0471	4.67	12.5	17.2	5.39	1.9	19	2.8	0.28
Antimony	0.131	0.775	0.0195	0.0000370	0.00240	0.00215	0.00459	0.00143	0.66	--	0.0022	--
Arsenic (arsenate)	0.552	2.55	0.113	0.000156	0.00788	0.0125	0.0206	0.00642	0.40	1.6	0.016	0.0040
Arsenic (arsenite)	0.552	2.55	0.113	0.000156	0.00788	0.0125	0.0206	0.00642	0.13	1.3	0.049	0.0049
Barium	80.9	1,210	54.7	0.0228	3.73	6.05	9.80	3.06	5.1	20	0.60	0.15
Cadmium	0.089	2.89	0.308	0.0000251	0.00894	0.0340	0.0430	0.0134	1.0	10	0.013	0.0013
Chromium	0.9	5.05	1.52	0.000254	0.0156	0.168	0.183	0.0573	3.3	69	0.017	0.00083
Cobalt	0.166	5.81	0.146	0.0000468	0.0180	0.0161	0.0341	0.0107	0.50	2.0	0.021	0.0053
Lead	0.455	121	4.85	0.000128	0.374	0.536	0.910	0.284	11	90	0.026	0.0032
Mercury	0.0233	0.190	2.37	0.00000656	0.000588	0.262	0.263	0.0821	0.032	0.16	2.6	0.51
Molybdenum	0.613	1.14	0.438	0.000173	0.00353	0.0484	0.0521	0.0163	0.26	2.6	0.063	0.0063
Selenium	0.147	0.725	0.583	0.0000415	0.00224	0.0645	0.0667	0.0209	0.20	0.33	0.10	0.063
Thallium	0.0562	0.156	0.00933	0.0000158	0.000483	0.00103	0.00153	0.000478	0.074	0.74	0.0065	0.00065
Vanadium	0.450	7.95	0.483	0.000127	0.0246	0.0534	0.0781	0.0244	0.21	2.1	0.12	0.012
Zinc	7.16	582	105	0.00202	1.80	11.7	13.5	4.20	160	320	0.026	0.013

**Note:** The following data were used to develop this scenario: PHASE2RA Road Investigation Unit creek/pond water, tundra soil, and small mammal data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-6. Food-web model exposure results for Arctic fox exposed to 95% UCL CoPC concentrations at road site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammals (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	178	2,660 <sup>a</sup>	198	0.0503	8.23	21.8	30.1	9.41	1.9	19	5.0	0.50
Antimony	0.215	0.883	0.0314	0.000606	0.00273	0.00347	0.00626	0.00196	0.66	--	0.0030	--
Arsenic (arsenate)	0.674	3.51	0.156	0.000190	0.0109	0.0172	0.0282	0.00882	0.40	1.6	0.022	0.0055
Arsenic (arsenite)	0.674	3.51	0.156	0.000190	0.0109	0.0172	0.0282	0.00882	0.13	1.3	0.068	0.0068
Barium	136	1,750	69.4	0.0385	5.41	7.67	13.1	4.10	5.1	20	0.80	0.21
Cadmium	0.124	3.85	1.02	0.0000351	0.0119	0.112	0.124	0.0389	1.0	10	0.039	0.0039
Chromium	2.67	9.69 <sup>a</sup>	2.10	0.000754	0.0300	0.232	0.263	0.0823	3.3	69	0.025	0.0012
Cobalt	0.259	7.13	0.192	0.000731	0.0221	0.0212	0.0434	0.0135	0.50	2.0	0.027	0.0068
Lead	1.10	173	7.38	0.000309	0.535	0.815	1.35	0.422	11	90	0.038	0.0047
Mercury	0.0297	0.223	10.2	0.00000838	0.000691	1.13	1.13	0.354	0.032	0.16	11	2.2
Molybdenum	1.07	1.37	0.532	0.000302	0.00423	0.0588	0.0633	0.0198	0.26	2.6	0.076	0.0076
Selenium	0.675	0.880	0.906	0.000190	0.00272	0.100	0.103	0.0322	0.20	0.33	0.16	0.098
Thallium	0.296	0.246	0.0150	0.0000836	0.000760	0.00166	0.00250	0.000782	0.074	0.74	0.011	0.0011
Vanadium	0.545	10.4	0.651	0.000154	0.0322	0.0720	0.104	0.0326	0.21	2.1	0.16	0.016
Zinc	13.5	799	120	0.00381	2.47	13.3	15.7	4.92	160	320	0.031	0.015

**Note:** The following data were used to develop this scenario: PHASE2RA Road Investigation Unit creek/pond water, tundra soil, and small mammal data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL concentration.

Table K-7. Food-web model exposure results for caribou exposed to mean CoPC concentrations at reference site

Analyte	Concentration						Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	
		Sediment (mg/kg dw)							Sediment (mg/day)							Food (mg/day)
Aluminum	514	3,650	304	10.1	66.3	354	3.41	1,240	566	1,810	16.9	1.9	19	8.9	0.89	
Antimony	0.045	0.208	0.0457	0.0319	0.0442	0.103	0.000299	0.0706	0.245	0.316	0.00295	0.66	--	0.0045	--	
Arsenic (arsenate)	0.717	3.61	1.63	0.0313	0.11	0.233	0.00476	1.23	1.33	2.56	0.0240	0.40	1.6	0.060	0.015	
Arsenic (arsenite)	0.717	3.61	1.63	0.0313	0.11	0.233	0.00476	1.23	1.33	2.56	0.0240	0.13	1.3	0.18	0.018	
Barium	125	346	54.6	50.7	26.4	91.1	0.832	118	191	309	2.89	5.1	20	0.57	0.14	
Cadmium	0.0333	0.379	0.0818	0.378	0.142	0.327	0.000221	0.129	0.890	1.02	0.00953	1.0	10	0.0095	0.00095	
Chromium	1.17	6.76	7.46	0.3	0.2	1.87	0.00776	2.30	5.52	7.82	0.0731	3.3	69	0.022	0.0011	
Cobalt	0.693	7.97	1.31	2.36	0.142	1.03	0.00460	2.71	2.84	5.55	0.0519	0.50	2.0	0.10	0.026	
Lead	0.512	10.2	0.794	0.293	3.78	8.00	0.00340	3.48	17.8	21.3	0.199	11	90	0.018	0.0022	
Mercury	0.05	0.0935	0.0323	0.0509	0.0478	0.0573	0.000332	0.0318	0.238	0.270	0.00252	0.032	0.16	0.079	0.016	
Molybdenum	0.0883	0.689	0.411	0.160	0.224	0.23	0.000586	0.234	1.18	1.42	0.0133	0.26	2.6	0.051	0.0051	
Selenium	0.267	0.594	0.155	0.0625	0.108	0.1	0.00177	0.202	0.538	0.742	0.00693	0.20	0.33	0.035	0.021	
Thallium	0.011	0.0769	0.0278	0.00213	0.012	0.0263	0.0000730	0.0262	0.0701	0.0964	0.000901	0.074	0.74	0.012	0.0012	
Vanadium	1.57	14.5	1.51	0.25	0.317	1.00	0.0104	4.92	2.49	7.41	0.0693	0.21	2.1	0.33	0.033	
Zinc	3.16	60.8	33.1	88.6	34.8	55.6	0.0210	20.7	211	231	2.16	160	320	0.014	0.0068	

**Note:** The following data were used to develop this scenario: PHASE2RA Reference Investigation Unit (terrestrial) creek/pond water, tundra soil, moss, lichen, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value



Table K-8. Food-web model exposure results for caribou exposed to 95% UCL CoPC concentrations at reference site

Analyte	Concentration						Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Lichen (mg/kg dw)	Moss <sup>a</sup> (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	2,770 <sup>a</sup>	5,590	1,130	15.0	96.2	713	18.4	1,900	1,270	3,190	29.8	1.9	19	16	1.6
Antimony	0.0765	0.241	0.0605	0.0375	0.0540	0.15	0.000508	0.0821	0.313	0.396	0.00370	0.66	--	0.0056	--
Arsenic (arsenate)	1.36	5.31	6.56	0.0336	0.151	0.3	0.00905	1.81	3.97	5.79	0.0541	0.40	1.6	0.14	0.034
Arsenic (arsenite)	1.36	5.31	6.56	0.0336	0.151	0.3	0.00905	1.81	3.97	5.79	0.0541	0.13	1.3	0.42	0.042
Barium	177	417	72.0	65.7	34.6	119	1.18	142	250	393	3.67	5.1	20	0.72	0.18
Cadmium	0.0580	0.477	0.132	0.502	0.189	0.38	0.000385	0.162	1.17	1.33	0.0124	1.0	10	0.012	0.0012
Chromium	3.71 <sup>a</sup>	11.8	28.0	0.378	0.2 <sup>a</sup>	2.96	0.0246	4.02	16.3	20.4	0.191	3.3	69	0.058	0.0028
Cobalt	1.79	11.3	3.37	5.51	0.209	2.03	0.0119	3.85	6.19	10.1	0.0939	0.50	2.0	0.19	0.047
Lead	1.91 <sup>a</sup>	12.5	1.23	0.584	5.71	9.64	0.0127	4.26	25.7	30.0	0.280	11	90	0.025	0.0031
Mercury	0.05 <sup>a</sup>	0.109	0.0357	0.0582	0.0651	0.067	0.000332	0.0370	0.308	0.346	0.00323	0.032	0.16	0.10	0.020
Molybdenum	0.158	0.881	0.546	0.259	0.902 <sup>a</sup>	0.3	0.00105	0.300	3.71	4.01	0.0375	0.26	2.6	0.14	0.014
Selenium	0.366	0.693	0.362	0.0780	0.2 <sup>a</sup>	0.1	0.00243	0.236	0.970	1.21	0.0113	0.20	0.33	0.056	0.034
Thallium	0.04 <sup>a</sup>	0.0919	0.0756	0.003 <sup>a</sup>	0.0166	0.04	0.000266	0.0313	0.117	0.149	0.00139	0.074	0.74	0.019	0.0019
Vanadium	5.57 <sup>a</sup>	19.0	7.6 <sup>a</sup>	0.286	0.350	1.73	0.0370	6.45	6.03	12.5	0.117	0.21	2.1	0.56	0.056
Zinc	6.26	68.4	37.0	109	44.1	64	0.0415	23.3	259	283	2.64	160	320	0.017	0.0083

**Note:** The following data were used to develop this scenario: PHASE2RA Reference Investigation Unit (terrestrial) creek/pond water, tundra soil, moss, lichen, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL concentration.

Table K-9. Food-web model exposure results for caribou exposed to mean CoPC concentrations at port site

Analyte	Concentration						Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	35.5	5,610	31.3	30.9	717	7,750	0.236	1,910	6,420	8,320	77.8	32.0	9.97	41.9	1.9	19	2.2	2.2
Antimony	0.307	5.83	0.174	0.09	0.954	1.68	0.00204	1.98	4.31	6.30	0.0588	0.0242	0.00174	0.0259	0.66	--	0.039	--
Arsenic (arsenate)	0.494	16.7	0.137	0.0588	0.911	4.81	0.00328	5.66	5.69	11.4	0.106	0.0436	0.0141	0.0578	0.40	1.6	0.14	0.036
Arsenic (arsenite)	0.494	16.7	0.137	0.0588	0.911	4.81	0.00328	5.66	5.69	11.4	0.106	0.0436	0.0141	0.0578	0.13	1.3	0.44	0.044
Barium	44.8	597	33.6	35.1	305	750	0.297	203	1,480	1,680	15.7	6.45	1.70	8.15	5.1	20	1.6	0.41
Cadmium	0.120	15.1	0.287	3.24	3.76	11.2	0.000794	5.13	20.6	25.7	0.240	0.0987	0.00561	0.104	1.0	10	0.10	0.010
Chromium	0.799	11.1	1.01	0.25	3.16	11.8	0.00530	3.77	17.6	21.3	0.199	0.0820	0.0431	0.125	3.3	69	0.038	0.0018
Cobalt	0.903	11.4	1.87	0.91	0.948	4.42	0.00600	3.89	6.92	10.8	0.101	0.0415	0.0306	0.0721	0.50	2.0	0.14	0.036
Lead	0.462	792	6.85	7.59	141	376	0.00307	269	689	958	8.95	3.68	0.117	3.80	11	90	0.35	0.042
Mercury	0.0393	0.779	0.0398	0.04	0.099	0.390	0.000261	0.265	0.581	0.846	0.00791	0.00325	0.00149	0.00474	0.032	0.16	0.15	0.030
Molybdenum	0.793	1.41	0.284	0.121	0.319	0.612	0.00527	0.478	1.63	2.11	0.0197	0.00810	0.00781	0.0159	0.26	2.6	0.061	0.0061
Selenium	0.523	7.71	0.132	0.113	0.286	0.36	0.00347	2.62	1.30	3.93	0.0367	0.0151	0.00408	0.0192	0.20	0.33	0.096	0.058
Thallium	0.0095	0.354	0.0116	0.00388	0.0486	0.246	0.0000631	0.120	0.301	0.421	0.00394	0.00162	0.000530	0.00215	0.074	0.74	0.029	0.0029
Vanadium	0.285	14.1	0.214	0.238	1.81	5.48	0.00189	4.80	9.31	14.1	0.132	0.0542	0.0408	0.0950	0.21	2.1	0.45	0.045
Zinc	22.2	2,490	95.3	290	654	1,650	0.148	848	3,300	4,150	38.8	15.9	1.27	17.2	160	320	0.11	0.054

**Note:** The following data were used to develop this scenario: PHASE2RA Port Investigation Unit creek/pond water, tundra soil, moss, lichen, sedge (whole and blades), and willow/birch data. Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for caribou in reference site (Table K-7) multiplied by 0.59.

Table K-10. Food-web model exposure results for caribou exposed to 95% UCL CoPC concentrations at port site

Analyte	Concentration						Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	103	7,820	54.3	70.6	1,550	18,500	0.682	2,660	14,700	17,400	163	66.8	17.5	84.4	1.9	19	44	4.4
Antimony	0.630 <sup>b</sup>	8.20	0.295	0.157	1.53	3.27	0.00418	2.79	7.22	10.0	0.0936	0.0385	0.00218	0.0406	0.66	--	0.062	--
Arsenic (arsenate)	0.6 <sup>b</sup>	22.9	0.274	0.0826	1.33	9.51	0.00398	7.77	9.59	17.4	0.162	0.0667	0.0319	0.0986	0.40	1.6	0.25	0.062
Arsenic (arsenite)	0.6 <sup>b</sup>	22.9	0.274	0.0826	1.33	9.51	0.00398	7.77	9.59	17.4	0.162	0.0667	0.0319	0.0986	0.13	1.3	0.76	0.076
Barium	70.3 <sup>b</sup>	817	61.3	50.7	520	1,450	0.467	278	2,600	2,880	26.9	11.1	2.16	13.2	5.1	20	2.6	0.66
Cadmium	0.245	27.6	0.664	7.63	4.97	15.8	0.00163	9.39	29.4	38.8	0.363	0.149	0.00733	0.157	1.0	10	0.16	0.016
Chromium	1.56 <sup>b</sup>	16.4	5.87	0.312	9.14	20.6	0.0104	5.58	45.4	51.0	0.477	0.196	0.112	0.308	3.3	69	0.093	0.0045
Cobalt	1.56 <sup>b</sup>	14.3	17.7	1.56	1.51	8.19	0.0104	4.87	19.0	23.9	0.223	0.0918	0.0553	0.147	0.50	2.0	0.29	0.074
Lead	1.63 <sup>b</sup>	2,100	14.5	14.9	190	522	0.0108	715	942	1,660	15.5	6.37	0.165	6.53	11	90	0.59	0.073
Mercury	0.0500 <sup>b</sup>	3.23	0.0446	0.0451	0.125	0.760	0.000332	1.10	0.864	1.96	0.0183	0.00753	0.00190	0.00944	0.032	0.16	0.29	0.059
Molybdenum	2.27 <sup>b</sup>	1.68	0.356	0.159	0.436	0.948	0.0151	0.572	2.26	2.85	0.0266	0.0109	0.0221	0.0330	0.26	2.6	0.13	0.013
Selenium	1.17 <sup>b</sup>	20.3	0.169	0.136	0.385	0.626	0.00777	6.89	1.81	8.71	0.0814	0.0334	0.00665	0.0401	0.20	0.33	0.20	0.12
Thallium	0.0155 <sup>b</sup>	0.581	0.0271	0.00820	0.0730	0.462	0.000103	0.198	0.504	0.702	0.00656	0.00270	0.000819	0.00352	0.074	0.74	0.048	0.0048
Vanadium	0.335 <sup>b</sup>	19.0	0.231	0.272	3.28	9.96	0.00222	6.47	16.7	23.2	0.217	0.0891	0.0689	0.158	0.21	2.1	0.75	0.075
Zinc	72.6	4,590	194	373	868	2,250	0.482	1,560	4,450	6,010	56.1	23.1	1.56	24.6	160	320	0.15	0.077

Note: The following data were used to develop this scenario: PHASE2RA Port Investigation Unit creek/pond water, tundra soil, moss, lichen, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Based on 95% UCL daily exposure for caribou in reference site (Table K-8) multiplied by 0.59.

<sup>b</sup> Maximum concentration used in place of the 95 percent UCL concentration.

Table K-11. Food-web model exposure results for caribou exposed to mean CoPC concentrations at road site

Analyte	Concentration						Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. <sup>a</sup> (mg/kg-day)	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	167	1,510	285	77.7	746	10,600	1.11	513	8,070	8,590	80.3	33.0	9.97	42.9	1.9	19	2.3	2.3
Antimony	0.131	0.775	0.118	0.114	0.565	0.653	0.000871	0.263	2.42	2.68	0.0251	0.0103	0.00174	0.0120	0.66	--	0.018	--
Arsenic (arsenate)	0.552	2.55	0.452	0.115	0.944	2.88	0.00366	0.866	5.03	5.89	0.0551	0.0226	0.0141	0.0368	0.40	1.6	0.092	0.023
Arsenic (arsenite)	0.552	2.55	0.452	0.115	0.944	2.88	0.00366	0.866	5.03	5.89	0.0551	0.0226	0.0141	0.0368	0.13	1.3	0.28	0.028
Barium	80.9	1210	119	101	461	1,290	0.537	410	2,370	2,780	26.0	10.7	1.70	12.4	5.1	20	2.4	0.62
Cadmium	0.0889	2.89	0.239	2.46	1.23	4.05	0.000590	0.983	7.69	8.67	0.0810	0.0333	0.00561	0.0389	1.0	10	0.039	0.0039
Chromium	0.9	5.05	4.88	0.575	3.59	11.6	0.00597	1.72	21.1	22.8	0.213	0.0876	0.0431	0.131	3.3	69	0.040	0.0019
Cobalt	0.166	5.81	0.698	1.69	1.50	2.99	0.00110	1.97	7.93	9.91	0.0926	0.0380	0.0306	0.0686	0.50	2.0	0.14	0.034
Lead	0.455	121	5.88	4.95	45.5	153	0.00302	41.1	241	282	2.63	1.08	0.117	1.20	11	90	0.11	0.013
Mercury	0.0233	0.190	0.0412	0.0441	0.0743	0.123	0.000154	0.0646	0.364	0.429	0.00401	0.00165	0.00149	0.00313	0.032	0.16	0.098	0.020
Molybdenum	0.613	1.14	0.533	0.309	0.495	0.663	0.00407	0.387	2.48	2.88	0.0269	0.0110	0.00781	0.0189	0.26	2.6	0.073	0.0073
Selenium	0.147	0.725	0.16	0.14	0.225	0.333	0.000976	0.247	1.10	1.35	0.0126	0.00519	0.00408	0.00927	0.20	0.33	0.046	0.028
Thallium	0.0562	0.156	0.0412	0.0081	0.0605	0.156	0.000373	0.0531	0.314	0.368	0.00344	0.00141	0.000530	0.00194	0.074	0.74	0.026	0.0026
Vanadium	0.450	7.95	0.83	0.355	2.95	6.95	0.00299	2.70	14.4	17.1	0.160	0.0657	0.0408	0.106	0.21	2.1	0.51	0.051
Zinc	7.16	582	59.4	193	195	643	0.0475	198	1,130	1,330	12.4	5.10	1.27	6.37	160	320	0.040	0.020

**Note:** The following data were used to develop this scenario: PHASE2RA Road Investigation Unit creek/pond water, tundra soil, moss, lichen, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for caribou in reference site (Table K-7) multiplied by 0.59.

Table K-12. Food-web model exposure results for caribou exposed to 95% UCL CoPC concentrations at road site

Analyte	Concentration						Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
	Aluminum	178	2,660 <sup>b</sup>	1,050	156 <sup>b</sup>	1,670	18,400	1.18	904						15,700	16,600	155	63.6
Antimony	0.215	0.883	0.236	0.224	0.830	0.99 <sup>b</sup>	0.00143	0.300	3.63	3.93	0.0368	0.0151	0.00218	0.0173	0.66	--	0.026	--
Arsenic (arsenate)	0.674	3.51	1.16	0.233	1.42	5.37	0.00447	1.19	8.36	9.56	0.0893	0.0367	0.0319	0.0686	0.40	1.6	0.17	0.043
Arsenic (arsenite)	0.674	3.51	1.16	0.233	1.42	5.37	0.00447	1.19	8.36	9.56	0.0893	0.0367	0.0319	0.0686	0.13	1.3	0.53	0.053
Barium	136	1,750	197	154	794	2,530 <sup>b</sup>	0.906	595	4,220	4,820	45.0	18.5	2.16	20.7	5.1	20	4.1	1.0
Cadmium	0.124	3.85	0.484	3.53	2.78	6.93	0.000826	1.31	15.2	16.5	0.154	0.0634	0.00733	0.0707	1.0	10	0.071	0.0071
Chromium	2.67	9.69 <sup>b</sup>	13.1	0.967	11.2	19.5 <sup>b</sup>	0.0178	3.29	55.8	59.1	0.553	0.227	0.112	0.339	3.3	69	0.10	0.0049
Cobalt	0.259	7.13	1.83	2.60	2.38	5.61 <sup>b</sup>	0.00172	2.42	13.3	15.8	0.147	0.0605	0.0553	0.116	0.50	2.0	0.23	0.058
Lead	1.10	173	13.8	9.21	83.9	261	0.00729	58.8	436	495	4.62	1.90	0.165	2.06	11	90	0.19	0.023
Mercury	0.0297	0.223	0.0508	0.0497	0.0973	0.180 <sup>b</sup>	0.000197	0.0759	0.481	0.557	0.00520	0.00214	0.00190	0.00404	0.032	0.16	0.13	0.025
Molybdenum	1.07	1.37	0.733	0.376	0.674	0.88 <sup>b</sup>	0.00710	0.464	3.35	3.82	0.0357	0.0147	0.0221	0.0368	0.26	2.6	0.14	0.014
Selenium	0.675	0.880	0.293	0.181	0.469	0.6 <sup>b</sup>	0.00448	0.299	2.18	2.48	0.0232	0.00953	0.00665	0.0162	0.20	0.33	0.081	0.049
Thallium	0.296	0.246	0.153	0.0182	0.0839	0.265 <sup>b</sup>	0.00197	0.0836	0.512	0.597	0.00558	0.00229	0.000819	0.00311	0.074	0.74	0.042	0.0042
Vanadium	0.545	10.4	1.81	0.472	6.98	12.3 <sup>b</sup>	0.00362	3.54	31.7	35.3	0.329	0.135	0.0689	0.204	0.21	2.1	0.97	0.097
Zinc	13.5	799	72.4	231	320	1,070	0.0896	272	1,810	2,080	19.4	7.99	1.56	9.54	160	320	0.060	0.030

Note: The following data were used to develop this scenario: PHASE2RA Road Investigation Unit creek/pond water, tundra soil, moss, lichen, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Based on 95% UCL daily exposure for caribou in reference site (Table K-8) multiplied by 0.59.

<sup>b</sup> Maximum concentration used in place of the 95 percent UCL concentration.

Table K-13. Food-web model exposure results for caribou exposed to mean CoPC concentrations at mine site

Analyte	Concentration						Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
	Aluminum	191	5,150	10.4	13.2	928	8,240	1.26	1,750						7,380	9,130	85.4	35.1
Antimony	0.063	2.82	0.0368	0.047	2.23	1.29	0.000418	0.958	8.48	9.44	0.0882	0.0362	0.00174	0.0380	0.66	--	0.058	--
Arsenic (arsenate)	0.482	6.77	0.0367	0.03	2.04	4.22	0.00320	2.30	9.28	11.6	0.108	0.0445	0.0141	0.0586	0.40	1.6	0.15	0.037
Arsenic (arsenite)	0.482	6.77	0.0367	0.03	2.04	4.22	0.00320	2.30	9.28	11.6	0.108	0.0445	0.0141	0.0586	0.13	1.3	0.45	0.045
Barium	135	3,200	75.0	44.7	1,360	953	0.896	1,090	5,290	6,380	59.6	24.5	1.70	26.2	5.1	20	5.1	1.3
Cadmium	0.0365	9.27	0.209	3.34	5.50	8.57	0.000242	3.15	25.3	28.5	0.266	0.109	0.00561	0.115	1.0	10	0.11	0.011
Chromium	0.396	10.2	0.233	0.263	3.7	11.7	0.00263	3.48	19.0	22.5	0.211	0.0865	0.0431	0.130	3.3	69	0.039	0.0019
Cobalt	0.0125	4.65	0.0583	0.601	0.984	3.88	0.0000830	1.58	5.71	7.29	0.0682	0.0280	0.0306	0.0586	0.50	2.0	0.12	0.029
Lead	0.369	552	2.40	1.61	316	339	0.00245	188	1,280	1,470	13.7	5.63	0.117	5.74	11	90	0.52	0.064
Mercury	0.0179	0.360	0.0307	0.0473	0.185	0.290	0.000119	0.123	0.830	0.953	0.00891	0.00366	0.00149	0.00515	0.032	0.16	0.16	0.032
Molybdenum	0.23	8.09	0.810	0.411	0.663	0.631	0.00153	2.75	3.25	6.00	0.0561	0.0230	0.00781	0.0309	0.26	2.6	0.12	0.012
Selenium	0.348	1.63	0.139	0.05	0.4	0.35	0.00231	0.554	1.67	2.23	0.0208	0.00855	0.00408	0.0126	0.20	0.33	0.063	0.038
Thallium	0.0575	0.860	0.00878	0.00513	0.361	0.212	0.000382	0.292	1.38	1.67	0.0156	0.00641	0.000530	0.00694	0.074	0.74	0.094	0.0094
Vanadium	0.633	18.4	0.256	0.225	2.91	6.03	0.00420	6.24	13.4	19.7	0.184	0.0756	0.0408	0.116	0.21	2.1	0.55	0.055
Zinc	1.48	1,500	65.3	182	682	924	0.00983	509	2,970	3,480	32.5	13.4	1.27	14.6	160	320	0.092	0.046

**Note:** The following data were used to develop this scenario: PHASE2RA Mine Investigation Unit creek/pond water, tundra soil, moss, lichen, sedge (whole and blades), and willow/birch data. For Al and Cr in tundra soil and Sb, Ba, Cr, Co, Hg, Mo, Se, Ti, V in moss, no mine data available, so "whole site" means were used. Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for caribou in reference site (Table K-7) multiplied by 0.59.

Table K-14. Food-web model exposure results for caribou exposed to 95% UCL CoPC concentrations at mine site

Analyte	Concentration						Daily Exposure				BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water <sup>b</sup> (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)					NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
	Aluminum	208	7,150	12.8	25.7	1,820	39,100 <sup>b</sup>	1.38	2,430	25,900					28,400	265	109	17.5
Antimony	0.063	8.87	0.0460	0.0699	5.98	2.61	0.000418	3.02	22.3	25.3	0.237	0.0972	0.00218	0.0994	0.66	--	0.15	--
Arsenic (arsenate)	0.482	9.72	0.0469	0.03 <sup>b</sup>	3.19	7.65	0.00320	3.31	15.0	18.3	0.171	0.0705	0.0319	0.102	0.40	1.6	0.26	0.064
Arsenic (arsenite)	0.482	9.72	0.0469	0.03 <sup>b</sup>	3.19	7.65	0.00320	3.31	15.0	18.3	0.171	0.0705	0.0319	0.102	0.13	1.3	0.79	0.079
Barium	140	6,950 <sup>b</sup>	92.0	82.4	1,920	1,540	0.929	2,360	7,580	9,940	92.9	38.2	2.16	40.4	5.1	20	7.9	2.0
Cadmium	0.0365	29.0	0.300	4.18	9.05	11.0	0.000242	9.85	39.4	49.3	0.460	0.189	0.00733	0.197	1.0	10	0.20	0.020
Chromium	0.396	14.7	0.264	0.324	7.78	17.1	0.00263	4.99	36.1	41.1	0.384	0.158	0.112	0.270	3.3	69	0.082	0.0039
Cobalt	0.015	6.40	0.0794	1.27	1.42	6.14	0.0000996	2.18	8.7	10.9	0.102	0.0418	0.0553	0.0971	0.50	2.0	0.19	0.049
Lead	0.65	1,220	5.10	4.97	690	461	0.00432	416	2,650	3,070	28.6	11.8	0.165	11.9	11	90	1.1	0.13
Mercury	0.0179	0.929	0.0363	0.0522	0.434	0.588	0.000119	0.316	1.86	2.17	0.0203	0.00835	0.00190	0.0102	0.032	0.16	0.32	0.064
Molybdenum	0.24	21.4	1.12	0.757	1.10	0.824	0.00159	7.29	5.21	12.5	0.117	0.0480	0.0221	0.0701	0.26	2.6	0.27	0.027
Selenium	0.355	2.17	0.330	0.05 <sup>b</sup>	0.738	0.518	0.00236	0.738	3.03	3.77	0.0352	0.0145	0.00665	0.0211	0.20	0.33	0.11	0.064
Thallium	0.09	1.390	0.0165	0.00713	0.662	0.337	0.000597	0.472	2.50	2.97	0.0278	0.0114	0.000819	0.0122	0.074	0.74	0.17	0.017
Vanadium	0.93	24.9	0.288	0.256	5.71	9.16	0.00617	8.47	24.8	33.3	0.311	0.128	0.0689	0.197	0.21	2.1	0.94	0.094
Zinc	1.79	6,770 <sup>b</sup>	91.2	238	1,450	1,240	0.0119	2,300	5,850	8,150	76.1	31.3	1.56	32.8	160	320	0.21	0.10

**Note:** The following data were used to develop this scenario: PHASE2RA Mine Investigation Unit creek/pond water, tundra soil, moss, lichen, sedge (whole and blades), and willow/birch data.

For Al and Cr in tundra soil and Sb, Ba, Cr, Co, Hg, Mo, Se, Ti, V in moss, no mine data available, so "whole site" 95% UCLs (or max) were used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Based on 95% UCL daily exposure for caribou in reference site (Table K-8) multiplied by 0.59.

<sup>b</sup> Maximum concentration used in place of the 95 percent UCL concentration.

Table K-15. Food-web model exposure results for caribou exposed to mean CoPC concentrations at the whole site

Analyte	Concentration						Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	159	5,150	103	43.4	815	10,000	1.06	1,750	7,940	9,690	90.6	37.2	9.97	47.2	1.9	19	25	2.5
Antimony	0.154	3.29	0.120	0.0860	1.37	1.29	0.00102	1.12	5.55	6.67	0.0624	0.0256	0.00174	0.0274	0.66	--	0.041	--
Arsenic (arsenate)	0.533	10.0	0.205	0.0715	1.40	3.88	0.00354	3.41	6.97	10.4	0.0970	0.0399	0.0141	0.0540	0.40	1.6	0.13	0.034
Arsenic (arsenite)	0.533	10.0	0.205	0.0715	1.40	3.88	0.00354	3.41	6.97	10.4	0.0970	0.0399	0.0141	0.0540	0.13	1.3	0.42	0.042
Barium	80.9	1,150	70.8	63.6	799	953	0.537	390	3,340	3,730	34.9	14.3	1.70	16.0	5.1	20	3.1	0.80
Cadmium	0.0901	13.5	0.251	2.98	3.58	5.88	0.000598	4.58	17.1	21.7	0.202	0.0832	0.00561	0.0888	1.0	10	0.089	0.0089
Chromium	0.823	10.2	1.97	0.379	3.52	11.7	0.00546	3.48	19.3	22.8	0.213	0.0877	0.0431	0.131	3.3	69	0.040	0.0019
Cobalt	0.278	8.23	1.02	1.12	1.13	3.88	0.00185	2.80	6.97	9.77	0.0913	0.0375	0.0306	0.0681	0.50	2.0	0.14	0.034
Lead	0.454	704	5.34	5.24	170	211	0.00302	239	704	944	8.82	3.62	0.117	3.74	11	90	0.34	0.042
Mercury	0.0255	0.405	0.0377	0.0438	0.128	0.290	0.000169	0.138	0.632	0.770	0.00720	0.00296	0.00149	0.00444	0.032	0.16	0.14	0.028
Molybdenum	0.600	2.02	0.503	0.282	0.519	0.631	0.00398	0.687	2.52	3.21	0.0300	0.0123	0.00781	0.0202	0.26	2.6	0.078	0.0078
Selenium	0.202	3.99	0.142	0.104	0.315	0.35	0.00134	1.36	1.40	2.76	0.0258	0.0106	0.00408	0.0147	0.20	0.33	0.073	0.044
Thallium	0.0513	0.316	0.0198	0.00588	0.184	0.212	0.000340	0.107	0.764	0.872	0.00815	0.00335	0.000530	0.00388	0.074	0.74	0.052	0.0052
Vanadium	0.442	11.9	0.412	0.279	2.63	6.03	0.00294	4.04	12.6	16.6	0.155	0.0637	0.0408	0.105	0.21	2.1	0.50	0.050
Zinc	7.97	2,240	76.2	229	528	882	0.0529	760	2,440	3,200	29.9	12.3	1.27	13.6	160	320	0.085	0.042

Note: The following data were used to develop this scenario: PHASE2RA whole site creek/pond water, tundra soil, moss, lichen, sedge (whole and blades), and willow/birch data.

"Whole site" data set comprises all data from port, road, and mine investigation units.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for caribou in reference site (Table K-7) multiplied by 0.59.



Table K-16. Food-web model exposure results for caribou exposed to 95% UCL CoPC concentrations at the whole site

Analyte	Concentration						Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
	Aluminum	494	7,150	162	146	1,160	17,100	3.28	2,430						12,800	15,200	142	58.3
Antimony	0.280	6.93	0.391	0.118	1.99	2.61	0.00186	2.36	8.51	10.9	0.102	0.0417	0.00218	0.0439	0.66	--	0.067	--
Arsenic (arsenate)	0.618	12.9	0.875	0.128	1.87	5.53	0.00410	4.38	9.80	14.2	0.133	0.0545	0.0319	0.0863	0.40	1.6	0.22	0.054
Arsenic (arsenite)	0.618	12.9	0.875	0.128	1.87	5.53	0.00410	4.38	9.80	14.2	0.133	0.0545	0.0319	0.0863	0.13	1.3	0.66	0.066
Barium	118	1,690	90.4	85.0	1,200	1,540	0.786	575	5,060	5,640	52.7	21.7	2.16	23.8	5.1	20	4.7	1.2
Cadmium	0.125	24.3	0.350	4.06	4.79	9.85	0.000828	8.26	23.9	32.2	0.301	0.124	0.00733	0.131	1.0	10	0.13	0.013
Chromium	2.10	14.7	9.33	0.681	12.9	17.1	0.0139	4.99	58.8	63.8	0.596	0.245	0.112	0.357	3.3	69	0.11	0.0052
Cobalt	0.489	9.78	7.80	1.56	1.54	6.14	0.00324	3.32	13.2	16.5	0.154	0.0633	0.0553	0.119	0.50	2.0	0.24	0.059
Lead	1.05	1,410	11.9	10.3	241	346	0.00699	480	1,030	1,510	14.1	5.80	0.165	5.96	11	90	0.54	0.066
Mercury	0.0314	0.794	0.0414	0.0467	0.159	0.588	0.000208	0.270	0.895	1.17	0.0109	0.00448	0.00190	0.00638	0.032	0.16	0.20	0.040
Molybdenum	1.01	4.08	0.629	0.365	0.680	0.824	0.00670	1.39	3.29	4.68	0.0437	0.0180	0.0221	0.0401	0.26	2.6	0.15	0.015
Selenium	0.771	9.26	0.217	0.155	0.391	0.518	0.00512	3.15	1.81	4.97	0.0464	0.0191	0.00665	0.0257	0.20	0.33	0.13	0.078
Thallium	0.250	0.500	0.106	0.00842	0.314	0.337	0.00166	0.170	1.32	1.50	0.0140	0.00574	0.000819	0.00656	0.074	0.74	0.089	0.0089
Vanadium	0.531	14.3	1.02	0.321	3.84	9.16	0.00352	4.87	18.7	23.6	0.220	0.0905	0.0689	0.159	0.21	2.1	0.76	0.076
Zinc	15.8	4,040	122	266	699	1,450	0.105	1,380	3,360	4,740	44.3	18.2	1.56	19.8	160	320	0.12	0.062

Note: The following data were used to develop this scenario: PHASE2RA whole site creek/pond water, tundra soil, moss, lichen, sedge (whole and blades), and willow/birch data.

"Whole site" data set comprises all data from port, road, and mine investigation units.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Based on 95% UCL daily exposure for caribou in reference site (Table K-8) multiplied by 0.59.

Table K-17. Food-web model exposure results for brant exposed to mean CoPC concentrations at the Control Lagoon

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	182	11,100	21.4	354	0.0123	122	5.07	127	103	120	--	0.86	--
Antimony	0.12	0.0767	0.0207	0.103	0.00000813	0.000839	0.00331	0.00416	0.00338	--	--	--	--
Arsenic (arsenite)	76.3	8.2	0.11	0.233	0.00517	0.0898	0.0155	0.110	0.0898	20	50	0.0045	0.0018
Arsenic (arsenate)	76.3	8.2	0.11	0.233	0.00517	0.0898	0.0155	0.110	0.0898	10	40	0.0090	0.0022
Barium	156	226	31.6	91.1	0.0106	2.47	4.61	7.10	5.77	21	42	0.27	0.14
Cadmium	0.05	0.46	0.0913	0.327	0.00000339	0.00503	0.0138	0.0188	0.0153	1.5	20	0.010	0.00076
Chromium	7.16	19.6	0.4	1.87	0.000485	0.215	0.0632	0.278	0.226	0.86	4.3	0.26	0.053
Cobalt	4.39	6.83	0.627	1.03	0.000298	0.0748	0.0863	0.161	0.131	--	--	--	--
Lead	0.17	9.65	1.45	8.00	0.0000115	0.106	0.237	0.343	0.279	3.9	11	0.071	0.025
Mercury	0.05	0.05	0.041	0.0573	0.00000339	0.000547	0.00558	0.00613	0.00499	0.032	0.064	0.16	0.078
Molybdenum	0.08	0.773	0.35	0.23	0.00000542	0.00846	0.0459	0.0544	0.0442	3.5	35	0.013	0.0013
Selenium	0.2	1.1	0.117	0.1	0.0000136	0.0120	0.0155	0.0275	0.0224	0.40	0.80	0.056	0.028
Thallium	0.008	0.081	0.004	0.0263	0.000000542	0.000887	0.000683	0.00157	0.00128	0.24	24	0.0053	0.000053
Vanadium	0.4	25.2	0.2	1.00	0.0000271	0.276	0.0321	0.308	0.251	11	--	0.023	--
Zinc (TRV1)	19	79.3	43.8	55.6	0.00129	0.868	5.93	6.79	5.52	130	--	0.042	--
Zinc (TRV2)	19	79.3	43.8	55.6	0.00129	0.868	5.93	6.79	5.52	70	120	0.079	0.046

**Note:** The following data were used to develop this scenario: PSCHAR control lagoon water (Cd, Pb, Zn), and PHASE1RA reference lagoon water for all other analytes; PSCHAR sediment; PHASE2RA sediment; PHASE1RA moss (mean for terrestrial reference area); and PHASE2RA whole sedge/grass.

Whole sedge and grass plant data averaged for whole lagoon. Mean of sediment from PHASE2RA and PSCHAR used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-18. Food-web model exposure results for brant exposed to mean CoPC concentrations at the Reference Lagoon

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	182	11,100	10.6	354	0.0123	122	3.71	126	102	120	--	0.85	--
Antimony	0.12	0.0767	0.0225	0.103	0.00000813	0.000839	0.00354	0.00439	0.00357	--	--	--	--
Arsenic (arsenite)	76.3	4.43	0.03	0.233	0.00517	0.0484	0.00536	0.0590	0.0479	20	50	0.0024	0.00096
Arsenic (arsenate)	76.3	4.43	0.03	0.233	0.00517	0.0484	0.00536	0.0590	0.0479	10	40	0.0048	0.0012
Barium	156	226	17.6	91.1	0.0106	2.47	2.83	5.32	4.32	21	42	0.21	0.10
Cadmium	0.223	0.345	0.053	0.327	0.0000151	0.00378	0.00890	0.0127	0.0103	1.5	20	0.0069	0.00052
Chromium	7.16	19.6	0.35	1.87	0.000485	0.215	0.0569	0.272	0.221	0.86	4.3	0.26	0.051
Cobalt	4.39	6.83	0.205	1.03	0.000298	0.0748	0.0328	0.108	0.0877	--	--	--	--
Lead	0.363	10.1	0.755	8.00	0.0000246	0.110	0.149	0.259	0.211	3.9	11	0.054	0.019
Mercury	0.05	0.05	0.0535	0.0573	0.00000339	0.000547	0.00717	0.00772	0.00627	0.032	0.064	0.20	0.098
Molybdenum	0.08	0.773	0.088	0.23	0.00000542	0.00846	0.0127	0.0212	0.0172	3.5	35	0.0049	0.00049
Selenium	0.2	1.1	0.05	0.1	0.0000136	0.0120	0.00701	0.0191	0.0155	0.40	0.80	0.039	0.019
Thallium	0.008	0.081	0.0025	0.0263	0.000000542	0.000887	0.000493	0.00138	0.00112	0.24	24	0.0047	0.000047
Vanadium	0.4	25.2	0.2	1.00	0.0000271	0.276	0.0321	0.308	0.251	11	--	0.023	--
Zinc (TRV1)	22.9	92.2	35.4	55.6	0.00155	1.01	4.86	5.87	4.77	130	--	0.037	--
Zinc (TRV2)	22.9	92.2	35.4	55.6	0.00155	1.01	4.86	5.87	4.77	70	120	0.068	0.040

**Note:** The following data were used to develop this scenario: PHASE1RA water; PHASE1RA and PHASE2RA sediment; PHASE1RA moss (mean for terrestrial reference area); and PHASE2RA whole sedge/grass (CL-REF-1).

Sediment concentrations are means of PHASE2RA and PHASE1RA data from reference lagoons.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-19. Food-web model exposure results for brant exposed to mean CoPC concentrations at the Port Lagoon North

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	44.1	5,590	9.7	4,460	0.00299	61.1	31.0	92.1	74.9	25.9	66.9	92.8	120	--	0.77	--
Antimony	0.545	0.225	0.0385	4.58	0.0000369	0.00246	0.0354	0.0379	0.0309	0.0107	0.00234	0.0130	--	--	--	--
Arsenic (arsenite)	26.7	7.05	0.08	4.7	0.00181	0.0772	0.0415	0.120	0.0980	0.0338	0.0314	0.0652	20	50	0.0033	0.0013
Arsenic (arsenate)	26.7	7.05	0.08	4.7	0.00181	0.0772	0.0415	0.120	0.0980	0.0338	0.0314	0.0652	10	40	0.0065	0.0016
Barium	412	252	17	885	0.0279	2.76	8.06	10.8	8.82	3.04	2.83	5.88	21	42	0.28	0.14
Cadmium	0.0933	3.00	0.056	37.2	0.00000633	0.0328	0.255	0.288	0.234	0.0809	0.00676	0.0876	1.5	20	0.058	0.0044
Chromium	1.84	10.3	0.25	16.3	0.000124	0.112	0.140	0.253	0.206	0.0710	0.145	0.216	0.86	4.3	0.25	0.050
Cobalt	1.32	5.49	0.09	9.35	0.0000891	0.0601	0.0738	0.134	0.109	0.0376	0.0575	0.0951	--	--	--	--
Lead	1.90	94.9	1.29	1720	0.000129	1.04	11.6	12.7	10.3	3.56	0.138	3.70	3.9	11	0.95	0.34
Mercury	0.05	0.148	0.0355	1.04	0.00000339	0.00162	0.0114	0.0131	0.0106	0.00367	0.00411	0.00778	0.032	0.064	0.24	0.12
Molybdenum	0.545	0.77	0.154	0.88	0.0000369	0.00843	0.0254	0.0339	0.0275	0.00950	0.0113	0.0208	3.5	35	0.0059	0.00059
Selenium	0.45	0.8	0.125	0.7	0.0000305	0.00876	0.0205	0.0293	0.0238	0.00823	0.0101	0.0184	0.40	0.80	0.046	0.023
Thallium	0.029	0.0705	0.004	0.601	0.00000197	0.000772	0.00452	0.00529	0.00430	0.00149	0.000735	0.00222	0.24	24	0.0092	0.000092
Vanadium	0.325	21.1	0.2	8.08	0.0000220	0.231	0.0793	0.310	0.252	0.0871	0.164	0.251	11	--	0.023	--
Zinc (TRV1)	21.0	578	45.1	8,120	0.00142	6.33	59.9	66.2	53.9	18.6	3.13	21.7	130	--	0.17	--
Zinc (TRV2)	21.0	578	45.1	8,120	0.00142	6.33	59.9	66.2	53.9	18.6	3.13	21.7	70	120	0.31	0.18

**Note:** The following data were used to develop this scenario: PSCHAR water (all Port Lagoon North stations); PHASE1RA water (PLNL and PLNN); PSCHAR sediment (all Port Lagoon North stations); PHASE1RA sediment (PLNL and PLNN); PHASE2RA sediment (PLNL); PHASE1RA moss (TT1-0100); and PHASE2RA whole sedge.

Whole sedge data averaged for all stations at the lagoon and all sedge/grass types. Sediment and water data averaged at a station, then data from all stations at the lagoon averaged to calculate lagoon-wide means.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for brant in reference lagoon (Table K-18) multiplied by 0.65.

Table K-20. Food-web model exposure results for brant exposed to mean CoPC concentrations at the North Lagoon

Analyte	Concentration				Daily Exposure				Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Moss (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)	Total Exposure (mg/kg-day)					NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
	Aluminum	24.9	8,420	24.1	393	0.00169	92.2	5.67					97.8	79.5	27.5	66.9
Antimony	0.2	0.085	0.027	0.91	0.0000136	0.000930	0.00950	0.0104	0.00849	0.00293	0.00234	0.00527	--	--	--	--
Arsenic (arsenite)	4.8	5.95	0.245	0.5	0.000325	0.0651	0.0344	0.0999	0.0812	0.0280	0.0314	0.0594	20	50	0.0030	0.0012
Arsenic (arsenate)	4.8	5.95	0.245	0.5	0.000325	0.0651	0.0344	0.0999	0.0812	0.0280	0.0314	0.0594	10	40	0.0059	0.0015
Barium	114	270	19.2	115	0.00769	2.96	3.20	6.17	5.01	1.73	2.83	4.56	21	42	0.22	0.11
Cadmium	0.15	0.996	0.129	4.52	0.0000102	0.0109	0.0465	0.0574	0.0466	0.0161	0.00676	0.0229	1.5	20	0.015	0.0011
Chromium	1.86	11.0	0.4	3.14	0.000126	0.120	0.0717	0.192	0.156	0.0539	0.145	0.199	0.86	4.3	0.23	0.046
Cobalt	0.45	5.75	0.37	0.933	0.0000305	0.0629	0.0531	0.116	0.0944	0.0326	0.0575	0.0900	--	--	--	--
Lead	0.885	60.7	2.62	172	0.0000600	0.664	1.48	2.14	1.74	0.602	0.138	0.740	3.9	11	0.19	0.067
Mercury	0.05	0.04	0.033	0.14	0.00000339	0.000438	0.00512	0.00556	0.00452	0.00156	0.00411	0.00567	0.032	0.064	0.18	0.089
Molybdenum	0.34	0.855	0.171	0.23	0.0000230	0.00936	0.0232	0.0326	0.0265	0.00915	0.0113	0.0204	3.5	35	0.0058	0.00058
Selenium	0.3	0.75	0.2	0.1	0.0000203	0.00821	0.0260	0.0343	0.0279	0.00962	0.0102	0.0198	0.40	0.80	0.049	0.025
Thallium	0.007	0.051	0.007	0.108	0.000000474	0.000558	0.00161	0.00217	0.00176	0.000608	0.000735	0.00134	0.24	24	0.0056	0.000056
Vanadium	0.26	18.4	0.2	0.98	0.0000176	0.201	0.0319	0.233	0.189	0.0653	0.164	0.229	11	--	0.021	--
Zinc (TRV1)	45.6	189	48.3	869	0.00309	2.07	11.9	14.0	11.4	3.93	3.13	7.05	130	--	0.054	--
Zinc (TRV2)	45.6	189	48.3	869	0.00309	2.07	11.9	14.0	11.4	3.93	3.13	7.05	70	120	0.10	0.059

**Note:** The following data were used to develop this scenario: PHASE1RA water (NLF, NLK); PSCHAR water (all North Lagoon stations); PHASE2RA sediment (NLF, NLK); PHASE1RA sediment (NLF and NLK); PSCHAR sediment (all North Lagoon stations); PHASE1RA moss (TT1-1000); and PHASE2RA whole sedge (NLF, NLK).

Whole sedge data averaged for all stations at the lagoon and all sedge/grass types. Sediment and water data averaged for a station, then data from all stations at the lagoon averaged to calculate lagoon-wide means.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for brant in reference lagoon (Table K-18) multiplied by 0.65.

**Table K-21. Food-web model exposure results for black-bellied plover exposed to mean CoPC concentrations at the Reference Lagoon**

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Invertebrates (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Cadmium	0.223	0.345	0.337	0.0000469	0.00281	0.00948	0.0123	0.0575	1.5	20	0.038	0.0029
Lead	0.363	10.1	24.6	0.0000763	0.0822	0.692	0.774	3.62	3.9	11	0.93	0.33
Zinc (TRV1)	22.9	92.2	77.9	0.000480	0.752	2.19	2.94	13.8	130	--	0.11	--
Zinc (TRV2)	22.9	92.2	77.9	0.000480	0.752	2.19	2.94	13.8	70	120	0.20	0.11

**Note:** The following data were used to develop this scenario: PHASE1RA water (mean of RL-1-03, RL-2-03, RL-3-03), PHASE1RA and PHASE2RA sediment, PHASE2RA lagoon invertebrates (CL-REF-1).

Sediment values are means of PHASE1RA and PHASE2RA data.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - Boxed concentrations hazard quotient exceeds 1.0.

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

**Table K-22. Food-web model exposure results for black-bellied plover exposed to mean CoPC concentrations at the Control Lagoon**

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water ( $\mu\text{g/L}$ )	Soil/Sediment (mg/kg dw)	Invertebrates (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Cadmium	0.05	0.46	0.979	0.00000105	0.00375	0.0275	0.0313	0.146	1.5	20	0.098	0.0073
Lead	0.17	9.48	3.3	0.00000357	0.0773	0.0928	0.170	0.795	3.9	11	0.20	0.072
Zinc (TRV1)	19	79.3	171	0.000399	0.647	4.81	5.46	25.5	130	--	0.20	--
Zinc (TRV2)	19	79.3	171	0.000399	0.647	4.81	5.46	25.5	70	120	0.36	0.21

**Note:** The following data were used to develop this scenario: PSCHAR water; PSCHAR sediment; PHASE2RA sediment (CL-REF-2 and CL-REF-3), PHASE2RA lagoon invertebrates (CL-REF-2).

Sediment values are means of PHASE2RA and PSCHAR data.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-23. Food-web model exposure results for black-bellied plover exposed to mean CoPC concentrations at the Port Lagoon North

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Invertebrates (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Cadmium	0.0933	3.00	1.09	0.00000196	0.0245	0.0307	0.0551	0.258	0.0875	0.0380	0.125	1.5	20	0.084	0.0063
Lead	1.9	94.9	37.1	0.0000400	0.774	1.04	1.82	8.50	2.89	2.39	5.28	3.9	11	1.4	0.48
Zinc (TRV1)	21	578	272	0.000440	4.72	7.65	12.4	57.8	19.6	9.08	28.7	130	--	0.22	--
Zinc (TRV2)	21	578	272	0.000440	4.72	7.65	12.4	57.8	19.6	9.08	28.7	70	120	0.41	0.24

**Note:** The following data were used to develop this scenario: PSCHAR water (all Port Lagoon North stations); PHASE1RA water (PLNL and PLNN); PSCHAR sediment; PHASE1RA sediment (PLNL and PLNN); PHASE2RA sediment (PLNL); PHASE2RA lagoon invertebrates.

Sediment (and water) concentrations averaged at a station, then data from all stations at the lagoon averaged to calculate mean for the lagoon.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level

<sup>a</sup> Based on mean daily exposure for plover in reference lagoon (Table K-21) multiplied by 0.66.



Table K-24. Food-web model exposure results for black-bellied plover exposed to mean CoPC concentrations at the North Lagoon

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Invertebrates (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Cadmium	0.15	0.996	0.858	0.00000315	0.00813	0.0241	0.0323	0.151	0.0512	0.0380	0.0892	1.5	20	0.059	0.0045
Lead	0.885	60.7	8.74	0.0000186	0.495	0.246	0.741	3.46	1.18	2.39	3.57	3.9	11	0.91	0.32
Zinc (TRV1)	45.6	189	243	0.000957	1.54	6.84	8.38	39.1	13.3	9.08	22.4	130	--	0.17	--
Zinc (TRV2)	45.6	189	243	0.000957	1.54	6.84	8.38	39.1	13.3	9.08	22.4	70	120	0.32	0.19

**Note:** The following data were used to develop this scenario: PSCHAR water (all Port Lagoon North stations); PHASE1RA water (NLF and NLK); PSCHAR sediment; PHASE1RA and PHASE2RA sediment (NLF, NLK); PHASE2RA lagoon invertebrates.

Invertebrate data from NLF and NLK averaged. Sediment data averaged at a station, then data from all stations averaged to calculate a mean for the lagoon.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for plover in reference lagoon (Table K-21) multiplied by 0.66.

Table K-25. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at reference site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	91.2	11,300	11.1	5.6	0.000459	0.838	0.0326	0.872	34.3	120	--	0.29	--
Antimony	0.1	0.22	0.07	0.003	0.00000504	0.0000163	0.0000514	0.0000682	0.00269	--	--	--	--
Arsenic (arsenate)	0.9	3.5	0.07	0.05	0.00000453	0.000260	0.000276	0.000540	0.0213	10	40	0.0021	0.00053
Arsenic (arsenite)	0.9	3.5	0.07	0.05	0.00000453	0.000260	0.000276	0.000540	0.0213	20	50	0.0011	0.00043
Barium	48.4	383	51.2	5.63	0.000244	0.0284	0.0540	0.0826	3.25	21	42	0.15	0.077
Cadmium	0.06	0.293	0.199	0.96	0.00000302	0.0000217	0.00468	0.00471	0.185	1.5	20	0.12	0.0093
Chromium	0.72	19.7	0.4	0.3	0.00000363	0.00146	0.00164	0.00311	0.122	0.86	4.3	0.14	0.028
Cobalt	0.19	15.3	0.25	0.029	0.00000957	0.00113	0.000271	0.00141	0.0553	--	--	--	--
Lead	0.5	13.4	0.37	0.15	0.00000252	0.000997	0.000912	0.00191	0.0753	3.9	11	0.019	0.0068
Mercury	0.05	0.105	0.033	0.09	0.00000252	0.00000779	0.000447	0.000455	0.0179	0.032	0.064	0.56	0.28
Molybdenum	0.22	0.805	0.829	0.324	0.00000111	0.0000597	0.00198	0.00205	0.0805	3.5	35	0.023	0.0023
Selenium	0.2	0.55	0.05	0.65	0.00000101	0.0000408	0.00313	0.00317	0.125	0.40	0.80	0.31	0.16
Thallium	0.04	0.0575	0.004	0.002	0.00000201	0.0000427	0.0000117	0.0000161	0.000635	0.24	24	0.0026	0.000026
Vanadium	2.41	12.7	0.2	0.2	0.0000121	0.000941	0.00106	0.00201	0.0793	11	--	0.0072	--
Zinc (TRV1)	2.87	57.4	30	214	0.0000145	0.00426	1.04	1.04	41.0	130	--	0.32	--
Zinc (TRV2)	2.87	57.4	30	214	0.0000145	0.00426	1.04	1.04	41.0	70	120	0.59	0.34

**Note:** The following data were used to develop this scenario: PHASE1RA water data (TP-REF-3); PHASE2RA soil; PHASE1RA soil (TS-REF-5); PHASE2RA invertebrates; and PHASE2RA sedge seeds (TP-REF-3).

No terrestrial sedge seed data available. Mean of PHASE1RA and PHASE2RA soil at TS-REF-5 used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-26. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT5-0010 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Herb. Plant (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)						Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)															
Aluminum	11.4	6,940	12.6	95.1	0.0000574	0.515	0.460	0.975	38.4	15.8	20.2	36.0	120	--	0.30	--	
Antimony	0.2	2.75	0.037	0.14	0.00000101	0.000204	0.000685	0.000890	0.0350	0.0144	0.00158	0.0160	--	--	--	--	
Arsenic (arsenate)	0.6	8	0.03	0.195	0.00000302	0.000594	0.000946	0.00154	0.0607	0.0250	0.0125	0.0375	10	40	0.0037	0.00094	
Arsenic (arsenite)	0.6	8	0.03	0.195	0.00000302	0.000594	0.000946	0.00154	0.0607	0.0250	0.0125	0.0375	20	50	0.0019	0.00075	
Barium	70.3	1,200	26.2	25.9	0.000354	0.0890	0.137	0.227	8.92	3.67	1.92	5.58	21	42	0.27	0.13	
Cadmium	0.27	20.6	0.062	11.7	0.00000136	0.00153	0.0556	0.0572	2.25	0.925	0.109	1.03	1.5	20	0.69	0.052	
Chromium	0.44	17.9	0.4	0.45	0.00000222	0.00133	0.00236	0.00369	0.145	0.0597	0.0721	0.132	0.86	4.3	0.15	0.031	
Cobalt	0.88	18.6	0.14	0.139	0.00000443	0.00138	0.000735	0.00212	0.0834	0.0343	0.0326	0.0669	--	--	--	--	
Lead	1.63	1210	1.6	16.7	0.00000821	0.0898	0.0803	0.170	6.70	2.75	0.0443	2.80	3.9	11	0.72	0.25	
Mercury	0.05	1.75	0.044	0.15	0.000000252	0.000130	0.000739	0.000869	0.0342	0.0141	0.0105	0.0246	0.032	0.064	0.77	0.38	
Molybdenum	0.09	0.89	0.159	0.276	0.000000453	0.0000660	0.00140	0.00146	0.0577	0.0237	0.0474	0.0711	3.5	35	0.020	0.0020	
Selenium	0.2	1.5	0.05	1	0.00000101	0.000111	0.00480	0.00491	0.193	0.0794	0.0735	0.153	0.40	0.80	0.38	0.19	
Thallium	0.01	0.455	0.001	0.038	0.0000000504	0.0000338	0.000182	0.000216	0.00849	0.00349	0.000374	0.00386	0.24	24	0.016	0.00016	
Vanadium	0.24	11.6	0.2	0.4	0.00000121	0.000861	0.00201	0.00288	0.113	0.0465	0.0467	0.0932	11	--	0.0085	--	
Zinc (TRV1)	99	4,330	65	419	0.000499	0.321	2.03	2.35	92.6	38.1	24.1	62.2	130	--	0.48	--	
Zinc (TRV2)	99	4,330	65	419	0.000499	0.321	2.03	2.35	92.6	38.1	24.1	62.2	70	120	0.89	0.52	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA TT1-0010 soil Al and Cr; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates.

Seed data from station TP-0100 used (no terrestrial seed samples collected).

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-27. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT5-0100 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Herb. Plant (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)						Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)														
Aluminum	11.4	1,820	12.6	136	0.0000574	0.135	0.657	0.792	31.2	12.8	20.2	33.0	120	--	0.28	--	
Antimony	0.2	2.46	0.037	0.081	0.00000101	0.000183	0.000406	0.000590	0.0232	0.00954	0.00158	0.0111	--	--	--	--	
Arsenic (arsenate)	0.6	5.3	0.03	0.17	0.00000302	0.000393	0.000827	0.00122	0.0482	0.0198	0.0125	0.0323	10	40	0.0032	0.00081	
Arsenic (arsenite)	0.6	5.3	0.03	0.17	0.00000302	0.000393	0.000827	0.00122	0.0482	0.0198	0.0125	0.0323	20	50	0.0016	0.00065	
Barium	70.3	1,200	26.2	46.5	0.000354	0.0890	0.235	0.325	12.8	5.26	1.92	7.17	21	42	0.34	0.17	
Cadmium	0.27	24	0.062	3.14	0.00000136	0.00178	0.0150	0.0168	0.661	0.272	0.109	0.381	1.5	20	0.25	0.019	
Chromium	0.44	5.15	0.4	0.45	0.00000222	0.000382	0.00236	0.00274	0.108	0.0444	0.0721	0.116	0.86	4.3	0.14	0.027	
Cobalt	0.88	8.18	0.14	0.166	0.00000443	0.000607	0.000864	0.00148	0.0581	0.0239	0.0326	0.0565	--	--	--	--	
Lead	1.63	1060	1.6	16.2	0.00000821	0.0787	0.0781	0.157	6.17	2.54	0.0443	2.58	3.9	11	0.66	0.23	
Mercury	0.05	0.25	0.044	0.115	0.000000252	0.0000186	0.000572	0.000591	0.0233	0.00956	0.0105	0.0201	0.032	0.064	0.63	0.31	
Molybdenum	0.09	0.84	0.159	0.415	0.000000453	0.0000623	0.00206	0.00212	0.0836	0.0344	0.0474	0.0818	3.5	35	0.023	0.0023	
Selenium	0.2	1.9	0.05	0.4	0.00000101	0.000141	0.00193	0.00208	0.0818	0.0336	0.0735	0.107	0.40	0.80	0.27	0.13	
Thallium	0.01	0.368	0.001	0.0235	0.0000000504	0.0000273	0.000113	0.000140	0.00551	0.00226	0.000374	0.00264	0.24	24	0.011	0.00011	
Vanadium	0.24	8.25	0.2	0.4	0.00000121	0.000612	0.00201	0.00263	0.103	0.0425	0.0467	0.0892	11	--	0.0081	--	
Zinc (TRV1)	99	5,120	65	291	0.000499	0.380	1.42	1.80	71.0	29.2	24.1	53.3	130	--	0.41	--	
Zinc (TRV2)	99	5,120	65	291	0.000499	0.380	1.42	1.80	71.0	29.2	24.1	53.3	70	120	0.76	0.44	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA TT1-0100 soil AI and Cr; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates.

Seed data from station TP-0100 used (no terrestrial seed samples collected).

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-28. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT5-1000 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	143	548	2	19.3	0.000720	0.0407	0.0931	0.135	5.30	2.18	20.2	22.4	120	--	0.19	--	
Antimony	0.09	0.83	0.046	0.019	0.00000453	0.0000616	0.000115	0.000177	0.00697	0.00286	0.00158	0.00445	--	--	--	--	
Arsenic (arsenate)	0.4	1.8	0.03	0.105	0.00000201	0.000134	0.000517	0.000652	0.0257	0.0106	0.0125	0.0231	10	40	0.0023	0.00058	
Arsenic (arsenite)	0.4	1.8	0.03	0.105	0.00000201	0.000134	0.000517	0.000652	0.0257	0.0106	0.0125	0.0231	20	50	0.0012	0.00046	
Barium	39.4	15.3	47.5	5.78	0.000198	0.00114	0.0527	0.0541	2.13	0.875	1.92	2.79	21	42	0.13	0.066	
Cadmium	0.06	4.08	0.079	2.53	0.00000302	0.000303	0.0121	0.0124	0.490	0.201	0.109	0.310	1.5	20	0.21	0.016	
Chromium	1.56	1.85	0.4	0.2	0.00000786	0.000137	0.00117	0.00131	0.0516	0.0212	0.0721	0.0933	0.86	4.3	0.11	0.022	
Cobalt	1.56	6.82	0.7	0.054	0.00000786	0.000506	0.000629	0.00114	0.0450	0.0185	0.0326	0.0511	--	--	--	--	
Lead	1.06	8.62	0.79	2.79	0.00000534	0.000640	0.0137	0.0144	0.566	0.233	0.0443	0.277	3.9	11	0.071	0.025	
Mercury	0.05	0.33	0.037	0.15	0.00000252	0.0000245	0.000735	0.000760	0.0299	0.0123	0.0105	0.0228	0.032	0.064	0.71	0.36	
Molybdenum	0.02	1.16	0.069	0.289	0.00000101	0.0000861	0.00141	0.00150	0.0590	0.0243	0.0474	0.0717	3.5	35	0.020	0.0020	
Selenium	0.2	0.9	0.05	0.75	0.00000101	0.0000668	0.00360	0.00367	0.145	0.0594	0.0735	0.133	0.40	0.80	0.33	0.17	
Thallium	0.003	0.072	0.001	0.0085	0.000000151	0.00000534	0.0000411	0.0000464	0.00183	0.000751	0.000374	0.00113	0.24	24	0.0047	0.000047	
Vanadium	0.28	4.64	0.2	0.4	0.00000141	0.000344	0.00201	0.00236	0.0929	0.0382	0.0467	0.0849	11	--	0.0077	--	
Zinc (TRV1)	30.6	38.9	58.5	302	0.000154	0.00289	1.47	1.47	58.0	23.8	24.1	48.0	130	--	0.37	--	
Zinc (TRV2)	30.6	38.9	58.5	302	0.000154	0.00289	1.47	1.47	58.0	23.8	24.1	48.0	70	120	0.69	0.40	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE1RA TT1-1000 soil Al and Cr; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates. Seed data from station TP-1000 used (no terrestrial seed samples collected). Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-29. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT5-2000 site

Analyte	Concentration				Daily Exposure				Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/		Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	143	548	2	14.1	0.000720	0.0407	0.0683	0.110	4.32	1.77	20.2	22.0	120	--	0.18	--	
Antimony	0.09	0.56	0.046	0.009	0.00000453	0.0000416	0.0000673	0.000109	0.00430	0.00177	0.00158	0.00335	--	--	--	--	
Arsenic (arsenate)	0.4	0.5	0.03	0.2	0.00000201	0.0000371	0.0000970	0.00101	0.0397	0.0163	0.0125	0.0288	10	40	0.0029	0.00072	
Arsenic (arsenite)	0.4	0.5	0.03	0.2	0.00000201	0.0000371	0.0000970	0.00101	0.0397	0.0163	0.0125	0.0288	20	50	0.0014	0.00058	
Barium	39.4	96	47.5	4.61	0.000198	0.00712	0.0472	0.0545	2.15	0.882	1.92	2.80	21	42	0.13	0.067	
Cadmium	0.06	1.31	0.079	3.53	0.00000302	0.0000972	0.0169	0.0170	0.668	0.275	0.109	0.384	1.5	20	0.26	0.019	
Chromium	1.56	1.85	0.4	0.3	0.00000786	0.000137	0.00164	0.00179	0.0704	0.0289	0.0721	0.101	0.86	4.3	0.12	0.023	
Cobalt	1.56	1.97	0.7	0.059	0.00000786	0.000146	0.000652	0.000806	0.0318	0.0130	0.0326	0.0456	--	--	--	--	
Lead	1.06	54.1	0.79	1.77	0.00000534	0.00401	0.00886	0.0129	0.507	0.208	0.0443	0.253	3.9	11	0.065	0.023	
Mercury	0.05	0.27	0.037	0.13	0.00000252	0.0000200	0.000640	0.000660	0.0260	0.0107	0.0105	0.0212	0.032	0.064	0.66	0.33	
Molybdenum	0.02	0.8	0.069	0.243	0.000000101	0.0000594	0.00120	0.00126	0.0494	0.0203	0.0474	0.0677	3.5	35	0.019	0.0019	
Selenium	0.2	0.5	0.05	0.9	0.00000101	0.0000371	0.00432	0.00436	0.172	0.0705	0.0735	0.144	0.40	0.80	0.36	0.18	
Thallium	0.003	0.036	0.001	0.003	0.0000000151	0.00000267	0.0000148	0.0000175	0.000690	0.000284	0.000374	0.000658	0.24	24	0.0027	0.000027	
Vanadium	0.28	0.98	0.2	0.4	0.00000141	0.0000727	0.00201	0.00209	0.0822	0.0338	0.0467	0.0805	11	--	0.0073	--	
Zinc (TRV1)	30.6	286	58.5	539	0.000154	0.0212	2.60	2.62	103	42.4	24.1	66.6	130	--	0.51	--	
Zinc (TRV2)	30.6	286	58.5	539	0.000154	0.0212	2.60	2.62	103	42.4	24.1	66.6	70	120	0.95	0.55	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE1RA (TT1-1000) soil AI and Cr; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates.

Seed data from station TP-1000 used (no terrestrial seed samples collected).

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-30. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT2-0010 site

Analyte	Concentration				Daily Exposure				Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/		Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	11.4	6,000	12.6	202	0.0000574	0.445	0.970	1.42	55.7	22.9	20.2	43.1	120	--	0.36	--	
Antimony	0.2	2.2	0.037	0.063	0.0000101	0.000163	0.000320	0.000484	0.0191	0.00783	0.00158	0.00941	--	--	--	--	
Arsenic (arsenate)	0.6	6.45	0.03	0.17	0.00000302	0.000479	0.000827	0.00131	0.0515	0.0212	0.0125	0.0337	10	40	0.0034	0.00084	
Arsenic (arsenite)	0.6	6.45	0.03	0.17	0.00000302	0.000479	0.000827	0.00131	0.0515	0.0212	0.0125	0.0337	20	50	0.0017	0.00067	
Barium	70.3	2,070	26.2	45.3	0.000354	0.153	0.230	0.384	15.1	6.21	1.92	8.12	21	42	0.39	0.19	
Cadmium	0.27	16.4	0.062	7.13	0.00000136	0.00121	0.0340	0.0353	1.39	0.570	0.109	0.680	1.5	20	0.45	0.034	
Chromium	0.44	9.9	0.4	0.56	0.0000222	0.000735	0.00288	0.00362	0.143	0.0586	0.0721	0.131	0.86	4.3	0.15	0.030	
Cobalt	0.88	9.75	0.14	0.139	0.00000443	0.000723	0.000737	0.00147	0.0577	0.0237	0.0326	0.0563	--	--	--	--	
Lead	1.63	759	1.6	6.38	0.00000821	0.0563	0.0313	0.0876	3.45	1.42	0.0443	1.46	3.9	11	0.37	0.13	
Mercury	0.05	0.455	0.044	0.11	0.000000252	0.0000338	0.000548	0.000582	0.0229	0.00942	0.0105	0.0200	0.032	0.064	0.62	0.31	
Molybdenum	0.09	0.77	0.159	0.287	0.000000453	0.0000571	0.00145	0.00151	0.0595	0.0244	0.0474	0.0719	3.5	35	0.021	0.0021	
Selenium	0.2	1.25	0.05	0.2	0.00000101	0.0000928	0.000981	0.00107	0.0423	0.0174	0.0735	0.0909	0.40	0.80	0.23	0.11	
Thallium	0.01	0.366	0.001	0.015	0.0000000504	0.0000272	0.0000721	0.0000993	0.00391	0.00161	0.000374	0.00198	0.24	24	0.0083	0.000083	
Vanadium	0.24	12	0.2	0.41	0.00000121	0.000890	0.00206	0.00295	0.116	0.0478	0.0467	0.0945	11	--	0.0086	--	
Zinc (TRV1)	99	3,460	65	407	0.000499	0.257	1.98	2.23	87.9	36.1	24.1	60.3	130	--	0.46	--	
Zinc (TRV2)	99	3,460	65	407	0.000499	0.257	1.98	2.23	87.9	36.1	24.1	60.3	70	120	0.86	0.50	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA (TT2-0010) soil; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates.

Seed data from station TP-0100 used (no terrestrial seed samples collected). Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-31. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT2-0100 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	11.4	3,060	12.6	47.6	0.0000574	0.227	0.234	0.461	18.1	7.46	20.2	27.7	120	--	0.23	--	
Antimony	0.2	2.04	0.037	0.021	0.00000101	0.000151	0.000120	0.000272	0.0107	0.00440	0.00158	0.00598	--	--	--	--	
Arsenic (arsenate)	0.6	3.95	0.03	0.1	0.00000302	0.000293	0.000493	0.000789	0.0311	0.0128	0.0125	0.0253	10	40	0.0025	0.00063	
Arsenic (arsenite)	0.6	3.95	0.03	0.1	0.00000302	0.000293	0.000493	0.000789	0.0311	0.0128	0.0125	0.0253	20	50	0.0013	0.00051	
Barium	70.3	890	26.2	17.5	0.000354	0.0660	0.0974	0.164	6.45	2.65	1.92	4.56	21	42	0.22	0.11	
Cadmium	0.27	9.89	0.062	3.09	0.00000136	0.000734	0.0148	0.0155	0.611	0.251	0.109	0.360	1.5	20	0.24	0.018	
Chromium	0.44	6.02	0.4	0.4	0.00000222	0.000447	0.00212	0.00257	0.101	0.0416	0.0721	0.114	0.86	4.3	0.13	0.026	
Cobalt	0.88	6.88	0.14	0.066	0.00000443	0.000510	0.000389	0.000904	0.0356	0.0146	0.0326	0.0472	--	--	--	--	
Lead	1.63	414	1.6	2.88	0.00000821	0.0307	0.0146	0.0453	1.78	0.733	0.0443	0.777	3.9	11	0.20	0.071	
Mercury	0.05	0.37	0.044	0.1	0.00000252	0.0000275	0.000500	0.000528	0.0208	0.00854	0.0105	0.0191	0.032	0.064	0.60	0.30	
Molybdenum	0.09	0.79	0.159	0.279	0.000000453	0.0000586	0.00142	0.00147	0.0580	0.0239	0.0474	0.0713	3.5	35	0.020	0.0020	
Selenium	0.2	1.1	0.05	0.6	0.00000101	0.0000816	0.00289	0.00297	0.117	0.0481	0.0735	0.122	0.40	0.80	0.30	0.15	
Thallium	0.01	0.19	0.001	0.007	0.0000000504	0.0000141	0.0000339	0.0000481	0.00189	0.000778	0.000374	0.00115	0.24	24	0.0048	0.000048	
Vanadium	0.24	7.31	0.2	0.4	0.00000121	0.000542	0.00201	0.00256	0.101	0.0414	0.0467	0.0881	11	--	0.0080	--	
Zinc (TRV1)	99	1,970	65	236	0.000499	0.146	1.16	1.31	51.5	21.1	24.1	45.3	130	--	0.35	--	
Zinc (TRV2)	99	1,970	65	236	0.000499	0.146	1.16	1.31	51.5	21.1	24.1	45.3	70	120	0.65	0.38	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA (TT2-0100) soil; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates.

Seed data from station TP-0100 used (no terrestrial seed samples collected). Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.



Table K-32. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT2-1000 site

Analyte	Concentration				Daily Exposure				Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. <sup>a</sup> (mg/kg-day)	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/		Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	143	405	12.6	17.4	0.000720	0.0301	0.0897	0.120	4.74	1.95	20.2	22.2	120	--	0.18	--	
Antimony	0.09	0.28	0.037	0.003	0.00000453	0.000208	0.000339	0.000551	0.00217	0.000892	0.00158	0.00247	--	--	--	--	
Arsenic (arsenate)	0.4	0.95	0.03	0.07	0.00000201	0.0000705	0.000350	0.000422	0.0166	0.00683	0.0125	0.0194	10	40	0.0019	0.00048	
Arsenic (arsenite)	0.4	0.95	0.03	0.07	0.00000201	0.0000705	0.000350	0.000422	0.0166	0.00683	0.0125	0.0194	20	50	0.00097	0.00039	
Barium	39.4	146	26.2	6.89	0.000198	0.0108	0.0468	0.0577	2.27	0.934	1.92	2.85	21	42	0.14	0.068	
Cadmium	0.06	0.915	0.062	1.14	0.00000302	0.0000679	0.00547	0.00554	0.218	0.0896	0.109	0.199	1.5	20	0.13	0.0099	
Chromium	1.56	1.03	0.4	0.2	0.00000786	0.0000764	0.00117	0.00125	0.0492	0.0202	0.0721	0.0923	0.86	4.3	0.11	0.021	
Cobalt	1.56	5.99	0.14	0.062	0.00000786	0.000444	0.000370	0.000822	0.0324	0.0133	0.0326	0.0459	--	--	--	--	
Lead	1.06	23.8	1.6	1.05	0.00000534	0.00176	0.00586	0.00762	0.300	0.123	0.0443	0.168	3.9	11	0.043	0.015	
Mercury	0.05	0.23	0.044	0.1	0.00000252	0.000171	0.000500	0.000518	0.0204	0.00838	0.0105	0.0189	0.032	0.064	0.59	0.30	
Molybdenum	0.02	0.855	0.159	0.325	0.00000101	0.0000634	0.00163	0.00170	0.0669	0.0275	0.0474	0.0749	3.5	35	0.021	0.0021	
Selenium	0.2	0.5	0.05	0.9	0.00000101	0.0000371	0.00432	0.00436	0.172	0.0705	0.0735	0.144	0.40	0.80	0.36	0.18	
Thallium	0.003	0.0375	0.001	0.002	0.000000151	0.00000278	0.0000101	0.0000129	0.000507	0.000208	0.000374	0.000582	0.24	24	0.0024	0.000024	
Vanadium	0.28	2.23	0.2	0.4	0.00000141	0.000165	0.00201	0.00218	0.0859	0.0353	0.0467	0.0820	11	--	0.0075	--	
Zinc (TRV1)	30.6	327	65	232	0.000154	0.0243	1.14	1.17	45.9	18.9	24.1	43.0	130	--	0.33	--	
Zinc (TRV2)	30.6	327	65	232	0.000154	0.0243	1.14	1.17	45.9	18.9	24.1	43.0	70	120	0.61	0.36	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE1RA (TT2-1000) soil; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates.

Seed data from station TP-1000 used (no terrestrial seed samples collected). Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-33. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT3-0010 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Herb. Plant (mg/kg dw)														
Aluminum	75	2,660	10.6	151	0.000378	0.197	0.726	0.924	36.4	14.9	20.2	35.2	120	--	0.29	--
Antimony	0.03	0.925	0.5	0.037	0.00000151	0.0000686	0.000441	0.000510	0.0201	0.00826	0.00158	0.00984	--	--	--	--
Arsenic (arsenate)	0.5	5.3	0.04	0.25	0.00000252	0.000393	0.00121	0.00161	0.0634	0.0260	0.0125	0.0386	10	40	0.0039	0.00096
Arsenic (arsenite)	0.5	5.3	0.04	0.25	0.00000252	0.000393	0.00121	0.00161	0.0634	0.0260	0.0125	0.0386	20	50	0.0019	0.00077
Barium	46.8	2,280	44.3	71.8	0.000236	0.169	0.366	0.535	21.1	8.66	1.92	10.6	21	42	0.50	0.25
Cadmium	0.02	7.07	0.143	4.31	0.00000101	0.000525	0.0206	0.0212	0.833	0.342	0.109	0.451	1.5	20	0.30	0.023
Chromium	1.6	9.69	0.2	0.3	0.00000806	0.000719	0.00154	0.00226	0.0891	0.0366	0.0721	0.109	0.86	4.3	0.13	0.025
Cobalt	0.13	8.33	0.426	0.134	0.00000655	0.000618	0.000865	0.00148	0.0584	0.0240	0.0326	0.0566	--	--	--	--
Lead	0.44	385	0.49	4.3	0.00000222	0.0285	0.0208	0.0493	1.94	0.798	0.0443	0.842	3.9	11	0.22	0.077
Mercury	0.05	0.285	0.04	0.21	0.00000252	0.0000211	0.00102	0.00104	0.0411	0.0169	0.0105	0.0274	0.032	0.064	0.86	0.43
Molybdenum	0.05	1.08	1.49	0.274	0.00000252	0.0000798	0.00210	0.00218	0.0857	0.0352	0.0474	0.0827	3.5	35	0.024	0.0024
Selenium	0.2	1	0.1	0.2	0.00000101	0.0000742	0.00101	0.00108	0.0426	0.0175	0.0735	0.0910	0.40	0.80	0.23	0.11
Thallium	0.003	0.296	0.001	0.014	0.000000151	0.0000219	0.0000673	0.0000893	0.00351	0.00144	0.000374	0.00182	0.24	24	0.0076	0.000076
Vanadium	0.31	14.2	0.3	0.49	0.00000156	0.00105	0.00250	0.00355	0.140	0.0575	0.0467	0.104	11	--	0.0095	--
Zinc (TRV1)	6.08	1,350	57.2	205	0.0000306	0.100	1.01	1.11	43.6	17.9	24.1	42.1	130	--	0.32	--
Zinc (TRV2)	6.08	1,350	57.2	205	0.0000306	0.100	1.01	1.11	43.6	17.9	24.1	42.1	70	120	0.60	0.35

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA (TT3-0010) soil; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates.

Seed data from station TP-3 used (no terrestrial seed samples collected). Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-34. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT3-0100 site

Analyte	Concentration				Daily Exposure				Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/		Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	75	1,510	10.6	79.8	0.000378	0.112	0.386	0.499	19.6	8.07	20.2	28.3	120	--	0.24	--	
Antimony	0.03	0.915	0.5	0.018	0.00000151	0.0000679	0.000351	0.000419	0.0165	0.00678	0.00158	0.00836	--	--	--	--	
Arsenic (arsenate)	0.5	2.2	0.04	0.14	0.00000252	0.000163	0.000689	0.000855	0.0337	0.0138	0.0125	0.0263	10	40	0.0026	0.00066	
Arsenic (arsenite)	0.5	2.2	0.04	0.14	0.00000252	0.000163	0.000689	0.000855	0.0337	0.0138	0.0125	0.0263	20	50	0.0013	0.00053	
Barium	46.8	694	44.3	29.9	0.000236	0.0515	0.166	0.218	8.58	3.52	1.92	5.44	21	42	0.26	0.13	
Cadmium	0.02	2.06	0.143	4.51	0.00000101	0.000152	0.0216	0.0217	0.856	0.352	0.109	0.461	1.5	20	0.31	0.023	
Chromium	1.6	3.93	0.2	0.3	0.00000806	0.000292	0.00154	0.00184	0.0723	0.0297	0.0721	0.102	0.86	4.3	0.12	0.024	
Cobalt	0.13	2.69	0.426	0.161	0.00000655	0.000200	0.000994	0.00119	0.0470	0.0193	0.0326	0.0519	--	--	--	--	
Lead	0.44	119	0.49	3.08	0.00000222	0.00881	0.0150	0.0238	0.936	0.385	0.0443	0.429	3.9	11	0.11	0.039	
Mercury	0.05	0.12	0.04	0.24	0.000000252	0.00000890	0.00117	0.00118	0.0463	0.0190	0.0105	0.0296	0.032	0.064	0.92	0.46	
Molybdenum	0.05	0.475	1.49	0.225	0.000000252	0.0000352	0.00186	0.00190	0.0747	0.0307	0.0474	0.0782	3.5	35	0.022	0.0022	
Selenium	0.2	0.45	0.1	0.2	0.00000101	0.0000334	0.00101	0.00104	0.0410	0.0168	0.0735	0.0903	0.40	0.80	0.23	0.11	
Thallium	0.003	0.0885	0.001	0.019	0.000000151	0.00000657	0.0000912	0.0000977	0.00385	0.00158	0.000374	0.00196	0.24	24	0.0081	0.000081	
Vanadium	0.31	4.98	0.3	0.2	0.00000156	0.000369	0.00111	0.00148	0.0584	0.0240	0.0467	0.0707	11	--	0.0064	--	
Zinc (TRV1)	6.08	465	57.2	235	0.0000306	0.0345	1.15	1.19	46.7	19.2	24.1	43.3	130	--	0.33	--	
Zinc (TRV2)	6.08	465	57.2	235	0.0000306	0.0345	1.15	1.19	46.7	19.2	24.1	43.3	70	120	0.62	0.36	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA (TT3-0100) soil; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates.

Seed data from station TP-3 used (no terrestrial seed samples collected). Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-35. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT3-1000 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	177	358	10.6	12.5	0.000891	0.0266	0.0652	0.0927	3.65	1.50	20.2	21.7	120	--	0.18	--	
Antimony	0.02	0.365	0.5	0.003	0.00000101	0.0000271	0.000279	0.000306	0.0121	0.00496	0.00158	0.00654	--	--	--	--	
Arsenic (arsenate)	1.3	0.75	0.04	0.06	0.00000655	0.0000557	0.000307	0.000370	0.0146	0.00598	0.0125	0.0185	10	40	0.0018	0.00046	
Arsenic (arsenite)	1.3	0.75	0.04	0.06	0.00000655	0.0000557	0.000307	0.000370	0.0146	0.00598	0.0125	0.0185	20	50	0.00092	0.00037	
Barium	73.6	131	44.3	6.82	0.000371	0.00972	0.0560	0.0661	2.60	1.07	1.92	2.99	21	42	0.14	0.071	
Cadmium	0.06	0.549	0.143	1.05	0.00000302	0.0000407	0.00508	0.00513	0.202	0.0829	0.109	0.192	1.5	20	0.13	0.0096	
Chromium	5.24	1.54	0.2	0.3	0.0000264	0.000114	0.00154	0.00168	0.0660	0.0271	0.0721	0.0992	0.86	4.3	0.12	0.023	
Cobalt	0.48	0.615	0.426	0.031	0.00000242	0.0000456	0.000374	0.000422	0.0166	0.00682	0.0326	0.0394	--	--	--	--	
Lead	0.67	16.1	0.49	0.45	0.00000337	0.00119	0.00241	0.00360	0.142	0.0583	0.0443	0.103	3.9	11	0.026	0.0093	
Mercury	0.05	0.145	0.04	0.07	0.000000252	0.0000108	0.000355	0.000366	0.0144	0.00592	0.0105	0.0165	0.032	0.064	0.51	0.26	
Molybdenum	0.08	0.793	1.49	0.447	0.000000403	0.0000588	0.00292	0.00298	0.117	0.0482	0.0474	0.0957	3.5	35	0.027	0.0027	
Selenium	0.2	0.4	0.1	0.2	0.00000101	0.0000297	0.00101	0.00104	0.0409	0.0168	0.0735	0.0903	0.40	0.80	0.23	0.11	
Thallium	0.005	0.049	0.001	0.004	0.0000000252	0.00000364	0.0000196	0.0000233	0.000916	0.000377	0.000374	0.000751	0.24	24	0.0031	0.000031	
Vanadium	0.64	1.45	0.3	0.2	0.00000322	0.000108	0.00111	0.00122	0.0482	0.0198	0.0467	0.0665	11	--	0.0060	--	
Zinc (TRV1)	11	78.4	57.2	171	0.0000554	0.00581	0.846	0.852	33.5	13.8	24.1	37.9	130	--	0.29	--	
Zinc (TRV2)	11	78.4	57.2	171	0.0000554	0.00581	0.846	0.852	33.5	13.8	24.1	37.9	70	120	0.54	0.32	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-1000); PHASE1RA (TT3-1000) soil; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates.

Seed data from station TP-3 used (no terrestrial seed samples collected). Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-36. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT6-0010 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)											
Aluminum	208	2,660	17.1	58	0.00105	0.197	0.286	0.484	19.1	7.83	20.2	28.0	120	--	0.23	--	
Antimony	0.063	1.92	1.44	0.017	0.00000317	0.000142	0.000844	0.000987	0.0389	0.0160	0.00158	0.0176	--	--	--	--	
Arsenic (arsenate)	0.482	9.1	0.09	0.12	0.00000243	0.000675	0.000620	0.00130	0.0511	0.0210	0.0125	0.0335	10	40	0.0034	0.00084	
Arsenic (arsenite)	0.482	9.1	0.09	0.12	0.00000243	0.000675	0.000620	0.00130	0.0511	0.0210	0.0125	0.0335	20	50	0.0017	0.00067	
Barium	140	6,950	49.9	52.5	0.000705	0.516	0.277	0.793	31.2	12.8	1.92	14.8	21	42	0.70	0.35	
Cadmium	0.0365	5.47	0.043	5.98	0.00000184	0.000406	0.0285	0.0290	1.14	0.468	0.109	0.578	1.5	20	0.39	0.029	
Chromium	0.396	9.69	0.65	0.3	0.00000199	0.000719	0.00178	0.00250	0.0983	0.0404	0.0721	0.112	0.86	4.3	0.13	0.026	
Cobalt	0.015	9.11	0.497	0.07	0.000000755	0.000676	0.000597	0.00127	0.0501	0.0206	0.0326	0.0532	--	--	--	--	
Lead	0.65	349	0.89	2.07	0.00000327	0.0259	0.0103	0.0362	1.43	0.586	0.0443	0.631	3.9	11	0.16	0.057	
Mercury	0.0179	0.25	0.05	0.07	0.000000901	0.0000186	0.000360	0.000379	0.0149	0.00613	0.0105	0.0167	0.032	0.064	0.52	0.26	
Molybdenum	0.22	1.95	0.182	0.229	0.00000111	0.000145	0.00119	0.00133	0.0525	0.0216	0.0474	0.0690	3.5	35	0.020	0.0020	
Selenium	0.355	1.5	0.3	0.2	0.00000179	0.000111	0.00111	0.00123	0.0483	0.0198	0.0735	0.0933	0.40	0.80	0.23	0.12	
Thallium	0.09	1.29	0.003	0.015	0.000000453	0.0000957	0.0000731	0.000169	0.00667	0.00274	0.000374	0.00311	0.24	24	0.013	0.00013	
Vanadium	0.335	19.7	0.7	0.2	0.00000169	0.00146	0.00133	0.00279	0.110	0.0451	0.0467	0.0918	11	--	0.0083	--	
Zinc (TRV1)	1.79	1,020	59.6	249	0.00000901	0.0757	1.22	1.30	51.0	21.0	24.1	45.1	130	--	0.35	--	
Zinc (TRV2)	1.79	1,020	59.6	249	0.00000901	0.0757	1.22	1.30	51.0	21.0	24.1	45.1	70	120	0.64	0.38	

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA (TT3-0010) soil AI and Cr; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates. Seed data from station TP-4 used (no terrestrial seed samples collected). No pond water data collected near mine, so Anxiety Ridge Creek downstream data used. Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-37. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT6-0100 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)											
Aluminum	208	1,510	17.1	78.3	0.00105	0.112	0.383	0.496	19.5	8.02	20.2	28.2	120	--	0.24	--	
Antimony	0.063	2.03	1.44	0.027	0.00000317	0.000151	0.000892	0.00104	0.0411	0.0169	0.00158	0.0185	--	--	--	--	
Arsenic (arsenate)	0.482	4.9	0.09	0.13	0.00000243	0.000364	0.000668	0.00103	0.0407	0.0167	0.0125	0.0292	10	40	0.0029	0.00073	
Arsenic (arsenite)	0.482	4.9	0.09	0.13	0.00000243	0.000364	0.000668	0.00103	0.0407	0.0167	0.0125	0.0292	20	50	0.0015	0.00058	
Barium	140	6,360	49.9	108	0.000705	0.472	0.542	1.01	39.9	16.4	1.92	18.3	21	42	0.87	0.44	
Cadmium	0.0365	5.06	0.043	13	0.00000184	0.000375	0.0620	0.0624	2.46	1.01	0.109	1.12	1.5	20	0.75	0.056	
Chromium	0.396	3.93	0.65	0.3	0.00000199	0.000292	0.00178	0.00207	0.0815	0.0335	0.0721	0.106	0.86	4.3	0.12	0.025	
Cobalt	0.015	3.3	0.497	0.087	0.000000755	0.000245	0.000678	0.000923	0.0364	0.0149	0.0326	0.0475	--	--	--	--	
Lead	0.65	281	0.89	10.1	0.00000327	0.0209	0.0486	0.0695	2.74	1.12	0.0443	1.17	3.9	11	0.30	0.11	
Mercury	0.0179	0.27	0.05	0.12	0.000000901	0.0000200	0.000599	0.000619	0.0244	0.0100	0.0105	0.0206	0.032	0.064	0.64	0.32	
Molybdenum	0.22	2.47	0.182	0.335	0.00000111	0.000183	0.00169	0.00188	0.0740	0.0304	0.0474	0.0778	3.5	35	0.022	0.0022	
Selenium	0.355	0.9	0.3	0.2	0.00000179	0.0000668	0.00111	0.00118	0.0465	0.0191	0.0735	0.0926	0.40	0.80	0.23	0.12	
Thallium	0.09	0.755	0.003	0.02	0.000000453	0.0000560	0.0000970	0.000153	0.00604	0.00248	0.000374	0.00286	0.24	24	0.012	0.00012	
Vanadium	0.335	7.51	0.7	0.2	0.00000169	0.000557	0.00133	0.00188	0.0742	0.0305	0.0467	0.0772	11	--	0.0070	--	
Zinc (TRV1)	1.79	764	59.6	310	0.00000901	0.0567	1.51	1.57	61.7	25.4	24.1	49.5	130	--	0.38	--	
Zinc (TRV2)	1.79	764	59.6	310	0.00000901	0.0567	1.51	1.57	61.7	25.4	24.1	49.5	70	120	0.71	0.41	

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA (TT3-0100) soil Al and Cr; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates. Seed data from station TP-4 used (no terrestrial seed samples collected). Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-38. Food-web model exposure results for Lapland longspur exposed to CoPC concentrations at TT6-1000 site

Analyte	Concentration				Daily Exposure				Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/		Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/		Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)											
Aluminum	208	358	17.1	15.6	0.00105	0.0266	0.0835	0.111	4.37	1.80	20.2	22.0	120	--	0.18	--	
Antimony	0.063	1.22	1.44	0.016	0.00000317	0.0000905	0.000840	0.000930	0.0366	0.0151	0.00158	0.0166	--	--	--	--	
Arsenic (arsenate)	0.482	2.9	0.09	0.06	0.00000243	0.000215	0.000334	0.000552	0.0217	0.00892	0.0125	0.0214	10	40	0.0021	0.00054	
Arsenic (arsenite)	0.482	2.9	0.09	0.06	0.00000243	0.000215	0.000334	0.000552	0.0217	0.00892	0.0125	0.0214	20	50	0.0011	0.00043	
Barium	140	1,290	49.9	12.7	0.000705	0.0957	0.0870	0.183	7.22	2.97	1.92	4.88	21	42	0.23	0.12	
Cadmium	0.0365	6.11	0.043	5.8	0.00000184	0.000453	0.0277	0.0281	1.11	0.455	0.109	0.564	1.5	20	0.38	0.028	
Chromium	0.396	1.54	0.65	0.3	0.00000199	0.000114	0.00178	0.00189	0.0745	0.0306	0.0721	0.103	0.86	4.3	0.12	0.024	
Cobalt	0.015	1.87	0.497	0.024	0.000000755	0.000139	0.000378	0.000517	0.0203	0.00836	0.0326	0.0409	--	--	--	--	
Lead	0.65	145	0.89	1.31	0.00000327	0.0108	0.00672	0.0175	0.688	0.283	0.0443	0.327	3.9	11	0.084	0.030	
Mercury	0.0179	0.22	0.05	0.05	0.000000901	0.0000163	0.000265	0.000281	0.0111	0.00455	0.0105	0.0151	0.032	0.064	0.47	0.24	
Molybdenum	0.22	2.09	0.182	0.827	0.00000111	0.000155	0.00404	0.00420	0.165	0.0679	0.0474	0.115	3.5	35	0.033	0.0033	
Selenium	0.355	1.6	0.3	0.2	0.00000179	0.000119	0.00111	0.00123	0.0486	0.0200	0.0735	0.0934	0.40	0.80	0.23	0.12	
Thallium	0.09	0.38	0.003	0.014	0.000000453	0.0000282	0.0000684	0.0000970	0.00382	0.00157	0.000374	0.00194	0.24	24	0.0081	0.000081	
Vanadium	0.335	16	0.7	0.2	0.00000169	0.00119	0.00133	0.00251	0.0990	0.0407	0.0467	0.0874	11	--	0.0079	--	
Zinc (TRV1)	1.79	592	59.6	224	0.00000901	0.0439	1.10	1.14	45.0	18.5	24.1	42.6	130	--	0.33	--	
Zinc (TRV2)	1.79	592	59.6	224	0.00000901	0.0439	1.10	1.14	45.0	18.5	24.1	42.6	70	120	0.61	0.36	

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA (TT3-1000) soil AI and Cr; PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA invertebrates.

Seed data from station TP-4 used (no terrestrial seed samples collected).

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for longspur in terrestrial reference station 5 (Table K-25) multiplied by 0.59.

Table K-39. Food-web model exposure results for common snipe exposed to CoPC concentrations at TS-REF-5 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Invert. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
												Hazard Quotient	Hazard Quotient
Aluminum	91.2	11,300	11.1	5.6	0.00127	18.1	0.0946	18.2	157	120	--	1.3	--
Antimony	0.1	0.22	0.07	0.003	0.00000139	0.000352	0.000149	0.000502	0.00433	--	--	--	--
Arsenic (arsenate)	0.9	3.5	0.07	0.05	0.0000125	0.00560	0.000800	0.00641	0.0553	10	40	0.0055	0.0014
Arsenic (arsenite)	0.9	3.5	0.07	0.05	0.0000125	0.00560	0.000800	0.00641	0.0553	20	50	0.0028	0.0011
Barium	48.4	383	51.2	5.63	0.000674	0.612	0.157	0.769	6.63	21	42	0.32	0.16
Cadmium	0.06	0.293	0.199	0.96	0.00000836	0.000468	0.0136	0.0141	0.121	1.5	20	0.081	0.0061
Chromium	0.72	19.7	0.4	0.3	0.0000100	0.0315	0.00477	0.0363	0.313	0.86	4.3	0.36	0.073
Cobalt	0.19	15.3	0.25	0.029	0.00000265	0.0244	0.000786	0.0252	0.217	--	--	--	--
Lead	0.5	13.4	0.37	0.15	0.00000697	0.0215	0.00265	0.0241	0.208	3.9	11	0.053	0.019
Mercury	0.05	0.105	0.033	0.09	0.000000697	0.000168	0.00130	0.00147	0.0126	0.032	0.064	0.39	0.20
Molybdenum	0.22	0.805	0.829	0.324	0.00000307	0.00129	0.00576	0.00705	0.0608	3.5	35	0.017	0.0017
Selenium	0.2	0.55	0.05	0.65	0.00000279	0.000880	0.00907	0.0100	0.0858	0.40	0.80	0.21	0.11
Thallium	0.04	0.0575	0.004	0.002	0.000000557	0.0000920	0.0000338	0.000126	0.00109	0.24	24	0.0045	0.000045
Vanadium	2.41	12.7	0.2	0.2	0.0000336	0.0203	0.00308	0.0234	0.202	11	--	0.018	--
Zinc (TRV1)	2.87	57.4	30	214	0.0000400	0.0917	3.01	3.10	26.7	130	--	0.21	--
Zinc (TRV2)	2.87	57.4	30	214	0.0000400	0.0917	3.01	3.10	26.7	70	120	0.38	0.22

**Note:** The following data were used to develop this scenario: PHASE1RA water data (TP-REF-3); PHASE1RA soil (TS-REF-5); PHASE2RA soil; PHASE2RA invertebrates; and PHASE2RA sedge seeds (TP-REF-3).

No terrestrial sedge seed data available. Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value



Table K-40. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT5-0010 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. <sup>a</sup> (mg/kg-day)	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Invert. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	11.4	6,940	12.6	95.1	0.000159	11.1	1.34	12.4	107	32.0	110	142	120	--	1.2	--	
Antimony	0.2	2.75	0.037	0.140	0.0000279	0.00440	0.00199	0.00639	0.0551	0.0164	0.00304	0.0195	--	--	--	--	
Arsenic (arsenate)	0.6	8	0.03	0.195	0.00000836	0.0128	0.00275	0.0155	0.134	0.0400	0.0388	0.0788	10	40	0.0079	0.0020	
Arsenic (arsenite)	0.6	8	0.03	0.195	0.00000836	0.0128	0.00275	0.0155	0.134	0.0400	0.0388	0.0788	20	50	0.0039	0.0016	
Barium	70.3	1,200	26.2	25.9	0.000979	1.92	0.398	2.32	20.0	5.97	4.65	10.6	21	42	0.51	0.25	
Cadmium	0.27	20.6	0.062	11.7	0.00000376	0.0329	0.161	0.194	1.68	0.500	0.0850	0.585	1.5	20	0.39	0.029	
Chromium	0.44	17.9	0.4	0.45	0.00000613	0.0286	0.00684	0.0355	0.306	0.0913	0.219	0.311	0.86	4.3	0.36	0.072	
Cobalt	0.88	18.6	0.14	0.139	0.0000123	0.0298	0.00213	0.0319	0.275	0.0821	0.152	0.235	--	--	--	--	
Lead	1.63	1,210	1.6	16.7	0.0000227	1.94	0.233	2.17	18.7	5.58	0.146	5.73	3.9	11	1.5	0.52	
Mercury	0.05	1.75	0.044	0.15	0.000000697	0.00280	0.00214	0.00494	0.0426	0.0127	0.00886	0.0216	0.032	0.064	0.67	0.34	
Molybdenum	0.09	0.89	0.159	0.276	0.00000125	0.00142	0.00406	0.00548	0.0473	0.0141	0.0426	0.0567	3.5	35	0.016	0.0016	
Selenium	0.2	1.5	0.05	1	0.00000279	0.00240	0.0139	0.0163	0.141	0.0420	0.0602	0.102	0.40	0.80	0.26	0.13	
Thallium	0.01	0.455	0.001	0.038	0.000000139	0.000728	0.000528	0.00126	0.0108	0.00323	0.000764	0.00400	0.24	24	0.017	0.00017	
Vanadium	0.24	11.6	0.2	0.4	0.00000334	0.0186	0.00584	0.0244	0.210	0.0628	0.141	0.204	11	--	0.019	--	
Zinc (TRV1)	99	4,330	65	419	0.00138	6.93	5.89	12.8	111	33.0	18.7	51.7	130	--	0.40	--	
Zinc (TRV2)	99	4,330	65	419	0.00138	6.93	5.89	12.8	111	33.0	18.7	51.7	70	120	0.74	0.43	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP-0100 used (no terrestrial seed samples collected).

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-41. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT5-0100 site

Analyte	Concentration				Daily Exposure				Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Invert. (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)	NOAEL (mg/kg-day)						LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	
Aluminum	11.4	1,820	12.6	136.4	0.000159	2.91	1.91	4.82	41.5	12.4	110	122	120	--	1.0	--	
Antimony	0.2	2.46	0.037	0.081	0.0000279	0.00393	0.00118	0.00512	0.0441	0.0132	0.00304	0.0162	--	--	--	--	
Arsenic (arsenate)	0.6	5.3	0.03	0.17	0.0000836	0.00848	0.00240	0.0109	0.0938	0.0280	0.0388	0.0668	10	40	0.0067	0.0017	
Arsenic (arsenite)	0.6	5.3	0.03	0.17	0.0000836	0.00848	0.00240	0.0109	0.0938	0.0280	0.0388	0.0668	20	50	0.0033	0.0013	
Barium	70.3	1,200	26.2	46.5	0.000979	1.92	0.683	2.60	22.4	6.70	4.65	11.4	21	42	0.54	0.27	
Cadmium	0.27	24.0	0.062	3.14	0.0000376	0.0384	0.0436	0.0819	0.706	0.211	0.0850	0.296	1.5	20	0.20	0.015	
Chromium	0.44	5.15	0.4	0.45	0.0000613	0.00824	0.00684	0.0151	0.130	0.0388	0.219	0.258	0.86	4.3	0.30	0.060	
Cobalt	0.88	8.18	0.14	0.166	0.0000123	0.0131	0.00251	0.0156	0.134	0.0402	0.152	0.193	--	--	--	--	
Lead	1.63	1,060	1.6	16.2	0.0000227	1.70	0.226	1.92	16.6	4.95	0.146	5.09	3.9	11	1.3	0.46	
Mercury	0.05	0.25	0.044	0.115	0.00000697	0.000400	0.00166	0.00206	0.0178	0.00530	0.00886	0.0142	0.032	0.064	0.44	0.22	
Molybdenum	0.09	0.84	0.159	0.415	0.0000125	0.00134	0.00598	0.00733	0.0632	0.0189	0.0426	0.0615	3.5	35	0.018	0.0018	
Selenium	0.2	1.9	0.05	0.4	0.0000279	0.00304	0.00561	0.00866	0.0746	0.0223	0.0602	0.0825	0.40	0.80	0.21	0.10	
Thallium	0.01	0.368	0.001	0.0235	0.00000139	0.000589	0.000327	0.000916	0.00789	0.00236	0.000764	0.00312	0.24	24	0.013	0.00013	
Vanadium	0.24	8.25	0.2	0.4	0.0000334	0.0132	0.00584	0.0190	0.164	0.0490	0.141	0.191	11	--	0.017	--	
Zinc (TRV1)	99	5,120	65	291	0.00138	8.19	4.13	12.3	106	31.7	18.7	50.5	130	--	0.39	--	
Zinc (TRV2)	99	5,120	65	291	0.00138	8.19	4.13	12.3	106	31.7	18.7	50.5	70	120	0.72	0.42	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP-0100 used (no terrestrial seed samples collected).

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-42. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT5-1000 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Invert. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	143	548	2	19.3	0.00199	0.877	0.270	1.15	9.90	2.96	110	113	120	--	0.94	--	
Antimony	0.09	0.83	0.046	0.019	0.00000125	0.00133	0.000334	0.00166	0.0143	0.00428	0.00304	0.00732	--	--	--	--	
Arsenic (arsenate)	0.4	1.8	0.03	0.105	0.00000557	0.00288	0.00150	0.00438	0.0378	0.0113	0.0388	0.0500	10	40	0.0050	0.0013	
Arsenic (arsenite)	0.4	1.8	0.03	0.105	0.00000557	0.00288	0.00150	0.00438	0.0378	0.0113	0.0388	0.0500	20	50	0.0025	0.0010	
Barium	39.4	15.3	47.5	5.78	0.000549	0.0245	0.153	0.178	1.54	0.458	4.65	5.11	21	42	0.24	0.12	
Cadmium	0.06	4.08	0.079	2.53	0.000000836	0.00653	0.0352	0.0417	0.360	0.107	0.0850	0.192	1.5	20	0.13	0.0096	
Chromium	1.56	1.85	0.4	0.2	0.0000217	0.00296	0.00338	0.00636	0.0549	0.0164	0.219	0.236	0.86	4.3	0.27	0.055	
Cobalt	1.56	6.82	0.7	0.054	0.0000217	0.0109	0.00182	0.0128	0.110	0.0328	0.152	0.185	--	--	--	--	
Lead	1.06	8.62	0.79	2.79	0.0000148	0.0138	0.0398	0.0536	0.462	0.138	0.146	0.284	3.9	11	0.073	0.026	
Mercury	0.05	0.33	0.037	0.15	0.000000697	0.000528	0.00213	0.00266	0.0229	0.00685	0.00886	0.0157	0.032	0.064	0.49	0.25	
Molybdenum	0.02	1.16	0.069	0.289	0.000000279	0.00186	0.00410	0.00596	0.0513	0.0153	0.0426	0.0580	3.5	35	0.017	0.0017	
Selenium	0.2	0.9	0.05	0.75	0.00000279	0.00144	0.0105	0.0119	0.103	0.0306	0.0602	0.0908	0.40	0.80	0.23	0.11	
Thallium	0.003	0.072	0.001	0.0085	0.0000000418	0.000115	0.000119	0.000234	0.00202	0.000603	0.000764	0.00137	0.24	24	0.0057	0.000057	
Vanadium	0.28	4.64	0.2	0.4	0.00000390	0.00742	0.00584	0.0133	0.114	0.0342	0.141	0.176	11	--	0.016	--	
Zinc (TRV1)	30.6	38.9	58.5	302	0.000426	0.0622	4.26	4.33	37.3	11.1	18.7	29.9	130	--	0.23	--	
Zinc (TRV2)	30.6	38.9	58.5	302	0.000426	0.0622	4.26	4.33	37.3	11.1	18.7	29.9	70	120	0.43	0.25	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP-1000 used (no terrestrial seed samples collected).

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-43. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT5-2000 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Invert. (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	143	548	2	14.1	0.00199	0.877	0.198	1.08	9.28	2.77	110	113	120	--	0.94	--
Antimony	0.09	0.56	0.046	0.009	0.00000125	0.000896	0.000195	0.00109	0.00942	0.00281	0.00304	0.00585	--	--	--	--
Arsenic (arsenate)	0.4	0.5	0.03	0.2	0.00000557	0.000800	0.00281	0.00362	0.0312	0.00932	0.0388	0.0481	10	40	0.0048	0.0012
Arsenic (arsenite)	0.4	0.5	0.03	0.2	0.00000557	0.000800	0.00281	0.00362	0.0312	0.00932	0.0388	0.0481	20	50	0.0024	0.0010
Barium	39.4	96	47.5	4.61	0.000549	0.154	0.137	0.291	2.51	0.749	4.65	5.40	21	42	0.26	0.13
Cadmium	0.06	1.31	0.079	3.53	0.00000836	0.00210	0.0490	0.0511	0.440	0.131	0.0850	0.217	1.5	20	0.14	0.011
Chromium	1.56	1.85	0.4	0.3	0.0000217	0.00296	0.00477	0.00775	0.0668	0.0199	0.219	0.239	0.86	4.3	0.28	0.056
Cobalt	1.56	1.97	0.7	0.059	0.0000217	0.00315	0.00189	0.00507	0.0437	0.0130	0.152	0.166	--	--	--	--
Lead	1.06	54.1	0.79	1.77	0.0000148	0.0865	0.0257	0.112	0.968	0.289	0.146	0.435	3.9	11	0.11	0.040
Mercury	0.05	0.27	0.037	0.13	0.00000697	0.000432	0.00186	0.00229	0.0197	0.00589	0.00886	0.0148	0.032	0.064	0.46	0.23
Molybdenum	0.02	0.8	0.069	0.243	0.00000279	0.00128	0.00347	0.00475	0.0409	0.0122	0.0426	0.0549	3.5	35	0.016	0.0016
Selenium	0.2	0.5	0.05	0.9	0.00000279	0.000800	0.0125	0.0133	0.115	0.0343	0.0602	0.0945	0	1	0.24	0.12
Thallium	0.003	0.036	0.001	0.003	0.0000000418	0.0000576	0.0000431	0.000101	0.000868	0.000259	0.000764	0.00102	0.24	24	0.0043	0.00043
Vanadium	0.28	0.98	0.2	0.4	0.00000390	0.00157	0.00584	0.00742	0.0639	0.0191	0.141	0.161	11	--	0.015	--
Zinc (TRV1)	30.6	286	58.5	539	0.000426	0.457	7.55	8.01	69.0	20.6	18.7	39.4	130	--	0.30	--
Zinc (TRV2)	30.6	286	58.5	539	0.000426	0.457	7.55	8.01	69.0	20.6	18.7	39.4	70	120	0.56	0.33

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP-1000 used (no terrestrial seed samples collected).

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-44. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT2-0010 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Invert. (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	11.4	6,000	12.6	202	0.000159	9.60	2.82	12.4	107	32.0	110	142	120	--	1.2	--
Antimony	0.2	2.20	0.037	0.063	0.00000279	0.00351	0.000929	0.00444	0.0383	0.0114	0.00304	0.0145	--	--	--	--
Arsenic (arsenate)	0.6	6.45	0.03	0.17	0.00000836	0.0103	0.00240	0.0127	0.110	0.0328	0.0388	0.0715	10	40	0.0072	0.0018
Arsenic (arsenite)	0.6	6.45	0.03	0.17	0.00000836	0.0103	0.00240	0.0127	0.110	0.0328	0.0388	0.0715	20	50	0.0036	0.0014
Barium	70.3	2,070	26.2	45.3	0.000979	3.30	0.667	3.97	34.2	10.2	4.65	14.9	21	42	0.71	0.35
Cadmium	0.27	16.4	0.062	7.13	0.00000376	0.0262	0.0988	0.125	1.08	0.322	0.0850	0.407	1.5	20	0.27	0.020
Chromium	0.44	9.9	0.4	0.56	0.00000613	0.0158	0.00837	0.0242	0.209	0.0623	0.219	0.282	0.86	4.3	0.33	0.066
Cobalt	0.88	9.75	0.14	0.139	0.0000123	0.0156	0.00214	0.0177	0.153	0.0457	0.152	0.198	--	--	--	--
Lead	1.63	759	1.6	6.38	0.0000227	1.21	0.0908	1.30	11.2	3.36	0.146	3.51	3.9	11	0.90	0.32
Mercury	0.05	0.455	0.044	0.11	0.00000697	0.000728	0.00159	0.00232	0.0200	0.00597	0.00886	0.0148	0.032	0.064	0.46	0.23
Molybdenum	0.09	0.77	0.159	0.287	0.00000125	0.00123	0.00422	0.00545	0.0470	0.0140	0.0426	0.0567	3.5	35	0.016	0.0016
Selenium	0.2	1.25	0.05	0.2	0.00000279	0.00200	0.00285	0.00485	0.0418	0.0125	0.0602	0.0727	0.40	0.80	0.18	0.091
Thallium	0.01	0.366	0.001	0.015	0.000000139	0.000585	0.000209	0.000795	0.00685	0.00205	0.000764	0.00281	0.24	24	0.012	0.00012
Vanadium	0.24	12	0.2	0.41	0.00000334	0.0192	0.00598	0.0252	0.217	0.0648	0.141	0.206	11	--	0.019	--
Zinc (TRV1)	99	3,460	65	407	0.00138	5.53	5.73	11.3	97.1	29.0	18.7	47.8	130	--	0.37	--
Zinc (TRV2)	99	3,460	65	407	0.00138	5.53	5.73	11.3	97.1	29.0	18.7	47.8	70	120	0.68	0.40

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA soil (TT2-0010); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP1-0100 used. No terrestrial sedge seed data available. Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-45. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT2-0100 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Invert. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	11.4	3,060	12.6	47.6	0.000159	4.89	0.678	5.57	48.0	14.3	110	124	120	--	1.0	--	
Antimony	0.2	2.04	0.037	0.021	0.00000279	0.00325	0.000348	0.00361	0.0311	0.00928	0.00304	0.0123	--	--	--	--	
Arsenic (arsenate)	0.6	3.95	0.03	0.1	0.00000836	0.00632	0.00143	0.00776	0.0669	0.0200	0.0388	0.0587	10	40	0.0059	0.0015	
Arsenic (arsenite)	0.6	3.95	0.03	0.1	0.00000836	0.00632	0.00143	0.00776	0.0669	0.0200	0.0388	0.0587	20	50	0.0029	0.0012	
Barium	70.3	890	26.2	17.5	0.000979	1.42	0.283	1.71	14.7	4.39	4.65	9.04	21	42	0.43	0.22	
Cadmium	0.27	9.89	0.062	3.09	0.00000376	0.0158	0.0429	0.0587	0.506	0.151	0.0850	0.236	1.5	20	0.16	0.012	
Chromium	0.44	6.02	0.4	0.4	0.00000613	0.00963	0.00615	0.0158	0.136	0.0406	0.219	0.260	0.86	4.3	0.30	0.060	
Cobalt	0.88	6.88	0.14	0.066	0.0000123	0.0110	0.00113	0.0121	0.105	0.0312	0.152	0.184	--	--	--	--	
Lead	1.63	414	1.6	2.88	0.0000227	0.661	0.0423	0.704	6.07	1.81	0.146	1.96	3.9	11	0.50	0.18	
Mercury	0.05	0.37	0.044	0.1	0.000000697	0.000592	0.00145	0.00204	0.0176	0.00526	0.00886	0.0141	0.032	0.064	0.44	0.22	
Molybdenum	0.09	0.79	0.159	0.279	0.00000125	0.00126	0.00411	0.00537	0.0463	0.0138	0.0426	0.0565	3.5	35	0.016	0.0016	
Selenium	0.2	1.1	0.05	0.6	0.00000279	0.00176	0.00838	0.0101	0.0874	0.0261	0.0602	0.0863	0.40	0.80	0.22	0.11	
Thallium	0.01	0.19	0.001	0.007	0.000000139	0.000304	0.0000984	0.000402	0.00347	0.00104	0.000764	0.00180	0.24	24	0.0075	0.000075	
Vanadium	0.24	7.31	0.2	0.4	0.00000334	0.0117	0.00584	0.0175	0.151	0.0452	0.141	0.187	11	--	0.017	--	
Zinc (TRV1)	99	1,970	65	236	0.00138	3.15	3.37	6.52	56.2	16.8	18.7	35.5	130	--	0.27	--	
Zinc (TRV2)	99	1,970	65	236	0.00138	3.15	3.37	6.52	56.2	16.8	18.7	35.5	70	120	0.51	0.30	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA soil (TT2-0100); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP1-0100 used. No terrestrial sedge seed data available. Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-46. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT2-1000 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Invert. (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
	Aluminum	143	405	2	17.4	0.00199	0.648						0.244	0.894	7.70	2.30
Antimony	0.09	0.28	0.046	0.003	0.00000125	0.000448	0.000112	0.000561	0.00484	0.00145	0.00304	0.00448	--	--	--	--
Arsenic (arsenate)	0.4	0.95	0.03	0.07	0.00000557	0.00152	0.00102	0.00254	0.0219	0.00654	0.0388	0.0453	10	40	0.0045	0.0011
Arsenic (arsenite)	0.4	0.95	0.03	0.07	0.00000557	0.00152	0.00102	0.00254	0.0219	0.00654	0.0388	0.0453	20	50	0.0023	0.00091
Barium	39.4	146	47.5	6.89	0.000549	0.233	0.168	0.402	3.46	1.03	4.65	5.68	21	42	0.27	0.14
Cadmium	0.06	0.915	0.079	1.14	0.000000836	0.00146	0.0159	0.0174	0.150	0.0447	0.0850	0.130	1.5	20	0.086	0.0065
Chromium	1.56	1.03	0.4	0.2	0.0000217	0.00165	0.00338	0.00505	0.0436	0.0130	0.219	0.232	0.86	4.3	0.27	0.054
Cobalt	1.56	5.99	0.7	0.062	0.0000217	0.00958	0.00193	0.0115	0.0995	0.0297	0.152	0.182	--	--	--	--
Lead	1.06	23.8	0.79	1.05	0.0000148	0.0380	0.0157	0.0538	0.463	0.138	0.146	0.284	3.9	11	0.073	0.026
Mercury	0.05	0.23	0.037	0.1	0.000000697	0.000368	0.00144	0.00181	0.0156	0.00466	0.00886	0.0135	0.032	0.064	0.42	0.21
Molybdenum	0.02	0.855	0.069	0.325	0.000000279	0.00137	0.00460	0.00597	0.0515	0.0154	0.0426	0.0580	3.5	35	0.017	0.0017
Selenium	0.2	0.5	0.05	0.9	0.00000279	0.000800	0.0125	0.0133	0.115	0.0343	0.0602	0.0945	0.40	0.80	0.24	0.12
Thallium	0.003	0.0375	0.001	0.002	0.0000000418	0.0000600	0.0000292	0.0000892	0.000769	0.000230	0.000764	0.000994	0.24	24	0.0041	0.000041
Vanadium	0.28	2.23	0.2	0.4	0.00000390	0.00357	0.00584	0.00941	0.0812	0.0242	0.141	0.166	11	--	0.015	--
Zinc (TRV1)	30.6	327	58.5	232	0.000426	0.523	3.30	3.82	33.0	9.85	18.7	28.6	130	--	0.22	--
Zinc (TRV2)	30.6	327	58.5	232	0.000426	0.523	3.30	3.82	33.0	9.85	18.7	28.6	70	120	0.41	0.24

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE1RA soil (TT2-1000); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP1-1000 used. No terrestrial sedge seed data available. Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-47. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT3-0010 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Invert. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	75	2,660	10.6	151	0.00104	4.25	2.11	6.36	54.8	16.4	110	126	120	--	1.1	--	
Antimony	0.03	0.925	0.5	0.037	0.000000418	0.00148	0.00128	0.00276	0.0238	0.00711	0.00304	0.0101	--	--	--	--	
Arsenic (arsenate)	0.5	5.3	0.04	0.25	0.00000697	0.00848	0.00352	0.0120	0.104	0.0309	0.0388	0.0697	10	40	0.0070	0.0017	
Arsenic (arsenite)	0.5	5.3	0.04	0.25	0.00000697	0.00848	0.00352	0.0120	0.104	0.0309	0.0388	0.0697	20	50	0.0035	0.0014	
Barium	46.8	2,280	44.3	71.8	0.000652	3.65	1.06	4.71	40.6	12.1	4.65	16.8	21	42	0.80	0.40	
Cadmium	0.02	7.07	0.143	4.31	0.00000279	0.0113	0.0599	0.0712	0.614	0.183	0.0850	0.268	1.5	20	0.18	0.013	
Chromium	1.6	9.69	0.2	0.3	0.0000223	0.0155	0.00446	0.0200	0.172	0.0514	0.219	0.271	0.86	4.3	0.31	0.063	
Cobalt	0.13	8.33	0.426	0.134	0.00000181	0.0133	0.00251	0.0158	0.136	0.0407	0.152	0.193	--	--	--	--	
Lead	0.44	385	0.49	4.3	0.00000613	0.615	0.0603	0.675	5.82	1.74	0.146	1.88	3.9	11	0.48	0.17	
Mercury	0.05	0.285	0.04	0.21	0.00000697	0.000456	0.00297	0.00342	0.0295	0.00882	0.00886	0.0177	0.032	0.064	0.55	0.28	
Molybdenum	0.05	1.08	1.49	0.274	0.00000697	0.00172	0.00608	0.00780	0.0673	0.0201	0.0426	0.0627	3.5	35	0.018	0.0018	
Selenium	0.2	1	0.1	0.2	0.00000279	0.00160	0.00292	0.00452	0.0390	0.0116	0.0602	0.0718	0.40	0.80	0.18	0.090	
Thallium	0.003	0.296	0.001	0.014	0.0000000418	0.000473	0.000195	0.000668	0.00576	0.00172	0.000764	0.00248	0.24	24	0.010	0.00010	
Vanadium	0.31	14.2	0.3	0.49	0.00000432	0.0227	0.00724	0.0300	0.258	0.0771	0.141	0.219	11	--	0.020	--	
Zinc (TRV1)	6.08	1,350	57.2	205	0.0000847	2.16	2.93	5.08	43.8	13.1	18.7	31.8	130	--	0.24	--	
Zinc (TRV2)	6.08	1,350	57.2	205	0.0000847	2.16	2.93	5.08	43.8	13.1	18.7	31.8	70	120	0.45	0.27	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA soil (TT3-0010); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP3 used. No terrestrial sedge seed data available. Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.



Table K-48. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT3-0100 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Invert. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	75	1,510	10.6	79.8	0.00104	2.42	1.12	3.54	30.5	9.11	110	119	120	--	0.99	--	
Antimony	0.03	0.915	0.5	0.018	0.00000418	0.00146	0.00102	0.00248	0.0214	0.00639	0.00304	0.00943	--	--	--	--	
Arsenic (arsenate)	0.5	2.2	0.04	0.14	0.00000697	0.00352	0.00200	0.00553	0.0476	0.0142	0.0388	0.0530	10	40	0.0053	0.0013	
Arsenic (arsenite)	0.5	2.2	0.04	0.14	0.00000697	0.00352	0.00200	0.00553	0.0476	0.0142	0.0388	0.0530	20	50	0.0026	0.0011	
Barium	46.8	694	44.3	29.9	0.000652	1.11	0.482	1.59	13.7	4.10	4.65	8.75	21	42	0.42	0.21	
Cadmium	0.02	2.06	0.143	4.51	0.00000279	0.00329	0.0626	0.0659	0.568	0.170	0.0847	0.255	1.5	20	0.17	0.013	
Chromium	1.6	3.93	0.2	0.3	0.0000223	0.00629	0.00446	0.0108	0.0928	0.0277	0.219	0.247	0.86	4.3	0.29	0.057	
Cobalt	0.13	2.69	0.426	0.161	0.00000181	0.00430	0.00288	0.00719	0.0620	0.0185	0.152	0.171	--	--	--	--	
Lead	0.44	119	0.49	3.08	0.00000613	0.190	0.0434	0.233	2.01	0.601	0.146	0.747	3.9	11	0.19	0.068	
Mercury	0.05	0.12	0.04	0.24	0.000000697	0.000192	0.00338	0.00358	0.0308	0.00921	0.00886	0.0181	0.032	0.064	0.56	0.28	
Molybdenum	0.05	0.475	1.49	0.225	0.000000697	0.000760	0.00541	0.00617	0.0532	0.0159	0.0426	0.0585	3.5	35	0.017	0.0017	
Selenium	0.2	0.45	0.1	0.2	0.00000279	0.000720	0.00292	0.00364	0.0314	0.00938	0.0602	0.0696	0.40	0.80	0.17	0.087	
Thallium	0.003	0.0885	0.001	0.019	0.000000418	0.000142	0.000265	0.000406	0.00350	0.00105	0.000764	0.00181	0.24	24	0.0075	0.000075	
Vanadium	0.31	4.98	0.3	0.2	0.00000432	0.00796	0.00323	0.0112	0.0965	0.0288	0.141	0.170	11	--	0.015	--	
Zinc (TRV1)	6.08	465	57.2	235	0.0000847	0.743	3.34	4.08	35.2	10.5	18.7	29.3	130	--	0.23	--	
Zinc (TRV2)	6.08	465	57.2	235	0.0000847	0.743	3.34	4.08	35.2	10.5	18.7	29.3	70	120	0.42	0.24	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA soil (TT3-0100); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP3 used. No terrestrial sedge seed data available. Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-49. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT3-1000 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)		Invert. (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Herb. Plant (mg/kg dw)														
Aluminum	177	358	10.6	12.5	0.00247	0.573	0.189	0.764	6.59	1.97	110	112	120	--	0.93	--
Antimony	0.02	0.365	0.5	0.003	0.000000279	0.000584	0.000810	0.00139	0.0120	0.00359	0.00304	0.00663	--	--	--	--
Arsenic (arsenate)	1.3	0.75	0.04	0.06	0.0000181	0.00120	0.000892	0.00211	0.0182	0.00543	0.0388	0.0442	10	40	0.0044	0.0011
Arsenic (arsenite)	1.3	0.75	0.04	0.06	0.0000181	0.00120	0.000892	0.00211	0.0182	0.00543	0.0388	0.0442	20	50	0.0022	0.00088
Barium	73.6	131	44.3	6.82	0.00103	0.210	0.163	0.373	3.22	0.960	4.65	5.61	21	42	0.27	0.13
Cadmium	0.06	0.549	0.143	1.05	0.000000836	0.000878	0.0148	0.0156	0.135	0.0402	0.0850	0.125	1.5	20	0.084	0.0063
Chromium	5.24	1.54	0.2	0.3	0.0000730	0.00246	0.00446	0.00700	0.0603	0.0180	0.219	0.237	0.86	4.3	0.28	0.055
Cobalt	0.48	0.615	0.426	0.031	0.00000669	0.000984	0.00108	0.00207	0.0179	0.00534	0.152	0.158	--	--	--	--
Lead	0.67	16.1	0.49	0.45	0.00000933	0.0257	0.00698	0.0327	0.282	0.0841	0.146	0.230	3.9	11	0.059	0.021
Mercury	0.05	0.145	0.04	0.07	0.000000697	0.000232	0.00103	0.00126	0.0109	0.00325	0.00886	0.0121	0.032	0.064	0.38	0.19
Molybdenum	0.08	0.793	1.49	0.447	0.00000111	0.00127	0.00848	0.00975	0.0840	0.0251	0.0426	0.0677	3.5	35	0.019	0.0019
Selenium	0.2	0.4	0.1	0.2	0.00000279	0.000640	0.00292	0.00356	0.0307	0.00918	0.0602	0.0694	0.40	0.80	0.17	0.087
Thallium	0.005	0.049	0.001	0.004	0.0000000697	0.0000784	0.0000569	0.000135	0.00117	0.000348	0.000764	0.00111	0.24	24	0.0046	0.000046
Vanadium	0.64	1.45	0.3	0.2	0.00000892	0.00232	0.00323	0.00556	0.0479	0.0143	0.141	0.156	11	--	0.014	--
Zinc (TRV1)	11	78.4	57.2	171	0.000153	0.125	2.45	2.58	22.2	6.64	18.7	25.4	130	--	0.20	--
Zinc (TRV2)	11	78.4	57.2	171	0.000153	0.125	2.45	2.58	22.2	6.64	18.7	25.4	70	120	0.36	0.21

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-1000); PHASE1RA soil (TT3-1000); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP3 used. No terrestrial sedge seed data available. Mean of PHASE1RA and PHASE2RA soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-50. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT6-0010 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Invert. (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	208	2660	17.1	58	0.00290	4.25	0.829	5.09	43.8	13.1	110	123	120	--	1.0	--
Antimony	0.063	1.92	1.44	0.017	0.00000878	0.00307	0.00245	0.00552	0.0476	0.0142	0.00304	0.0173	--	--	--	--
Arsenic (arsenate)	0.482	9.1	0.09	0.12	0.00000672	0.0146	0.00180	0.0164	0.141	0.0421	0.0388	0.0809	10	40	0.0081	0.0020
Arsenic (arsenite)	0.482	9.1	0.09	0.12	0.00000672	0.0146	0.00180	0.0164	0.141	0.0421	0.0388	0.0809	20	50	0.0040	0.0016
Barium	140	6950	49.9	52.5	0.00195	11.1	0.803	11.9	103	30.7	4.65	35.3	21	42	1.7	0.84
Cadmium	0.037	5.47	0.043	5.98	0.00000509	0.00875	0.0828	0.0916	0.790	0.236	0.0850	0.321	1.5	20	0.21	0.016
Chromium	0.396	9.69	0.65	0.3	0.00000552	0.0155	0.00515	0.0207	0.178	0.0532	0.219	0.273	0.86	4.3	0.32	0.063
Cobalt	0.015	9.11	0.497	0.07	0.00000209	0.0146	0.00173	0.0163	0.141	0.0420	0.152	0.194	--	--	--	--
Lead	0.65	349	0.89	2.07	0.00000906	0.558	0.0300	0.588	5.07	1.51	0.146	1.66	3.9	11	0.43	0.15
Mercury	0.018	0.25	0.05	0.07	0.00000249	0.000400	0.00105	0.00145	0.0125	0.00372	0.00886	0.0126	0.032	0.064	0.39	0.20
Molybdenum	0.22	1.95	0.182	0.229	0.00000307	0.00312	0.00345	0.00657	0.0567	0.0169	0.0426	0.0595	3.5	35	0.017	0.0017
Selenium	0.355	1.5	0.3	0.2	0.00000495	0.00240	0.00323	0.00563	0.0486	0.0145	0.0602	0.0747	0.40	0.80	0.19	0.093
Thallium	0.09	1.29	0.003	0.015	0.00000125	0.00206	0.000212	0.00228	0.0196	0.00586	0.000764	0.00663	0.24	24	0.028	0.00028
Vanadium	0.335	19.7	0.7	0.2	0.00000467	0.0315	0.00384	0.0354	0.305	0.0910	0.141	0.233	11	--	0.021	--
Zinc (TRV1)	1.79	1020	59.6	249	0.0000249	1.63	3.54	5.17	44.6	13.3	18.7	32.1	130	--	0.25	--
Zinc (TRV2)	1.79	1020	59.6	249	0.0000249	1.63	3.54	5.17	44.6	13.3	18.7	32.1	70	120	0.46	0.27

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP4 used; no terrestrial seed data collected. No pond water data collected near mine, so Anxiety Ridge Creek downstream data used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-51. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT6-0100 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Invert. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	208	1,510	17.1	78.3	0.00290	2.42	1.11	3.53	30.4	9.08	110	119	120	--	1.0	--	
Antimony	0.063	2.03	1.44	0.027	0.00000878	0.00325	0.00259	0.00584	0.0503	0.0150	0.00304	0.0181	--	--	--	--	
Arsenic (arsenate)	0.482	4.9	0.09	0.13	0.00000672	0.00784	0.00194	0.00978	0.0843	0.0252	0.0388	0.0639	10	40	0.0064	0.0016	
Arsenic (arsenite)	0.482	4.9	0.09	0.13	0.00000672	0.00784	0.00194	0.00978	0.0843	0.0252	0.0388	0.0639	20	50	0.0032	0.0013	
Barium	140	6,360	49.9	108	0.00195	10.2	1.57	11.7	101	30.2	4.65	34.9	21	42	1.7	0.83	
Cadmium	0.037	5.06	0.043	13	0.00000509	0.00809	0.180	0.188	1.62	0.484	0.0850	0.569	1.5	20	0.38	0.028	
Chromium	0.396	3.93	0.65	0.3	0.00000552	0.00629	0.00515	0.0114	0.0987	0.0295	0.219	0.249	0.86	4.3	0.29	0.058	
Cobalt	0.015	3.3	0.497	0.087	0.00000209	0.00528	0.00197	0.00725	0.0625	0.0187	0.152	0.171	--	--	--	--	
Lead	0.65	281	0.89	10.1	0.00000906	0.449	0.141	0.591	5.09	1.52	0.146	1.67	3.9	11	0.43	0.15	
Mercury	0.018	0.27	0.05	0.12	0.00000249	0.000432	0.00174	0.00217	0.0187	0.00559	0.00886	0.0144	0.032	0.064	0.45	0.23	
Molybdenum	0.22	2.47	0.182	0.335	0.00000307	0.00395	0.00492	0.00887	0.0765	0.0228	0.0426	0.0655	3.5	35	0.019	0.0019	
Selenium	0.355	0.9	0.3	0.2	0.00000495	0.00144	0.00323	0.00467	0.0403	0.0120	0.0602	0.0722	0.40	0.80	0.18	0.090	
Thallium	0.09	0.755	0.003	0.02	0.00000125	0.00121	0.000281	0.00149	0.0128	0.00384	0.000764	0.00460	0.24	24	0.019	0.00019	
Vanadium	0.335	7.51	0.7	0.2	0.00000467	0.0120	0.00384	0.0159	0.137	0.0408	0.141	0.182	11	--	0.017	--	
Zinc (TRV1)	1.79	764	59.6	310	0.0000249	1.22	4.38	5.60	48.3	14.4	18.7	33.2	130	--	0.26	--	
Zinc (TRV2)	1.79	764	59.6	310	0.0000249	1.22	4.38	5.60	48.3	14.4	18.7	33.2	70	120	0.47	0.28	

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP4 used; no terrestrial seed data collected.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-52. Food-web model exposure results for common snipe exposed to CoPC concentrations at TT6-1000 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Invert. (mg/kg dw)	Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)			Sediment (mg/day)	Food (mg/day)										
Aluminum	208	358	17.1	15.6	0.00290	0.573	0.242	0.818	7.05	2.11	110	112	120	--	0.93	--	
Antimony	0.063	1.22	1.44	0.016	0.00000878	0.00195	0.00244	0.00439	0.0378	0.0113	0.00304	0.0143	--	--	--	--	
Arsenic (arsenate)	0.482	2.9	0.09	0.06	0.00000672	0.00464	0.000969	0.00561	0.0484	0.0145	0.0388	0.0532	10	40	0.0053	0.0013	
Arsenic (arsenite)	0.482	2.9	0.09	0.06	0.00000672	0.00464	0.000969	0.00561	0.0484	0.0145	0.0388	0.0532	20	50	0.0027	0.0011	
Barium	140	1290	49.9	12.7	0.00195	2.06	0.253	2.32	20.0	5.97	4.65	10.6	21	42	0.51	0.25	
Cadmium	0.037	6.11	0.043	5.8	0.00000509	0.00977	0.0803	0.0901	0.777	0.232	0.0850	0.317	1.5	20	0.21	0.016	
Chromium	0.396	1.54	0.65	0.3	0.00000552	0.00246	0.00515	0.00762	0.0657	0.0196	0.219	0.239	0.86	4.3	0.28	0.056	
Cobalt	0.015	1.87	0.497	0.024	0.00000209	0.00299	0.00110	0.00409	0.0352	0.0105	0.152	0.163	--	--	--	--	
Lead	0.65	145	0.89	1.31	0.00000906	0.232	0.0195	0.251	2.17	0.647	0.146	0.793	3.9	11	0.20	0.072	
Mercury	0.018	0.22	0.05	0.05	0.00000249	0.000352	0.000769	0.00112	0.00966	0.00289	0.00886	0.0117	0.032	0.064	0.37	0.18	
Molybdenum	0.22	2.09	0.182	0.827	0.00000307	0.00334	0.0117	0.0151	0.130	0.0388	0.0426	0.0814	3.5	35	0.023	0.0023	
Selenium	0.355	1.6	0.3	0.2	0.00000495	0.00256	0.00323	0.00579	0.0499	0.0149	0.0602	0.0751	0.40	0.80	0.19	0.094	
Thallium	0.09	0.38	0.003	0.014	0.00000125	0.000608	0.000198	0.000807	0.00696	0.00208	0.000764	0.00284	0.24	24	0.012	0.00012	
Vanadium	0.335	16	0.7	0.2	0.00000467	0.0256	0.00384	0.0294	0.254	0.0758	0.141	0.217	11	--	0.020	--	
Zinc (TRV1)	1.79	592	59.6	224	0.0000249	0.947	3.19	4.14	35.7	10.7	18.7	29.4	130	--	0.23	--	
Zinc (TRV2)	1.79	592	59.6	224	0.0000249	0.947	3.19	4.14	35.7	10.7	18.7	29.4	70	120	0.42	0.24	

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE2RA soil; PHASE2RA sedge seeds; and PHASE2RA terrestrial invertebrates.

Seed data from station TP4 used; no terrestrial seed data collected.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in terrestrial reference station 5 (Table K-39) multiplied by 0.70.

Table K-53. Food-web model exposure results for common snipe exposed to CoPC concentrations at ST-REF-3 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water ( $\mu\text{g/L}$ )	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Invert. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Cadmium	0.005	0.245	0.0	0.696	0.000000697	0.000392	0.00970	0.0101	0.0870	1.5	20	0.058	0.0043
Lead	0.02	9.5	0.17	8.14	0.000000279	0.0152	0.113	0.128	1.10	3.9	11	0.28	0.10
Mercury	0.05	0.0215	0.039	0.07	0.000000697	0.0000344	0.00103	0.00106	0.00917	0.032	0.064	0.29	0.14
Zinc (TRV1)	0.31	66.9	40.3	137	0.00000432	0.107	1.96	2.07	17.8	130	--	0.14	--
Zinc (TRV2)	0.31	66.9	40.3	137	0.00000432	0.107	1.96	2.07	17.8	70	120	0.25	0.15

**Note:** The following data were used to develop this scenario: PHASE1RA water data (ST-REF-1); PHASE1RA sediment (ST-REF-3); PHASE2RA sediment; Phase2RA creek invertebrates; and PHASE2RA sedge seeds.

Mean of PHASE1RA and PHASE2RA used. No water data collected at station ST-REF-3, so data from closest reference creek (ST-REF-1) used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-54. Food-web model exposure results for common snipe exposed to CoPC concentrations at ST-REF-6 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water ( $\mu\text{g/L}$ )	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Invert. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Cadmium	0.07	0.19	0.071	0.347	0.000000975	0.000304	0.00491	0.00522	0.0450	1.5	20	0.030	0.0022
Lead	1.91	5.71	0.21	2.73	0.0000266	0.00913	0.0381	0.0473	0.407	3.9	11	0.10	0.037
Mercury	0.05	0.003	0.031	0.14	0.00000697	0.0000480	0.00199	0.00199	0.0172	0.032	0.064	0.54	0.27
Zinc (TRV1)	9.84	33.1	31.7	91.3	0.000137	0.0529	1.31	1.37	11.8	130	--	0.091	--
Zinc (TRV2)	9.84	33.1	31.7	91.3	0.000137	0.0529	1.31	1.37	11.8	70	120	0.17	0.10

**Note:** The following data were used to develop this scenario: PHASE1RA water data (ST-REF-5); PHASE2RA sediment; Phase2RA creek invertebrates; and PHASE2RA sedge seeds.

Sedge seed data and water data from station ST-REF-5 used (no seed or water data for ST-REF-6); sediment and invertebrate data from ST-REF-6.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-55. Food-web model exposure results for common snipe exposed to CoPC concentrations at Aufeis Creek road site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient		
	Water (µg/L)	Soil/		Water (mg/day)	Soil/							Food (mg/day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Invert. (mg/kg dw)		Sediment (mg/day)	Food (mg/day)										
Cadmium	0.121	0.49	0.228	0.00000169	0.000784	0.00351	0.00429	0.0370	0.0110	0.0610	0.0720	1.5	20	0.048	0.0036	
Lead	0.344	29.2	4.43	0.00000479	0.0466	0.0681	0.115	0.989	0.295	0.775	1.07	3.9	11	0.27	0.097	
Mercury	0.0179	0.0535	0.09	0.000000249	0.0000856	0.00138	0.00147	0.0127	0.00378	0.00643	0.0102	0.032	0.064	0.32	0.16	
Zinc (TRV1)	8.09	125	87.8	0.000113	0.200	1.35	1.55	13.4	3.99	12.5	16.5	130	--	0.13	--	
Zinc (TRV2)	8.09	125	87.8	0.000113	0.200	1.35	1.55	13.4	3.99	12.5	16.5	70	120	0.24	0.14	

**Note:** The following data were used to develop this scenario: TECK03 water (mean of AufRoad); PHASE1RA sediment; PHASE2RA sediment; and Phase2RA creek invertebrates.

Invertebrates are 100% of diet because no sedge seeds collected. Mean of PHASE1RA and PHASE2RA sediment data used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in stream reference station 3 (Table K-53) multiplied by 0.70.



Table K-56. Food-web model exposure results for common snipe exposed to CoPC concentrations at Omikviorok River road site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Invert. (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
	Cadmium	0.0849	0.435	0.137	0.365	0.00000118	0.000696						0.00526	0.00596	0.0514	0.0153
Lead	0.506	22.5	2.6	5.16	0.00000705	0.0359	0.0754	0.111	0.960	0.287	0.775	1.06	3.9	11	0.27	0.096
Mercury	0.0179	0.0315	0.041	0.08	0.000000249	0.0000504	0.00117	0.00122	0.0105	0.00314	0.00643	0.00958	0.032	0.064	0.30	0.15
Zinc (TRV1)	6.46	108	57.1	79	0.0000899	0.172	1.18	1.35	11.7	3.48	12.5	16.0	130	--	0.12	--
Zinc (TRV2)	6.46	108	57.1	79	0.0000899	0.172	1.18	1.35	11.7	3.48	12.5	16.0	70	120	0.23	0.18

**Note:** The following data were used to develop this scenario: TECK03 water (mean of OmiRoad); PHASE1RA sediment; PHASE2RA sediment; Phase2RA creek invertebrates; and PHASE2RA sedge seeds.

Mean of PHASE1RA and PHASE2RA sediment data used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in stream reference station 3 (Table K-53) multiplied by 0.70.

**Table K-57. Food-web model exposure results for common snipe exposed to CoPC concentrations at Anxiety Creek road site**

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/		Water (mg/day)	Soil/							NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Sediment (mg/kg dw)	Invert. (mg/kg dw)		Sediment (mg/day)	Food (mg/day)									
Cadmium	0.0365	1.02	0.803	0.00000509	0.00162	0.0123	0.0140	0.120	0.0360	0.0610	0.0970	1.5	20	0.065	0.0048
Lead	0.65	124	10.9	0.0000906	0.198	0.168	0.365	3.15	0.940	0.775	1.71	3.9	11	0.44	0.16
Mercury	0.0179	0.0625	0.04	0.00000249	0.000100	0.000615	0.000715	0.00617	0.00184	0.00643	0.00827	0.032	0.064	0.26	0.13
Zinc (TRV1)	1.79	204	96.2	0.0000249	0.325	1.48	1.81	15.6	4.65	12.5	17.1	130	--	0.13	--
Zinc (TRV2)	1.79	204	96.2	0.0000249	0.325	1.48	1.81	15.6	4.65	12.5	17.1	70	120	0.24	0.14

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE2RA sediment; Phase2RA creek invertebrates; and PHASE2RA sedge seeds.

Invertebrates are 100% of diet because no sedge seeds collected. Mean of PHASE1RA (ARD-D1) and PHASE2RA (ARC-R) sediment data used. Mean for Anxiety Ridge Creek road station (except for sediment...average of downstream from PHASE1RA and road station from PHASE2RA)

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for snipe in stream reference station 3 (Table K-53) multiplied by 0.70.

Table K-58. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at TP-REF-2 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	14.5	4,310	2.5	0.000399	4.37	0.133	4.50	14.1	120	--	0.12	--
Antimony	0.02	0.03	0.03	0.00000550	0.0000304	0.00160	0.00163	0.00510	--	--	--	--
Arsenic (arsenate)	0.5	7	0.18	0.0000137	0.00710	0.00960	0.0167	0.0522	10	40	0.0052	0.0013
Arsenic (arsenite)	0.5	7	0.18	0.0000137	0.00710	0.00960	0.0167	0.0522	20	50	0.0026	0.0010
Barium	133	232	42.3	0.00366	0.235	2.26	2.50	7.80	21	42	0.37	0.19
Cadmium	0.005	0.35	0.119	0.00000137	0.000355	0.00635	0.00670	0.0210	1.5	20	0.014	0.0010
Chromium	0.18	10.9	0.2	0.00000495	0.0111	0.0107	0.0217	0.0679	0.86	4.3	0.079	0.016
Cobalt	0.21	8.13	1.34	0.00000577	0.00824	0.0715	0.0797	0.249	--	--	--	--
Lead	0.06	7.48	0.5	0.00000165	0.00758	0.0267	0.0343	0.107	3.9	11	0.027	0.0097
Mercury	0.05	0.03	0.03	0.00000137	0.0000304	0.00160	0.00163	0.00510	0.032	0.064	0.16	0.080
Molybdenum	0.02	0.46	1.08	0.00000055	0.000466	0.0576	0.0581	0.182	3.5	35	0.052	0.0052
Selenium	0.5	0.5	0.2	0.0000137	0.000507	0.0107	0.0112	0.0350	0.40	0.80	0.087	0.044
Thallium	0.003	0.056	0.022	0.0000000825	0.0000568	0.00117	0.00123	0.00385	0.24	24	0.016	0.00016
Vanadium	0.17	14.9	0.3	0.00000467	0.0151	0.0160	0.0311	0.0972	11	--	0.0088	--
Zinc (TRV1)	0.59	65.4	28.3	0.0000162	0.0663	1.51	1.58	4.93	130	--	0.038	--
Zinc (TRV2)	0.59	65.4	28.3	0.0000162	0.0663	1.51	1.58	4.93	70	120	0.070	0.041

**Note:** The following data were used to develop this scenario: PHASE1RA water data (TP-REF-2); PHASE1RA sediment (TP-REF-2); and PHASE2RA sedge seeds.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-59. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at TP-REF-3 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	91.2	17,100	11.1	0.00251	17.3	0.592	17.9	56.0	120	--	0.47	--
Antimony	0.1	0.05	0.07	0.00000275	0.0000507	0.00374	0.00379	0.0118	--	--	--	--
Arsenic (arsenate)	0.9	2.6	0.07	0.0000247	0.00264	0.00374	0.00640	0.0200	10	40	0.0020	0.00050
Arsenic (arsenite)	0.9	2.6	0.07	0.0000247	0.00264	0.00374	0.00640	0.0200	20	50	0.0010	0.00040
Barium	48.4	516	51.2	0.00133	0.523	2.73	3.26	10.2	21	42	0.48	0.24
Cadmium	0.06	0.27	0.199	0.00000165	0.000274	0.0106	0.0109	0.0340	1.5	20	0.023	0.0017
Chromium	0.72	28	0.4	0.0000198	0.0284	0.0213	0.0497	0.155	0.86	4.3	0.18	0.036
Cobalt	0.19	8.01	0.25	0.00000522	0.00812	0.0133	0.0215	0.0671	--	--	--	--
Lead	0.5	10.5	0.37	0.0000137	0.0106	0.0197	0.0304	0.0950	3.9	11	0.024	0.0086
Mercury	0.05	0.04	0.033	0.00000137	0.0000406	0.00176	0.00180	0.00563	0.032	0.064	0.18	0.088
Molybdenum	0.22	0.48	0.829	0.00000605	0.000487	0.0442	0.0447	0.140	3.5	35	0.040	0.0040
Selenium	0.2	0.7	0.05	0.00000550	0.000710	0.00267	0.00338	0.0106	0.40	0.80	0.026	0.013
Thallium	0.04	0.174	0.004	0.00000110	0.000176	0.000213	0.000391	0.00122	0.24	24	0.0051	0.000051
Vanadium	2.41	36.5	0.2	0.0000663	0.0370	0.0107	0.0477	0.149	11	--	0.014	--
Zinc (TRV1)	2.87	88.7	30	0.0000789	0.0899	1.60	1.69	5.28	130	--	0.041	--
Zinc (TRV2)	2.87	88.7	30	0.0000789	0.0899	1.60	1.69	5.28	70	120	0.075	0.044

**Note:** The following data were used to develop this scenario: PHASE1RA water data (TP-REF-3); PHASE1RA sediment (TP-REF-3); and PHASE2RA sedge seeds.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-60. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at TP-REF-5 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	170	11,700	714	0.00467	11.9	38.1	50.0	156	120	--	1.3	--
Antimony	0.05	0.03	0.075	0.00000137	0.0000304	0.00400	0.00403	0.0126	--	--	--	--
Arsenic (arsenate)	0.5	3.1	9.36	0.0000137	0.00314	0.499	0.503	1.57	10	40	0.16	0.039
Arsenic (arsenite)	0.5	3.1	9.36	0.0000137	0.00314	0.499	0.503	1.57	20	50	0.079	0.031
Barium	93.5	508	117	0.00257	0.515	6.24	6.76	21.1	21	42	1.0	0.50
Cadmium	0.05	0.36	0.179	0.00000137	0.000365	0.00955	0.00992	0.0310	1.5	20	0.021	0.0015
Chromium	1.98	26.1	6.2	0.0000544	0.0265	0.331	0.357	1.12	0.86	4.3	1.3	0.26
Cobalt	0.7	11.7	4.56	0.0000192	0.0119	0.243	0.255	0.797	--	--	--	--
Lead	0.56	10.7	1.1	0.0000154	0.0108	0.0587	0.0696	0.217	3.9	11	0.056	0.020
Mercury	0.05	0.06	0.033	0.00000137	0.0000608	0.00176	0.00182	0.00570	0.032	0.064	0.18	0.089
Molybdenum	0.05	0.38	0.38	0.00000137	0.000385	0.0203	0.0207	0.0646	3.5	35	0.018	0.0018
Selenium	0.3	0.6	0.2	0.00000825	0.000608	0.0107	0.0113	0.0353	0.40	0.80	0.088	0.044
Thallium	0.003	0.139	0.049	0.0000000825	0.000141	0.00261	0.00276	0.00861	0.24	24	0.036	0.00036
Vanadium	0.89	32.5	3.9	0.0000245	0.0329	0.208	0.241	0.753	11	--	0.068	--
Zinc (TRV1)	5.01	68.2	32	0.000138	0.0691	1.71	1.78	5.55	130	--	0.043	--
Zinc (TRV2)	5.01	68.2	32	0.000138	0.0691	1.71	1.78	5.55	70	120	0.079	0.046

**Note:** The following data were used to develop this scenario: PHASE1RA water data (TP-REF-5); PHASE1RA sediment (TP-REF-5); and PHASE2RA whole sedge (no seed data). Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-61. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at TP1-0010 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
	Aluminum	11.4	4,290	12.6	0.000313	4.35						0.672	5.02	15.7	5.29
Antimony	0.2	9	0.037	0.0000550	0.00912	0.00197	0.0111	0.0347	0.0117	0.00785	0.0195	--	--	--	--
Arsenic (arsenate)	0.6	7.5	0.03	0.0000165	0.00760	0.00160	0.00922	0.0288	0.00971	0.0133	0.0230	10	40	0.0023	0.00057
Arsenic (arsenite)	0.6	7.5	0.03	0.0000165	0.00760	0.00160	0.00922	0.0288	0.00971	0.0133	0.0230	20	50	0.0011	0.00046
Barium	70.3	498	26.2	0.00193	0.505	1.40	1.90	5.95	2.01	6.75	8.75	21	42	0.42	0.21
Cadmium	0.27	101	0.062	0.00000742	0.102	0.00331	0.106	0.330	0.111	0.0226	0.134	1.5	20	0.089	0.0067
Chromium	0.44	13	0.4	0.0000121	0.0132	0.0213	0.0345	0.108	0.0364	0.103	0.139	0.86	4.3	0.16	0.032
Cobalt	0.88	24.1	0.14	0.0000242	0.0244	0.00747	0.0319	0.0998	0.0336	0.0445	0.0781	--	--	--	--
Lead	1.63	1,810	1.6	0.0000448	1.83	0.0854	1.92	6.00	2.02	0.0630	2.09	3.9	11	0.53	0.19
Mercury	0.05	1.1	0.044	0.00000137	0.00112	0.00235	0.00346	0.0108	0.00365	0.00374	0.00738	0.032	0.064	0.23	0.12
Molybdenum	0.09	2.43	0.159	0.00000247	0.00246	0.00848	0.0109	0.0342	0.0115	0.0927	0.104	3.5	35	0.030	0.0030
Selenium	0.2	3	0.05	0.00000550	0.00304	0.00267	0.00571	0.0179	0.00602	0.00701	0.0130	0.40	0.80	0.033	0.016
Thallium	0.01	1.64	0.001	0.000000275	0.00166	0.0000534	0.00172	0.00536	0.00181	0.000810	0.00262	0.24	24	0.011	0.00011
Vanadium	0.24	12.2	0.2	0.00000660	0.0124	0.0107	0.0230	0.0720	0.0243	0.0989	0.123	11	--	0.011	--
Zinc (TRV1)	99	21,900	65	0.00272	22.2	3.47	25.7	80.2	27.0	3.50	30.5	130	--	0.23	--
Zinc (TRV2)	99	21,900	65	0.00272	22.2	3.47	25.7	80.2	27.0	3.50	30.5	70	120	0.44	0.25

**Note:** The following data were used to develop this scenario: PHASE1RA water data (TP1-0100); PHASE1RA sediment; and PHASE2RA sedge seeds.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for teal in pond reference station 3 (Table K-59) multiplied by 0.66.

Table K-62. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at TP1-1000 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
	Aluminum	143	4,330	2	0.00393	4.39						0.107	4.50	14.1	4.74
Antimony	0.09	0.2	0.046	0.00000247	0.000203	0.00245	0.00266	0.00831	0.00280	0.00785	0.0107	--	--	--	--
Arsenic (arsenate)	0.4	5.1	0.03	0.0000110	0.00517	0.00160	0.00678	0.0212	0.00714	0.0133	0.0204	10	40	0.0020	0.00051
Arsenic (arsenite)	0.4	5.1	0.03	0.0000110	0.00517	0.00160	0.00678	0.0212	0.00714	0.0133	0.0204	20	50	0.0010	0.00041
Barium	39.4	281	47.5	0.00108	0.285	2.53	2.82	8.81	2.97	6.75	9.72	21	42	0.46	0.23
Cadmium	0.06	0.94	0.079	0.00000165	0.000953	0.00422	0.00517	0.0162	0.00544	0.0226	0.0280	1.5	20	0.019	0.0014
Chromium	1.56	9.71	0.4	0.0000429	0.00984	0.0213	0.0312	0.0976	0.0329	0.103	0.136	0.86	4.3	0.16	0.032
Cobalt	1.56	22.6	0.7	0.0000429	0.0229	0.0374	0.0603	0.188	0.0635	0.0445	0.108	--	--	--	--
Lead	1.06	8.96	0.79	0.0000291	0.00908	0.0422	0.0513	0.160	0.0540	0.0630	0.117	3.9	11	0.030	0.011
Mercury	0.05	0.06	0.037	0.00000137	0.0000608	0.00197	0.00204	0.00636	0.00214	0.00374	0.00588	0.032	0.064	0.18	0.092
Molybdenum	0.02	1.17	0.069	0.000000550	0.00119	0.00368	0.00487	0.0152	0.00513	0.0927	0.0978	3.5	35	0.028	0.0028
Selenium	0.2	1.6	0.05	0.00000550	0.00162	0.00267	0.00430	0.0134	0.00452	0.00701	0.0115	0.40	0.80	0.029	0.014
Thallium	0.003	0.021	0.001	0.0000000825	0.0000213	0.0000534	0.0000747	0.000234	0.0000787	0.000810	0.000889	0.24	24	0.0037	0.000037
Vanadium	0.28	15.1	0.2	0.00000770	0.0153	0.0107	0.0260	0.0812	0.0274	0.0989	0.126	11	--	0.011	--
Zinc (TRV1)	30.6	162	58.5	0.000841	0.164	3.12	3.29	10.3	3.46	3.50	6.96	130	--	0.054	--
Zinc (TRV2)	30.6	162	58.5	0.000841	0.164	3.12	3.29	10.3	3.46	3.50	6.96	70	120	0.099	0.058

**Note:** The following data were used to develop this scenario: PHASE1RA water data (TP1-1000); PHASE1RA sediment; and PHASE2RA sedge seeds.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for teal in pond reference station 3 (Table K-59) multiplied by 0.66.

Table K-63. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at TP3 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	75	1,920	10.6	0.00206	1.95	0.566	2.51	7.86	2.65	37.2	39.8	120	--	0.33	--
Antimony	0.03	0.26	0.5	0.00000825	0.000264	0.0267	0.0269	0.0842	0.0284	0.00785	0.0362	--	--	--	--
Arsenic (arsenate)	0.5	3.5	0.04	0.0000137	0.00355	0.00213	0.00570	0.0178	0.00600	0.0133	0.0192	10	40	0.0019	0.00048
Arsenic (arsenite)	0.5	3.5	0.04	0.0000137	0.00355	0.00213	0.00570	0.0178	0.00600	0.0133	0.0192	20	50	0.00096	0.00038
Barium	46.8	388	44.3	0.00129	0.393	2.36	2.76	8.62	2.90	6.75	9.65	21	42	0.46	0.23
Cadmium	0.02	1.91	0.143	0.00000550	0.00194	0.00763	0.00957	0.0299	0.0101	0.0226	0.0326	1.5	20	0.022	0.0016
Chromium	1.6	9.42	0.2	0.0000440	0.00955	0.0107	0.0203	0.0633	0.0213	0.103	0.124	0.86	4.3	0.14	0.029
Cobalt	0.13	7.56	0.426	0.00000357	0.00766	0.0227	0.0304	0.0950	0.0320	0.0445	0.0765	--	--	--	--
Lead	0.44	93.2	0.49	0.0000121	0.0945	0.0261	0.121	0.377	0.127	0.0630	0.190	3.9	11	0.049	0.017
Mercury	0.05	0.11	0.04	0.00000137	0.000112	0.00213	0.00225	0.00702	0.00237	0.00374	0.00610	0.032	0.064	0.19	0.095
Molybdenum	0.05	2	1.49	0.00000137	0.00203	0.0795	0.0815	0.255	0.0859	0.0927	0.179	3.5	35	0.051	0.0051
Selenium	0.2	0.75	0.1	0.00000550	0.000760	0.00534	0.00610	0.0191	0.00643	0.00701	0.0134	0.40	0.80	0.034	0.017
Thallium	0.003	0.023	0.001	0.000000825	0.0000233	0.0000534	0.0000768	0.000240	0.0000808	0.000810	0.000891	0.24	24	0.0037	0.000037
Vanadium	0.31	28.3	0.3	0.00000852	0.0287	0.0160	0.0447	0.140	0.0471	0.0989	0.146	11	--	0.013	--
Zinc (TRV1)	6.08	288	57.2	0.000167	0.292	3.05	3.34	10.5	3.52	3.50	7.02	130	--	0.054	--
Zinc (TRV2)	6.08	288	57.2	0.000167	0.292	3.05	3.34	10.5	3.52	3.50	7.02	70	120	0.10	0.059

**Note:** The following data were used to develop this scenario: PHASE1RA water data (TP2-0100); PHASE1RA sediment; and PHASE2RA sedge seeds.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for teal in pond reference station 3 (Table K-59) multiplied by 0.66.



Table K-64. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at TP4 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)						NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
	Aluminum	75	1,920	17.1	0.00206	1.95						0.912	2.86	8.94	3.01
Antimony	0.03	0.26	1.44	0.00000825	0.000264	0.0768	0.0771	0.241	0.0812	0.00785	0.0890	--	--	--	--
Arsenic (arsenate)	0.5	3.5	0.09	0.0000137	0.00355	0.00480	0.00836	0.0261	0.00881	0.0133	0.0221	10	40	0.0022	0.00055
Arsenic (arsenite)	0.5	3.5	0.09	0.0000137	0.00355	0.00480	0.00836	0.0261	0.00881	0.0133	0.0221	20	50	0.0011	0.00044
Barium	46.8	388	49.9	0.00129	0.393	2.66	3.06	9.55	3.22	6.75	9.97	21	42	0.47	0.24
Cadmium	0.02	1.91	0.043	0.00000550	0.00194	0.00229	0.00423	0.0132	0.00446	0.0226	0.0270	1.5	20	0.018	0.0014
Chromium	1.6	9.42	0.65	0.0000440	0.00955	0.0347	0.0443	0.138	0.0466	0.103	0.150	0.86	4.3	0.17	0.035
Cobalt	0.13	7.56	0.497	0.00000357	0.00766	0.0265	0.0342	0.107	0.0360	0.0445	0.0805	--	--	--	--
Lead	0.44	93.2	0.89	0.0000121	0.0945	0.0475	0.142	0.444	0.150	0.0630	0.213	3.9	11	0.054	0.019
Mercury	0.05	0.11	0.05	0.00000137	0.000112	0.00267	0.00278	0.00869	0.00293	0.00374	0.00666	0.032	0.064	0.21	0.10
Molybdenum	0.05	2	0.182	0.00000137	0.00203	0.00971	0.0117	0.0367	0.0124	0.0927	0.105	3.5	35	0.030	0.0030
Selenium	0.2	0.75	0.3	0.00000550	0.000760	0.0160	0.0168	0.0524	0.0177	0.00701	0.0247	0.40	0.80	0.062	0.031
Thallium	0.003	0.023	0.003	0.000000825	0.0000233	0.000160	0.000183	0.000573	0.000193	0.000810	0.00100	0.24	24	0.0042	0.000042
Vanadium	0.31	28.3	0.7	0.00000852	0.0287	0.0374	0.0660	0.206	0.0696	0.0989	0.168	11	--	0.015	--
Zinc (TRV1)	6.08	288	59.6	0.000167	0.292	3.18	3.47	10.9	3.66	3.50	7.16	130	--	0.055	--
Zinc (TRV2)	6.08	288	59.6	0.000167	0.292	3.18	3.47	10.9	3.66	3.50	7.16	70	120	0.10	0.060

**Note:** The following data were used to develop this scenario: PHASE1RA water data (TP2-0100); PHASE1RA sediment; and PHASE2RA sedge seeds.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for teal in pond reference station 3 (Table K-59) multiplied by 0.66.

Table K-65. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at ST-REF-3 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	17.3	3,620	5.6	0.000476	3.67	0.299	3.97	12.4	120	--	0.10	--
Antimony	0.01	0.03	0.055	0.00000275	0.0000304	0.00293	0.00297	0.00927	--	--	--	--
Arsenic (arsenate)	0.1	8.1	0.26	0.00000275	0.00821	0.0139	0.0221	0.0690	10	40	0.0069	0.0017
Arsenic (arsenite)	0.1	8.1	0.26	0.00000275	0.00821	0.0139	0.0221	0.0690	20	50	0.0035	0.0014
Barium	169	177	30.2	0.00465	0.179	1.61	1.80	5.61	21	42	0.27	0.13
Cadmium	0.005	0.245	0.04	0.00000137	0.000248	0.00213	0.00238	0.00745	1.5	20	0.0050	0.00037
Chromium	0.25	7.22	0.3	0.00000687	0.00732	0.0160	0.0233	0.0729	0.86	4.3	0.085	0.017
Cobalt	0.22	11	0.71	0.00000605	0.0112	0.0379	0.0490	0.153	--	--	--	--
Lead	0.02	9.5	0.17	0.00000550	0.00963	0.00907	0.0187	0.0584	3.9	11	0.015	0.0053
Mercury	0.05	0.0215	0.039	0.00000137	0.0000218	0.00208	0.00210	0.00658	0.032	0.064	0.21	0.10
Molybdenum	0.05	0.52	0.3	0.00000137	0.000527	0.0160	0.0165	0.0517	3.5	35	0.015	0.0015
Selenium	0.2	0.5	0.2	0.00000550	0.000507	0.0107	0.0112	0.0349	0.40	0.80	0.087	0.044
Thallium	0.003	0.041	0.002	0.000000825	0.0000416	0.000107	0.000148	0.000464	0.24	24	0.0019	0.000019
Vanadium	0.2	10.7	0.3	0.00000550	0.0108	0.0160	0.0269	0.0839	11	--	0.0076	--
Zinc (TRV1)	0.31	66.9	40.3	0.00000852	0.0678	2.15	2.22	6.93	130	--	0.053	--
Zinc (TRV2)	0.31	66.9	40.3	0.00000852	0.0678	2.15	2.22	6.93	70	120	0.099	0.058

**Note:** The following data were used to develop this scenario: PHASE1RA water data (ST-REF-1); PHASE1RA sediment (ST-REF-3); and PHASE2RA sedge seeds.

Mean of PHASE1RA and PHASE2RA sediment data used. No water data available for ST-REF-3, so data from closest stream, ST-REF-1, used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-66. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at ST-REF-5 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
											Hazard Quotient	Hazard Quotient
Aluminum	2,770	12,100	5.4	0.0762	12.3	0.288	12.6	39.5	120	--	0.33	--
Antimony	0.08	0.05	0.04	0.00000220	0.0000507	0.00213	0.00219	0.00683	--	--	--	--
Arsenic (arsenate)	2.2	3.5	0.09	0.0000605	0.00355	0.00480	0.00841	0.0263	10	40	0.0026	0.00066
Arsenic (arsenite)	2.2	3.5	0.09	0.0000605	0.00355	0.00480	0.00841	0.0263	20	50	0.0013	0.00053
Barium	222	483	46.9	0.00610	0.490	2.50	3.00	9.37	21	42	0.45	0.22
Cadmium	0.07	0.3	0.071	0.00000192	0.000304	0.00379	0.00409	0.0128	1.5	20	0.0085	0.00064
Chromium	3.71	19.9	0.2	0.000102	0.0202	0.0107	0.0309	0.0967	0.86	4.3	0.11	0.022
Cobalt	2.72	8.74	0.42	0.0000748	0.00886	0.0224	0.0313	0.0980	--	--	--	--
Lead	1.91	8.87	0.21	0.0000525	0.00899	0.0112	0.0202	0.0633	3.9	11	0.016	0.0058
Mercury	0.05	0.04	0.031	0.00000137	0.0000406	0.00165	0.00170	0.00530	0.032	0.064	0.17	0.083
Molybdenum	0.17	0.3	0.506	0.00000467	0.000304	0.0270	0.0273	0.0853	3.5	35	0.024	0.0024
Selenium	0.2	0.7	0.05	0.00000550	0.000710	0.00267	0.00338	0.0106	0.40	0.80	0.026	0.013
Thallium	0.014	0.07	0.003	0.000000385	0.0000710	0.000160	0.000231	0.000723	0.24	24	0.0030	0.000030
Vanadium	5.57	24.8	0.3	0.000153	0.0251	0.0160	0.0413	0.129	11	--	0.012	--
Zinc (TRV1)	9.84	68.1	31.7	0.000271	0.0690	1.69	1.76	5.50	130	--	0.042	--
Zinc (TRV2)	9.84	68.1	31.7	0.000271	0.0690	1.69	1.76	5.50	70	120	0.079	0.046

**Note:** The following data were used to develop this scenario: PHASE1RA water data (ST-REF-5); PHASE1RA sediment (ST-REF-5); and PHASE2RA sedge seeds.

No PHASE2RA sediment data collected.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-67. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at ST-REF-6 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	2,770	12,100	396	0.0762	12.3	21.1	33.5	105	120	--	0.87	--
Antimony	0.08	0.05	0.05	0.0000220	0.0000507	0.00267	0.00272	0.00850	--	--	--	--
Arsenic (arsenate)	2.2	3.5	1.08	0.0000605	0.00355	0.0576	0.0612	0.191	10	40	0.019	0.0048
Arsenic (arsenite)	2.2	3.5	1.08	0.0000605	0.00355	0.0576	0.0612	0.191	20	50	0.0096	0.0038
Barium	222	483	64	0.00610	0.490	3.41	3.91	12.2	21	42	0.58	0.29
Cadmium	0.07	0.19	0.057	0.0000192	0.000193	0.00304	0.00324	0.0101	1.5	20	0.0067	0.00051
Chromium	3.71	19.9	4.1	0.000102	0.0202	0.219	0.239	0.747	0.86	4.3	0.87	0.17
Cobalt	2.72	8.74	1.62	0.0000748	0.00886	0.0864	0.0954	0.298	--	--	--	--
Lead	1.91	5.71	0.74	0.0000525	0.00579	0.0395	0.0453	0.142	3.9	11	0.036	0.013
Mercury	0.05	0.003	0.025	0.00000137	0.00000304	0.00133	0.00134	0.00418	0.032	0.064	0.13	0.065
Molybdenum	0.17	0.3	0.147	0.00000467	0.000304	0.00784	0.00815	0.0255	3.5	35	0.0073	0.00073
Selenium	0.2	0.7	0.2	0.00000550	0.000710	0.0107	0.0114	0.0356	0.40	0.80	0.089	0.044
Thallium	0.014	0.07	0.009	0.000000385	0.0000710	0.000480	0.000552	0.00172	0.24	24	0.0072	0.000072
Vanadium	5.57	24.8	0.85	0.000153	0.0251	0.0454	0.0706	0.221	11	--	0.020	--
Zinc (TRV1)	9.84	33.1	30	0.000271	0.0336	1.60	1.63	5.11	130	--	0.039	--
Zinc (TRV2)	9.84	33.1	30	0.000271	0.0336	1.60	1.63	5.11	70	120	0.073	0.043

**Note:** The following data were used to develop this scenario: PHASE1RA water data (ST-REF-5); PHASE1RA sediment (other analytes, ST-REF-5); PHASE2RA sediment (Cd, Pb, Hg, Zn); and PHASE2RA whole sedge (no seed data).

No sediment or water data collected at ST-REF-6 during PHASE1RA.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-68. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at Omikviorok River road site

Analyte	Concentration			Daily Exposure				BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)		Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)					NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Herb. Plant (mg/kg dw)													
Aluminum	96.3	9,520	163	0.00265	9.65	8.70	18.4	57.3	19.3	26.2	45.5	120	--	0.38	--
Antimony	0.063	0.14	0.047	0.0000173	0.000142	0.00251	0.00265	0.00829	0.00279	0.00453	0.00732	--	--	--	--
Arsenic (arsenate)	0.482	7.6	0.23	0.0000133	0.00770	0.0123	0.0200	0.0625	0.0211	0.0174	0.0385	10	40	0.0038	0.00096
Arsenic (arsenite)	0.482	7.6	0.23	0.0000133	0.00770	0.0123	0.0200	0.0625	0.0211	0.0174	0.0385	20	50	0.0019	0.00077
Barium	133	407	74	0.00366	0.413	3.95	4.36	13.6	4.60	6.21	10.8	21	42	0.51	0.26
Cadmium	0.0849	0.435	0.137	0.00000234	0.000441	0.00731	0.00775	0.0242	0.00816	0.00848	0.0166	1.5	20	0.011	0.00083
Chromium	0.396	20.6	0.6	0.0000109	0.0209	0.0320	0.0529	0.165	0.0557	0.0641	0.120	0.86	4.3	0.14	0.028
Cobalt	0.1	13.5	0.39	0.00000275	0.0137	0.0208	0.0345	0.108	0.0363	0.0649	0.101	--	--	--	--
Lead	0.506	22.5	2.6	0.0000139	0.0228	0.139	0.162	0.505	0.170	0.0420	0.212	3.9	11	0.054	0.019
Mercury	0.0179	0.0315	0.041	0.000000492	0.0000319	0.00219	0.00222	0.00694	0.00234	0.00351	0.00585	0.032	0.064	0.18	0.091
Molybdenum	0.69	0.49	0.202	0.0000190	0.000497	0.0108	0.0113	0.0353	0.0119	0.0566	0.0685	3.5	35	0.020	0.0020
Selenium	0.0201	0.6	0.1	0.000000553	0.000608	0.00534	0.00594	0.0186	0.00626	0.00701	0.0133	0.40	0.80	0.033	0.017
Thallium	0.0428	0.106	0.005	0.00000118	0.000107	0.000267	0.000375	0.00117	0.000395	0.000479	0.000875	0.24	24	0.0036	0.000036
Vanadium	0.335	24.9	0.5	0.00000921	0.0252	0.0267	0.0519	0.162	0.0547	0.0856	0.140	11	--	0.013	--
Zinc (TRV1)	6.46	108	57.1	0.000178	0.109	3.05	3.16	9.86	3.32	3.65	6.97	130	--	0.054	--
Zinc (TRV2)	6.46	108	57.1	0.000178	0.109	3.05	3.16	9.86	3.32	3.65	6.97	70	120	0.10	0.058

**Note:** The following data were used to develop this scenario: TECK03 water (mean of OmiRoad); PHASE1RA sediment; PHASE2RA sediment (Cd, Pb, Hg, Zn); and PHASE2RA sedge seeds.

Mean of PHASE1RA and PHASE2RA sediment data used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for teal in stream reference station 5 (Table K-66) multiplied by 0.66.

Table K-69. Food-web model exposure results for green-winged teal exposed to CoPC concentrations at Anxiety Ridge Creek road site

Analyte	Concentration			Daily Exposure				Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	Time Use Adjusted Exposure (mg/kg-day)	Ref. Time Use Adjusted Exp. (mg/kg-day) <sup>a</sup>	Total Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/ Sediment (mg/day)	Food (mg/day)	NOAEL (mg/kg-day)						LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	
Aluminum	208	7,200	307	0.00572	7.30	16.4	23.7	74.0	24.9	26.2	51.1	120	--	0.43	--	
Antimony	0.063	0.42	0.04	0.0000173	0.000426	0.00213	0.00256	0.00801	0.00270	0.00453	0.00723	--	--	--	--	
Arsenic (arsenate)	0.482	8.4	1.13	0.0000133	0.00852	0.0603	0.0688	0.215	0.0725	0.0174	0.0899	10	40	0.0090	0.0022	
Arsenic (arsenite)	0.482	8.4	1.13	0.0000133	0.00852	0.0603	0.0688	0.215	0.0725	0.0174	0.0899	20	50	0.0045	0.0018	
Barium	140	922	250	0.00385	0.935	13.3	14.3	44.6	15.0	6.21	21.2	21	42	1.0	0.51	
Cadmium	0.0365	1.02	0.638	0.00000100	0.00103	0.0340	0.0351	0.110	0.0369	0.00848	0.0454	1.5	20	0.030	0.0023	
Chromium	0.396	14.6	3.1	0.0000109	0.0148	0.165	0.180	0.563	0.190	0.0641	0.254	0.86	4.3	0.30	0.059	
Cobalt	0.015	11.1	0.92	0.000000412	0.0113	0.0491	0.0603	0.189	0.0635	0.0649	0.128	--	--	--	--	
Lead	0.65	124	14.3	0.0000179	0.125	0.763	0.888	2.78	0.935	0.0420	0.977	3.9	11	0.25	0.089	
Mercury	0.0179	0.0625	0.06	0.000000492	0.0000634	0.00320	0.00327	0.0102	0.00344	0.00351	0.00695	0.032	0.064	0.22	0.11	
Molybdenum	0.22	1.62	0.309	0.00000605	0.00164	0.0165	0.0181	0.0567	0.0191	0.0566	0.0757	3.5	35	0.022	0.0022	
Selenium	0.355	1.5	0.3	0.00000976	0.00152	0.0160	0.0175	0.0548	0.0185	0.00701	0.0255	0.40	0.80	0.064	0.032	
Thallium	0.09	0.19	0.027	0.00000247	0.000193	0.00144	0.00164	0.00511	0.00172	0.000479	0.00220	0.24	24	0.0092	0.000092	
Vanadium	0.335	20.5	0.7	0.00000921	0.0208	0.0374	0.0581	0.182	0.0612	0.0856	0.147	11	--	0.013	--	
Zinc (TRV1)	1.79	204	87.4	0.0000492	0.206	4.66	4.87	15.2	5.13	3.65	8.78	130	--	0.068	--	
Zinc (TRV2)	1.79	204	87.4	0.0000492	0.206	4.66	4.87	15.2	5.13	3.65	8.78	70	120	0.13	0.073	

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA sediment (ARC-D1); PHASE2RA sediment (Cd, Pb, Hg, Zn at ARC-R); and PHASE2RA whole sedge (no seed data). Mean for Anxiety Ridge Creek road station, except PHASE1RA sediment and water from downstream location. Mean of PHASE1RA (ARC\_D1) and PHASE2RA (ARC-R) sediment data used. Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

<sup>a</sup> Based on mean daily exposure for teal in stream reference station 5 (Table K-66) multiplied by 0.66.

Table K-70. Food-web model exposure results for snowy owl exposed to mean CoPC concentrations at reference site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammal (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	514	3,650	22.6	0.0527	7.48	2.31	9.84	4.32	120	--	0.036	--
Antimony	0.045	0.208	0.004	0.0000461	0.000425	0.000410	0.000839	0.000368	--	--	--	--
Arsenic (arsenate)	0.717	3.61	0.118	0.0000734	0.00740	0.0120	0.0195	0.00855	10	40	0.00086	0.00021
Arsenic (arsenite)	0.717	3.61	0.118	0.0000734	0.00740	0.0120	0.0195	0.00855	20	50	0.00043	0.00017
Barium	125	346	45.4	0.0128	0.708	4.64	5.36	2.35	21	42	0.11	0.056
Cadmium	0.0333	0.379	0.326	0.0000342	0.000777	0.0333	0.0341	0.0150	1.5	20	0.010	0.00075
Chromium	1.17	6.76	0.975	0.000120	0.0139	0.0998	0.114	0.0499	0.86	4.3	0.058	0.012
Cobalt	0.693	7.97	0.177	0.0000710	0.0163	0.0182	0.0345	0.0151	--	--	--	--
Lead	0.512	10.2	4.64	0.0000524	0.0210	0.475	0.496	0.217	3.9	11	0.056	0.020
Mercury	0.05	0.0935	0.0288	0.00000512	0.000192	0.00294	0.00314	0.00138	0.032	0.064	0.043	0.022
Molybdenum	0.0883	0.689	0.457	0.00000905	0.00141	0.0468	0.0482	0.0212	3.5	35	0.0060	0.00060
Selenium	0.267	0.594	0.825	0.0000273	0.00122	0.0845	0.0857	0.0376	0.40	0.80	0.094	0.047
Thallium	0.011	0.0769	0.00625	0.00000113	0.000158	0.000640	0.000799	0.000350	0.24	24	0.0015	0.000015
Vanadium	1.57	14.5	0.4	0.000161	0.0296	0.0410	0.0707	0.0310	11	--	0.0028	--
Zinc (TRV1)	3.16	60.8	110	0.000324	0.125	11.3	11.4	5.01	130	--	0.039	--
Zinc (TRV2)	3.16	60.8	110	0.000324	0.125	11.3	11.4	5.01	70	120	0.072	0.042

**Note:** The following data were used to develop this scenario: PHASE2RA reference investigation unit (terrestrial) creek/pond water, tundra soil, small mammal data. Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-71. Food-web model exposure results for snowy owl exposed to 95%UCL CoPC concentrations at reference site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammal (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	2,770 <sup>a</sup>	5,590	78.4 <sup>a</sup>	0.284	11.5	8.03	19.8	8.67	120	--	0.072	--
Antimony	0.0765	0.241	0.00635	0.00000784	0.000495	0.000651	0.00115	0.000506	--	--	--	--
Arsenic (arsenate)	1.36	5.31	0.14 <sup>a</sup>	0.000140	0.0109	0.0143	0.0253	0.0111	10	40	0.0011	0.00028
Arsenic (arsenite)	1.36	5.31	0.14 <sup>a</sup>	0.000140	0.0109	0.0143	0.0253	0.0111	20	50	0.00056	0.00022
Barium	177	417	55.7 <sup>a</sup>	0.0181	0.854	5.70	6.58	2.88	21	42	0.14	0.069
Cadmium	0.058	0.477	0.73	0.00000594	0.000976	0.0747	0.0757	0.0332	1.5	20	0.022	0.0017
Chromium	3.71 <sup>a</sup>	11.8	1.63	0.000380	0.0242	0.167	0.191	0.0840	0.86	4.3	0.098	0.020
Cobalt	1.79	11.3	0.201	0.000183	0.0232	0.0206	0.0440	0.0193	--	--	--	--
Lead	1.91 <sup>a</sup>	12.5	15.9 <sup>a</sup>	0.000196	0.0257	1.63	1.65	0.725	3.9	11	0.19	0.066
Mercury	0.05 <sup>a</sup>	0.109	0.039 <sup>a</sup>	0.00000512	0.000223	0.00399	0.00422	0.00185	0.032	0.064	0.058	0.029
Molybdenum	0.158	0.881	0.605	0.0000162	0.00180	0.0619	0.0637	0.0280	3.5	35	0.0080	0.00080
Selenium	0.366	0.693	1.1 <sup>a</sup>	0.0000375	0.00142	0.113	0.114	0.0500	0.40	0.80	0.13	0.063
Thallium	0.04 <sup>a</sup>	0.0919	0.007 <sup>a</sup>	0.00000410	0.000188	0.000717	0.000909	0.000399	0.24	24	0.0017	0.000017
Vanadium	5.57 <sup>a</sup>	19	0.4 <sup>a</sup>	0.000571	0.0388	0.0410	0.0804	0.0353	11	--	0.0032	--
Zinc (TRV1)	6.26	68.4	120	0.000641	0.140	12.2	12.4	5.43	130	--	0.042	--
Zinc (TRV2)	6.26	68.4	120	0.000641	0.140	12.2	12.4	5.43	70	120	0.078	0.045

**Note:** The following data were used to develop this scenario: PHASE2RA reference investigation unit (terrestrial) creek/pond water, tundra soil, small mammal data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL concentration.



Table K-72. Food-web model exposure results for snowy owl exposed to mean CoPC concentrations at port site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammal (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	35.5	5,610	474	0.00364	11.5	48.5	60.0	26.3	120	--	0.22	--
Antimony	0.307	5.83	0.0308	0.0000314	0.0119	0.00316	0.0151	0.00664	--	--	--	--
Arsenic (arsenate)	0.494	16.7	0.125	0.0000506	0.0341	0.0128	0.0470	0.0206	10	40	0.0021	0.00052
Arsenic (arsenite)	0.494	16.7	0.125	0.0000506	0.0341	0.0128	0.0470	0.0206	20	50	0.0010	0.00041
Barium	44.8	597	43.2	0.00459	1.22	4.42	5.65	2.48	21	42	0.12	0.059
Cadmium	0.12	15.1	0.271	0.0000123	0.0309	0.0278	0.0587	0.0257	1.5	20	0.017	0.0013
Chromium	0.799	11.1	2.72	0.0000818	0.0227	0.279	0.302	0.132	0.86	4.3	0.15	0.031
Cobalt	0.903	11.4	0.264	0.0000926	0.0234	0.0270	0.0505	0.0222	--	--	--	--
Lead	0.462	792	11.6	0.0000474	1.62	1.19	2.81	1.23	3.9	11	0.32	0.11
Mercury	0.0393	0.779	0.0298	0.00000403	0.00160	0.00306	0.00466	0.00204	0.032	0.064	0.064	0.032
Molybdenum	0.793	1.41	0.708	0.0000813	0.00288	0.0725	0.0754	0.0331	3.5	35	0.0095	0.00095
Selenium	0.523	7.71	0.308	0.0000536	0.0158	0.0315	0.0474	0.0208	0.40	0.80	0.052	0.026
Thallium	0.0095	0.354	0.0115	0.000000973	0.000726	0.00117	0.00190	0.000833	0.24	24	0.0035	0.000035
Vanadium	0.285	14.1	0.462	0.0000292	0.0289	0.0473	0.0762	0.0334	11	--	0.0030	--
Zinc (TRV1)	22.2	2490	124	0.00228	5.11	12.7	17.8	7.79	130	--	0.060	--
Zinc (TRV2)	22.2	2490	124	0.00228	5.11	12.7	17.8	7.79	70	120	0.11	0.065

**Note:** The following data were used to develop this scenario: PHASE2RA port investigation unit creek/pond water, tundra soil, small mammal data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-73. Food-web model exposure results for snowy owl exposed to 95%UCL CoPC concentrations at port site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammal (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	103	7,820	940	0.0105	16.0	96.3	112	49.3	120	--	0.41	--
Antimony	0.63 <sup>a</sup>	8.2	0.0426	0.0000645	0.0168	0.00436	0.0212	0.00931	--	--	--	--
Arsenic (arsenate)	0.6 <sup>a</sup>	22.9	0.139	0.0000615	0.0468	0.0142	0.0611	0.0268	10	40	0.0027	0.00067
Arsenic (arsenite)	0.6 <sup>a</sup>	22.9	0.139	0.0000615	0.0468	0.0142	0.0611	0.0268	20	50	0.0013	0.00054
Barium	70.3 <sup>a</sup>	817	58.2	0.00720	1.67	5.96	7.64	3.35	21	42	0.16	0.080
Cadmium	0.245	27.6	0.393	0.0000251	0.0566	0.0402	0.0968	0.0425	1.5	20	0.028	0.0021
Chromium	1.56 <sup>a</sup>	16.4	3.15	0.000160	0.0336	0.322	0.356	0.156	0.86	4.3	0.18	0.036
Cobalt	1.56 <sup>a</sup>	14.3	0.313	0.000160	0.0293	0.0321	0.0615	0.0270	--	--	--	--
Lead	1.63 <sup>a</sup>	2100	18.1	0.000167	4.31	1.85	6.16	2.70	3.9	11	0.69	0.25
Mercury	0.05 <sup>a</sup>	3.23	0.0447	0.00000512	0.00661	0.00457	0.0112	0.00491	0.032	0.064	0.15	0.077
Molybdenum	2.27 <sup>a</sup>	1.68	0.824	0.000233	0.00344	0.0844	0.0881	0.0386	3.5	35	0.011	0.0011
Selenium	1.17 <sup>a</sup>	20.3	0.397	0.000120	0.0415	0.0406	0.0822	0.0361	0.40	0.80	0.090	0.045
Thallium	0.0155 <sup>a</sup>	0.581	0.0173	0.00000159	0.00119	0.00177	0.00297	0.00130	0.24	24	0.0054	0.000054
Vanadium	0.335 <sup>a</sup>	19	0.536	0.0000343	0.0390	0.0549	0.0939	0.0412	11	--	0.0037	--
Zinc (TRV1)	72.6	4590	136	0.00744	9.40	13.9	23.3	10.2	130	--	0.079	--
Zinc (TRV2)	72.6	4590	136	0.00744	9.40	13.9	23.3	10.2	70	120	0.15	0.085

**Note:** The following data were used to develop this scenario: PHASE2RA port investigation unit creek/pond water, tundra soil, small mammal data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL concentration.

Table K-74. Food-web model exposure results for snowy owl exposed to mean CoPC concentrations at road site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammal (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	167	1,510	113	0.0171	3.09	11.6	14.7	6.45	120	--	0.054	--
Antimony	0.131	0.775	0.0195	0.0000134	0.00159	0.00200	0.00360	0.00158	--	--	--	--
Arsenic (arsenate)	0.552	2.55	0.113	0.0000565	0.00522	0.0116	0.0169	0.00740	10	40	0.00074	0.00019
Arsenic (arsenite)	0.552	2.55	0.113	0.0000565	0.00522	0.0116	0.0169	0.00740	20	50	0.00037	0.00015
Barium	80.9	1210	54.7	0.00829	2.47	5.60	8.08	3.54	21	42	0.17	0.084
Cadmium	0.0889	2.89	0.308	0.00000911	0.00592	0.0315	0.0374	0.0164	1.5	20	0.011	0.00082
Chromium	0.9	5.05	1.52	0.0000922	0.0103	0.155	0.166	0.0727	0.86	4.3	0.085	0.017
Cobalt	0.166	5.81	0.146	0.0000170	0.0119	0.0149	0.0268	0.0118	--	--	--	--
Lead	0.455	121	4.85	0.0000466	0.247	0.497	0.744	0.326	3.9	11	0.084	0.030
Mercury	0.0233	0.19	2.37	0.00000238	0.000389	0.243	0.243	0.107	0.032	0.064	3.3	1.7
Molybdenum	0.613	1.14	0.438	0.0000628	0.00233	0.0449	0.0473	0.0207	3.5	35	0.0059	0.00059
Selenium	0.147	0.725	0.583	0.0000151	0.00148	0.0597	0.0612	0.0269	0.40	0.80	0.067	0.034
Thallium	0.0562	0.156	0.00933	0.00000576	0.000320	0.000956	0.00128	0.000562	0.24	24	0.0023	0.000023
Vanadium	0.45	7.95	0.483	0.0000461	0.0163	0.0495	0.0658	0.0289	11	--	0.0026	--
Zinc (TRV1)	7.16	582	105	0.000733	1.19	10.8	12.0	5.26	130	--	0.040	--
Zinc (TRV2)	7.16	582	105	0.000733	1.19	10.8	12.0	5.26	70	120	0.075	0.044

**Note:** The following data were used to develop this scenario: PHASE2RA road investigation unit creek/pond water, tundra soil, small mammal data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-75. Food-web model exposure results for snowy owl exposed to 95%UCL CoPC concentrations at road site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Small Mammal (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	178	2,660 <sup>a</sup>	198	0.0183	5.45	20.2	25.7	11.3	120	--	0.094	--
Antimony	0.215	0.883	0.0314	0.0000220	0.00181	0.00321	0.00504	0.00221	--	--	--	--
Arsenic (arsenate)	0.674	3.51	0.156	0.0000690	0.00718	0.0159	0.0232	0.0102	10	40	0.0010	0.00025
Arsenic (arsenite)	0.674	3.51	0.156	0.0000690	0.00718	0.0159	0.0232	0.0102	20	50	0.00051	0.00020
Barium	136	1750	69.4	0.0140	3.58	7.11	10.7	4.69	21	42	0.22	0.11
Cadmium	0.124	3.85	1.02	0.0000128	0.00789	0.104	0.112	0.0492	1.5	20	0.033	0.0025
Chromium	2.67	9.69 <sup>a</sup>	2.1	0.000274	0.0198	0.215	0.236	0.103	0.86	4.3	0.12	0.024
Cobalt	0.259	7.13	0.192	0.0000266	0.0146	0.0197	0.0343	0.0150	--	--	--	--
Lead	1.1	173	7.38	0.000112	0.354	0.755	1.11	0.487	3.9	11	0.12	0.044
Mercury	0.0297	0.223	10.2	0.00000305	0.000457	1.05	1.05	0.460	0.032	0.064	14	7.2
Molybdenum	1.07	1.37	0.532	0.000110	0.00280	0.0545	0.0574	0.0252	3.5	35	0.0072	0.00072
Selenium	0.675	0.88	0.906	0.0000692	0.00180	0.0928	0.0946	0.0415	0.40	0.80	0.10	0.052
Thallium	0.296	0.246	0.015	0.0000304	0.000503	0.00154	0.00207	0.000908	0.24	24	0.0038	0.000038
Vanadium	0.545	10.4	0.651	0.0000559	0.0213	0.0667	0.0881	0.0386	11	--	0.0035	--
Zinc (TRV1)	13.5	799	120	0.00138	1.64	12.3	13.9	6.11	130	--	0.047	--
Zinc (TRV2)	13.5	799	120	0.00138	1.64	12.3	13.9	6.11	70	120	0.087	0.051

**Note:** The following data were used to develop this scenario: PHASE2RA road investigation unit creek/pond water, tundra soil, small mammal data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL concentration.

Table K-76. Food-web model exposure results for willow ptarmigan exposed to mean CoPC concentrations at terrestrial reference site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	91.9	3,650	7.28	11.0	0.00353	20.4	0.640	21.0	39.9	120	--	0.33	--
Antimony	0.0567	0.185	0.0228	0.0283	0.00000217	0.00103	0.00167	0.00270	0.00514	--	--	--	--
Arsenic (arsenate)	0.633	2.09	0.0367	0.03	0.0000243	0.0116	0.00184	0.0135	0.0257	10	40	0.0026	0.00064
Arsenic (arsenite)	0.633	2.09	0.0367	0.03	0.0000243	0.0116	0.00184	0.0135	0.0257	20	50	0.0013	0.00051
Barium	91.6	290	25.1	62.4	0.00352	1.62	3.52	5.14	9.77	21	42	0.47	0.23
Cadmium	0.0383	0.346	0.0367	0.397	0.0000147	0.00193	0.0216	0.0236	0.0448	1.5	20	0.030	0.0022
Chromium	0.96	6.76	0.367	0.317	0.0000368	0.0377	0.0193	0.0571	0.109	0.86	4.3	0.13	0.025
Cobalt	0.367	7.18	0.0617	3.34	0.0000141	0.0401	0.180	0.221	0.419	--	--	--	--
Lead	0.373	8.44	0.387	0.315	0.0000143	0.0471	0.0193	0.0665	0.126	3.9	11	0.032	0.011
Mercury	0.05	0.115	0.0322	0.0468	0.00000192	0.000642	0.00272	0.00337	0.00640	0.032	0.064	0.20	0.10
Molybdenum	0.0967	0.728	0.458	0.135	0.00000371	0.00406	0.0101	0.0141	0.0268	3.5	35	0.0077	0.00077
Selenium	0.333	0.5	0.133	0.0667	0.0000128	0.00279	0.00440	0.00720	0.0137	0.40	0.80	0.034	0.017
Thallium	0.0153	0.0616	0.0015	0.00167	0.000000588	0.000344	0.0000990	0.000443	0.000843	0.24	24	0.0035	0.000035
Vanadium	1.16	8.67	0.283	0.267	0.0000444	0.0484	0.0161	0.0645	0.123	11	--	0.011	--
Zinc (TRV1)	2.82	62.1	32.3	86.5	0.000108	0.347	4.86	5.21	9.91	130	--	0.076	--
Zinc (TRV2)	2.82	62.1	32.3	86.5	0.000108	0.347	4.86	5.21	9.91	70	120	0.14	0.083

**Note:** The following data were used to develop this scenario: PHASE1RA water data (mean of reference ponds); PHASE1RA soil; PHASE2RA soil; PHASE2RA willow; and PHASE2RA sedge blades.

Mean willow, sedge blade, and soil concentrations for all terrestrial ref. area stations (no stream or pond data); PHASE1RA and PHASE2RA soil data averaged at each station, then data for all stations averaged to calculate mean for the terrestrial reference area.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-77. Food-web model exposure results for willow ptarmigan exposed to mean CoPC concentrations at TT5 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	77.2	3,100	32.7	31.3	0.00296	17.3	1.89	19.2	36.5	120	--	0.30	--
Antimony	0.145	2.39	0.138	0.08	0.00000556	0.0133	0.00515	0.0185	0.0351	--	--	--	--
Arsenic (arsenate)	0.5	4.9	0.0625	0.055	0.0000192	0.0273	0.00335	0.0307	0.0584	10	40	0.0058	0.0015
Arsenic (arsenite)	0.5	4.9	0.0625	0.055	0.0000192	0.0273	0.00335	0.0307	0.0584	20	50	0.0029	0.0012
Barium	54.9	870	42.1	37.6	0.00210	4.86	2.28	7.14	13.6	21	42	0.65	0.32
Cadmium	0.165	19.1	0.198	3.38	0.00000633	0.106	0.184	0.290	0.552	1.5	20	0.37	0.028
Chromium	1	8.3	0.35	0.275	0.0000384	0.0463	0.0170	0.0633	0.120	0.86	4.3	0.14	0.028
Cobalt	1.22	9.19	0.065	1	0.0000468	0.0513	0.0544	0.106	0.201	--	--	--	--
Lead	1.35	923	3.82	3.58	0.0000516	5.15	0.216	5.36	10.2	3.9	11	2.6	0.93
Mercury	0.05	0.82	0.04	0.0388	0.00000192	0.00458	0.00233	0.00691	0.0131	0.032	0.064	0.41	0.21
Molybdenum	0.055	1	0.367	0.123	0.00000211	0.00560	0.00885	0.0145	0.0275	3.5	35	0.0078	0.00078
Selenium	0.2	1.52	0.1	0.1	0.00000767	0.00848	0.00600	0.0145	0.0275	0.40	0.80	0.069	0.034
Thallium	0.0065	0.351	0.00575	0.00325	0.000000249	0.00196	0.000210	0.00217	0.00412	0.24	24	0.017	0.00017
Vanadium	0.26	7.11	0.238	0.225	0.00000997	0.0397	0.0136	0.0533	0.101	11	--	0.0092	--
Zinc (TRV1)	64.8	3780	105	327	0.00249	21.1	18.3	39.4	74.8	130	--	0.58	--
Zinc (TRV2)	64.8	3780	105	327	0.00249	21.1	18.3	39.4	74.8	70	120	1.1	0.62

**Note:** The following data were used to develop this scenario: PHASE1RA water data (mean of TP1); PHASE1RA (TT1) soil for Cr & Al; PHASE2RA soil; PHASE2RA willow/birch; and PHASE2RA sedge blades.

All data averaged across the transect.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-78. Food-web model exposure results for willow ptarmigan exposed to mean CoPC concentrations at TT2 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	77.2	3,160	31.2	37.3	0.00296	17.6	2.20	19.8	37.7	120	--	0.31	--
Antimony	0.145	1.5	0.177	0.107	0.00000556	0.00839	0.00682	0.0152	0.0289	--	--	--	--
Arsenic (arsenate)	0.5	3.78	0.08	0.07	0.0000192	0.0211	0.00426	0.0254	0.0483	10	40	0.0048	0.0012
Arsenic (arsenite)	0.5	3.78	0.08	0.07	0.0000192	0.0211	0.00426	0.0254	0.0483	20	50	0.0024	0.0010
Barium	54.9	1,030	45.2	33.5	0.00210	5.77	2.08	7.85	14.9	21	42	0.71	0.36
Cadmium	0.165	9.05	0.109	6.16	0.00000633	0.0505	0.333	0.384	0.730	1.5	20	0.49	0.036
Chromium	1	5.65	0.433	0.2	0.0000384	0.0315	0.0134	0.0450	0.0855	0.86	4.3	0.10	0.020
Cobalt	1.22	7.54	0.0647	0.535	0.0000468	0.0421	0.0293	0.0714	0.136	--	--	--	--
Lead	1.35	400	2.27	2.33	0.0000516	2.23	0.140	2.37	4.51	3.9	11	1.2	0.41
Mercury	0.05	0.352	0.0367	0.0433	0.00000192	0.00196	0.00256	0.00452	0.00860	0.032	0.064	0.27	0.13
Molybdenum	0.055	0.805	0.349	0.134	0.00000211	0.00449	0.00931	0.0138	0.0262	3.5	35	0.0075	0.00075
Selenium	0.2	0.95	0.1	0.133	0.00000767	0.00530	0.00780	0.0131	0.0249	0.40	0.80	0.062	0.031
Thallium	0.0065	0.198	0.003	0.00567	0.000000249	0.00110	0.000324	0.00143	0.00272	0.24	24	0.011	0.00011
Vanadium	0.26	7.18	0.2	0.233	0.00000997	0.0401	0.0138	0.0539	0.102	11	--	0.0093	--
Zinc (TRV1)	64.8	1920	73.4	342	0.00249	10.7	18.9	29.6	56.3	130	--	0.43	--
Zinc (TRV2)	64.8	1920	73.4	342	0.00249	10.7	18.9	29.6	56.3	70	120	0.80	0.47

**Note:** The following data were used to develop this scenario: PHASE1RA water data (mean of TP1); PHASE1RA (TT2) soil for Cr & Al; PHASE2RA soil; PHASE2RA willow/birch; and PHASE2RA sedge blades.

All data averaged across the transect; PHASE1RA and PHASE2RA soil data averaged at station, then data for all stations averaged to calculate transect average.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-79. Food-web model exposure results for willow ptarmigan exposed to mean CoPC concentrations at TT8 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	126	1,510	44.8	48.8	0.00483	8.42	2.90	11.3	21.5	120	--	0.18	--
Antimony	0.025	0.913	0.08	0.227	0.00000959	0.00510	0.0127	0.0178	0.0339	--	--	--	--
Arsenic (arsenate)	0.9	2.63	0.0633	0.0633	0.0000345	0.0147	0.00380	0.0185	0.0352	10	40	0.0035	0.00088
Arsenic (arsenite)	0.9	2.63	0.0633	0.0633	0.0000345	0.0147	0.00380	0.0185	0.0352	20	50	0.0018	0.00070
Barium	60.2	1,220	70.7	50.3	0.00231	6.78	3.14	9.92	18.9	21	42	0.90	0.45
Cadmium	0.04	2.99	0.0897	3.07	0.00000153	0.0167	0.166	0.183	0.348	1.5	20	0.23	0.017
Chromium	3.42	5.05	1.7	0.333	0.000131	0.0282	0.0282	0.0565	0.107	0.86	4.3	0.12	0.025
Cobalt	0.305	5.18	0.0963	3.26	0.0000117	0.0289	0.177	0.206	0.391	--	--	--	--
Lead	0.555	140	2.18	1.72	0.0000213	0.780	0.106	0.886	1.68	3.9	11	0.43	0.15
Mercury	0.05	0.16	0.03	0.0433	0.00000192	0.000893	0.00252	0.00341	0.00649	0.032	0.064	0.20	0.10
Molybdenum	0.065	1.26	0.674	0.278	0.00000249	0.00701	0.0191	0.0261	0.0496	3.5	35	0.014	0.0014
Selenium	0.2	1.27	0.167	0.133	0.00000767	0.00707	0.00820	0.0153	0.0290	0.40	0.80	0.073	0.036
Thallium	0.004	0.16	0.006	0.003	0.000000153	0.000891	0.000198	0.00109	0.00207	0.24	24	0.0086	0.000086
Vanadium	0.475	10.6	0.2	0.333	0.0000182	0.0593	0.0192	0.0786	0.149	11	--	0.014	--
Zinc (TRV1)	8.54	658	45	169	0.000328	3.67	9.41	13.1	24.9	130	--	0.19	--
Zinc (TRV2)	8.54	658	45	169	0.000328	3.67	9.41	13.1	24.9	70	120	0.36	0.21

**Note:** The following data were used to develop this scenario: PHASE1RA water data (mean of TP2); PHASE1RA (TT3) soil for Cr & Al; PHASE2RA soil; PHASE2RA willow/birch; and PHASE2RA sedge blades.

All data averaged across the transect.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value



Table K-80. Food-web model exposure results for willow ptarmigan exposed to mean CoPC concentrations at TT3 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	126	1,510	31.8	59.8	0.00483	8.42	3.42	11.8	22.5	120	--	0.19	--
Antimony	0.025	0.735	0.0567	0.075	0.00000959	0.00410	0.00439	0.00849	0.0161	--	--	--	--
Arsenic (arsenate)	0.9	2.75	0.0567	0.09	0.0000345	0.0153	0.00520	0.0206	0.0391	10	40	0.0039	0.00098
Arsenic (arsenite)	0.9	2.75	0.0567	0.09	0.0000345	0.0153	0.00520	0.0206	0.0391	20	50	0.0020	0.00078
Barium	60.2	1,040	54.3	107	0.00231	5.78	6.10	11.9	22.6	21	42	1.1	0.54
Cadmium	0.04	3.22	0.07	2.34	0.00000153	0.0180	0.127	0.145	0.275	1.5	20	0.18	0.014
Chromium	3.42	5.05	1.23	0.317	0.000131	0.0282	0.0245	0.0528	0.100	0.86	4.3	0.12	0.023
Cobalt	0.305	3.88	0.0953	0.816	0.0000117	0.0216	0.0446	0.0663	0.126	--	--	--	--
Lead	0.555	173	1.72	3.17	0.0000213	0.966	0.182	1.15	2.18	3.9	11	0.56	0.20
Mercury	0.05	0.183	0.0333	0.0433	0.00000192	0.00102	0.00254	0.00356	0.00678	0.032	0.064	0.21	0.11
Molybdenum	0.065	0.781	0.377	0.282	0.00000249	0.00436	0.0175	0.0219	0.0416	3.5	35	0.012	0.0012
Selenium	0.2	0.617	0.1	0.1	0.00000767	0.00344	0.00600	0.00945	0.0180	0.40	0.80	0.045	0.022
Thallium	0.004	0.144	0.0113	0.00917	0.000000153	0.000805	0.000563	0.00137	0.00260	0.24	24	0.011	0.00011
Vanadium	0.475	6.88	0.233	0.25	0.0000182	0.0384	0.0149	0.0533	0.101	11	--	0.0092	--
Zinc (TRV1)	8.54	631	44.3	271	0.000328	3.52	14.9	18.4	35.0	130	--	0.27	--
Zinc (TRV2)	8.54	631	44.3	271	0.000328	3.52	14.9	18.4	35.0	70	120	0.50	0.29

**Note:** The following data were used to develop this scenario: PHASE1RA water data (mean of TP2); PHASE1RA (TT3) soil; PHASE2RA soil; PHASE2RA willow/birch; and PHASE2RA sedge blades.

All data averaged across the transect; PHASE1RA and PHASE2RA soil data averaged at station, then across the transect.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-81. Food-web model exposure results for willow ptarmigan exposed to mean CoPC concentrations at TT6 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	208	1,510	8.93	12.4	0.00798	8.42	0.725	9.15	17.4	120	--	0.15	--
Antimony	0.063	1.57	0.04	0.05	0.0000242	0.00875	0.00294	0.0117	0.0222	--	--	--	--
Arsenic (arsenate)	0.482	4.83	0.03	0.03	0.0000185	0.0269	0.00180	0.0287	0.0546	10	40	0.0055	0.0014
Arsenic (arsenite)	0.482	4.83	0.03	0.03	0.0000185	0.0269	0.00180	0.0287	0.0546	20	50	0.0027	0.0011
Barium	140	3,980	74	31.8	0.00537	22.2	2.16	24.4	46.4	21	42	2.2	1.1
Cadmium	0.0365	4.95	0.161	2.76	0.00000140	0.0276	0.150	0.177	0.337	1.5	20	0.22	0.017
Chromium	0.396	5.05	0.225	0.225	0.0000152	0.0282	0.0135	0.0417	0.0793	0.86	4.3	0.092	0.018
Cobalt	0.015	4.29	0.0581	0.588	0.000000575	0.0239	0.0321	0.0560	0.106	--	--	--	--
Lead	0.65	219	0.734	0.743	0.0000249	1.22	0.0445	1.27	2.41	3.9	11	0.62	0.22
Mercury	0.0179	0.245	0.0291	0.0495	0.000000687	0.00137	0.00285	0.00422	0.00801	0.032	0.064	0.25	0.13
Molybdenum	0.22	2.02	0.622	0.26	0.00000844	0.0113	0.0178	0.0290	0.0552	3.5	35	0.016	0.0016
Selenium	0.355	1.2	0.206	0.05	0.0000136	0.00670	0.00394	0.0106	0.0202	0.40	0.80	0.051	0.025
Thallium	0.09	0.644	0.00438	0.00325	0.00000345	0.00359	0.000202	0.00380	0.00722	0.24	24	0.030	0.00030
Vanadium	0.335	12.5	0.263	0.25	0.0000129	0.0696	0.0151	0.0847	0.161	11	--	0.015	--
Zinc (TRV1)	1.79	671	53.4	133	0.0000687	3.74	7.51	11.3	21.4	130	--	0.16	--
Zinc (TRV2)	1.79	671	53.4	133	0.0000687	3.74	7.51	11.3	21.4	70	120	0.31	0.18

**Note:** The following data were used to develop this scenario: TECK03 water data (ARC-D); PHASE1RA (TT3) soil for Cr & Al; PHASE2RA soil; PHASE2RA willow/birch; and PHASE2RA sedge blades.

Plant and soil data averaged across the transect.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-82. Food-web model exposure results for willow ptarmigan exposed to mean CoPC concentrations at TT7 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
												Hazard Quotient	Hazard Quotient
Aluminum	208	1,510	11.9	16.7	0.00798	8.42	0.972	9.40	17.9	120	--	0.15	--
Antimony	0.063	4.49	0.0385	0.0527	0.00000242	0.0250	0.00308	0.0281	0.0534	--	--	--	--
Arsenic (arsenate)	0.482	9.37	0.0483	0.03	0.0000185	0.0523	0.00191	0.0542	0.103	10	40	0.010	0.0026
Arsenic (arsenite)	0.482	9.37	0.0483	0.03	0.0000185	0.0523	0.00191	0.0542	0.103	20	50	0.0052	0.0021
Barium	140	2,150	77.8	65.3	0.00537	12.0	3.99	16.0	30.4	21	42	1.4	0.72
Cadmium	0.0365	15	0.288	3.87	0.00000140	0.0839	0.211	0.295	0.560	1.5	20	0.37	0.028
Chromium	0.396	5.05	0.25	0.267	0.0000152	0.0282	0.0159	0.0441	0.0839	0.86	4.3	0.10	0.020
Cobalt	0.015	5.13	0.07	0.742	0.000000575	0.0286	0.0405	0.0691	0.131	--	--	--	--
Lead	0.65	995	4.29	2.89	0.0000249	5.55	0.182	5.73	10.9	3.9	11	2.8	0.99
Mercury	0.0179	0.514	0.0327	0.0437	0.000000687	0.00287	0.00255	0.00542	0.0103	0.032	0.064	0.32	0.16
Molybdenum	0.22	16.2	0.803	0.537	0.00000844	0.0903	0.0338	0.124	0.236	3.5	35	0.067	0.0067
Selenium	0.355	2.2	0.075	0.05	0.0000136	0.0123	0.00315	0.0154	0.0294	0.4	0.8	0.073	0.037
Thallium	0.09	1.15	0.0163	0.0075	0.00000345	0.00640	0.000503	0.00691	0.0131	0.24	24	0.055	0.00055
Vanadium	0.335	26.2	0.267	0.2	0.0000129	0.146	0.0124	0.159	0.302	11	--	0.027	--
Zinc (TRV1)	1.79	2600	89	217	0.0000687	14.5	12.2	26.7	50.8	130	--	0.39	--
Zinc (TRV2)	1.79	2600	89	217	0.0000687	14.5	12.2	26.7	50.8	70	120	0.73	0.42

**Note:** The following data were used to develop this scenario: TECK03 water data (ARC-D); PHASE1RA (TT3) soil for Cr & Al; PHASE2RA soil; PHASE2RA willow/birch; and PHASE2RA sedge blades.

All data averaged across the transect.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-83. Food-web model exposure results for moose exposed to CoPC concentrations at ST-REF-3 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	17.3	3,620	261	11	0.324	466	232	699	2.06	1.9	19	1.1	0.11
Antimony	0.01	0.03	0.05	0.035	0.000187	0.00386	0.235	0.239	0.000705	0.66	--	0.0011	--
Arsenic (arsenate)	0.1	8.1	2.93	0.04	0.00187	1.04	2.12	3.16	0.00933	0.40	1.6	0.023	0.0058
Arsenic (arsenite)	0.1	8.1	2.93	0.04	0.00187	1.04	2.12	3.16	0.00933	0.13	1.3	0.072	0.0072
Barium	169	177	50.6	26.4	3.17	22.8	186	212	0.624	5.1	20	0.12	0.031
Cadmium	0.005	0.26	0.18	0.356	0.0000937	0.0335	2.18	2.21	0.00653	1.0	10	0.0065	0.00065
Chromium	0.25	7.22	3.7	0.2	0.00469	0.930	3.54	4.48	0.0132	3.3	69	0.0040	0.00019
Cobalt	0.22	11	2.17	2.4	0.00412	1.42	15.3	16.7	0.0494	0.50	2.0	0.099	0.025
Lead	0.02	9.82	1.28	0.14	0.000375	1.27	1.64	2.90	0.00856	11	90	0.00078	0.000095
Mercury	0.05	0.023	0.032	0.068	0.000937	0.00296	0.415	0.419	0.00124	0.032	0.16	0.039	0.0077
Molybdenum	0.05	0.52	0.231	0.112	0.000937	0.0670	0.798	0.866	0.00255	0.26	2.6	0.0098	0.00098
Selenium	0.2	0.5	0.5	0.1	0.00375	0.0644	0.902	0.970	0.00286	0.20	0.33	0.014	0.0087
Thallium	0.003	0.041	0.023	0.003	0.0000562	0.00528	0.0322	0.0375	0.000111	0.074	0.74	0.0015	0.00015
Vanadium	0.2	10.7	0.65	0.2	0.00375	1.38	1.58	2.96	0.00873	0.21	2.1	0.042	0.0042
Zinc	0.31	64.1	47.7	97.6	0.00581	8.26	597	605	1.78	160	320	0.011	0.0056

**Note:** The following data were used to develop this scenario: PHASE1RA water (ST-REF-1), Phase1RA sediment (other analytes, ST-REF-3); Phase2RA sediment (Cd, Pb, Hg, Zn); PHASE2RA willow; and PHASE2RA whole sedge. Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-84. Food-web model exposure results for moose exposed to CoPC concentrations at ST-REF-5 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
												Hazard Quotient	Hazard Quotient
Aluminum	2,770	12,100	290	15.5	51.9	1560	277	1890	5.57	1.9	19	2.9	0.29
Antimony	0.08	0.05	0.06	0.04	0.00150	0.00644	0.271	0.278	0.000821	0.66	--	0.0012	--
Arsenic (arsenate)	2.2	3.5	0.32	0.03	0.0412	0.451	0.380	0.872	0.00257	0.40	1.6	0.0064	0.0016
Arsenic (arsenite)	2.2	3.5	0.32	0.03	0.0412	0.451	0.380	0.872	0.00257	0.13	1.3	0.020	0.0020
Barium	222	483	73.3	57.2	4.16	62.2	379	445	1.31	5.1	20	0.26	0.066
Cadmium	0.07	0.3	0.132	0.401	0.00131	0.0386	2.41	2.45	0.00723	1.0	10	0.0072	0.00072
Chromium	3.71	19.9	2.6	0.3	0.0695	2.56	3.41	6.05	0.0178	3.3	69	0.0054	0.00026
Cobalt	2.72	8.74	1.13	2.43	0.0510	1.13	14.8	16.0	0.0472	0.50	2.0	0.094	0.024
Lead	1.91	8.87	0.47	0.62	0.0358	1.14	3.90	5.08	0.0150	11	90	0.0014	0.00017
Mercury	0.05	0.04	0.034	0.037	0.000937	0.00515	0.236	0.242	0.000715	0.032	0.16	0.022	0.0045
Molybdenum	0.17	0.3	0.378	0.435	0.00319	0.0386	2.77	2.81	0.00828	0.26	2.6	0.032	0.0032
Selenium	0.2	0.7	0.05	0.05	0.00375	0.0902	0.322	0.416	0.00123	0.20	0.33	0.0061	0.0037
Thallium	0.014	0.07	0.05	0.003	0.000262	0.00902	0.0496	0.0589	0.000174	0.074	0.74	0.0023	0.00023
Vanadium	5.57	24.8	0.65	0.3	0.104	3.19	2.16	5.46	0.0161	0.21	2.1	0.077	0.0077
Zinc	9.84	68.1	29.6	79.2	0.184	8.77	478	487	1.44	160	320	0.0090	0.0045

**Note:** The following data were used to develop this scenario: PHASE1RA water (ST-REF-5), Phase1RA sediment (ST-REF-5); PHASE2RA willow; and PHASE2RA whole sedge.

No PHASE2RA sediment data collected at ST-REF-5, so PHASE1RA sediment data used for all analytes.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-85. Food-web model exposure results for moose exposed to CoPC concentrations at ST-REF-6 site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
												Hazard Quotient	Hazard Quotient
Aluminum	2,770	12,100	396	2.5	51.9	1560	270	1880	5.55	1.9	19	2.9	0.29
Antimony	0.08	0.05	0.05	0.04	0.00150	0.00644	0.264	0.272	0.000802	0.66	--	0.0012	--
Arsenic (arsenate)	2.2	3.5	1.08	0.03	0.0412	0.451	0.870	1.36	0.00402	0.40	1.6	0.010	0.0025
Arsenic (arsenite)	2.2	3.5	1.08	0.03	0.0412	0.451	0.870	1.36	0.00402	0.13	1.3	0.031	0.0031
Barium	222	483	64	24.1	4.16	62.2	181	247	0.730	5.1	20	0.14	0.036
Cadmium	0.07	0.19	0.057	0.558	0.00131	0.0245	3.27	3.30	0.00973	1.0	10	0.0097	0.00097
Chromium	3.71	19.9	4.1	0.2	0.0695	2.56	3.80	6.43	0.0190	3.3	69	0.0058	0.00028
Cobalt	2.72	8.74	1.62	2.06	0.0510	1.13	13.0	14.2	0.0418	0.50	2.0	0.084	0.021
Lead	1.91	5.71	0.74	0.09	0.0358	0.736	0.998	1.77	0.00522	11	90	0.00047	0.000058
Mercury	0.05	0.003	0.025	0.065	0.000937	0.000386	0.393	0.394	0.00116	0.032	0.16	0.036	0.0073
Molybdenum	0.17	0.3	0.147	0.09	0.00319	0.0386	0.616	0.658	0.00194	0.26	2.6	0.0075	0.00075
Selenium	0.2	0.7	0.2	0.05	0.00375	0.0902	0.419	0.513	0.00151	0.20	0.33	0.0076	0.0046
Thallium	0.014	0.07	0.009	0.002	0.000262	0.00902	0.0174	0.0267	0.0000787	0.074	0.74	0.0011	0.00011
Vanadium	5.57	24.8	0.85	0.2	0.104	3.19	1.71	5.01	0.0148	0.21	2.1	0.070	0.0070
Zinc	9.84	33.1	30	92.2	0.184	4.26	554	558	1.65	160	320	0.010	0.0051

**Note:** The following data were used to develop this scenario: PHASE1RA water (ST-REF-5), Phase1RA sediment (other analytes, ST-REF-5); Phase2RA sediment (Cd, Pb, Hg, Zn); PHASE2RA willow; and PHASE2RA whole sedge.

No PHASE1RA sediment data collected at ST-REF-6, so ST-REF-5 data used -- nearest creek sediment station from PHASE1RA.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-86. Food-web model exposure results for moose exposed to CoPC concentrations at Aufeis Creek road site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	86.7	7,580	156	156	1.63	976	1000	1980	5.85	1.9	19	3.1	0.31
Antimony	0.063	0.07	0.07	0.07	0.00118	0.00902	0.451	0.461	0.00136	0.66	--	0.0021	--
Arsenic (arsenate)	0.482	7.2	0.21	0.21	0.00903	0.928	1.35	2.29	0.00675	0.40	1.6	0.017	0.0042
Arsenic (arsenite)	0.482	7.2	0.21	0.21	0.00903	0.928	1.35	2.29	0.00675	0.13	1.3	0.052	0.0052
Barium	24.3	172	81	81	0.454	22.2	522	544	1.61	5.1	20	0.31	0.080
Cadmium	0.121	0.69	1.99	1.99	0.00227	0.0889	12.8	12.9	0.0381	1.0	10	0.038	0.0038
Chromium	0.396	15.5	0.8	0.8	0.00742	2.00	5.15	7.16	0.0211	3.3	69	0.0064	0.00031
Cobalt	0.09	9.64	0.65	0.65	0.00169	1.24	4.19	5.43	0.0160	0.50	2.0	0.032	0.0080
Lead	0.344	43.4	10.9	10.9	0.00644	5.59	70.2	75.8	0.224	11	90	0.020	0.0025
Mercury	0.0179	0.047	0.051	0.051	0.000335	0.00605	0.328	0.335	0.000988	0.032	0.16	0.031	0.0062
Molybdenum	0.389	0.66	0.21	0.21	0.00729	0.0850	1.35	1.44	0.00426	0.26	2.6	0.016	0.0016
Selenium	0.139	1.5	0.2	0.2	0.00261	0.193	1.29	1.48	0.00438	0.20	0.33	0.022	0.013
Thallium	0.296	0.101	0.015	0.015	0.00555	0.0130	0.0966	0.115	0.000340	0.074	0.74	0.0046	0.00046
Vanadium	0.583	16	0.55	0.55	0.0109	2.06	3.54	5.61	0.0166	0.21	2.1	0.079	0.0079
Zinc	8.09	137	185	185	0.152	17.6	1190	1210	3.57	160	320	0.022	0.011

**Note:** The following data were used to develop this scenario: TECK03 water (mean of AufRoad), Phase1RA sediment (other analytes); Phase2RA sediment (Cd, Pb, Hg, Zn); PHASE2RA willow (no sedge collected).

100% diet is willow; sediment data from station AC-R.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-87. Food-web model exposure results for moose exposed to CoPC concentrations at Omikviorok River road site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
												Hazard Quotient	Hazard Quotient
Aluminum	96.3	9,520	1,900	134	1.81	1230	2000	3230	9.52	1.9	19	5.0	0.50
Antimony	0.063	0.14	0.0515	0.0615	0.00118	0.0180	0.390	0.409	0.00121	0.66	--	0.0018	--
Arsenic (arsenate)	0.482	7.6	1.87	0.2	0.00903	0.979	2.36	3.35	0.00989	0.40	1.6	0.025	0.0062
Arsenic (arsenite)	0.482	7.6	1.87	0.2	0.00903	0.979	2.36	3.35	0.00989	0.13	1.3	0.076	0.0076
Barium	133	407	208	65.2	2.49	52.4	512	567	1.67	5.1	20	0.33	0.084
Cadmium	0.0849	0.42	0.492	0.528	0.00159	0.0541	3.38	3.43	0.0101	1.0	10	0.010	0.0010
Chromium	0.396	20.6	16.2	1	0.00742	2.65	16.2	18.9	0.0557	3.3	69	0.017	0.00081
Cobalt	0.1	13.5	2.96	1.3	0.00187	1.74	9.44	11.2	0.0330	0.50	2.0	0.066	0.016
Lead	0.506	25.9	8.27	4.86	0.00948	3.34	33.5	36.8	0.109	11	90	0.0099	0.0012
Mercury	0.0179	0.023	0.042	0.05	0.000335	0.00296	0.317	0.320	0.000945	0.032	0.16	0.030	0.0059
Molybdenum	0.69	0.49	0.238	0.36	0.0129	0.0631	2.24	2.32	0.00683	0.26	2.6	0.026	0.0026
Selenium	0.0201	0.6	0.3	0.1	0.000377	0.0773	0.773	0.851	0.00251	0.20	0.33	0.013	0.0076
Thallium	0.0428	0.106	0.033	0.006	0.000801	0.0137	0.0560	0.0705	0.000208	0.074	0.74	0.0028	0.00028
Vanadium	0.335	24.9	4.8	0.3	0.00628	3.21	4.83	8.04	0.0237	0.21	2.1	0.11	0.011
Zinc	6.46	92	59.4	61.7	0.121	11.9	396	408	1.20	160	320	0.0075	0.0038

**Note:** The following data were used to develop this scenario: TECK03 water (mean of OmiRoad), Phase1RA sediment (other analytes); Phase2RA sediment (Cd, Pb, Hg, Zn); PHASE2RA willow; and PHASE2RA whole sedge.

Sediment data from station OR-R.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value



Table K-88. Food-web model exposure results for moose exposed to CoPC concentrations at Anxiety Ridge Creek road site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
												Hazard Quotient	Hazard Quotient
Aluminum	208	7,200	307	142	3.90	928	1020	1950	5.76	1.9	19	3.0	0.30
Antimony	0.063	0.42	0.04	0.0775	0.00118	0.0541	0.475	0.530	0.00156	0.66	--	0.0024	--
Arsenic (arsenate)	0.482	8.4	1.13	0.24	0.00903	1.08	2.12	3.21	0.00947	0.40	1.6	0.024	0.0059
Arsenic (arsenite)	0.482	8.4	1.13	0.24	0.00903	1.08	2.12	3.21	0.00947	0.13	1.3	0.073	0.0073
Barium	140	922	250	308	2.62	119	1950	2070	6.10	5.1	20	1.2	0.30
Cadmium	0.0365	1.06	0.638	3.9	0.000684	0.137	23.0	23.2	0.0683	1.0	10	0.068	0.0068
Chromium	0.396	14.6	3.1	1.8	0.00742	1.88	12.4	14.3	0.0422	3.3	69	0.013	0.00061
Cobalt	0.015	11.1	0.92	1.04	0.000281	1.43	6.62	8.05	0.0238	0.50	2.0	0.048	0.012
Lead	0.65	117	14.3	11.8	0.0122	15.1	77.6	92.7	0.273	11	90	0.025	0.0030
Mercury	0.0179	0.036	0.06	0.05	0.000335	0.00464	0.328	0.333	0.000984	0.032	0.16	0.031	0.0061
Molybdenum	0.22	1.62	0.309	0.411	0.00412	0.209	2.58	2.79	0.00824	0.26	2.6	0.032	0.0032
Selenium	0.355	1.5	0.3	0.3	0.00665	0.193	1.93	2.13	0.00629	0.20	0.33	0.031	0.019
Thallium	0.09	0.19	0.027	0.022	0.00169	0.0245	0.145	0.171	0.000505	0.074	0.74	0.0068	0.00068
Vanadium	0.335	20.5	0.7	0.7	0.00628	2.64	4.51	7.16	0.0211	0.21	2.1	0.10	0.010
Zinc	1.79	148	87.4	198	0.0335	19.1	1200	1220	3.61	160	320	0.023	0.011

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D), Phase1RA sediment (other analytes at ARC-D1); Phase2RA sediment (Cd, Pb, Hg, Zn at ARC-R); PHASE2RA willow; and PHASE2RA whole sedge.

Sediment data not collected at ARC-R during PHASE1RA, so data from ARC-D1 used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-89. Food-web model exposure results for moose exposed to mean CoPC concentrations at reference site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	514	3,650	304	10.1	9.64	470	254	734	2.16	1.9	19	1.1	0.11
Antimony	0.045	0.208	0.0457	0.0319	0.000843	0.0267	0.214	0.242	0.000713	0.66	--	0.0011	--
Arsenic (arsenate)	0.717	3.61	1.63	0.0313	0.0134	0.465	1.23	1.71	0.00504	0.40	1.6	0.013	0.0032
Arsenic (arsenite)	0.717	3.61	1.63	0.0313	0.0134	0.465	1.23	1.71	0.00504	0.13	1.3	0.039	0.0039
Barium	125	346	54.6	50.7	2.35	44.5	329	376	1.11	5.1	20	0.22	0.055
Cadmium	0.0333	0.379	0.0818	0.378	0.000625	0.0489	2.24	2.29	0.00676	1.0	10	0.0068	0.00068
Chromium	1.17	6.76	7.46	0.3	0.0219	0.871	6.54	7.44	0.0219	3.3	69	0.0066	0.00032
Cobalt	0.693	7.97	1.31	2.36	0.0130	1.03	14.5	15.6	0.0459	0.50	2.0	0.092	0.023
Lead	0.512	10.2	0.794	0.293	0.00959	1.32	2.21	3.54	0.0104	11	90	0.00095	0.00012
Mercury	0.05	0.0935	0.0323	0.0509	0.000937	0.0120	0.316	0.329	0.000970	0.032	0.16	0.030	0.0061
Molybdenum	0.0883	0.689	0.411	0.16	0.00166	0.0888	1.19	1.28	0.00379	0.26	2.6	0.015	0.0015
Selenium	0.267	0.594	0.155	0.0625	0.00500	0.0765	0.462	0.544	0.00160	0.20	0.33	0.0080	0.0049
Thallium	0.011	0.0769	0.0278	0.00213	0.000206	0.00991	0.0302	0.0403	0.000119	0.074	0.74	0.0016	0.00016
Vanadium	1.57	14.5	1.51	0.25	0.0294	1.86	2.42	4.31	0.0127	0.21	2.1	0.061	0.0061
Zinc	3.16	60.8	33.1	88.6	0.0593	7.83	535	543	1.60	160	320	0.010	0.0050

**Note:** The following data were used to develop this scenario: PHASE2RA Reference Investigation Unit (terrestrial) creek/pond water, tundra soil, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-90. Food-web model exposure results for moose exposed to 95% UCL CoPC concentrations at reference site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	2,770 <sup>a</sup>	5,590	1,130	15.0	51.9	720	816	1590	4.69	1.9	19	2.5	0.25
Antimony	0.0765	0.241	0.0605	0.0375	0.00143	0.0311	0.256	0.289	0.000852	0.66	--	0.0013	--
Arsenic (arsenate)	1.36	5.31	6.56	0.0336	0.0255	0.684	4.42	5.13	0.0151	0.40	1.6	0.038	0.0095
Arsenic (arsenite)	1.36	5.31	6.56	0.0336	0.0255	0.684	4.42	5.13	0.0151	0.13	1.3	0.12	0.012
Barium	177	417	72.0	65.7	3.32	53.7	427	484	1.43	5.1	20	0.28	0.071
Cadmium	0.0580	0.477	0.132	0.502	0.00109	0.0614	2.99	3.06	0.00902	1.0	10	0.0090	0.00090
Chromium	3.71 <sup>a</sup>	11.8	28.0	0.378	0.0695	1.52	20.2	21.8	0.0643	3.3	69	0.019	0.00093
Cobalt	1.79	11.3	3.37	5.51	0.0336	1.46	34.1	35.6	0.105	0.50	2.0	0.21	0.053
Lead	1.91 <sup>a</sup>	12.5	1.23	0.584	0.0358	1.62	4.18	5.83	0.0172	11	90	0.0016	0.00019
Mercury	0.05 <sup>a</sup>	0.109	0.0357	0.0582	0.000937	0.0140	0.361	0.376	0.00111	0.032	0.16	0.035	0.0069
Molybdenum	0.158	0.881	0.546	0.259	0.00297	0.113	1.85	1.97	0.00581	0.26	2.6	0.022	0.0022
Selenium	0.366	0.693	0.362	0.0780	0.00687	0.0893	0.685	0.781	0.00230	0.20	0.33	0.012	0.0070
Thallium	0.04 <sup>a</sup>	0.0919	0.0756	0.003 <sup>a</sup>	0.000750	0.0118	0.0661	0.0787	0.000232	0.074	0.74	0.0031	0.00031
Vanadium	5.57 <sup>a</sup>	19.0	7.6 <sup>a</sup>	0.286	0.104	2.44	6.55	9.10	0.0268	0.21	2.1	0.13	0.013
Zinc	6.26	68.4	37.0	109	0.117	8.81	653	662	1.95	160	320	0.012	0.0061

**Note:** The following data were used to develop this scenario: PHASE2RA Reference Investigation Unit (terrestrial) creek/pond water, tundra soil, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL as the mean concentration.

Table K-91. Food-web model exposure results for moose exposed to mean CoPC concentrations at port site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	35.5	5,610	31.3	30.9	0.665	723	199	922	2.72	1.9	19	1.4	0.14
Antimony	0.307	5.83	0.174	0.09	0.00575	0.751	0.634	1.39	0.00410	0.66	--	0.0062	--
Arsenic (arsenate)	0.494	16.7	0.137	0.0588	0.00926	2.15	0.429	2.58	0.00762	0.40	1.6	0.019	0.0048
Arsenic (arsenite)	0.494	16.7	0.137	0.0588	0.00926	2.15	0.429	2.58	0.00762	0.13	1.3	0.059	0.0059
Barium	44.8	597	33.6	35.1	0.839	76.9	225	303	0.893	5.1	20	0.18	0.045
Cadmium	0.120	15.1	0.287	3.24	0.00224	1.94	19.0	20.9	0.0617	1.0	10	0.062	0.0062
Chromium	0.799	11.1	1.01	0.25	0.0150	1.43	2.10	3.55	0.0105	3.3	69	0.0032	0.00015
Cobalt	0.903	11.4	1.87	0.91	0.0169	1.47	6.48	7.97	0.0235	0.50	2.0	0.047	0.012
Lead	0.462	792	6.85	7.59	0.00866	102	48.4	150	0.444	11	90	0.040	0.0049
Mercury	0.0393	0.779	0.0398	0.04	0.000737	0.100	0.258	0.359	0.00106	0.032	0.16	0.033	0.0066
Molybdenum	0.793	1.41	0.284	0.121	0.0149	0.181	0.883	1.08	0.00318	0.26	2.6	0.012	0.0012
Selenium	0.523	7.71	0.132	0.113	0.00981	0.993	0.737	1.74	0.00513	0.20	0.33	0.026	0.016
Thallium	0.0095	0.354	0.0116	0.00388	0.000178	0.0456	0.0299	0.0757	0.000223	0.074	0.74	0.0030	0.00030
Vanadium	0.285	14.1	0.214	0.238	0.00534	1.82	1.51	3.34	0.00985	0.21	2.1	0.047	0.0047
Zinc	22.2	2490	95.3	290	0.417	321	1740	2060	6.09	160	320	0.038	0.019

**Note:** The following data were used to develop this scenario: PHASE2RA Port Investigation Unit creek/pond water, tundra soil, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-92. Food-web model exposure results for moose exposed to 95% UCL CoPC concentrations at port site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	103	7,820	54.3	70.6	1.93	1010	444	1450	4.29	1.9	19	2.3	0.23
Antimony	0.63 <sup>a</sup>	8.20	0.295	0.157	0.0118	1.06	1.10	2.17	0.00640	0.66	--	0.0097	--
Arsenic (arsenate)	0.6 <sup>a</sup>	22.9	0.274	0.0826	0.0112	2.94	0.655	3.61	0.0107	0.40	1.6	0.027	0.0067
Arsenic (arsenite)	0.6 <sup>a</sup>	22.9	0.274	0.0826	0.0112	2.94	0.655	3.61	0.0107	0.13	1.3	0.082	0.0082
Barium	70.3 <sup>a</sup>	817	61.3	50.7	1.32	105	334	440	1.30	5.1	20	0.25	0.065
Cadmium	0.245	27.6	0.664	7.63	0.00459	3.56	44.6	48.2	0.142	1.0	10	0.14	0.014
Chromium	1.56 <sup>a</sup>	16.4	5.87	0.312	0.0292	2.12	5.59	7.73	0.0228	3.3	69	0.0069	0.00033
Cobalt	1.56 <sup>a</sup>	14.3	17.7	1.56	0.0292	1.84	20.4	22.3	0.0658	0.50	2.0	0.13	0.033
Lead	1.63 <sup>a</sup>	2,100	14.5	14.9	0.0305	271	95.8	367	1.08	11	90	0.098	0.012
Mercury	0.05 <sup>a</sup>	3.23	0.0446	0.0451	0.000937	0.416	0.290	0.707	0.00208	0.032	0.16	0.065	0.013
Molybdenum	2.27 <sup>a</sup>	1.68	0.356	0.159	0.0425	0.217	1.15	1.41	0.00416	0.26	2.6	0.016	0.0016
Selenium	1.17 <sup>a</sup>	20.3	0.169	0.136	0.0219	2.61	0.898	3.53	0.0104	0.20	0.33	0.052	0.032
Thallium	0.0155 <sup>a</sup>	0.581	0.0271	0.00820	0.000291	0.0749	0.0650	0.140	0.000413	0.074	0.74	0.0056	0.00056
Vanadium	0.335 <sup>a</sup>	19.0	0.231	0.272	0.00628	2.45	1.73	4.19	0.0123	0.21	2.1	0.059	0.0059
Zinc	72.6	4,590	194	373	1.36	591	2290	2880	8.50	160	320	0.053	0.027

**Note:** The following data were used to develop this scenario: PHASE2RA Port Investigation Unit creek/pond water, tundra soil, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL as the mean concentration.

Table K-93. Food-web model exposure results for moose exposed to mean CoPC concentrations at road site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
												Hazard Quotient	Hazard Quotient
Aluminum	167	1,510	285	77.7	3.13	194	634	831	2.45	1.9	19	1.3	0.13
Antimony	0.131	0.775	0.118	0.114	0.00246	0.0998	0.736	0.839	0.00247	0.66	--	0.0037	--
Arsenic (arsenate)	0.552	2.55	0.452	0.115	0.0103	0.328	0.958	1.30	0.00382	0.40	1.6	0.0096	0.0024
Arsenic (arsenite)	0.552	2.55	0.452	0.115	0.0103	0.328	0.958	1.30	0.00382	0.13	1.3	0.029	0.0029
Barium	80.9	1210	119	101	1.52	155	665	822	2.42	5.1	20	0.48	0.12
Cadmium	0.0889	2.89	0.239	2.46	0.00167	0.372	14.4	14.8	0.0437	1.0	10	0.044	0.0044
Chromium	0.9	5.05	4.88	0.575	0.0169	0.651	6.48	7.14	0.0211	3.3	69	0.0064	0.00031
Cobalt	0.166	5.81	0.698	1.69	0.00311	0.748	10.3	11.0	0.0325	0.50	2.0	0.065	0.016
Lead	0.455	121	5.88	4.95	0.00853	15.6	32.5	48.0	0.142	11	90	0.013	0.0016
Mercury	0.0233	0.19	0.0412	0.0441	0.000436	0.0245	0.282	0.307	0.000906	0.032	0.16	0.028	0.0057
Molybdenum	0.613	1.14	0.533	0.309	0.0115	0.147	2.13	2.29	0.00676	0.26	2.6	0.026	0.0026
Selenium	0.147	0.725	0.16	0.14	0.00275	0.0934	0.915	1.01	0.00298	0.20	0.33	0.015	0.0090
Thallium	0.0562	0.156	0.0412	0.0081	0.00105	0.0201	0.0735	0.0947	0.000279	0.074	0.74	0.0038	0.00038
Vanadium	0.45	7.95	0.83	0.355	0.00843	1.02	2.59	3.62	0.0107	0.21	2.1	0.051	0.0051
Zinc	7.16	582	59.4	193	0.134	75.0	1160	1230	3.64	160	320	0.023	0.011

**Note:** The following data were used to develop this scenario: PHASE2RA Road Investigation Unit creek/pond water, tundra soil, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-94. Food-web model exposure results for moose exposed to 95% UCL CoPC concentrations at road site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water ( $\mu\text{g/L}$ )	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	178	2,660 <sup>a</sup>	1,050	156 <sup>a</sup>	3.34	343	1580	1930	5.68	1.9	19	3.0	0.30
Antimony	0.215	0.883	0.236	0.224	0.00403	0.114	1.45	1.57	0.00462	0.66	--	0.0070	--
Arsenic (arsenate)	0.674	3.51	1.16	0.233	0.0126	0.452	2.10	2.56	0.00755	0.40	1.6	0.019	0.0047
Arsenic (arsenite)	0.674	3.51	1.16	0.233	0.0126	0.452	2.10	2.56	0.00755	0.13	1.3	0.058	0.0058
Barium	136	1,750	197	154	2.56	225	1020	1250	3.68	5.1	20	0.72	0.18
Cadmium	0.124	3.85	0.484	3.53	0.00233	0.496	20.8	21.3	0.0628	1.0	10	0.063	0.0063
Chromium	2.67	9.69 <sup>a</sup>	13.1	0.967	0.0501	1.25	14.0	15.3	0.0452	3.3	69	0.014	0.00066
Cobalt	0.259	7.13	1.83	2.60	0.00486	0.918	16.3	17.2	0.0507	0.50	2.0	0.10	0.025
Lead	1.10	173	13.8	9.21	0.0206	22.3	62.3	84.6	0.250	11	90	0.023	0.0028
Mercury	0.0297	0.223	0.0508	0.0497	0.000557	0.0288	0.321	0.350	0.00103	0.032	0.16	0.032	0.0065
Molybdenum	1.07	1.37	0.733	0.376	0.0200	0.176	2.65	2.85	0.00839	0.26	2.6	0.032	0.0032
Selenium	0.675	0.880	0.293	0.181	0.0126	0.113	1.24	1.36	0.00402	0.20	0.33	0.020	0.012
Thallium	0.296	0.246	0.153	0.0182	0.00555	0.0317	0.204	0.241	0.000712	0.074	0.74	0.0096	0.00096
Vanadium	0.545	10.4	1.81	0.472	0.0102	1.34	3.90	5.25	0.0155	0.21	2.1	0.074	0.0074
Zinc	13.5	799	72.4	231	0.253	103	1390	1490	4.40	160	320	0.027	0.014

**Note:** The following data were used to develop this scenario: PHASE2RA Road Investigation Unit creek/pond water, tundra soil, sedge (whole and blades), and willow/birch data.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value
- UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL as the mean concentration.

Table K-95. Food-web model exposure results for moose exposed to mean CoPC concentrations at mine site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
												Hazard Quotient	Hazard Quotient
Aluminum	191	5,150	10.4	13.2	3.57	664	83.3	751	2.21	1.9	19	1.2	0.12
Antimony	0.063	2.82	0.0368	0.047	0.00118	0.363	0.296	0.660	0.00195	0.66	--	0.0030	--
Arsenic (arsenate)	0.482	6.77	0.0367	0.03	0.00903	0.872	0.198	1.08	0.00318	0.40	1.6	0.0080	0.0020
Arsenic (arsenite)	0.482	6.77	0.0367	0.03	0.00903	0.872	0.198	1.08	0.00318	0.13	1.3	0.024	0.0024
Barium	135	3,200	75.0	44.7	2.53	412	307	722	2.13	5.1	20	0.42	0.11
Cadmium	0.0365	9.27	0.209	3.34	0.000684	1.19	19.5	20.7	0.0611	1.0	10	0.061	0.0061
Chromium	0.396	10.2	0.233	0.263	0.00742	1.32	1.67	3.00	0.00884	3.3	69	0.0027	0.00013
Cobalt	0.0125	4.65	0.0583	0.601	0.000234	0.599	3.52	4.12	0.0122	0.50	2.0	0.024	0.0061
Lead	0.369	552	2.40	1.61	0.00692	71.1	10.9	81.9	0.242	11	90	0.022	0.0027
Mercury	0.0179	0.360	0.0307	0.0473	0.000335	0.0464	0.294	0.340	0.00100	0.032	0.16	0.031	0.0063
Molybdenum	0.23	8.09	0.810	0.411	0.00431	1.04	2.90	3.95	0.0117	0.26	2.6	0.045	0.0045
Selenium	0.348	1.63	0.139	0.05	0.00651	0.210	0.379	0.596	0.00176	0.20	0.33	0.0088	0.0053
Thallium	0.0575	0.860	0.00878	0.00513	0.00108	0.111	0.0354	0.147	0.000434	0.074	0.74	0.0059	0.00059
Vanadium	0.633	18.4	0.256	0.225	0.0119	2.36	1.47	3.85	0.0113	0.21	2.1	0.054	0.0054
Zinc	1.48	1,500	65.3	182	0.0277	193	1100	1290	3.81	160	320	0.024	0.012

**Note:** The following data were used to develop this scenario: PHASE2RA Mine Investigation Unit creek/pond water, tundra soil, sedge (whole and blades), and willow/birch data.

For Al and Cr in tundra soil no mine data available, so "whole site" data used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value



Table K-96. Food-web model exposure results for moose exposed to 95% UCL CoPC concentrations at mine site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water <sup>a</sup> (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	208	7,150	12.8	25.7	3.90	920	157	1080	3.19	1.9	19	1.7	0.17
Antimony	0.063	8.87	0.0460	0.0699	0.00118	1.14	0.435	1.58	0.00466	0.66	--	0.0071	--
Arsenic (arsenate)	0.482	9.72	0.0469	0.03 <sup>a</sup>	0.00903	1.25	0.204	1.47	0.00432	0.40	1.6	0.011	0.0027
Arsenic (arsenite)	0.482	9.72	0.0469	0.03 <sup>a</sup>	0.00903	1.25	0.204	1.47	0.00432	0.13	1.3	0.033	0.0033
Barium	140	6,950 <sup>a</sup>	92.0	82.4	2.62	895	537	1430	4.23	5.1	20	0.83	0.21
Cadmium	0.0365	29.0	0.300	4.18	0.000684	3.73	24.4	28.1	0.0830	1.0	10	0.083	0.0083
Chromium	0.396	14.7	0.264	0.324	0.00742	1.89	2.05	3.95	0.0116	3.3	69	0.0035	0.00017
Cobalt	0.015	6.40	0.0794	1.27	0.000281	0.825	7.43	8.25	0.0243	0.50	2.0	0.049	0.012
Lead	0.65	1,220	5.10	4.97	0.0122	158	32.1	190	0.560	11	90	0.051	0.0062
Mercury	0.0179	0.929	0.0363	0.0522	0.000335	0.120	0.326	0.446	0.00131	0.032	0.16	0.041	0.0082
Molybdenum	0.24	21.4	1.12	0.757	0.00450	2.76	5.11	7.87	0.0232	0.26	2.6	0.089	0.0089
Selenium	0.355	2.17	0.330	0.05 <sup>a</sup>	0.00665	0.279	0.503	0.789	0.00233	0.20	0.33	0.012	0.0071
Thallium	0.09	1.39	0.0165	0.00713	0.00169	0.179	0.052	0.232	0.000686	0.074	0.74	0.0093	0.00093
Vanadium	0.93	24.9	0.288	0.256	0.0174	3.21	1.67	4.90	0.0144	0.21	2.1	0.069	0.0069
Zinc	1.79	6,770 <sup>a</sup>	91.2	238	0.0335	872	1440	2310	6.82	160	320	0.043	0.021

**Note:** The following data were used to develop this scenario: PHASE2RA Mine Investigation Unit creek/pond water, tundra soil, sedge (whole and blades), and willow/birch data.

For Al and Cr in tundra soil no mine data available, so "whole site" data used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

UCL - upper confidence limit

<sup>a</sup> Maximum concentration used in place of the 95 percent UCL as the mean concentration.

Table K-97. Food-web model exposure results for moose exposed to mean CoPC concentrations at whole site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	159	5,150	103	43.4	2.99	664	318	985	2.90	1.9	19	1.5	0.15
Antimony	0.154	3.29	0.120	0.0860	0.00289	0.424	0.575	1.00	0.00296	0.66	--	0.0045	--
Arsenic (arsenate)	0.533	10.0	0.205	0.0715	0.00999	1.29	0.547	1.85	0.00545	0.40	1.6	0.014	0.0034
Arsenic (arsenite)	0.533	10.0	0.205	0.0715	0.00999	1.29	0.547	1.85	0.00545	0.13	1.3	0.042	0.0042
Barium	80.9	1,150	70.8	63.6	1.52	148	414	563	1.66	5.1	20	0.33	0.083
Cadmium	0.0901	13.5	0.251	2.98	0.00169	1.73	17.4	19.1	0.0565	1.0	10	0.056	0.0056
Chromium	0.823	10.2	1.97	0.379	0.0154	1.32	3.47	4.80	0.0142	3.3	69	0.0043	0.00021
Cobalt	0.278	8.23	1.02	1.12	0.00521	1.06	7.13	8.19	0.0242	0.50	2.0	0.048	0.012
Lead	0.454	704	5.34	5.24	0.00851	90.7	33.8	125	0.367	11	90	0.033	0.0041
Mercury	0.0255	0.405	0.0377	0.0438	0.000477	0.0522	0.278	0.331	0.000976	0.032	0.16	0.031	0.0061
Molybdenum	0.600	2.02	0.503	0.282	0.0112	0.260	1.96	2.23	0.00658	0.26	2.6	0.025	0.0025
Selenium	0.202	3.99	0.142	0.104	0.00378	0.514	0.694	1.21	0.00357	0.20	0.33	0.018	0.011
Thallium	0.0513	0.316	0.0198	0.00588	0.000961	0.0407	0.0469	0.0885	0.000261	0.074	0.74	0.0035	0.00035
Vanadium	0.442	11.9	0.412	0.279	0.00829	1.53	1.88	3.42	0.0101	0.21	2.1	0.048	0.0048
Zinc	7.97	2,240	76.2	229	0.149	288	1380	1670	4.92	160	320	0.031	0.015

**Note:** The following data were used to develop this scenario: PHASE2RA Whole site creek/pond water, tundra soil, sedge (whole and blades), and willow/birch data.

"Whole site" data set comprises all data from port, road, and mine investigation units.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-98. Food-web model exposure results for moose exposed to 95% UCL CoPC concentrations at whole site

Analyte	Concentration				Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Shrub (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL	LOAEL	NOAEL Hazard Quotient	LOAEL Hazard Quotient
										(mg/kg-day)	(mg/kg-day)		
Aluminum	494	7,150	162	146	9.27	920	948	1880	5.54	1.9	19	2.9	0.29
Antimony	0.280	6.93	0.391	0.118	0.00526	0.893	0.936	1.83	0.00541	0.66	--	0.0082	--
Arsenic (arsenate)	0.618	12.9	0.875	0.128	0.0116	1.66	1.30	2.98	0.00878	0.40	1.6	0.022	0.0055
Arsenic (arsenite)	0.618	12.9	0.875	0.128	0.0116	1.66	1.30	2.98	0.00878	0.13	1.3	0.068	0.0068
Barium	118	1,690	90.4	85.0	2.22	218	551	771	2.28	5.1	20	0.45	0.11
Cadmium	0.125	24.3	0.350	4.06	0.00234	3.13	23.7	26.9	0.0793	1.0	10	0.079	0.0079
Chromium	2.10	14.7	9.33	0.681	0.0393	1.89	9.96	11.9	0.0351	3.3	69	0.011	0.00051
Cobalt	0.489	9.78	7.80	1.56	0.00916	1.26	14.1	15.3	0.0453	0.50	2.0	0.091	0.023
Lead	1.05	1,410	11.9	10.3	0.0197	182	67.1	249	0.735	11	90	0.067	0.0082
Mercury	0.0314	0.794	0.0414	0.0467	0.000588	0.102	0.297	0.400	0.00118	0.032	0.16	0.037	0.0074
Molybdenum	1.01	4.08	0.629	0.365	0.0189	0.525	2.52	3.06	0.00904	0.26	2.6	0.035	0.0035
Selenium	0.771	9.26	0.217	0.155	0.0144	1.19	1.04	2.24	0.00662	0.20	0.33	0.033	0.020
Thallium	0.250	0.500	0.106	0.00842	0.00469	0.0644	0.117	0.186	0.000550	0.074	0.74	0.0074	0.00074
Vanadium	0.531	14.3	1.02	0.321	0.00995	1.84	2.52	4.37	0.0129	0.21	2.1	0.061	0.0061
Zinc	15.8	4,040	122	266	0.296	521	1620	2140	6.32	160	320	0.039	0.020

**Note:** The following data were used to develop this scenario: PHASE2RA Whole site creek/pond water, tundra soil, sedge (whole and blades), and willow/birch data.

"Whole site" data set comprises all data from port, road, and mine investigation units.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

UCL - upper confidence limit

Table K-99. Food-web model exposure results for muskrat exposed to CoPC concentrations at ST-REF-3 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	17.3	3,620	261	0.00161	5.07	18.3	23.4	25.1	1.9	19	13	1.3
Antimony	0.01	0.03	0.05	0.00000929	0.0000420	0.00350	0.00355	0.00381	0.66	--	0.0058	--
Arsenic (arsenate)	0.1	8.1	2.93	0.00000929	0.0114	0.205	0.217	0.232	0.40	1.6	0.58	0.15
Arsenic (arsenite)	0.1	8.1	2.93	0.00000929	0.0114	0.205	0.217	0.232	0.13	1.3	1.8	0.18
Barium	169	177	50.6	0.0157	0.248	3.55	3.81	4.09	5.1	20	0.80	0.20
Cadmium	0.005	0.245	0.18	0.00000465	0.000343	0.0126	0.0130	0.0139	1.0	10	0.014	0.0014
Chromium	0.25	7.22	3.7	0.0000232	0.0101	0.259	0.269	0.289	3.3	69	0.088	0.0042
Cobalt	0.22	11	2.17	0.0000204	0.0154	0.152	0.167	0.180	0.50	2.0	0.36	0.090
Lead	0.02	9.5	1.28	0.00000186	0.0133	0.0897	0.103	0.111	11	90	0.010	0.0012
Mercury	0.05	0.0215	0.032	0.00000465	0.0000301	0.00224	0.00228	0.00244	0.032	0.16	0.076	0.015
Molybdenum	0.05	0.52	0.231	0.00000465	0.000729	0.0162	0.0169	0.0182	0.26	2.6	0.070	0.0070
Selenium	0.2	0.5	0.5	0.0000186	0.000701	0.0350	0.0358	0.0384	0.20	0.33	0.19	0.12
Thallium	0.003	0.041	0.023	0.000000279	0.0000575	0.00161	0.00167	0.00179	0.074	0.74	0.024	0.0024
Vanadium	0.2	10.7	0.65	0.0000186	0.0150	0.0455	0.0606	0.0650	0.21	2.1	0.31	0.031
Zinc	0.31	66.9	47.7	0.0000288	0.0938	3.34	3.44	3.69	160	320	0.023	0.012

**Note:** The following data were used to develop this scenario: PHASE1RA water (ST-REF-1); PHASE1RA sediment (ST-REF-3); PHASE2RA sediment ; and PHASE2RA whole sedge.

Mean of PHASE1RA and PHASE2RA sediment data used (ST-REF-3). No PHASE1RA water data for ST-REF-3, so data from closest creek, ST-REF-1 used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-100. Food-web model exposure results for muskrat exposed to CoPC concentrations at ST-REF-5 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	2,770	12,100	290	0.257	17.0	20.3	37.5	40.3	1.9	19	21	2.1
Antimony	0.08	0.05	0.06	0.00000743	0.0000701	0.00420	0.00428	0.00459	0.66	--	0.0070	--
Arsenic (arsenate)	2.2	3.5	0.32	0.000204	0.00490	0.0224	0.0275	0.0295	0.40	1.6	0.074	0.018
Arsenic (arsenite)	2.2	3.5	0.32	0.000204	0.00490	0.0224	0.0275	0.0295	0.13	1.3	0.23	0.023
Barium	222	483	73.3	0.0206	0.677	5.14	5.83	6.26	5.1	20	1.2	0.31
Cadmium	0.07	0.3	0.132	0.00000650	0.000420	0.00925	0.00968	0.0104	1.0	10	0.010	0.0010
Chromium	3.71	19.9	2.6	0.000345	0.0279	0.182	0.210	0.226	3.3	69	0.068	0.0033
Cobalt	2.72	8.74	1.13	0.000253	0.0122	0.0792	0.0917	0.0984	0.50	2.0	0.20	0.049
Lead	1.91	8.87	0.47	0.000177	0.0124	0.0329	0.0455	0.0489	11	90	0.0044	0.00054
Mercury	0.05	0.04	0.034	0.00000465	0.0000561	0.00238	0.00244	0.00262	0.032	0.16	0.082	0.016
Molybdenum	0.17	0.3	0.378	0.0000158	0.000420	0.0265	0.0269	0.0289	0.26	2.6	0.11	0.011
Selenium	0.2	0.7	0.05	0.0000186	0.000981	0.00350	0.00450	0.00483	0.20	0.33	0.024	0.015
Thallium	0.014	0.07	0.05	0.00000130	0.0000981	0.00350	0.00360	0.00387	0.074	0.74	0.052	0.0052
Vanadium	5.57	24.8	0.65	0.000518	0.0348	0.0455	0.0808	0.0867	0.21	2.1	0.41	0.041
Zinc	9.84	68.1	29.6	0.000914	0.0954	2.07	2.17	2.33	160	320	0.015	0.0073

**Note:** The following data were used to develop this scenario: PHASE1RA water (ST-REF-5); PHASE1RA sediment (ST-REF-5); and PHASE2RA whole sedge.

No PHASE2RA sediment data for station ST-REF-5 collected.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-101. Food-web model exposure results for muskrat exposed to CoPC concentrations at ST-REF-6 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	2,770	12,100	396	0.257	17.0	27.7	45.0	48.2	1.9	19	25	2.5
Antimony	0.08	0.05	0.05	0.00000743	0.0000701	0.00350	0.00358	0.00384	0.66	--	0.0058	--
Arsenic (arsenate)	2.2	3.5	1.08	0.000204	0.00490	0.0757	0.0808	0.0867	0.40	1.6	0.22	0.054
Arsenic (arsenite)	2.2	3.5	1.08	0.000204	0.00490	0.0757	0.0808	0.0867	0.13	1.3	0.67	0.067
Barium	222	483	64	0.0206	0.677	4.48	5.18	5.56	5.1	20	1.1	0.28
Cadmium	0.07	0.19	0.057	0.00000650	0.000266	0.00399	0.00427	0.00458	1.0	10	0.0046	0.00046
Chromium	3.71	19.9	4.1	0.000345	0.0279	0.287	0.316	0.339	3.3	69	0.10	0.0049
Cobalt	2.72	8.74	1.62	0.000253	0.0122	0.114	0.126	0.135	0.50	2.0	0.27	0.068
Lead	1.91	5.71	0.74	0.000177	0.00800	0.0519	0.0600	0.0644	11	90	0.0059	0.00072
Mercury	0.05	0.003	0.025	0.00000465	0.00000420	0.00175	0.00176	0.00189	0.032	0.16	0.059	0.012
Molybdenum	0.17	0.3	0.147	0.0000158	0.000420	0.0103	0.0107	0.0115	0.26	2.6	0.044	0.0044
Selenium	0.2	0.7	0.2	0.0000186	0.000981	0.0140	0.0150	0.0161	0.20	0.33	0.081	0.049
Thallium	0.014	0.07	0.009	0.00000130	0.0000981	0.000631	0.000730	0.000783	0.074	0.74	0.011	0.0011
Vanadium	5.57	24.8	0.85	0.000518	0.0348	0.0596	0.0948	0.102	0.21	2.1	0.48	0.048
Zinc	9.84	33.1	30	0.000914	0.0464	2.10	2.15	2.31	160	320	0.014	0.0072

**Note:** The following data were used to develop this scenario: PHASE1RA water (ST-REF-5); PHASE1RA sediment (other analytes, ST-REF-5); PHASE2RA sediment (Cd, Pb, Hg, Zn); and PHASE2RA whole sedge.

No PHASE1RA water data for station ST-REF-6.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-102. Food-web model exposure results for muskrat exposed to CoPC concentrations at Omikviorok River road site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	96.3	9,520	1900	0.00895	13.3	133	146	157	1.9	19	83	8.3
Antimony	0.063	0.14	0.0515	0.0000585	0.000196	0.00361	0.00381	0.00409	0.66	--	0.0062	--
Arsenic (arsenate)	0.482	7.6	1.87	0.0000448	0.0107	0.131	0.142	0.152	0.40	1.6	0.38	0.095
Arsenic (arsenite)	0.482	7.6	1.87	0.0000448	0.0107	0.131	0.142	0.152	0.13	1.3	1.2	0.12
Barium	133	407	208	0.0124	0.570	14.6	15.2	16.3	5.1	20	3.2	0.81
Cadmium	0.0849	0.435	0.492	0.0000789	0.000610	0.0345	0.0351	0.0377	1.0	10	0.038	0.0038
Chromium	0.396	20.6	16.2	0.0000368	0.0289	1.14	1.16	1.25	3.3	69	0.38	0.018
Cobalt	0.1	13.5	2.96	0.0000929	0.0189	0.207	0.226	0.243	0.50	2.0	0.49	0.12
Lead	0.506	22.5	8.27	0.0000470	0.0315	0.579	0.611	0.656	11	90	0.060	0.0073
Mercury	0.0179	0.0315	0.042	0.0000166	0.0000441	0.00294	0.00299	0.00321	0.032	0.16	0.10	0.020
Molybdenum	0.69	0.49	0.238	0.0000641	0.000687	0.0167	0.0174	0.0187	0.26	2.6	0.072	0.0072
Selenium	0.0201	0.6	0.3	0.0000187	0.000841	0.0210	0.0219	0.0235	0.20	0.33	0.12	0.071
Thallium	0.0428	0.106	0.033	0.0000397	0.000149	0.00231	0.00246	0.00264	0.074	0.74	0.036	0.0036
Vanadium	0.335	24.9	4.8	0.0000311	0.0349	0.336	0.371	0.398	0.21	2.1	1.9	0.19
Zinc	6.46	108	59.4	0.000600	0.151	4.16	4.31	4.63	160	320	0.029	0.014

**Note:** The following data were used to develop this scenario: TECK03 water (mean of OmiRoad); PHASE1RA sediment; PHASE2RA sediment ; and PHASE2RA whole sedge.

Mean of PHASE1RA and PHASE2RA sediment used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-103. Food-web model exposure results for muskrat exposed to CoPC concentrations at Anxiety Ridge Creek road site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	208	7,200	307	0.0193	10.1	21.5	31.6	33.9	1.9	19	18	1.8
Antimony	0.063	0.42	0.04	0.0000585	0.000589	0.00280	0.00340	0.00364	0.66	--	0.0055	--
Arsenic (arsenate)	0.482	8.4	1.13	0.0000448	0.0118	0.0792	0.0910	0.0976	0.40	1.6	0.24	0.061
Arsenic (arsenite)	0.482	8.4	1.13	0.0000448	0.0118	0.0792	0.0910	0.0976	0.13	1.3	0.75	0.075
Barium	140	922	250	0.0130	1.29	17.5	18.8	20.2	5.1	20	4.0	1.0
Cadmium	0.0365	1.02	0.638	0.0000339	0.00142	0.0447	0.0461	0.0495	1.0	10	0.049	0.0049
Chromium	0.396	14.6	3.1	0.0000368	0.0205	0.217	0.238	0.255	3.3	69	0.077	0.0037
Cobalt	0.015	11.1	0.92	0.00000139	0.0156	0.0645	0.0800	0.0859	0.50	2.0	0.17	0.043
Lead	0.65	124	14.3	0.0000604	0.173	1.00	1.18	1.26	11	90	0.11	0.014
Mercury	0.0179	0.0625	0.06	0.00000166	0.0000876	0.00420	0.00429	0.00461	0.032	0.16	0.14	0.029
Molybdenum	0.22	1.62	0.309	0.0000204	0.00227	0.0217	0.0239	0.0257	0.26	2.6	0.099	0.0099
Selenium	0.355	1.5	0.3	0.0000330	0.00210	0.0210	0.0232	0.0248	0.20	0.33	0.12	0.075
Thallium	0.09	0.19	0.027	0.00000836	0.000266	0.00189	0.00217	0.00232	0.074	0.74	0.031	0.0031
Vanadium	0.335	20.5	0.7	0.0000311	0.0287	0.0490	0.0778	0.0835	0.21	2.1	0.40	0.040
Zinc	1.79	204	87.4	0.000166	0.285	6.12	6.41	6.88	160	320	0.043	0.021

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA sediment; and PHASE2RA whole sedge.

Mean for creek at road station (except sediment average of downstream from PHASE1RA and road station from PHASE2RA, and water from downstream location).

Mean of PHASE1RA (ARC-D1) and PHASE2RA (ARC-R) sediment used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value



Table K-104. Food-web model exposure results for muskrat exposed to CoPC concentrations at TP-REF-2 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	14.5	4,310	48.2	0.00135	6.04	3.38	9.42	10.1	1.9	19	5.3	0.53
Antimony	0.02	0.03	0.03	0.00000186	0.0000420	0.00210	0.00215	0.00230	0.66	--	0.0035	--
Arsenic (arsenate)	0.5	7	0.5	0.0000465	0.00981	0.0350	0.0449	0.0482	0.40	1.6	0.12	0.030
Arsenic (arsenite)	0.5	7	0.5	0.0000465	0.00981	0.0350	0.0449	0.0482	0.13	1.3	0.37	0.037
Barium	133	232	60.8	0.0124	0.325	4.26	4.60	4.93	5.1	20	0.97	0.25
Cadmium	0.005	0.35	0.026	0.000000465	0.000490	0.00182	0.00231	0.00248	1.0	10	0.0025	0.00025
Chromium	0.18	10.9	1.5	0.0000167	0.0153	0.105	0.120	0.129	3.3	69	0.039	0.0019
Cobalt	0.21	8.13	1.63	0.0000195	0.0114	0.114	0.126	0.135	0.50	2.0	0.27	0.067
Lead	0.06	7.48	0.4	0.00000558	0.0105	0.0280	0.0385	0.0413	11	90	0.0038	0.00046
Mercury	0.05	0.03	0.041	0.00000465	0.0000420	0.00287	0.00292	0.00313	0.032	0.16	0.098	0.020
Molybdenum	0.02	0.46	0.211	0.00000186	0.000645	0.0148	0.0154	0.0166	0.26	2.6	0.064	0.0064
Selenium	0.5	0.5	0.05	0.0000465	0.000701	0.00350	0.00425	0.00456	0.20	0.33	0.023	0.014
Thallium	0.003	0.056	0.01	0.000000279	0.0000785	0.000701	0.000779	0.000836	0.074	0.74	0.011	0.0011
Vanadium	0.17	14.9	0.3	0.0000158	0.0209	0.0210	0.0419	0.0450	0.21	2.1	0.21	0.021
Zinc	0.59	65.4	25.4	0.0000548	0.0916	1.78	1.87	2.01	160	320	0.013	0.0063

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP-REF-2); PHASE1RA sediment (TP-REF-2); PHASE2RA sediment; and PHASE2RA whole sedge.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-105. Food-web model exposure results for muskrat exposed to CoPC concentrations at TP-REF-3 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
											Hazard Quotient	Hazard Quotient
Aluminum	91.2	17,100	1300	0.00847	24.0	91.1	115	123	1.9	19	65	6.5
Antimony	0.1	0.05	0.095	0.0000929	0.0000701	0.00666	0.00674	0.00723	0.66	--	0.011	--
Arsenic (arsenate)	0.9	2.6	1.96	0.0000836	0.00364	0.137	0.141	0.151	0.40	1.6	0.38	0.095
Arsenic (arsenite)	0.9	2.6	1.96	0.0000836	0.00364	0.137	0.141	0.151	0.13	1.3	1.2	0.12
Barium	48.4	516	74.9	0.00450	0.723	5.25	5.98	6.41	5.1	20	1.3	0.32
Cadmium	0.06	0.27	0.081	0.0000558	0.000378	0.00568	0.00606	0.00650	1.0	10	0.0065	0.00065
Chromium	0.72	28	55	0.0000669	0.0392	3.85	3.89	4.18	3.3	69	1.3	0.061
Cobalt	0.19	8.01	1.72	0.0000177	0.0112	0.121	0.132	0.141	0.50	2.0	0.28	0.071
Lead	0.5	10.5	2.3	0.0000465	0.0147	0.161	0.176	0.189	11	90	0.017	0.0021
Mercury	0.05	0.04	0.03	0.00000465	0.0000561	0.00210	0.00216	0.00232	0.032	0.16	0.073	0.015
Molybdenum	0.22	0.48	0.9	0.0000204	0.000673	0.0631	0.0638	0.0684	0.26	2.6	0.26	0.026
Selenium	0.2	0.7	0.1	0.0000186	0.000981	0.00701	0.00801	0.00859	0.20	0.33	0.043	0.026
Thallium	0.04	0.174	0.13	0.00000372	0.000244	0.00911	0.00936	0.0100	0.074	0.74	0.14	0.014
Vanadium	2.41	36.5	7.6	0.000224	0.0511	0.533	0.584	0.626	0.21	2.1	3.0	0.30
Zinc	2.87	88.7	36.6	0.000267	0.124	2.56	2.69	2.89	160	320	0.018	0.0090

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP-REF-3); PHASE1RA sediment (TP-REF-3); and PHASE2RA whole sedge.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-106. Food-web model exposure results for muskrat exposed to CoPC concentrations at TP-REF-5 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	170	11,700	714	0.0158	16.4	50.0	66.4	71.3	1.9	19	38	3.8
Antimony	0.05	0.03	0.075	0.0000465	0.0000420	0.00526	0.00530	0.00569	0.66	--	0.0086	--
Arsenic (arsenate)	0.5	3.1	9.36	0.0000465	0.00434	0.656	0.660	0.708	0.40	1.6	1.8	0.44
Arsenic (arsenite)	0.5	3.1	9.36	0.0000465	0.00434	0.656	0.660	0.708	0.13	1.3	5.4	0.54
Barium	93.5	508	117	0.00869	0.712	8.20	8.92	9.57	5.1	20	1.9	0.48
Cadmium	0.05	0.36	0.179	0.0000465	0.000504	0.0125	0.0131	0.0140	1.0	10	0.014	0.0014
Chromium	1.98	26.1	6.2	0.000184	0.0366	0.434	0.471	0.506	3.3	69	0.15	0.0073
Cobalt	0.7	11.7	4.56	0.0000650	0.0164	0.320	0.336	0.360	0.50	2.0	0.72	0.18
Lead	0.56	10.7	1.1	0.0000520	0.0150	0.0771	0.0921	0.0988	11	90	0.0090	0.0011
Mercury	0.05	0.06	0.033	0.00000465	0.0000841	0.00231	0.00240	0.00258	0.032	0.16	0.081	0.016
Molybdenum	0.05	0.38	0.38	0.00000465	0.000533	0.0266	0.0272	0.0291	0.26	2.6	0.11	0.011
Selenium	0.3	0.6	0.2	0.0000279	0.000841	0.0140	0.0149	0.0160	0.20	0.33	0.080	0.048
Thallium	0.003	0.139	0.049	0.000000279	0.000195	0.00343	0.00363	0.00389	0.074	0.74	0.053	0.0053
Vanadium	0.89	32.5	3.9	0.0000827	0.0455	0.273	0.319	0.342	0.21	2.1	1.6	0.16
Zinc	5.01	68.2	32	0.000466	0.0956	2.24	2.34	2.51	160	320	0.016	0.0078

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP-REF-5); PHASE1RA sediment (TP-REF-5); and PHASE2RA whole sedge.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-107. Food-web model exposure results for muskrat exposed to CoPC concentrations at TP1-0100 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	11.4	4,290	68.1	0.00106	6.01	4.77	10.8	11.6	1.9	19	6.1	0.61
Antimony	0.2	9	0.74	0.0000186	0.0126	0.0519	0.0645	0.0692	0.66	--	0.10	--
Arsenic (arsenate)	0.6	7.5	0.43	0.0000558	0.0105	0.0301	0.0407	0.0437	0.40	1.6	0.11	0.027
Arsenic (arsenite)	0.6	7.5	0.43	0.0000558	0.0105	0.0301	0.0407	0.0437	0.13	1.3	0.34	0.034
Barium	70.3	498	21.4	0.00653	0.698	1.50	2.20	2.36	5.1	20	0.46	0.12
Cadmium	0.27	101	1.71	0.0000251	0.142	0.120	0.261	0.280	1.0	10	0.28	0.028
Chromium	0.44	13	6.8	0.0000409	0.0182	0.476	0.495	0.531	3.3	69	0.16	0.0077
Cobalt	0.88	24.1	2.23	0.0000818	0.0338	0.156	0.190	0.204	0.50	2.0	0.41	0.10
Lead	1.63	1,810	48.1	0.000151	2.54	3.37	5.91	6.34	11	90	0.58	0.070
Mercury	0.05	1.1	0.06	0.00000465	0.00154	0.00420	0.00575	0.00617	0.032	0.16	0.19	0.039
Molybdenum	0.09	2.43	0.261	0.00000836	0.00341	0.0183	0.0217	0.0233	0.26	2.6	0.090	0.0090
Selenium	0.2	3	0.3	0.0000186	0.00420	0.0210	0.0252	0.0271	0.20	0.33	0.14	0.082
Thallium	0.01	1.64	0.085	0.000000929	0.00230	0.00596	0.00825	0.00886	0.074	0.74	0.12	0.012
Vanadium	0.24	12.2	0.2	0.0000223	0.0171	0.0140	0.0311	0.0334	0.21	2.1	0.16	0.016
Zinc	99	21,900	351	0.00920	30.7	24.6	55.3	59.3	160	320	0.37	0.19

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP-REF-3); PHASE1RA sediment (TP-REF-3); and PHASE2RA whole sedge.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-108. Food-web model exposure results for muskrat exposed to CoPC concentrations at TP1-1000 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	143	4,330	69.8	0.0133	6.07	4.89	11.0	11.8	1.9	19	6.2	0.62
Antimony	0.09	0.2	0.37	0.0000836	0.000280	0.0259	0.0262	0.0281	0.66	--	0.043	--
Arsenic (arsenate)	0.4	5.1	0.31	0.0000372	0.00715	0.0217	0.0289	0.0310	0.40	1.6	0.078	0.019
Arsenic (arsenite)	0.4	5.1	0.31	0.0000372	0.00715	0.0217	0.0289	0.0310	0.13	1.3	0.24	0.024
Barium	39.4	281	48.2	0.00366	0.394	3.38	3.77	4.05	5.1	20	0.79	0.20
Cadmium	0.06	0.94	0.735	0.0000558	0.00132	0.0515	0.0528	0.0567	1.0	10	0.057	0.0057
Chromium	1.56	9.71	3.1	0.000145	0.0136	0.217	0.231	0.248	3.3	69	0.075	0.0036
Cobalt	1.56	22.6	22.5	0.000145	0.0317	1.58	1.61	1.73	0.50	2.0	3.5	0.86
Lead	1.06	8.96	16.1	0.0000985	0.0126	1.13	1.14	1.22	11	90	0.11	0.014
Mercury	0.05	0.06	0.05	0.0000465	0.0000841	0.00350	0.00359	0.00385	0.032	0.16	0.12	0.024
Molybdenum	0.02	1.17	0.108	0.00000186	0.00164	0.00757	0.00921	0.00988	0.26	2.6	0.038	0.0038
Selenium	0.2	1.6	0.1	0.0000186	0.00224	0.00701	0.00927	0.00994	0.20	0.33	0.050	0.030
Thallium	0.003	0.021	0.02	0.000000279	0.0000294	0.00140	0.00143	0.00154	0.074	0.74	0.021	0.0021
Vanadium	0.28	15.1	0.2	0.0000260	0.0212	0.0140	0.0352	0.0378	0.21	2.1	0.18	0.018
Zinc	30.6	162	87.6	0.00284	0.227	6.14	6.37	6.83	160	320	0.043	0.021

**Note:** The following data were used to develop this scenario: PHASE1RA water; PHASE1RA sediment; and PHASE2RA whole sedge.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-109. Food-web model exposure results for muskrat exposed to CoPC concentrations at TP3 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	75	1,920	225	0.00697	2.69	15.8	18.5	19.8	1.9	19	10	1.0
Antimony	0.03	0.26	0.17	0.00000279	0.000364	0.0119	0.0123	0.0132	0.66	--	0.020	--
Arsenic (arsenate)	0.5	3.5	0.28	0.0000465	0.00490	0.0196	0.0246	0.0264	0.40	1.6	0.066	0.016
Arsenic (arsenite)	0.5	3.5	0.28	0.0000465	0.00490	0.0196	0.0246	0.0264	0.13	1.3	0.20	0.020
Barium	46.8	388	70	0.00435	0.544	4.90	5.45	5.85	5.1	20	1.1	0.29
Cadmium	0.02	1.91	0.219	0.00000186	0.00268	0.0153	0.0180	0.0193	1.0	10	0.019	0.0019
Chromium	1.6	9.42	2.3	0.000149	0.0132	0.161	0.175	0.187	3.3	69	0.057	0.0027
Cobalt	0.13	7.56	1.14	0.0000121	0.0106	0.0799	0.0905	0.0971	0.50	2.0	0.19	0.049
Lead	0.44	93.2	3.49	0.0000409	0.131	0.245	0.375	0.403	11	90	0.037	0.0045
Mercury	0.05	0.11	0.07	0.00000465	0.000154	0.00490	0.00506	0.00543	0.032	0.16	0.17	0.034
Molybdenum	0.05	2	1.31	0.00000465	0.00280	0.0918	0.0946	0.101	0.26	2.6	0.39	0.039
Selenium	0.2	0.75	0.1	0.0000186	0.00105	0.00701	0.00808	0.00867	0.20	0.33	0.043	0.026
Thallium	0.003	0.023	0.017	0.000000279	0.0000322	0.00119	0.00122	0.00131	0.074	0.74	0.018	0.0018
Vanadium	0.31	28.3	1	0.0000288	0.0397	0.0701	0.110	0.118	0.21	2.1	0.56	0.056
Zinc	6.08	288	74.8	0.000565	0.404	5.24	5.65	6.06	160	320	0.038	0.019

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA sediment (TP2-0100); and PHASE2RA whole sedge.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-110. Food-web model exposure results for muskrat exposed to CoPC concentrations at TP4 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	75	1,920	190	0.00697	2.69	13.3	16.0	17.2	1.9	19	9.0	0.90
Antimony	0.03	0.26	0.51	0.0000279	0.000364	0.0357	0.0361	0.0387	0.66	--	0.059	--
Arsenic (arsenate)	0.5	3.5	0.88	0.0000465	0.00490	0.0617	0.0666	0.0715	0.40	1.6	0.18	0.045
Arsenic (arsenite)	0.5	3.5	0.88	0.0000465	0.00490	0.0617	0.0666	0.0715	0.13	1.3	0.55	0.055
Barium	46.8	388	289	0.00435	0.544	20.2	20.8	22.3	5.1	20	4.4	1.1
Cadmium	0.02	1.91	0.559	0.00000186	0.00268	0.0392	0.0418	0.0449	1.0	10	0.045	0.0045
Chromium	1.6	9.42	18.4	0.000149	0.0132	1.29	1.30	1.40	3.3	69	0.42	0.020
Cobalt	0.13	7.56	1.38	0.0000121	0.0106	0.0967	0.107	0.115	0.50	2.0	0.23	0.058
Lead	0.44	93.2	21.1	0.0000409	0.131	1.48	1.61	1.73	11	90	0.16	0.019
Mercury	0.05	0.11	0.05	0.00000465	0.000154	0.00350	0.00366	0.00393	0.032	0.16	0.12	0.025
Molybdenum	0.05	2	0.321	0.00000465	0.00280	0.0225	0.0253	0.0271	0.26	2.6	0.10	0.010
Selenium	0.2	0.75	0.1	0.0000186	0.00105	0.00701	0.00808	0.00867	0.20	0.33	0.043	0.026
Thallium	0.003	0.023	0.283	0.000000279	0.0000322	0.0198	0.0199	0.0213	0.074	0.74	0.29	0.029
Vanadium	0.31	28.3	0.5	0.0000288	0.0397	0.0350	0.0747	0.0802	0.21	2.1	0.38	0.038
Zinc	6.08	288	104	0.000565	0.404	7.29	7.69	8.25	160	320	0.052	0.026

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA sediment (TP2-0100); and PHASE2RA whole sedge.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-111. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TS-REF-5 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
											Hazard Quotient	Hazard Quotient
Aluminum	91.2	11,300	5.6	0.0000958	1.24	0.0115	1.25	196	1.9	19	100	10
Antimony	0.1	0.22	0.003	0.000000105	0.0000242	0.00000615	0.0000305	0.00476	0.66	--	0.0072	--
Arsenic (arsenate)	0.9	3.5	0.05	0.000000945	0.000385	0.000103	0.000488	0.0763	0.40	1.6	0.19	0.048
Arsenic (arsenite)	0.9	3.5	0.05	0.000000945	0.000385	0.000103	0.000488	0.0763	0.13	1.3	0.59	0.059
Barium	48.4	383	5.63	0.0000508	0.0421	0.0115	0.0537	8.39	5.1	20	1.6	0.42
Cadmium	0.06	0.293	0.96	0.000000630	0.0000322	0.00197	0.00200	0.313	1.0	10	0.31	0.031
Chromium	0.72	19.7	0.3	0.000000756	0.00217	0.000615	0.00278	0.435	3.3	69	0.13	0.0063
Cobalt	0.19	15.3	0.029	0.000000200	0.00168	0.0000595	0.00174	0.272	0.50	2.0	0.54	0.14
Lead	0.5	13.4	0.15	0.000000525	0.00148	0.000308	0.00179	0.279	11	90	0.025	0.0031
Mercury	0.05	0.105	0.09	0.000000525	0.0000116	0.000185	0.000196	0.0306	0.032	0.16	0.96	0.19
Molybdenum	0.22	0.805	0.324	0.000000231	0.0000885	0.000664	0.000753	0.118	0.26	2.6	0.45	0.045
Selenium	0.2	0.55	0.65	0.000000210	0.0000605	0.00133	0.00139	0.218	0.20	0.33	1.1	0.66
Thallium	0.04	0.0575	0.002	0.0000000420	0.00000633	0.00000410	0.0000105	0.00164	0.074	0.74	0.022	0.0022
Vanadium	2.41	12.7	0.2	0.00000253	0.00140	0.000410	0.00181	0.282	0.21	2.1	1.3	0.13
Zinc	2.87	57.4	214	0.00000301	0.00631	0.439	0.445	69.5	160	320	0.43	0.22

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP-REF-3); PHASE1RA soil (TS-REF-5); PHASE2RA soil; and PHASE2RA invertebrates.

Mean of PHASE1RA and PHASE2RA tundra soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value



Table K-112. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT5-0010 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	11.4	6,940	95.1	0.0000120	0.763	0.195	0.958	150	1.9	19	79	7.9
Antimony	0.2	2.75	0.14	0.00000210	0.000303	0.000286	0.000589	0.0920	0.66	--	0.14	--
Arsenic (arsenate)	0.6	8	0.195	0.00000630	0.000880	0.000400	0.00128	0.200	0.40	1.6	0.50	0.13
Arsenic (arsenite)	0.6	8	0.195	0.00000630	0.000880	0.000400	0.00128	0.200	0.13	1.3	1.5	0.15
Barium	70.3	1,200	25.9	0.0000738	0.132	0.0530	0.185	28.9	5.1	20	5.7	1.4
Cadmium	0.27	20.6	11.7	0.00000284	0.00227	0.0239	0.0262	4.09	1.0	10	4.1	0.41
Chromium	0.44	17.9	0.45	0.00000462	0.00197	0.000923	0.00289	0.452	3.3	69	0.14	0.0065
Cobalt	0.88	18.6	0.139	0.00000924	0.00205	0.000284	0.00233	0.364	0.50	2.0	0.73	0.18
Lead	1.63	1,210	16.7	0.00000171	0.133	0.0341	0.167	26.1	11	90	2.4	0.29
Mercury	0.05	1.75	0.15	0.000000525	0.000193	0.000308	0.000500	0.0781	0.032	0.16	2.4	0.49
Molybdenum	0.09	0.89	0.276	0.000000945	0.0000979	0.000565	0.000663	0.104	0.26	2.6	0.40	0.040
Selenium	0.2	1.5	1	0.000000210	0.000165	0.00205	0.00222	0.346	0.20	0.33	1.7	1.0
Thallium	0.01	0.455	0.038	0.000000105	0.0000501	0.0000779	0.000128	0.0200	0.074	0.74	0.27	0.027
Vanadium	0.24	11.6	0.4	0.000000252	0.00128	0.000820	0.00210	0.328	0.21	2.1	1.6	0.16
Zinc	99	4,330	419	0.000104	0.476	0.858	1.33	208	160	320	1.3	0.65

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE2RA soil; TT1-0010 soil for Al & Cr; and PHASE2RA invertebrates.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-113. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT5-0100 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	11.4	1,820	136	0.0000120	0.200	0.280	0.480	75.0	1.9	19	39	3.9
Antimony	0.2	2.46	0.081	0.00000210	0.000271	0.000166	0.000437	0.0683	0.66	--	0.10	--
Arsenic (arsenate)	0.6	5.3	0.17	0.000000630	0.000583	0.000349	0.000932	0.146	0.40	1.6	0.36	0.091
Arsenic (arsenite)	0.6	5.3	0.17	0.000000630	0.000583	0.000349	0.000932	0.146	0.13	1.3	1.1	0.11
Barium	70.3	1,200	46.5	0.0000738	0.132	0.0952	0.227	35.5	5.1	20	7.0	1.8
Cadmium	0.27	24	3.14	0.00000284	0.00264	0.00644	0.00908	1.42	1.0	10	1.4	0.14
Chromium	0.44	5.15	0.45	0.000000462	0.000567	0.000923	0.00149	0.233	3.3	69	0.071	0.0034
Cobalt	0.88	8.18	0.166	0.000000924	0.000900	0.000339	0.00124	0.194	0.50	2.0	0.39	0.097
Lead	1.63	1,060	16.2	0.00000171	0.117	0.0332	0.150	23.4	11	90	2.1	0.26
Mercury	0.05	0.25	0.115	0.0000000525	0.0000275	0.000236	0.000263	0.0411	0.032	0.16	1.3	0.26
Molybdenum	0.09	0.84	0.415	0.0000000945	0.0000924	0.000850	0.000942	0.147	0.26	2.6	0.57	0.057
Selenium	0.2	1.9	0.4	0.000000210	0.000209	0.000820	0.00103	0.161	0.20	0.33	0.80	0.49
Thallium	0.01	0.368	0.0235	0.0000000105	0.0000405	0.0000482	0.0000887	0.0139	0.074	0.74	0.19	0.019
Vanadium	0.24	8.25	0.4	0.000000252	0.000908	0.000820	0.00173	0.270	0.21	2.1	1.3	0.13
Zinc	99	5,120	291	0.000104	0.563	0.597	1.16	181	160	320	1.1	0.57

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE2RA soil; TT1-0100 soil for Al & Cr; and PHASE2RA invertebrates.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-114. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT5-1000 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	143	548	19.3	0.000150	0.0603	0.0396	0.100	15.6	1.9	19	8.2	0.82
Antimony	0.09	0.83	0.019	0.000000945	0.0000913	0.0000390	0.000130	0.0204	0.66	--	0.031	--
Arsenic (arsenate)	0.4	1.8	0.105	0.000000420	0.000198	0.000215	0.000414	0.0646	0.40	1.6	0.16	0.040
Arsenic (arsenite)	0.4	1.8	0.105	0.000000420	0.000198	0.000215	0.000414	0.0646	0.13	1.3	0.50	0.050
Barium	39.4	15.3	5.78	0.0000414	0.00168	0.0118	0.0136	2.12	5.1	20	0.42	0.11
Cadmium	0.06	4.08	2.53	0.000000630	0.000449	0.00520	0.00564	0.882	1.0	10	0.88	0.088
Chromium	1.56	1.85	0.2	0.00000164	0.000204	0.000410	0.000615	0.0961	3.3	69	0.029	0.0014
Cobalt	1.56	6.82	0.054	0.00000164	0.000750	0.000111	0.000863	0.135	0.50	2.0	0.27	0.067
Lead	1.06	8.62	2.79	0.00000111	0.000948	0.00572	0.00667	1.04	11	90	0.095	0.012
Mercury	0.05	0.33	0.15	0.000000525	0.0000363	0.000308	0.000344	0.0537	0.032	0.16	1.7	0.34
Molybdenum	0.02	1.16	0.289	0.000000210	0.000128	0.000591	0.000719	0.112	0.26	2.6	0.43	0.043
Selenium	0.2	0.9	0.75	0.000000210	0.0000990	0.00154	0.00164	0.256	0.20	0.33	1.3	0.77
Thallium	0.003	0.072	0.0085	0.0000000315	0.00000792	0.0000174	0.0000253	0.00396	0.074	0.74	0.054	0.0054
Vanadium	0.28	4.64	0.4	0.000000294	0.000510	0.000820	0.00133	0.208	0.21	2.1	0.99	0.099
Zinc	30.6	38.9	302	0.0000321	0.00428	0.618	0.622	97.2	160	320	0.61	0.30

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE2RA soil; TT1-1000 soil for Al & Cr; and PHASE2RA invertebrates.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-115. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT5-2000 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	
													NOAEL
Aluminum	143	548	14.1	0.000150	0.0603	0.0289	0.0893	14.0	1.9	19	7.3	0.73	
Antimony	0.09	0.56	0.009	0.000000945	0.0000616	0.0000185	0.0000801	0.0125	0.66	--	0.019	--	
Arsenic (arsenate)	0.4	0.5	0.2	0.000000420	0.0000550	0.000410	0.000465	0.0727	0.40	1.6	0.18	0.045	
Arsenic (arsenite)	0.4	0.5	0.2	0.000000420	0.0000550	0.000410	0.000465	0.0727	0.13	1.3	0.56	0.056	
Barium	39.4	96	4.61	0.0000414	0.0106	0.00945	0.0201	3.13	5.1	20	0.61	0.16	
Cadmium	0.06	1.31	3.53	0.000000630	0.000144	0.00724	0.00738	1.15	1.0	10	1.2	0.12	
Chromium	1.56	1.85	0.3	0.00000164	0.000204	0.000615	0.000820	0.128	3.3	69	0.039	0.0019	
Cobalt	1.56	1.97	0.059	0.00000164	0.000217	0.000121	0.000339	0.0530	0.50	2.0	0.11	0.027	
Lead	1.06	54.1	1.77	0.00000111	0.00595	0.00363	0.00958	1.50	11	90	0.14	0.017	
Mercury	0.05	0.27	0.13	0.000000525	0.0000297	0.000267	0.000296	0.0463	0.032	0.16	1.4	0.29	
Molybdenum	0.02	0.8	0.243	0.000000210	0.0000880	0.000498	0.000586	0.0916	0.26	2.6	0.35	0.035	
Selenium	0.2	0.5	0.9	0.000000210	0.0000550	0.00185	0.00190	0.297	0.20	0.33	1.5	0.90	
Thallium	0.003	0.036	0.003	0.0000000315	0.00000396	0.00000615	0.0000101	0.00158	0.074	0.74	0.021	0.0021	
Vanadium	0.28	0.98	0.4	0.000000294	0.000108	0.000820	0.000928	0.145	0.21	2.1	0.69	0.069	
Zinc	30.6	286	539	0.0000321	0.0315	1.10	1.14	178	160	320	1.1	0.55	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE2RA soil; TT1-1000 soil for Al & Cr; and PHASE2RA invertebrates.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-116. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT2-0010 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	11.4	6,000	202	0.0000120	0.660	0.414	1.07	168	1.9	19	88	8.8
Antimony	0.2	2.2	0.063	0.000000210	0.000241	0.000129	0.000371	0.0579	0.66	--	0.088	--
Arsenic (arsenate)	0.6	6.45	0.17	0.000000630	0.000710	0.000349	0.00106	0.165	0.40	1.6	0.41	0.10
Arsenic (arsenite)	0.6	6.45	0.17	0.000000630	0.000710	0.000349	0.00106	0.165	0.13	1.3	1.3	0.13
Barium	70.3	2,070	45.3	0.0000738	0.227	0.0929	0.320	50.0	5.1	20	9.8	2.5
Cadmium	0.27	16.4	7.13	0.000000284	0.00180	0.0146	0.0164	2.56	1.0	10	2.6	0.26
Chromium	0.44	9.9	0.56	0.000000462	0.00109	0.00115	0.00224	0.350	3.3	69	0.11	0.0051
Cobalt	0.88	9.75	0.139	0.000000924	0.00107	0.000285	0.00136	0.212	0.50	2.0	0.42	0.11
Lead	1.63	759	6.38	0.00000171	0.0835	0.0131	0.0966	15.1	11	90	1.4	0.17
Mercury	0.05	0.455	0.11	0.0000000525	0.0000501	0.000226	0.000276	0.0431	0.032	0.16	1.3	0.27
Molybdenum	0.09	0.77	0.287	0.0000000945	0.0000847	0.000588	0.000673	0.105	0.26	2.6	0.40	0.040
Selenium	0.2	1.25	0.2	0.000000210	0.000138	0.000410	0.000548	0.0856	0.20	0.33	0.43	0.26
Thallium	0.01	0.366	0.015	0.0000000105	0.0000403	0.0000308	0.0000710	0.0111	0.074	0.74	0.15	0.015
Vanadium	0.24	12	0.41	0.000000252	0.00132	0.000841	0.00216	0.338	0.21	2.1	1.6	0.16
Zinc	99	3,460	407	0.000104	0.381	0.834	1.22	190	160	320	1.2	0.59

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA soil (TT2-0100); PHASE2RA soil; and PHASE2RA invertebrates.

Mean of PHASE1RA and PHASE2RA tundra soil used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-117. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT2-0100 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	11.4	3,060	47.6	0.0000120	0.337	0.0976	0.434	67.8	1.9	19	36	3.6
Antimony	0.2	2.04	0.021	0.000000210	0.000224	0.0000431	0.000267	0.0417	0.66	--	0.063	--
Arsenic (arsenate)	0.6	3.95	0.1	0.000000630	0.000435	0.000205	0.000640	0.100	0.40	1.6	0.25	0.063
Arsenic (arsenite)	0.6	3.95	0.1	0.000000630	0.000435	0.000205	0.000640	0.100	0.13	1.3	0.77	0.077
Barium	70.3	890	17.5	0.0000738	0.0978	0.0359	0.134	20.9	5.1	20	4.1	1.0
Cadmium	0.27	9.89	3.09	0.000000284	0.00109	0.00633	0.00742	1.16	1.0	10	1.2	0.12
Chromium	0.44	6.02	0.4	0.000000462	0.000662	0.000820	0.00148	0.232	3.3	69	0.070	0.0034
Cobalt	0.88	6.88	0.066	0.000000924	0.000756	0.000135	0.000892	0.139	0.50	2.0	0.28	0.070
Lead	1.63	414	2.88	0.00000171	0.0455	0.00590	0.0514	8.03	11	90	0.73	0.089
Mercury	0.05	0.37	0.1	0.0000000525	0.0000407	0.000205	0.000246	0.0384	0.032	0.16	1.2	0.24
Molybdenum	0.09	0.79	0.279	0.0000000945	0.0000869	0.000572	0.000659	0.103	0.26	2.6	0.40	0.040
Selenium	0.2	1.1	0.6	0.000000210	0.000121	0.00123	0.00135	0.211	0.20	0.33	1.1	0.64
Thallium	0.01	0.19	0.007	0.0000000105	0.0000209	0.0000144	0.0000353	0.00551	0.074	0.74	0.074	0.0074
Vanadium	0.24	7.31	0.4	0.000000252	0.000804	0.000820	0.00162	0.254	0.21	2.1	1.2	0.12
Zinc	99	1,970	236	0.000104	0.217	0.484	0.701	109	160	320	0.68	0.34

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA soil (TT2-0100); PHASE2RA soil; and PHASE2RA invertebrates.

Mean of PHASE1RA and PHASE2RA tundra soil used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-118. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT2-1000 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
											Hazard Quotient	Hazard Quotient
Aluminum	143	405	17.4	0.000150	0.0446	0.0357	0.0804	12.6	1.9	19	6.6	0.66
Antimony	0.09	0.28	0.003	0.000000945	0.0000308	0.00000615	0.000037	0.00579	0.66	--	0.0088	--
Arsenic (arsenate)	0.4	0.95	0.07	0.000000420	0.000105	0.000144	0.000248	0.0388	0.40	1.6	0.097	0.024
Arsenic (arsenite)	0.4	0.95	0.07	0.000000420	0.000105	0.000144	0.000248	0.0388	0.13	1.3	0.30	0.030
Barium	39.4	146	6.89	0.0000414	0.0160	0.0141	0.0302	4.71	5.1	20	0.92	0.24
Cadmium	0.06	0.915	1.14	0.000000630	0.000101	0.00234	0.00244	0.381	1.0	10	0.38	0.038
Chromium	1.56	1.03	0.2	0.00000164	0.000113	0.000410	0.000525	0.0820	3.3	69	0.025	0.0012
Cobalt	1.56	5.99	0.062	0.00000164	0.000659	0.000127	0.000788	0.123	0.50	2.0	0.25	0.062
Lead	1.06	23.8	1.05	0.00000111	0.00261	0.00215	0.00477	0.745	11	90	0.068	0.0083
Mercury	0.05	0.23	0.1	0.000000525	0.0000253	0.000205	0.000230	0.0360	0.032	0.16	1.1	0.22
Molybdenum	0.02	0.855	0.325	0.000000210	0.0000941	0.000666	0.000760	0.119	0.26	2.6	0.46	0.046
Selenium	0.2	0.5	0.9	0.000000210	0.0000550	0.00185	0.00190	0.297	0.20	0.33	1.5	0.90
Thallium	0.003	0.0375	0.002	0.0000000315	0.00000413	0.00000410	0.00000823	0.00129	0.074	0.74	0.017	0.0017
Vanadium	0.28	2.23	0.4	0.000000294	0.000245	0.000820	0.00107	0.166	0.21	2.1	0.79	0.079
Zinc	30.6	327	232	0.0000321	0.0360	0.476	0.512	79.9	160	320	0.50	0.25

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE1RA soil (TT2-1000); PHASE2RA soil; and PHASE2RA invertebrates.

Mean of PHASE1RA and PHASE2RA tundra soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-119. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT3-0010 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
											Hazard Quotient	Hazard Quotient
Aluminum	75	2,660	151	0.0000788	0.293	0.310	0.602	94.1	1.9	19	50	5.0
Antimony	0.03	0.925	0.037	0.000000315	0.000102	0.0000759	0.000178	0.0278	0.66	--	0.042	--
Arsenic (arsenate)	0.5	5.3	0.25	0.000000525	0.000583	0.000513	0.00110	0.171	0.40	1.6	0.43	0.11
Arsenic (arsenite)	0.5	5.3	0.25	0.000000525	0.000583	0.000513	0.00110	0.171	0.13	1.3	1.3	0.13
Barium	46.8	2,280	71.8	0.0000491	0.251	0.147	0.398	62.2	5.1	20	12	3.1
Cadmium	0.02	7.07	4.31	0.000000210	0.000778	0.00884	0.00961	1.50	1.0	10	1.5	0.15
Chromium	1.6	9.69	0.3	0.00000168	0.00107	0.000615	0.00168	0.263	3.3	69	0.080	0.0038
Cobalt	0.13	8.33	0.134	0.000000137	0.000916	0.000275	0.00119	0.186	0.50	2.0	0.37	0.093
Lead	0.44	385	4.3	0.000000462	0.0423	0.00882	0.0511	7.99	11	90	0.73	0.089
Mercury	0.05	0.285	0.21	0.000000525	0.0000314	0.000431	0.000462	0.0722	0.032	0.16	2.3	0.45
Molybdenum	0.05	1.08	0.274	0.000000525	0.000118	0.000562	0.000680	0.106	0.26	2.6	0.41	0.041
Selenium	0.2	1	0.2	0.000000210	0.000110	0.000410	0.000520	0.0813	0.20	0.33	0.41	0.25
Thallium	0.003	0.296	0.014	0.0000000315	0.0000325	0.0000287	0.0000612	0.00956	0.074	0.74	0.13	0.013
Vanadium	0.31	14.2	0.49	0.000000326	0.00156	0.00100	0.00257	0.401	0.21	2.1	1.9	0.19
Zinc	6.08	1,350	205	0.00000638	0.149	0.420	0.569	88.9	160	320	0.56	0.28

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA soil (TT3-0010); PHASE2RA soil; and PHASE2RA invertebrates.

Mean of PHASE1RA and PHASE2RA tundra soil used.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value



Table K-120. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT3-0100 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	75	1,510	79.8	0.0000788	0.166	0.164	0.330	51.5	1.9	19	27	2.7
Antimony	0.03	0.915	0.018	0.000000315	0.000101	0.0000369	0.000138	0.0215	0.66	--	0.033	--
Arsenic (arsenate)	0.5	2.2	0.14	0.000000525	0.000242	0.000287	0.000530	0.0827	0.40	1.6	0.21	0.052
Arsenic (arsenite)	0.5	2.2	0.14	0.000000525	0.000242	0.000287	0.000530	0.0827	0.13	1.3	0.64	0.064
Barium	46.8	694	29.9	0.0000491	0.0763	0.0613	0.138	21.5	5.1	20	4.2	1.1
Cadmium	0.02	2.06	4.51	0.000000210	0.000226	0.00925	0.00947	1.48	1.0	10	1.5	0.15
Chromium	1.6	3.93	0.3	0.00000168	0.000432	0.000615	0.00105	0.164	3.3	69	0.050	0.0024
Cobalt	0.13	2.69	0.161	0.000000137	0.000296	0.000330	0.000626	0.0978	0.50	2.0	0.20	0.049
Lead	0.44	119	3.08	0.000000462	0.0131	0.00631	0.0194	3.03	11	90	0.28	0.034
Mercury	0.05	0.12	0.24	0.0000000525	0.0000132	0.000492	0.000505	0.0789	0.032	0.16	2.5	0.49
Molybdenum	0.05	0.475	0.225	0.0000000525	0.0000523	0.000461	0.000514	0.0802	0.26	2.6	0.31	0.031
Selenium	0.2	0.45	0.2	0.000000210	0.0000495	0.000410	0.000460	0.0718	0.20	0.33	0.36	0.22
Thallium	0.003	0.0885	0.019	0.00000000315	0.00000974	0.0000390	0.0000487	0.00761	0.074	0.74	0.10	0.010
Vanadium	0.31	4.98	0.2	0.000000326	0.000547	0.000410	0.000958	0.150	0.21	2.1	0.71	0.071
Zinc	6.08	465	235	0.00000638	0.0511	0.482	0.533	83.3	160	320	0.52	0.26

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA soil (TT3-0100); PHASE2RA soil; and PHASE2RA invertebrates.

Mean of PHASE1RA and PHASE2RA tundra soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-121. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT3-1000 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	177	358	12.5	0.000186	0.0394	0.0256	0.0652	10.2	1.9	19	5.4	0.54
Antimony	0.02	0.365	0.003	0.000000210	0.0000402	0.00000615	0.0000463	0.00724	0.66	--	0.011	--
Arsenic (arsenate)	1.3	0.75	0.06	0.00000137	0.0000825	0.000123	0.000207	0.0323	0.40	1.6	0.081	0.020
Arsenic (arsenite)	1.3	0.75	0.06	0.00000137	0.0000825	0.000123	0.000207	0.0323	0.13	1.3	0.25	0.025
Barium	73.6	131	6.82	0.0000773	0.0144	0.0140	0.0285	4.45	5.1	20	0.87	0.22
Cadmium	0.06	0.549	1.05	0.000000630	0.0000604	0.00215	0.00221	0.346	1.0	10	0.35	0.035
Chromium	5.24	1.54	0.3	0.00000550	0.000169	0.000615	0.000790	0.123	3.3	69	0.037	0.0018
Cobalt	0.48	0.615	0.031	0.000000504	0.0000677	0.0000636	0.000132	0.0206	0.50	2.0	0.041	0.010
Lead	0.67	16.1	0.45	0.000000704	0.00177	0.000923	0.00269	0.420	11	90	0.038	0.0047
Mercury	0.05	0.145	0.07	0.0000000525	0.0000160	0.000144	0.000160	0.0249	0.032	0.16	0.78	0.16
Molybdenum	0.08	0.793	0.447	0.0000000840	0.0000872	0.000916	0.00100	0.157	0.26	2.6	0.60	0.060
Selenium	0.2	0.4	0.2	0.000000210	0.0000440	0.000410	0.000454	0.0710	0.20	0.33	0.35	0.22
Thallium	0.005	0.049	0.004	0.0000000525	0.00000539	0.00000820	0.0000136	0.00212	0.074	0.74	0.029	0.0029
Vanadium	0.64	1.45	0.2	0.000000672	0.000160	0.000410	0.000570	0.0891	0.21	2.1	0.42	0.042
Zinc	11	78.4	171	0.0000116	0.00862	0.351	0.359	56.1	160	320	0.35	0.18

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-1000); PHASE1RA soil (TT3-1000); PHASE2RA soil; and PHASE2RA invertebrates.

Mean of PHASE1RA and PHASE2RA tundra soil used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-122. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT6-0010 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	208	2,660	58	0.000218	0.293	0.119	0.412	64.3	1.9	19	34	3.4
Antimony	0.063	1.92	0.017	0.000000662	0.000211	0.0000349	0.000246	0.0385	0.66	--	0.058	--
Arsenic (arsenate)	0.482	9.1	0.12	0.000000506	0.00100	0.000246	0.00125	0.195	0.40	1.6	0.49	0.12
Arsenic (arsenite)	0.482	9.1	0.12	0.000000506	0.00100	0.000246	0.00125	0.195	0.13	1.3	1.5	0.15
Barium	140	6,950	52.5	0.000147	0.765	0.108	0.872	136	5.1	20	27	6.8
Cadmium	0.0365	5.47	5.98	0.000000383	0.000602	0.0123	0.0129	2.01	1.0	10	2.0	0.20
Chromium	0.396	9.69	0.3	0.000000416	0.00107	0.000615	0.00168	0.263	3.3	69	0.080	0.0038
Cobalt	0.015	9.11	0.07	0.000000158	0.00100	0.000144	0.00115	0.179	0.50	2.0	0.36	0.090
Lead	0.65	349	2.07	0.000000683	0.0384	0.00424	0.0426	6.66	11	90	0.61	0.074
Mercury	0.0179	0.25	0.07	0.000000188	0.0000275	0.000144	0.000171	0.0267	0.032	0.16	0.84	0.17
Molybdenum	0.22	1.95	0.229	0.000000231	0.000215	0.000469	0.000684	0.107	0.26	2.6	0.41	0.041
Selenium	0.355	1.5	0.2	0.000000373	0.000165	0.000410	0.000575	0.0899	0.20	0.33	0.45	0.27
Thallium	0.09	1.29	0.015	0.0000000945	0.000142	0.0000308	0.000173	0.0270	0.074	0.74	0.36	0.036
Vanadium	0.335	19.7	0.2	0.000000352	0.00217	0.000410	0.00258	0.403	0.21	2.1	1.9	0.19
Zinc	1.79	1,020	249	0.00000188	0.112	0.510	0.623	97.3	160	320	0.61	0.30

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); TT3-0010 soil for Al & Cr; PHASE2RA soil; and PHASE2RA invertebrates.

No pond water data collected near mine, so Anxiety Ridge Creek downstream data used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-123. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT6-0100 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	208	1,510	78.3	0.000218	0.166	0.161	0.327	51.1	1.9	19	27	2.7
Antimony	0.063	2.03	0.027	0.000000662	0.000223	0.0000554	0.000279	0.0435	0.66	--	0.066	--
Arsenic (arsenate)	0.482	4.9	0.13	0.000000506	0.000539	0.000267	0.000806	0.126	0.40	1.6	0.31	0.079
Arsenic (arsenite)	0.482	4.9	0.13	0.000000506	0.000539	0.000267	0.000806	0.126	0.13	1.3	0.97	0.097
Barium	140	6,360	108	0.000147	0.700	0.221	0.921	144	5.1	20	28	7.2
Cadmium	0.0365	5.06	13	0.000000383	0.000557	0.0267	0.0272	4.25	1.0	10	4.3	0.43
Chromium	0.396	3.93	0.3	0.000000416	0.000432	0.000615	0.00105	0.164	3.3	69	0.050	0.0024
Cobalt	0.015	3.3	0.087	0.000000158	0.000363	0.000178	0.000541	0.0846	0.50	2.0	0.17	0.042
Lead	0.65	281	10.1	0.000000683	0.0309	0.0207	0.0516	8.06	11	90	0.73	0.090
Mercury	0.0179	0.27	0.12	0.000000188	0.0000297	0.000246	0.000276	0.0431	0.032	0.16	1.3	0.27
Molybdenum	0.22	2.47	0.335	0.000000231	0.000272	0.000687	0.000959	0.150	0.26	2.6	0.58	0.058
Selenium	0.355	0.9	0.2	0.000000373	0.0000990	0.000410	0.000509	0.0796	0.20	0.33	0.40	0.24
Thallium	0.09	0.755	0.02	0.0000000945	0.0000831	0.0000410	0.000124	0.0194	0.074	0.74	0.26	0.026
Vanadium	0.335	7.51	0.2	0.000000352	0.000826	0.000410	0.00124	0.193	0.21	2.1	0.92	0.092
Zinc	1.79	764	310	0.00000188	0.0840	0.636	0.720	112	160	320	0.70	0.35

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); TT3-0100 soil for Al & Cr; PHASE2RA soil; and PHASE2RA invertebrates.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-124. Food-web model exposure results for tundra shrew exposed to CoPC concentrations at TT6-1000 site

Analyte	Concentration			Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Soil Inverts. (mg/kg dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL	LOAEL
											Hazard Quotient	Hazard Quotient
Aluminum	208	358	15.6	0.000218	0.0394	0.0320	0.0716	11.2	1.9	19	5.9	0.59
Antimony	0.063	1.22	0.016	0.000000662	0.000134	0.0000328	0.000167	0.0261	0.66	--	0.040	--
Arsenic (arsenate)	0.482	2.9	0.06	0.000000506	0.000319	0.000123	0.000443	0.0691	0.40	1.6	0.17	0.043
Arsenic (arsenite)	0.482	2.9	0.06	0.000000506	0.000319	0.000123	0.000443	0.0691	0.13	1.3	0.53	0.053
Barium	140	1290	12.7	0.000147	0.142	0.0260	0.168	26.3	5.1	20	5.1	1.3
Cadmium	0.0365	6.11	5.8	0.000000383	0.000672	0.0119	0.0126	1.96	1.0	10	2.0	0.20
Chromium	0.396	1.54	0.3	0.000000416	0.000169	0.000615	0.000785	0.123	3.3	69	0.037	0.0018
Cobalt	0.015	1.87	0.024	0.000000158	0.000206	0.0000492	0.000255	0.0398	0.50	2.0	0.080	0.020
Lead	0.65	145	1.31	0.000000683	0.0160	0.00269	0.0186	2.91	11	90	0.26	0.032
Mercury	0.0179	0.22	0.05	0.000000188	0.0000242	0.000103	0.000127	0.0198	0.032	0.16	0.62	0.12
Molybdenum	0.22	2.09	0.827	0.000000231	0.000230	0.00170	0.00193	0.301	0.26	2.6	1.2	0.12
Selenium	0.355	1.6	0.2	0.000000373	0.000176	0.000410	0.000586	0.0916	0.20	0.33	0.46	0.28
Thallium	0.09	0.38	0.014	0.0000000945	0.0000418	0.0000287	0.0000706	0.0110	0.074	0.74	0.15	0.015
Vanadium	0.335	16	0.2	0.000000352	0.00176	0.000410	0.00217	0.339	0.21	2.1	1.6	0.16
Zinc	1.79	592	224	0.00000188	0.0651	0.459	0.524	81.9	160	320	0.51	0.26

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); TT3-1000 soil for Al & Cr; PHASE2RA soil; and PHASE2RA invertebrates.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-125. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TS-REF-5 site

Analyte	Concentration					Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	91.2	11,300	8.25	109	713	0.000576	2.30	0.412	2.72	57.8	1.9	19	30	3.0
Antimony	0.1	0.22	0.0285	0.0575	0.15	0.00000632	0.000449	0.000306	0.000352	0.00748	0.66	--	0.011	--
Arsenic (arsenate)	0.9	3.5	0.03	0.165	0.3	0.00000569	0.000714	0.000427	0.00115	0.0244	0.40	1.6	0.061	0.015
Arsenic (arsenite)	0.9	3.5	0.03	0.165	0.3	0.00000569	0.000714	0.000427	0.00115	0.0244	0.13	1.3	0.19	0.019
Barium	48.4	383	30.2	36	119	0.000306	0.0780	0.296	0.375	7.97	5.1	20	1.6	0.40
Cadmium	0.06	0.293	0.053	0.213	0.34	0.00000379	0.0000597	0.000640	0.000700	0.0149	1.0	10	0.015	0.0015
Chromium	0.72	19.7	0.4	0.2	2.96	0.00000455	0.00402	0.00440	0.00842	0.179	3.3	69	0.054	0.0026
Cobalt	0.19	15.3	0.045	0.12	0.758	0.00000120	0.00312	0.000717	0.00383	0.0816	0.50	2.0	0.16	0.041
Lead	0.5	13.4	0.49	6.71	7.71	0.00000316	0.00274	0.00987	0.0126	0.268	11	90	0.024	0.0030
Mercury	0.05	0.105	0.0315	0.0445	0.067	0.000000316	0.0000214	0.000288	0.000310	0.00660	0.032	0.16	0.21	0.041
Molybdenum	0.22	0.805	0.486	0.163	0.14	0.00000139	0.000164	0.00384	0.00401	0.0853	0.26	2.6	0.33	0.033
Selenium	0.2	0.55	0.05	0.125	0.1	0.00000126	0.000112	0.000478	0.000591	0.0126	0.20	0.33	0.063	0.038
Thallium	0.04	0.0575	0.0025	0.0165	0.02	0.000000253	0.0000117	0.0000346	0.0000466	0.000992	0.074	0.74	0.013	0.0013
Vanadium	2.41	12.7	0.25	0.35	1.73	0.0000152	0.00259	0.00280	0.00540	0.115	0.21	2.1	0.55	0.055
Zinc	2.87	57.4	33.3	46.9	64	0.0000181	0.0117	0.301	0.313	6.66	160	320	0.042	0.021

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP-REF-3); PHASE1RA soil (TS-REF-5); PHASE2RA soil; PHASE1RA moss (TS-REF-8); PHASE2RA lichen; and PHASE2RA sedge blades.

Tundra soil average for PHASE1RA and PHASE2RA used (TS-REF-5). Sedge and lichen samples averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-126. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TS-REF-7 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient		
	Water (µg/L)	Soil/ Sediment (mg/kg dw)		Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	14.5	468	6.8	49.4	174	0.0000916	0.0954	0.147	0.242	5.16	1.9	19	2.7	0.27	
Antimony	0.02	0.18	0.02	0.035	0.09	0.000000126	0.0000367	0.000206	0.000243	0.00517	0.66	--	0.0078	--	
Arsenic (arsenate)	0.5	0.35	0.03	0.095	0.2	0.00000316	0.0000714	0.000355	0.000429	0.00913	0.40	1.6	0.023	0.0057	
Arsenic (arsenite)	0.5	0.35	0.03	0.095	0.2	0.00000316	0.0000714	0.000355	0.000429	0.00913	0.13	1.3	0.070	0.0070	
Barium	133	195	28.3	28.3	103	0.000840	0.0398	0.272	0.313	6.66	5.1	20	1.3	0.33	
Cadmium	0.005	0.273	0.032	0.12	0.38	0.000000316	0.0000557	0.000457	0.000513	0.0109	1.0	10	0.011	0.0011	
Chromium	0.18	1.57	0.4	0.2	1.37	0.00000114	0.000320	0.00373	0.00405	0.0861	3.3	69	0.026	0.0012	
Cobalt	0.21	6.02	0.06	0.23	2.03	0.00000133	0.00123	0.00142	0.00265	0.0563	0.50	2.0	0.11	0.028	
Lead	0.06	6.88	0.28	2.86	9.64	0.000000379	0.00140	0.00745	0.00886	0.188	11	90	0.017	0.0021	
Mercury	0.05	0.09	0.029	0.0585	0.047	0.000000316	0.0000184	0.000267	0.000285	0.00607	0.032	0.16	0.19	0.038	
Molybdenum	0.02	2.01	0.651	0.5	0.3	0.000000126	0.000409	0.00532	0.00573	0.122	0.26	2.6	0.47	0.047	
Selenium	0.5	0.25	0.05	0.125	0.1	0.00000316	0.0000510	0.000478	0.000532	0.0113	0.20	0.33	0.057	0.034	
Thallium	0.003	0.027	0.001	0.007	0.04	0.0000000190	0.00000551	0.0000276	0.0000331	0.000705	0.074	0.74	0.0095	0.00095	
Vanadium	0.17	1.1	0.3	0.3	0.61	0.00000107	0.000224	0.00268	0.00291	0.0618	0.21	2.1	0.29	0.029	
Zinc	0.59	50.4	37.9	33.1	47.9	0.00000373	0.0103	0.324	0.335	7.12	160	320	0.044	0.022	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP-REF-2); PHASE1RA soil (TS-REF-7); PHASE2RA soil; PHASE1RA moss (TS-REF-7); PHASE2RA lichen; and PHASE2RA sedge blades.

Tundra soil average for PHASE1RA and PHASE2RA used (TS-REF-7). Sedge and lichen samples averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-127. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TS-REF-11 site

Analyte	Concentration					Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	170	368	6.8	40.5	175	0.00107	0.0751	0.144	0.220	4.67	1.9	19	2.5	0.25
Antimony	0.05	0.3	0.02	0.04	0.07	0.00000316	0.0000612	0.000200	0.000261	0.00556	0.66	--	0.0084	--
Arsenic (arsenate)	0.5	3.2	0.05	0.07	0.2	0.00000316	0.000653	0.000497	0.00115	0.0245	0.40	1.6	0.061	0.015
Arsenic (arsenite)	0.5	3.2	0.05	0.07	0.2	0.00000316	0.000653	0.000497	0.00115	0.0245	0.13	1.3	0.19	0.019
Barium	93.5	293	16.7	14.9	51.2	0.000591	0.0598	0.156	0.216	4.60	5.1	20	0.90	0.23
Cadmium	0.05	0.414	0.025	0.094	0.26	0.00000316	0.0000844	0.000342	0.000426	0.00907	1.0	10	0.0091	0.00091
Chromium	1.98	1.77	0.3	0.2	1.29	0.0000125	0.000361	0.00293	0.00330	0.0702	3.3	69	0.021	0.0010
Cobalt	0.7	7.81	0.08	0.075	0.288	0.0000442	0.00159	0.000766	0.00236	0.0503	0.50	2.0	0.10	0.025
Lead	0.56	12.7	0.39	1.77	6.64	0.0000354	0.00259	0.00656	0.00915	0.195	11	90	0.018	0.0022
Mercury	0.05	0.12	0.036	0.0405	0.058	0.00000316	0.0000245	0.000317	0.000342	0.00728	0.032	0.16	0.23	0.045
Molybdenum	0.05	0.348	0.236	0.00925	0.25	0.00000316	0.0000710	0.00192	0.00199	0.0423	0.26	2.6	0.16	0.016
Selenium	0.3	0.5	0.3	0.075	0.1	0.00000190	0.000102	0.00237	0.00247	0.0526	0.20	0.33	0.26	0.16
Thallium	0.003	0.105	0.001	0.0125	0.019	0.000000190	0.0000214	0.0000210	0.0000425	0.000904	0.074	0.74	0.012	0.0012
Vanadium	0.89	11	0.3	0.3	0.67	0.00000562	0.00224	0.00271	0.00496	0.105	0.21	2.1	0.50	0.050
Zinc	5.01	56.4	25.6	24.6	55	0.0000316	0.0115	0.230	0.241	5.13	160	320	0.032	0.016

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP-REF-5); PHASE1RA soil (TS-REF-10) for Al and Cr; PHASE2RA soil; PHASE1RA moss (TS-REF-10); PHASE2RA lichen; and PHASE2RA sedge blades.  
Sedge and lichen samples averaged at station.  
Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value



Table K-128. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT5-0010 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient		
	Water (µg/L)	Soil/ Sediment (mg/kg dw)		Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	11.4	6,940	93.8	967	4460	0.0000720	1.42	3.02	4.44	94.4	1.9	19	50	5.0	
Antimony	0.2	2.75	0.22	1.18	4.58	0.00000126	0.000561	0.00413	0.00469	0.0998	0.66	--	0.15	--	
Arsenic (arsenate)	0.6	8	0.13	1.34	4.7	0.00000379	0.00163	0.00356	0.00520	0.111	0.40	1.6	0.28	0.069	
Arsenic (arsenite)	0.6	8	0.13	1.34	4.7	0.00000379	0.00163	0.00356	0.00520	0.111	0.13	1.3	0.85	0.085	
Barium	70.3	1,200	85.8	460	885	0.000444	0.245	1.23	1.47	31.3	5.1	20	6.1	1.6	
Cadmium	0.27	20.6	0.567	4.43	37.2	0.00000171	0.00420	0.0220	0.0262	0.558	1.0	10	0.56	0.056	
Chromium	0.44	17.9	0.65	3.8	16.3	0.00000278	0.00365	0.0135	0.0172	0.365	3.3	69	0.11	0.0053	
Cobalt	0.88	18.6	0.159	1.28	9.35	0.00000556	0.00379	0.00573	0.00953	0.203	0.50	2.0	0.41	0.10	
Lead	1.63	1,210	10.8	161	1720	0.0000103	0.247	0.882	1.13	24.0	11	90	2.2	0.27	
Mercury	0.05	1.75	0.05	0.143	1.04	0.000000316	0.000357	0.000885	0.00124	0.0264	0.032	0.16	0.83	0.17	
Molybdenum	0.09	0.89	0.239	0.356	0.88	0.000000569	0.000182	0.00235	0.00254	0.0539	0.26	2.6	0.21	0.021	
Selenium	0.2	1.5	0.1	0.3	0.7	0.00000126	0.000306	0.00119	0.00150	0.0318	0.20	0.33	0.16	0.097	
Thallium	0.01	0.455	0.01	0.072	0.601	0.0000000632	0.0000928	0.000362	0.000455	0.00969	0.074	0.74	0.13	0.013	
Vanadium	0.24	11.6	0.2	2.8	8.08	0.00000152	0.00237	0.00615	0.00852	0.181	0.21	2.1	0.86	0.086	
Zinc	99	4,330	209	594	8120	0.000625	0.883	5.30	6.18	132	160	320	0.82	0.41	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA soil (TT1-0010) for Al and Cr; PHASE2RA soil; PHASE1RA moss (TT1-0100); PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-129. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT5-0100 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		(mg/kg dw)								Normalized Exposure (mg/kg-day)				
Aluminum	11.4	1,820	26.1	566	4460	0.0000720	0.371	2.34	2.71	57.6	1.9	19	30	3.0
Antimony	0.2	2.46	0.17	2.48	4.58	0.00000126	0.000502	0.00430	0.00480	0.102	0.66	--	0.15	--
Arsenic (arsenate)	0.6	5.3	0.04	1.1	4.7	0.00000379	0.00108	0.00277	0.00386	0.0820	0.40	1.6	0.21	0.051
Arsenic (arsenite)	0.6	5.3	0.04	1.1	4.7	0.00000379	0.00108	0.00277	0.00386	0.0820	0.13	1.3	0.63	0.063
Barium	70.3	1,200	39.7	350	885	0.000444	0.245	0.828	1.07	22.8	5.1	20	4.5	1.1
Cadmium	0.27	24	0.104	4	37.2	0.00000171	0.00489	0.0183	0.0232	0.494	1.0	10	0.49	0.049
Chromium	0.44	5.15	0.3	2.1	16.3	0.00000278	0.00105	0.0101	0.0112	0.238	3.3	69	0.072	0.0034
Cobalt	0.88	8.18	0.046	0.94	9.35	0.00000556	0.00167	0.00472	0.00640	0.136	0.50	2.0	0.27	0.068
Lead	1.63	1,060	2.33	179	1720	0.0000103	0.216	0.825	1.04	22.1	11	90	2.0	0.25
Mercury	0.05	0.25	0.03	0.09	1.04	0.000000316	0.0000510	0.000710	0.000761	0.0162	0.032	0.16	0.51	0.10
Molybdenum	0.09	0.84	0.172	0.304	0.88	0.000000569	0.000171	0.00182	0.00199	0.0423	0.26	2.6	0.16	0.016
Selenium	0.2	1.9	0.1	0.4	0.7	0.00000126	0.000388	0.00123	0.00162	0.0345	0.20	0.33	0.17	0.10
Thallium	0.01	0.368	0.001	0.044	0.601	0.0000000632	0.0000751	0.000282	0.000357	0.00759	0.074	0.74	0.10	0.010
Vanadium	0.24	8.25	0.2	1.4	8.08	0.00000152	0.00168	0.00556	0.00724	0.154	0.21	2.1	0.73	0.073
Zinc	99	5,120	67.7	572	8120	0.000625	1.04	4.21	5.26	112	160	320	0.70	0.35

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA soil (TT1-0100) for Al and Cr; PHASE2RA soil; PHASE1RA moss (TT1-0100); PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-130. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT5-1000 site

Analyte	Concentration					Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	143	548	8.4	354	393	0.000903	0.112	0.382	0.494	10.5	1.9	19	5.5	0.55
Antimony	0.09	0.83	0.12	0.61	0.91	0.00000569	0.000169	0.00156	0.00173	0.0369	0.66	--	0.056	--
Arsenic (arsenate)	0.4	1.8	0.04	0.68	0.5	0.00000253	0.000367	0.000807	0.00118	0.0250	0.40	1.6	0.063	0.016
Arsenic (arsenite)	0.4	1.8	0.04	0.68	0.5	0.00000253	0.000367	0.000807	0.00118	0.0250	0.13	1.3	0.19	0.019
Barium	39.4	15.3	24.5	94.6	115	0.000249	0.00312	0.276	0.279	5.95	5.1	20	1.2	0.30
Cadmium	0.06	4.08	0.083	2.99	4.52	0.00000379	0.000832	0.00383	0.00466	0.0991	1.0	10	0.099	0.0099
Chromium	1.56	1.85	0.25	0.6	3.14	0.00000985	0.000377	0.00350	0.00389	0.0827	3.3	69	0.025	0.0012
Cobalt	1.56	6.82	0.039	0.585	0.933	0.00000985	0.00139	0.000943	0.00234	0.0499	0.50	2.0	0.10	0.025
Lead	1.06	8.62	1.84	99	172	0.00000670	0.00176	0.129	0.131	2.79	11	90	0.25	0.031
Mercury	0.05	0.33	0.04	0.12	0.14	0.00000316	0.0000673	0.000416	0.000484	0.0103	0.032	0.16	0.32	0.064
Molybdenum	0.02	1.16	0.441	0.583	0.23	0.000000126	0.000237	0.00371	0.00395	0.0841	0.26	2.6	0.32	0.032
Selenium	0.2	0.9	0.1	0.3	0.1	0.00000126	0.000184	0.000935	0.00112	0.0238	0.20	0.33	0.12	0.072
Thallium	0.003	0.072	0.003	0.048	0.108	0.000000190	0.0000147	0.0000892	0.000104	0.00221	0.074	0.74	0.030	0.0030
Vanadium	0.28	4.64	0.25	0.8	0.98	0.00000177	0.000946	0.00267	0.00362	0.0769	0.21	2.1	0.37	0.037
Zinc	30.6	38.9	69.5	531	869	0.000193	0.00793	1.13	1.13	24.1	160	320	0.15	0.075

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE1RA soil (TT1-1000) for Al and Cr; PHASE2RA soil; PHASE1RA moss (TT1-1000); PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-131. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT5-2000 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL	LOAEL
													Hazard Quotient	Hazard Quotient
Aluminum	143	548	2.5	190	393	0.000903	0.112	0.267	0.380	8.07	1.9	19	4.2	0.42
Antimony	0.09	0.56	0.04	0.3	0.91	0.00000569	0.000114	0.000820	0.000935	0.0199	0.66	--	0.030	--
Arsenic (arsenate)	0.4	0.5	0.04	0.3	0.5	0.00000253	0.000102	0.000646	0.000750	0.0160	0.40	1.6	0.040	0.010
Arsenic (arsenite)	0.4	0.5	0.04	0.3	0.5	0.00000253	0.000102	0.000646	0.000750	0.0160	0.13	1.3	0.12	0.012
Barium	39.4	96	18.6	31	115	0.000249	0.0196	0.204	0.224	4.77	5.1	20	0.93	0.24
Cadmium	0.06	1.31	0.036	1.51	4.52	0.000000379	0.000267	0.00284	0.00311	0.0661	1.0	10	0.066	0.0066
Chromium	1.56	1.85	0.2	0.4	3.14	0.00000985	0.000377	0.00303	0.00342	0.0728	3.3	69	0.022	0.0011
Cobalt	1.56	1.97	0.016	0.268	0.933	0.00000985	0.000402	0.000633	0.00104	0.0222	0.50	2.0	0.044	0.011
Lead	1.06	54.1	0.33	52.6	172	0.00000670	0.0110	0.0980	0.109	2.32	11	90	0.21	0.026
Mercury	0.05	0.27	0.04	0.05	0.14	0.000000316	0.0000551	0.000387	0.000442	0.00941	0.032	0.16	0.29	0.059
Molybdenum	0.02	0.8	0.618	0.075	0.23	0.000000126	0.000163	0.00486	0.00502	0.107	0.26	2.6	0.41	0.041
Selenium	0.2	0.5	0.1	0.2	0.1	0.00000126	0.000102	0.000892	0.000996	0.0212	0.20	0.33	0.11	0.064
Thallium	0.003	0.036	0.009	0.024	0.108	0.000000190	0.00000734	0.000125	0.000132	0.00281	0.074	0.74	0.038	0.0038
Vanadium	0.28	0.98	0.3	0.3	0.98	0.00000177	0.000200	0.00284	0.00304	0.0647	0.21	2.1	0.31	0.031
Zinc	30.6	286	72.8	278	869	0.000193	0.0583	1.04	1.10	23.5	160	320	0.15	0.073

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE1RA soil (TT1-1000) for Al and Cr; PHASE2RA soil; PHASE1RA moss (TT1-1000); PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-132. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT2-0010 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL	LOAEL
													Hazard Quotient	Hazard Quotient
Aluminum	11.4	6,000	69.2	2200	6630	0.0000720	1.22	4.28	5.50	117	1.9	19	62	6.2
Antimony	0.2	2.2	0.19	1.3	1.37	0.0000126	0.000448	0.00259	0.00304	0.0646	0.66	--	0.098	--
Arsenic (arsenate)	0.6	6.45	0.08	1.86	6	0.0000379	0.00132	0.00395	0.00527	0.112	0.40	1.6	0.28	0.070
Arsenic (arsenite)	0.6	6.45	0.08	1.86	6	0.0000379	0.00132	0.00395	0.00527	0.112	0.13	1.3	0.86	0.086
Barium	70.3	2,070	85	850	1890	0.000444	0.421	1.81	2.24	47.6	5.1	20	9.3	2.4
Cadmium	0.27	16.4	0.256	4.6	15	0.0000171	0.00333	0.0103	0.0136	0.290	1.0	10	0.29	0.029
Chromium	0.44	9.9	0.7	12.7	25	0.0000278	0.00202	0.0214	0.0234	0.498	3.3	69	0.15	0.0072
Cobalt	0.88	9.75	0.133	2.47	7.69	0.0000556	0.00199	0.00533	0.00733	0.156	0.50	2.0	0.31	0.078
Lead	1.63	759	5.63	170	506	0.0000103	0.155	0.330	0.485	10.3	11	90	0.94	0.11
Mercury	0.05	0.455	0.05	0.14	0.455	0.00000316	0.0000928	0.000635	0.000728	0.0155	0.032	0.16	0.48	0.097
Molybdenum	0.09	0.77	0.322	0.423	1	0.00000569	0.000157	0.00307	0.00322	0.0686	0.26	2.6	0.26	0.026
Selenium	0.2	1.25	0.1	0.5	0.6	0.0000126	0.000255	0.00123	0.00149	0.0317	0.20	0.33	0.16	0.096
Thallium	0.01	0.366	0.007	0.11	0.333	0.000000632	0.0000746	0.000242	0.000316	0.00673	0.074	0.74	0.091	0.0091
Vanadium	0.24	12	0.2	5.9	12	0.00000152	0.00245	0.00914	0.0116	0.246	0.21	2.1	1.2	0.12
Zinc	99	3,460	89.4	780	2910	0.000625	0.706	2.25	2.96	62.9	160	320	0.39	0.20

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA soil (TT2-0010); PHASE2RA soil; PHASE1RA moss; PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-133. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT2-0100 site

Analyte	Concentration					Daily Exposure				TRV		Year-Round Hazard Quotient			
	Water (µg/L)	Soil/ Sediment		Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		Water	Sediment												
Aluminum	11.4	3,060	17.4	579	2970	0.0000720	0.624	1.64	2.27	48.2	1.9	19	25	2.5	
Antimony	0.2	2.04	0.21	0.56	1.23	0.0000126	0.000415	0.00237	0.00278	0.0592	0.66	--	0.090	--	
Arsenic (arsenate)	0.6	3.95	0.04	0.81	2.4	0.00000379	0.000806	0.00167	0.00248	0.0527	0.40	1.6	0.13	0.033	
Arsenic (arsenite)	0.6	3.95	0.04	0.81	2.4	0.00000379	0.000806	0.00167	0.00248	0.0527	0.13	1.3	0.41	0.041	
Barium	70.3	890	30.7	309	773	0.000444	0.181	0.695	0.876	18.6	5.1	20	3.7	0.93	
Cadmium	0.27	9.89	0.05	1.78	6.16	0.00000171	0.00202	0.00376	0.00577	0.123	1.0	10	0.12	0.012	
Chromium	0.44	6.02	0.4	2	11.3	0.00000278	0.00123	0.00871	0.00994	0.212	3.3	69	0.064	0.0031	
Cobalt	0.88	6.88	0.028	0.844	3.54	0.00000556	0.00140	0.00208	0.00348	0.0741	0.50	2.0	0.15	0.037	
Lead	1.63	414	1.01	57.1	326	0.0000103	0.0843	0.171	0.255	5.42	11	90	0.49	0.060	
Mercury	0.05	0.37	0.03	0.08	0.215	0.000000316	0.0000755	0.000355	0.000431	0.00916	0.032	0.16	0.29	0.057	
Molybdenum	0.09	0.79	0.345	0.25	0.69	0.000000569	0.000161	0.00304	0.00320	0.0681	0.26	2.6	0.26	0.026	
Selenium	0.2	1.1	0.1	0.2	0.3	0.00000126	0.000224	0.000977	0.00120	0.0256	0.20	0.33	0.13	0.078	
Thallium	0.01	0.19	0.001	0.03	0.153	0.0000000632	0.0000388	0.0000854	0.000124	0.00264	0.074	0.74	0.036	0.0036	
Vanadium	0.24	7.31	0.2	1.3	5.18	0.00000152	0.00149	0.00428	0.00578	0.123	0.21	2.1	0.59	0.059	
Zinc	99	1,970	78.4	292	1340	0.000625	0.402	1.29	1.70	36.1	160	320	0.23	0.11	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-0100); PHASE1RA soil (TT2-0100); PHASE2RA soil; PHASE1RA moss; PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value

Table K-134. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT2-1000 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		(mg/kg dw)												
Aluminum	143	405	7	166	511	0.000903	0.0826	0.341	0.425	9.04	1.9	19	4.8	0.48
Antimony	0.09	0.28	0.13	0.25	0.29	0.00000569	0.0000571	0.00122	0.00128	0.0273	0.66	--	0.041	--
Arsenic (arsenate)	0.4	0.95	0.12	0.29	0.5	0.00000253	0.000194	0.00125	0.00145	0.0308	0.40	1.6	0.077	0.019
Arsenic (arsenite)	0.4	0.95	0.12	0.29	0.5	0.00000253	0.000194	0.00125	0.00145	0.0308	0.13	1.3	0.24	0.024
Barium	39.4	146	20	38.5	84.6	0.000249	0.0297	0.205	0.235	5.00	5.1	20	0.98	0.25
Cadmium	0.06	0.915	0.021	0.573	1.1	0.000000379	0.000187	0.000871	0.00106	0.0225	1.0	10	0.023	0.0023
Chromium	1.56	1.03	0.2	0.5	3.04	0.0000985	0.000210	0.00303	0.00325	0.0692	3.3	69	0.021	0.0010
Cobalt	1.56	5.99	0.033	0.249	0.598	0.0000985	0.00122	0.000612	0.00184	0.0392	0.50	2.0	0.078	0.020
Lead	1.06	23.8	0.16	18.6	41.7	0.00000670	0.00484	0.0268	0.0317	0.674	11	90	0.061	0.0075
Mercury	0.05	0.23	0.03	0.07	0.098	0.000000316	0.0000469	0.000301	0.000348	0.00741	0.032	0.16	0.23	0.046
Molybdenum	0.02	0.855	0.379	0.244	0.26	0.000000126	0.000174	0.00311	0.00329	0.0699	0.26	2.6	0.27	0.027
Selenium	0.2	0.5	0.1	0.1	0.1	0.00000126	0.000102	0.000850	0.000953	0.0203	0.20	0.33	0.10	0.061
Thallium	0.003	0.0375	0.001	0.012	0.034	0.0000000190	0.00000765	0.0000272	0.0000349	0.000742	0.074	0.74	0.010	0.0010
Vanadium	0.28	2.23	0.2	0.2	1.14	0.00000177	0.000455	0.00210	0.00256	0.0544	0.21	2.1	0.26	0.026
Zinc	30.6	327	52.5	137	251	0.000193	0.0667	0.566	0.633	13.5	160	320	0.084	0.042

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP1-1000); PHASE1RA soil (TT2-1000); PHASE2RA soil; PHASE1RA moss; PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-135. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT8-0010 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
										Normalized Exposure (mg/kg-day)				
Aluminum	75	2,660	104	2430	3210	0.000474	0.543	3.19	3.73	79.5	1.9	19	42	4.2
Antimony	0.03	1.07	0.16	0.99	0.99	0.00000190	0.000218	0.00207	0.00228	0.0486	0.66	--	0.074	--
Arsenic (arsenate)	0.5	4.1	0.11	1.74	2.7	0.00000316	0.000836	0.00273	0.00357	0.0759	0.40	1.6	0.19	0.047
Arsenic (arsenite)	0.5	4.1	0.11	1.74	2.7	0.00000316	0.000836	0.00273	0.00357	0.0759	0.13	1.3	0.58	0.058
Barium	46.8	1,900	109	1480	2530	0.000296	0.388	2.54	2.93	62.2	5.1	20	12	3.1
Cadmium	0.02	4.72	0.164	3.68	7.41	0.00000126	0.000963	0.00597	0.00693	0.147	1.0	10	0.15	0.015
Chromium	1.6	9.69	4.5	16.9	19.5	0.0000101	0.00198	0.0499	0.0519	1.10	3.3	69	0.33	0.016
Cobalt	0.13	6.5	0.209	3.68	5.61	0.00000821	0.00133	0.00555	0.00687	0.146	0.50	2.0	0.29	0.073
Lead	0.44	226	4.89	140	241	0.00000278	0.0461	0.199	0.245	5.22	11	90	0.47	0.058
Mercury	0.05	0.13	0.04	0.12	0.18	0.00000316	0.0000265	0.000433	0.000460	0.00979	0.032	0.16	0.31	0.061
Molybdenum	0.05	0.93	0.816	0.626	0.88	0.00000316	0.000190	0.00688	0.00707	0.150	0.26	2.6	0.58	0.058
Selenium	0.2	1.4	0.3	0.5	0.6	0.00000126	0.000286	0.00276	0.00305	0.0649	0.20	0.33	0.32	0.20
Thallium	0.003	0.245	0.007	0.108	0.265	0.000000190	0.0000500	0.000212	0.000262	0.00557	0.074	0.74	0.075	0.0075
Vanadium	0.31	15.9	0.2	9.8	12.3	0.00000196	0.00324	0.0109	0.0142	0.301	0.21	2.1	1.4	0.14
Zinc	6.08	976	51	627	1110	0.0000384	0.199	1.13	1.33	28.2	160	320	0.18	0.088

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA soil (TT3-0010) for Al and Cr; PHASE2RA soil; PHASE1RA moss (TT3-0010); PHASE2RA lichen;

and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value



Table K-136. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT8-0100 site

Analyte	Concentration					Daily Exposure				Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	NOAEL (mg/kg-day)			LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	
Aluminum	75	1,510	23.5	1530	1440	0.000474	0.308	1.44	1.75	37.2	1.9	19	20	2.0	
Antimony	0.03	1.25	0.04	0.69	0.72	0.00000190	0.000255	0.000905	0.00116	0.0247	0.66	--	0.037	--	
Arsenic (arsenate)	0.5	3	0.04	1.1	1.5	0.00000316	0.000612	0.00141	0.00203	0.0431	0.40	1.6	0.11	0.027	
Arsenic (arsenite)	0.5	3	0.04	1.1	1.5	0.00000316	0.000612	0.00141	0.00203	0.0431	0.13	1.3	0.33	0.033	
Barium	46.8	1,470	70.8	611	1150	0.000296	0.300	1.29	1.59	33.8	5.1	20	6.6	1.7	
Cadmium	0.02	3.83	0.071	2.14	3.24	0.00000126	0.000781	0.00283	0.00361	0.0768	1.0	10	0.077	0.0077	
Chromium	1.6	3.93	0.4	6.2	10.5	0.0000101	0.000802	0.0102	0.0110	0.233	3.3	69	0.071	0.0034	
Cobalt	0.13	5.48	0.061	2.1	2.88	0.00000821	0.00112	0.00258	0.00370	0.0787	0.50	2.0	0.16	0.039	
Lead	0.44	189	1.3	111	148	0.00000278	0.0385	0.120	0.159	3.37	11	90	0.31	0.037	
Mercury	0.05	0.2	0.04	0.09	0.107	0.000000316	0.0000408	0.000390	0.000431	0.00916	0.032	0.16	0.29	0.057	
Molybdenum	0.05	1.16	0.767	0.463	0.61	0.000000316	0.000237	0.00632	0.00656	0.140	0.26	2.6	0.54	0.054	
Selenium	0.2	1.8	0.1	0.4	0.3	0.00000126	0.000367	0.00106	0.00143	0.0304	0.20	0.33	0.15	0.092	
Thallium	0.003	0.214	0.001	0.072	0.149	0.000000190	0.0000436	0.000102	0.000145	0.00309	0.074	0.74	0.042	0.0042	
Vanadium	0.31	11.2	0.2	5.9	7.25	0.00000196	0.00228	0.00712	0.00940	0.200	0.21	2.1	0.95	0.095	
Zinc	6.08	908	35.7	397	595	0.0000384	0.185	0.695	0.880	18.7	160	320	0.12	0.058	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA soil (TT3-0100) for Al and Cr; PHASE2RA soil; PHASE1RA moss (TT3-0100); PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-137. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT8-1000 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		(mg/kg dw)												
Aluminum	177	358	6.9	245	275	0.00112	0.073	0.274	0.348	7.40	1.9	19	3.9	0.39
Antimony	0.02	0.42	0.04	0.305	0.25	0.00000126	0.0000857	0.000542	0.000628	0.0134	0.66	--	0.020	--
Arsenic (arsenate)	1.3	0.8	0.04	1.09	0.4	0.00000821	0.000163	0.000939	0.00111	0.0236	0.40	1.6	0.059	0.015
Arsenic (arsenite)	1.3	0.8	0.04	1.09	0.4	0.00000821	0.000163	0.000939	0.00111	0.0236	0.13	1.3	0.18	0.018
Barium	73.6	275	32.3	90.8	193	0.000465	0.0561	0.368	0.424	9.02	5.1	20	1.8	0.45
Cadmium	0.06	0.408	0.034	0.515	0.81	0.000000379	0.0000832	0.000823	0.000907	0.0193	1.0	10	0.019	0.0019
Chromium	5.24	1.54	0.2	0.7	4.71	0.0000331	0.000314	0.00383	0.00418	0.0888	3.3	69	0.027	0.0013
Cobalt	0.48	3.57	0.019	1.52	0.469	0.00000303	0.000728	0.000990	0.00172	0.0366	0.50	2.0	0.073	0.018
Lead	0.67	4.23	0.34	19.4	29.5	0.00000423	0.000863	0.0234	0.0242	0.515	11	90	0.047	0.0057
Mercury	0.05	0.15	0.01	0.075	0.082	0.000000316	0.0000306	0.000143	0.000174	0.00370	0.032	0.16	0.12	0.023
Molybdenum	0.08	1.68	0.44	0.414	0.5	0.000000505	0.000343	0.00375	0.00410	0.0872	0.26	2.6	0.34	0.034
Selenium	0.2	0.6	0.1	0.2	0.1	0.00000126	0.000122	0.000892	0.00102	0.0216	0.20	0.33	0.11	0.066
Thallium	0.005	0.02	0.01	0.061	0.053	0.0000000316	0.00000408	0.000125	0.000129	0.00275	0.074	0.74	0.037	0.0037
Vanadium	0.64	4.8	0.2	0.95	1.3	0.00000404	0.000979	0.00249	0.00347	0.0738	0.21	2.1	0.35	0.035
Zinc	11	89.3	48.4	110	135	0.0000695	0.0182	0.474	0.492	10.5	160	320	0.065	0.033

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-1000); PHASE1RA soil (TT3-1000) for Al and Cr; PHASE2RA soil; PHASE1RA moss (TT3-1000); PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-138. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT3-0010 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		(mg/kg dw)												
Aluminum	75	2,660	72	773	3210	0.000474	0.543	2.24	2.79	59.3	1.9	19	31	3.1
Antimony	0.03	0.925	0.13	1.29	0.99	0.00000190	0.000189	0.00196	0.00215	0.0458	0.66	--	0.069	--
Arsenic (arsenate)	0.5	5.3	0.09	1.47	2.7	0.00000316	0.00108	0.00246	0.00354	0.0754	0.40	1.6	0.19	0.047
Arsenic (arsenite)	0.5	5.3	0.09	1.47	2.7	0.00000316	0.00108	0.00246	0.00354	0.0754	0.13	1.3	0.58	0.058
Barium	46.8	2,280	84.3	815	2530	0.000296	0.465	2.07	2.53	53.9	5.1	20	11	2.7
Cadmium	0.02	7.07	0.138	2.37	7.41	0.00000126	0.00144	0.00521	0.00665	0.142	1.0	10	0.14	0.014
Chromium	1.6	9.69	3.3	2.8	19.5	0.0000101	0.00198	0.0347	0.0367	0.781	3.3	69	0.24	0.011
Cobalt	0.13	8.33	0.162	1.76	5.61	0.00000821	0.00170	0.00437	0.00607	0.129	0.50	2.0	0.26	0.065
Lead	0.44	385	4.06	72.1	241	0.00000278	0.0784	0.164	0.243	5.16	11	90	0.47	0.057
Mercury	0.05	0.285	0.03	0.08	0.18	0.00000316	0.0000581	0.000340	0.000398	0.00848	0.032	0.16	0.26	0.053
Molybdenum	0.05	1.08	0.177	0.821	0.88	0.00000316	0.000219	0.00208	0.00230	0.0489	0.26	2.6	0.19	0.019
Selenium	0.2	1	0.1	0.2	0.6	0.00000126	0.000204	0.00110	0.00131	0.0279	0.20	0.33	0.14	0.084
Thallium	0.003	0.296	0.032	0.071	0.265	0.000000190	0.0000603	0.000388	0.000448	0.00953	0.074	0.74	0.13	0.013
Vanadium	0.31	14.2	0.2	3.6	12.3	0.00000196	0.00290	0.00829	0.0112	0.238	0.21	2.1	1.1	0.11
Zinc	6.08	1,350	40.4	209	1110	0.0000384	0.275	0.869	1.14	24.4	160	320	0.15	0.076

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA soil (TT3-0010); PHASE2RA soil; PHASE1RA moss; PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-139. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT3-0100 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		(mg/kg dw)												
Aluminum	75	1,510	17.9	424	1440	0.000474	0.308	0.929	1.24	26.3	1.9	19	14	1.4
Antimony	0.03	0.915	0.02	0.46	0.72	0.000000190	0.000187	0.000654	0.000841	0.0179	0.66	--	0.027	--
Arsenic (arsenate)	0.5	2.2	0.04	0.42	1.5	0.00000316	0.000449	0.00112	0.00157	0.0335	0.40	1.6	0.084	0.021
Arsenic (arsenite)	0.5	2.2	0.04	0.42	1.5	0.00000316	0.000449	0.00112	0.00157	0.0335	0.13	1.3	0.26	0.026
Barium	46.8	694	44.5	406	1150	0.000296	0.142	1.00	1.14	24.3	5.1	20	4.8	1.2
Cadmium	0.02	2.06	0.052	1.11	3.24	0.000000126	0.000419	0.00225	0.00267	0.0567	1.0	10	0.057	0.0057
Chromium	1.6	3.93	0.2	0.55	10.5	0.0000101	0.000802	0.00622	0.00704	0.150	3.3	69	0.045	0.0022
Cobalt	0.13	2.69	0.048	0.93	2.88	0.000000821	0.000549	0.00199	0.00254	0.0539	0.50	2.0	0.11	0.027
Lead	0.44	119	0.91	34.3	148	0.00000278	0.0242	0.0844	0.109	2.31	11	90	0.21	0.026
Mercury	0.05	0.12	0.04	0.064	0.107	0.000000316	0.0000245	0.000379	0.000403	0.00858	0.032	0.16	0.27	0.054
Molybdenum	0.05	0.475	0.551	0.584	0.61	0.000000316	0.0000969	0.00472	0.00482	0.103	0.26	2.6	0.39	0.039
Selenium	0.2	0.45	0.1	0.1	0.3	0.00000126	0.0000918	0.000935	0.00103	0.0219	0.20	0.33	0.11	0.066
Thallium	0.003	0.0885	0.001	0.058	0.149	0.0000000190	0.0000180	0.0000956	0.000114	0.00242	0.074	0.74	0.033	0.0033
Vanadium	0.31	4.98	0.2	1.4	7.25	0.00000196	0.00101	0.00520	0.00622	0.132	0.21	2.1	0.63	0.063
Zinc	6.08	465	41.3	119	595	0.0000384	0.0947	0.619	0.714	15.2	160	320	0.095	0.047

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-0100); PHASE1RA soil (TT3-0100); PHASE2RA soil; PHASE1RA moss; PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-140. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT3-1000 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient		
	Water (µg/L)	Soil/ Sediment (mg/kg dw)		Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	177	358	5.4	161	275	0.00112	0.0730	0.226	0.300	6.39	1.9	19	3.4	0.34	
Antimony	0.02	0.365	0.02	0.24	0.25	0.00000126	0.0000744	0.000361	0.000436	0.00927	0.66	--	0.014	--	
Arsenic (arsenate)	1.3	0.75	0.04	0.32	0.4	0.00000821	0.000153	0.000612	0.000773	0.0164	0.40	1.6	0.041	0.010	
Arsenic (arsenite)	1.3	0.75	0.04	0.32	0.4	0.00000821	0.000153	0.000612	0.000773	0.0164	0.13	1.3	0.13	0.013	
Barium	73.6	131	34	97.1	193	0.000465	0.0267	0.383	0.410	8.73	5.1	20	1.7	0.44	
Cadmium	0.06	0.549	0.02	0.533	0.81	0.000000379	0.000112	0.000723	0.000836	0.0178	1.0	10	0.018	0.0018	
Chromium	5.24	1.54	0.2	0.45	4.71	0.0000331	0.000314	0.00372	0.00407	0.0866	3.3	69	0.026	0.0013	
Cobalt	0.48	0.615	0.076	0.239	0.469	0.00000303	0.000125	0.000882	0.00101	0.0215	0.50	2.0	0.043	0.011	
Lead	0.67	16.1	0.18	15.2	29.5	0.00000423	0.00327	0.0204	0.0236	0.503	11	90	0.046	0.0056	
Mercury	0.05	0.145	0.03	0.045	0.082	0.000000316	0.0000296	0.000283	0.000313	0.00667	0.032	0.16	0.21	0.042	
Molybdenum	0.08	0.793	0.403	0.319	0.5	0.000000505	0.000162	0.00343	0.00359	0.0764	0.26	2.6	0.29	0.029	
Selenium	0.2	0.4	0.1	0.1	0.1	0.00000126	0.0000816	0.00085	0.000933	0.0198	0.20	0.33	0.099	0.060	
Thallium	0.005	0.049	0.001	0.0265	0.053	0.0000000316	0.00000999	0.0000414	0.0000515	0.00109	0.074	0.74	0.015	0.0015	
Vanadium	0.64	1.45	0.3	0.5	1.3	0.00000404	0.000296	0.00306	0.00336	0.0715	0.21	2.1	0.34	0.034	
Zinc	11	78.4	51.3	88.2	135	0.0000695	0.0160	0.487	0.503	10.7	160	320	0.067	0.033	

**Note:** The following data were used to develop this scenario: PHASE1RA water (TP2-1000); PHASE1RA soil (TT3-1000); PHASE2RA soil; PHASE1RA moss; PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-141. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT6-0010 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		(mg/kg dw)												
Aluminum	208	2,660	13.1	2930	39100	0.00131	0.543	18.0	18.5	394	1.9	19	210	21
Antimony	0.063	1.92	0.03	0.84	0.99	0.00000398	0.000392	0.00101	0.00140	0.0298	0.66	--	0.045	--
Arsenic (arsenate)	0.482	9.1	0.03	1.85	10.1	0.00000304	0.00186	0.00530	0.00716	0.152	0.40	1.6	0.38	0.095
Arsenic (arsenite)	0.482	9.1	0.03	1.85	10.1	0.00000304	0.00186	0.00530	0.00716	0.152	0.13	1.3	1.2	0.12
Barium	140	6,950	128	2840	2530	0.000884	1.42	3.26	4.68	99.5	5.1	20	20	5.0
Cadmium	0.0365	5.47	0.121	2.62	10.3	0.00000231	0.00112	0.00641	0.00753	0.160	1.0	10	0.16	0.016
Chromium	0.396	9.69	0.2	13	19.5	0.00000250	0.00198	0.0153	0.0173	0.368	3.3	69	0.11	0.0053
Cobalt	0.015	9.11	0.09	2.36	5.61	0.000000948	0.00186	0.00407	0.00593	0.126	0.50	2.0	0.25	0.063
Lead	0.65	349	0.71	110	336	0.00000411	0.0712	0.195	0.266	5.66	11	90	0.51	0.063
Mercury	0.0179	0.25	0.04	0.106	0.18	0.000000113	0.0000510	0.000427	0.000479	0.0102	0.032	0.16	0.32	0.064
Molybdenum	0.22	1.95	0.463	0.476	0.88	0.00000139	0.000398	0.00412	0.00452	0.0961	0.26	2.6	0.37	0.037
Selenium	0.355	1.5	0.3	0.3	0.6	0.00000224	0.000306	0.00268	0.00299	0.0635	0.20	0.33	0.32	0.19
Thallium	0.09	1.29	0.004	0.202	0.265	0.000000569	0.000263	0.000229	0.000492	0.0105	0.074	0.74	0.14	0.014
Vanadium	0.335	19.7	0.3	8.5	12.3	0.00000212	0.00402	0.0111	0.0152	0.322	0.21	2.1	1.5	0.15
Zinc	1.79	1,020	58.9	334	1440	0.0000113	0.208	1.20	1.41	30.0	160	320	0.19	0.094

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA soil for Al and Cr; PHASE2RA soil; PHASE1RA moss (TT3-0010) for Sb, Ba, Cr, Co, Hg, Mo, Se, TI, V; FUGDST01 for Al, As, Cd, Pb, and Zn in moss (HR-06-01); PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station. No pond water data collected near mine, so Anxiety Ridge Creek downstream data used.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-142. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT6-0100 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	208	1,510	11.2	1120	14500	0.00131	0.308	6.72	7.03	150	1.9	19	79	7.9
Antimony	0.063	2.03	0.03	1.04	0.72	0.00000398	0.000414	0.000977	0.00139	0.0296	0.66	--	0.045	--
Arsenic (arsenate)	0.482	4.9	0.03	1.39	5.03	0.00000304	0.000999	0.00296	0.00396	0.0842	0.40	1.6	0.21	0.053
Arsenic (arsenite)	0.482	4.9	0.03	1.39	5.03	0.00000304	0.000999	0.00296	0.00396	0.0842	0.13	1.3	0.65	0.065
Barium	140	6,360	67.6	1840	1150	0.000884	1.30	1.78	3.08	65.6	5.1	20	13	3.3
Cadmium	0.0365	5.06	0.0875	3.56	10.9	0.00000231	0.00103	0.00681	0.00784	0.167	1.0	10	0.17	0.017
Chromium	0.396	3.93	0.2	3.1	10.5	0.00000250	0.000802	0.00731	0.00811	0.173	3.3	69	0.052	0.0025
Cobalt	0.015	3.3	0.0225	1.08	2.88	0.000000948	0.000673	0.00185	0.00253	0.0538	0.50	2.0	0.11	0.027
Lead	0.65	281	0.825	143	463	0.00000411	0.0573	0.264	0.321	6.83	11	90	0.62	0.076
Mercury	0.0179	0.27	0.0215	0.108	0.107	0.000000113	0.0000551	0.000256	0.000311	0.00662	0.032	0.16	0.21	0.041
Molybdenum	0.22	2.47	1.44	0.389	0.61	0.00000139	0.000504	0.0114	0.0119	0.253	0.26	2.6	0.97	0.097
Selenium	0.355	0.9	0.075	0.3	0.3	0.00000224	0.000184	0.000829	0.00101	0.0216	0.20	0.33	0.11	0.065
Thallium	0.09	0.755	0.0045	0.187	0.149	0.000000569	0.000154	0.000177	0.000332	0.00705	0.074	0.74	0.095	0.0095
Vanadium	0.335	7.51	0.25	2.5	7.25	0.00000212	0.00153	0.00605	0.00759	0.161	0.21	2.1	0.77	0.077
Zinc	1.79	764	50.2	406	1200	0.0000113	0.156	1.07	1.22	26.0	160	320	0.16	0.081

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA soil for Al and Cr; PHASE2RA soil; FUGDST01 for Al, As, Cd, Pb, and Zn in moss (HR-06-02); PHASE1RA moss (TT3-0100) for Sb, Ba, Cr, Co, Hg, Mo, Se, Ti, V; PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-143. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT6-1000 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		(mg/kg dw)												
Aluminum	208	358	2.8	156	2440	0.00131	0.0730	1.12	1.20	25.5	1.9	19	13	1.3
Antimony	0.063	1.22	0.03	0.96	0.25	0.00000398	0.000249	0.000744	0.000993	0.0211	0.66	--	0.032	--
Arsenic (arsenate)	0.482	2.9	0.03	1.11	2.93	0.00000304	0.000591	0.00194	0.00254	0.0540	0.40	1.6	0.14	0.034
Arsenic (arsenite)	0.482	2.9	0.03	1.11	2.93	0.00000304	0.000591	0.00194	0.00254	0.0540	0.13	1.3	0.42	0.042
Barium	140	1290	33.6	483	193	0.000884	0.263	0.544	0.808	17.2	5.1	20	3.4	0.86
Cadmium	0.0365	6.11	0.038	3.45	14.1	0.00000231	0.00125	0.00775	0.00899	0.191	1.0	10	0.19	0.019
Chromium	0.396	1.54	0.3	0.45	4.71	0.00000250	0.000314	0.00449	0.00480	0.102	3.3	69	0.031	0.0015
Cobalt	0.015	1.87	0.03	0.325	0.469	0.000000948	0.000381	0.000567	0.000948	0.0202	0.50	2.0	0.040	0.010
Lead	0.65	145	0.3	115	648	0.00000411	0.0296	0.327	0.356	7.58	11	90	0.69	0.084
Mercury	0.0179	0.22	0.025	0.0975	0.082	0.000000113	0.0000449	0.000267	0.000312	0.00665	0.032	0.16	0.21	0.042
Molybdenum	0.22	2.09	0.454	0.271	0.5	0.00000139	0.000426	0.00380	0.00423	0.0899	0.26	2.6	0.35	0.035
Selenium	0.355	1.6	0.4	0.2	0.1	0.00000224	0.000326	0.00319	0.00352	0.0748	0.20	0.33	0.37	0.23
Thallium	0.09	0.38	0.002	0.132	0.053	0.000000569	0.0000775	0.0000939	0.000172	0.00366	0.074	0.74	0.049	0.0049
Vanadium	0.335	16	0.3	0.45	1.3	0.00000212	0.00326	0.00304	0.00630	0.134	0.21	2.1	0.64	0.064
Zinc	1.79	592	33	361	1450	0.0000113	0.121	1.02	1.14	24.3	160	320	0.15	0.076

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA soil for Al and Cr; PHASE2RA soil; FUGDST01 for Al, As, Cd, Pb, Zn in moss (HR-06-03);

PHASE1RA moss (TT3-1000) for Sb, Ba, Cr, Co, Hg, Mo, Se, Ti, V; PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

-- - appropriate TRV not found for analyte

CoPC - chemical of potential concern

LOAEL - lowest-observed-adverse-effect level

NOAEL - no-observed-adverse-effect level

TRV - toxicity reference value



Table K-144. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT6-2000 site

Analyte	Concentration					Daily Exposure			Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)			NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
Aluminum	208	358	8.6	142	650	0.00131	0.0730	0.402	0.477	10.1	1.9	19	5.3	0.53
Antimony	0.063	1.1	0.07	0.61	0.25	0.00000398	0.000224	0.000901	0.00113	0.0239	0.66	--	0.036	--
Arsenic (arsenate)	0.482	2.4	0.03	0.595	1.18	0.00000304	0.000489	0.000984	0.00148	0.0314	0.40	1.6	0.079	0.020
Arsenic (arsenite)	0.482	2.4	0.03	0.595	1.18	0.00000304	0.000489	0.000984	0.00148	0.0314	0.13	1.3	0.24	0.024
Barium	140	1,330	66.7	194	193	0.000884	0.271	0.674	0.946	20.1	5.1	20	3.9	1.0
Cadmium	0.0365	3.14	0.398	1.56	4.61	0.00000231	0.000640	0.00567	0.00631	0.134	1.0	10	0.13	0.013
Chromium	0.396	1.54	0.2	0.45	4.71	0.00000250	0.000314	0.00372	0.00404	0.0859	3.3	69	0.026	0.0012
Cobalt	0.015	2.87	0.09	0.235	0.469	0.000000948	0.000585	0.000987	0.00157	0.0335	0.50	2.0	0.067	0.017
Lead	0.65	102	1.1	61.3	182	0.00000411	0.0208	0.112	0.133	2.82	11	90	0.26	0.031
Mercury	0.0179	0.24	0.03	0.0735	0.082	0.000000113	0.0000489	0.000296	0.000345	0.00733	0.032	0.16	0.23	0.046
Molybdenum	0.22	1.56	0.134	0.212	0.5	0.00000139	0.000318	0.00133	0.00165	0.0350	0.26	2.6	0.13	0.013
Selenium	0.355	0.8	0.05	0.25	0.1	0.00000224	0.000163	0.000531	0.000697	0.0148	0.20	0.33	0.074	0.045
Thallium	0.09	0.152	0.007	0.0715	0.053	0.000000569	0.0000310	0.000106	0.000138	0.00294	0.074	0.74	0.040	0.0040
Vanadium	0.335	6.68	0.2	0.4	1.3	0.00000212	0.00136	0.00225	0.00362	0.0769	0.21	2.1	0.37	0.037
Zinc	1.79	307	71.4	152	433	0.0000113	0.0626	0.795	0.857	18.2	160	320	0.11	0.057

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA soil for Al and Cr; PHASE2RA soil; FUGDST01 for Al, As, Cd, Pb, Zn in moss (HR-06-04); PHASE1RA moss (TT3-1000) for Sb, Ba, Cr, Co, Hg, Mo, Se, Tl, V; PHASE2RA lichen; and PHASE2RA sedge blades. Peltigera and Cladina lichens averaged, sedge species averaged at station. Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-145. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT7-0010 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient		
	Water (µg/L)	Soil/ Sediment		Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		(mg/kg dw)	(mg/kg dw)												
Aluminum	208	2,660	12.5	469	39100	0.00131	0.543	16.9	17.5	371	1.9	19	200	20	
Antimony	0.063	11.1	0.05	10.1	0.99	0.000000398	0.00226	0.00509	0.00736	0.157	0.66	--	0.24	--	
Arsenic (arsenate)	0.482	13.9	0.08	6.89	10.1	0.00000304	0.00283	0.00783	0.0107	0.227	0.40	1.6	0.57	0.14	
Arsenic (arsenite)	0.482	13.9	0.08	6.89	10.1	0.00000304	0.00283	0.00783	0.0107	0.227	0.13	1.3	1.7	0.17	
Barium	140	5,520	77	2240	2530	0.000884	1.13	2.62	3.74	79.6	5.1	20	16	4.0	
Cadmium	0.0365	36.3	0.403	19.1	10.3	0.000000231	0.00740	0.0156	0.0230	0.489	1.0	10	0.49	0.049	
Chromium	0.396	9.69	0.2	3	19.5	0.000000250	0.00198	0.0111	0.0131	0.278	3.3	69	0.084	0.0040	
Cobalt	0.015	4.39	0.11	1.37	5.61	0.0000000948	0.000895	0.00381	0.00470	0.100	0.50	2.0	0.20	0.050	
Lead	0.65	2,630	2.24	1530	336	0.00000411	0.536	0.810	1.35	28.6	11	90	2.6	0.32	
Mercury	0.0179	1.14	0.022	0.711	0.18	0.000000113	0.000233	0.000547	0.000779	0.0166	0.032	0.16	0.52	0.10	
Molybdenum	0.22	5.97	0.556	1.78	0.88	0.00000139	0.00122	0.00538	0.00660	0.140	0.26	2.6	0.54	0.054	
Selenium	0.355	3	0.05	1	0.6	0.000000224	0.000612	0.00106	0.00168	0.0357	0.20	0.33	0.18	0.11	
Thallium	0.09	2.28	0.035	1.49	0.265	0.000000569	0.000465	0.00101	0.00148	0.0315	0.074	0.74	0.43	0.043	
Vanadium	0.335	21.6	0.3	4.2	12.3	0.00000212	0.00441	0.00931	0.0137	0.292	0.21	2.1	1.4	0.14	
Zinc	1.79	6,770	166	2740	1440	0.0000113	1.38	3.05	4.43	94.2	160	320	0.59	0.29	

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA soil for Al and Cr; PHASE2RA soil; FUGDST01 for Al, As, Cd, Pb, Zn in moss (HR-06-01); PHASE1RA moss (TT3-0010) for Sb, Ba, Cr, Co, Hg, Mo, Se, Ti, V; PHASE2RA lichen; and PHASE2RA sedge blades. Peltigera and Cladina lichens averaged, sedge species averaged at station. Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-146. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT7-1000 site

Analyte	Concentration					Daily Exposure				TRV			Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	NOAEL (mg/kg- day)	LOAEL (mg/kg- day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient
		(mg/kg dw)												
Aluminum	208	358	12.2	494	2440	0.00131	0.0730	1.34	1.41	30.1	1.9	19	16	1.6
Antimony	0.063	1.39	0.04	3.8	0.25	0.00000398	0.000283	0.00203	0.00231	0.0492	0.66	--	0.074	--
Arsenic (arsenate)	0.482	8.3	0.03	2.6	2.93	0.00000304	0.00169	0.00258	0.00427	0.0910	0.40	1.6	0.23	0.057
Arsenic (arsenite)	0.482	8.3	0.03	2.6	2.93	0.00000304	0.00169	0.00258	0.00427	0.0910	0.13	1.3	0.70	0.070
Barium	140	451	78.4	900	193	0.000884	0.0920	1.06	1.16	24.6	5.1	20	4.8	1.2
Cadmium	0.0365	4.11	0.172	9.06	14.1	0.00000231	0.000838	0.0112	0.0120	0.255	1.0	10	0.26	0.026
Chromium	0.396	1.54	0.3	1.8	4.71	0.00000250	0.000314	0.00506	0.00538	0.114	3.3	69	0.035	0.0017
Cobalt	0.015	5.35	0.04	0.58	0.469	0.000000948	0.00109	0.000752	0.00184	0.0392	0.50	2.0	0.078	0.020
Lead	0.65	201	5.67	594	648	0.00000411	0.0410	0.571	0.612	13.0	11	90	1.2	0.14
Mercury	0.0179	0.17	0.036	0.254	0.082	0.000000113	0.0000347	0.000418	0.000453	0.00964	0.032	0.16	0.30	0.060
Molybdenum	0.22	27.1	0.888	1.15	0.5	0.00000139	0.00553	0.00749	0.0130	0.277	0.26	2.6	1.1	0.11
Selenium	0.355	1.6	0.05	0.6	0.1	0.00000224	0.000326	0.000680	0.00101	0.0215	0.20	0.33	0.11	0.065
Thallium	0.09	0.532	0.006	0.698	0.053	0.000000569	0.000109	0.000365	0.000474	0.0101	0.074	0.74	0.14	0.014
Vanadium	0.335	29.2	0.3	1.3	1.3	0.00000212	0.00596	0.00340	0.00936	0.199	0.21	2.1	0.95	0.095
Zinc	1.79	506	43.4	996	1450	0.0000113	0.103	1.37	1.47	31.4	160	320	0.20	0.098

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA soil for Al and Cr; PHASE2RA soil; FUGDST01 for Al, As, Cd, Pb, Zn in moss (HR-06-03); PHASE1RA moss (TT3-1000) for Sb, Ba, Cr, Co, Hg, Mo, Se, Ti, V; PHASE2RA lichen; and PHASE2RA sedge blades.

Peltigera and Cladina lichens averaged, sedge species averaged at station.

Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value

Table K-147. Food-web model exposure results for tundra vole exposed to CoPC concentrations at TT7-2000 site

Analyte	Concentration					Daily Exposure				Total Daily Intake (mg/day)	BW Normalized Exposure (mg/kg-day)	TRV		Year-Round Hazard Quotient	
	Water (µg/L)	Soil/ Sediment (mg/kg dw)	Herb. Plant (mg/kg dw)	Lichen (mg/kg dw)	Moss (mg/kd dw)	Water (mg/day)	Soil/Sediment (mg/day)	Food (mg/day)	NOAEL (mg/kg-day)			LOAEL (mg/kg-day)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	
Aluminum	208	358	11.1	559	650	0.00131	0.0730	0.598	0.673	14.3	1.9	19	7.5	0.75	
Antimony	0.063	0.97	0.0255	3.68	0.25	0.00000398	0.000198	0.00186	0.00206	0.0439	0.66	--	0.067	--	
Arsenic (arsenate)	0.482	5.9	0.035	3.07	1.18	0.00000304	0.00120	0.00207	0.00328	0.0698	0.40	1.6	0.17	0.044	
Arsenic (arsenite)	0.482	5.9	0.035	3.07	1.18	0.00000304	0.00120	0.00207	0.00328	0.0698	0.13	1.3	0.54	0.054	
Barium	140	469	78	1,110	193	0.000884	0.0957	1.15	1.25	26.5	5.1	20	5.2	1.3	
Cadmium	0.0365	4.71	0.288	9.96	4.61	0.00000231	0.000961	0.00839	0.00935	0.199	1.0	10	0.20	0.020	
Chromium	0.396	1.54	0.25	1.9	4.71	0.00000250	0.000314	0.00472	0.00504	0.107	3.3	69	0.032	0.0016	
Cobalt	0.015	5.65	0.06	0.87	0.469	0.000000948	0.00115	0.00103	0.00218	0.0464	0.50	2.0	0.093	0.023	
Lead	0.65	154	4.96	492	182	0.00000411	0.0314	0.324	0.356	7.57	11	90	0.69	0.084	
Mercury	0.0179	0.233	0.04	0.297	0.082	0.000000113	0.0000475	0.000467	0.000515	0.0109	0.032	0.16	0.34	0.068	
Molybdenum	0.22	15.5	0.965	1.67	0.5	0.00000139	0.00316	0.00830	0.0115	0.244	0.26	2.6	0.94	0.094	
Selenium	0.355	2	0.125	0.7	0.1	0.00000224	0.000408	0.00130	0.00171	0.0363	0.20	0.33	0.18	0.11	
Thallium	0.09	0.63	0.008	0.599	0.053	0.000000569	0.000128	0.000338	0.000467	0.00994	0.074	0.74	0.13	0.013	
Vanadium	0.335	27.8	0.2	2.8	1.3	0.00000212	0.00567	0.00327	0.00894	0.190	0.21	2.1	0.91	0.091	
Zinc	1.79	519	57.5	1260	433	0.0000113	0.106	1.16	1.26	26.9	160	320	0.17	0.084	

**Note:** The following data were used to develop this scenario: TECK03 water (ARC-D); PHASE1RA soil for Al and Cr; PHASE2RA soil; FUGDST01 for Al, As, Cd, Pb, Zn in moss (HR-06-04); PHASE1RA moss (TT3-1000) for Sb, Ba, Cr, Co, Hg, Mo, Se, Ti, V; PHASE2RA lichen; and PHASE2RA sedge blades. Peltigera and Cladina lichens averaged, sedge species averaged at station. Hazard quotients greater than 1.0 are boxed.

- - appropriate TRV not found for analyte
- CoPC - chemical of potential concern
- LOAEL - lowest-observed-adverse-effect level
- NOAEL - no-observed-adverse-effect level
- TRV - toxicity reference value