Table 3-1. Data Collected Since the Time of the BERA

Data Type	2007		2008		2009	
	Spring	Fall	Spring	Fall	Spring	Fall
On-site Soil					X	
Background Soil					X	
Surface Water	X	X	X	X	X	X
Sediment	X	X	X	X	X	X
Sediment Pore Water				X		X
Fish Population		X		X		X
BMI Population		X		X		X
Habitat Assessment				X		X
Surface Water Toxicity Testing		X		X		X
Sediment Toxicity Testing		X		X		X

Table 4-1
Surface Water Toxicity Benchmarks for Aquatic Receptors

Analyte	Hardness Dependant?	ACUTE						CHRONIC						
		State of Colorado (ug/L) [1]	NAWQC - (ug/L) [2]	GLWQI Tier II SAV (ug/L) [3]	USEPA R4 - Acute (ug/L) [3]	**Surface Water Acute Benchmark (ug/L) - Dissolved**	**Surface Water Acute Benchmark (ug/L) - Total Recoverable**	State of Colorado (ug/L) [1]	NAWQC - (ug/L) [2]	GLWQI Tier II SCV (ug/L) [3]	USEPA R4 - Chronic (ug/L) [3]	Other (ug/L) [3]	**Surface Water Chronic Benchmark (ug/L) - Dissolved**	**Surface Water Chronic Benchmark (ug/L) - Total Recoverable**
Aluminum	No	750	750 6	--	750	750	750	87	87	--	87	--	87	87
Cadmium	Yes	1.7 5	1.7 5	--	3.92	1.7	1.8	0.42 5	0.42 5	--	1.13	--	0.42	0.47
Calcium	No	--	--	--	--	no benchmark	no benchmark	--	--	--	--	116,000 LCV Daphnids	116,000	116,000
Copper	Yes	13	13	--	17.7	13	13	9.0	9.0 5	--	11.8	--	9.0	9.0
Lead	Yes	65 5	65 5	--	81.6	65	82	2.5 5	2.5 5	--	3.18	--	2.5	3.2
Manganese	Yes	2,986	--	2,300	--	2,986	2,986	1,650	--	120	--	--	1,650	1,650
Nickel	Yes	468 5	468 5	--	1420	468	468	52 5	52 5	--	158	--	52	52
Silver	Yes	4.1 5	2.0 5	--	4.1	4.1	4.1	0.075 5	0.08 4	0.36	0.012	--	0.075	0.075
Zinc	Yes	143 5	143 5	--	117	143	147	124 5	124 5	--	106	--	124	126

1 CDPHE 2007
2 USEPA, 2002. National Recommended Water Quality Criteria: 2002. November 2002. EPA 822-R-02-047. Values presented are for dissolved.
3 Suter & Tsao, 1996.
4 Only acute NAWQC available; chronic NAWQC is equal to acute / 10.
5 Metal toxicity is hardness-dependent; values shown are calculated based on a hardness of 100 mg/L.
6 Aluminum NAWQC apply to waters with pH of 6.5 - 9.0.

NAWQC = National Ambient Water Quality Criteria
GLQWI = Great Lakes Water Quality Initiative
SAV/SCV = Secondary Acute/Chronic Value
CCME = Canadian Council of Ministers of the Environment
WQG = Water Quality Guidelines
LCV = Lowest Chronic Value
EC20 = Effect Concentration Causing Less Than 20% Reduction

Table 4-2. Chemical Concentrations Corresponding to a Chronic HQ of 1

Hardness (mg/L)	Concentration (ug/L)						
	Cadmium	Copper	Lead	Manganese	Nickel	Silver	Zinc
10	0.074	1.3	0.19	770	7.4	0.0014	17
20	0.13	2.3	0.42	1000	13	0.0047	32
30	0.17	3.2	0.66	1100	19	0.0095	45
40	0.21	4.1	0.92	1200	24	0.016	57
50	0.25	5	1.2	1300	29	0.023	69
60	0.29	5.8	1.4	1400	34	0.031	80
70	0.32	6.6	1.7	1500	38	0.041	92
80	0.36	7.4	2	1500	43	0.051	100
90	0.39	8.2	2.2	1600	48	0.063	110
100	0.42	9	2.5	1600	52	0.075	120
110	0.46	10	2.8	1700	56	0.088	130
120	0.49	10	3.1	1800	61	0.1	150
130	0.52	11	3.3	1800	65	0.12	160
140	0.55	12	3.6	1800	69	0.13	170
150	0.58	13	3.9	1900	73	0.15	180
160	0.6	13	4.2	1900	77	0.17	190
170	0.63	14	4.5	2000	81	0.19	200
180	0.66	15	4.7	2000	86	0.21	210
190	0.69	15	5	2000	90	0.23	210
200	0.72	16	5.3	2100	93	0.25	220
210	0.74	17	5.6	2100	100	0.27	230
220	0.77	18	5.9	2100	100	0.29	240
230	0.79	18	6.2	2200	110	0.31	250
240	0.82	19	6.4	2200	110	0.34	260
250	0.85	20	6.7	2200	110	0.36	270
260	0.87	20	7	2300	120	0.39	280
270	0.9	21	7.3	2300	120	0.41	290
280	0.92	22	7.6	2300	120	0.44	300
290	0.95	22	7.8	2400	130	0.47	310
300	1	23	8.1	2400	130	0.5	320
310	1	24	8.4	2400	140	0.53	330
320	1	24	8.7	2400	140	0.56	340
330	1	25	9	2500	140	0.59	340
340	1.1	25	9.3	2500	150	0.62	350
350	1.1	26	10	2500	150	0.65	360
360	1.1	27	10	2500	150	0.68	370
370	1.1	27	10	2600	160	0.71	380
380	1.2	28	10	2600	160	0.75	390
390	1.2	29	11	2600	160	0.78	400
400	1.2	29	11	2600	170	0.81	410

Concentration values are shown to 2 significant digits.
Only chemicals with a hardness dependent TRV are shown.

Table 4-3
Bulk Sediment Toxicity Benchmarks for Benthic Invertebrates

Analyte	Consensus-Based Threshold Effect Concentration (TEC)[1]	Consensus-Based Probable Effect Concentration (PEC)[2]
Aluminum	25,519	59,572
Antimony	2.0	25
Arsenic	10	33
Cadmium	0.99	5.0
Copper	32	149
Iron	188,400	247,600
Lead	36	128
Manganese	631	1184
Mercury	0.18	1.1
Nickel	23	49
Silver	1.0	3.7
Zinc	121	459

Source: MacDonald et al. (2000)

Notes:

1 The TEC encompasses several types of sediment quality guidelines including the Lowest Effect Level (LEL), the Threshold Effect Level (TEL), the Effect Range Low (ERL), the TEL for Hyalella azetca in 28 day tests (TEL-HA28), and the Minimum Effect Threshold

2 The PEC encompasses several types of sediment quality guidelines including the Severe Effect Level (SEL), the Probable Effect Level (TEL), the Effect Range Median (ERM), the PEL for Hyalella azetca in 28 day tests (PEL-HA28), and the Toxic Effect Threshold

Table 5-1. Soil Toxicity Benchmarks for Plants and Soil Invertebrates

Analytes	Plants			Soil Invertebrates		
	EcoSSL (mg/kg dw)	ORNL (mg/kg dw)	Benchmark (mg/kg dw)	EcoSSL (mg/kg dw)	ORNL (mg/kg dw)	Benchmark (mg/kg dw)
Aluminum	--	50	50	--	--	no benchmark
Antimony	--	5.0	5.0	78	--	78
Arsenic	18	10	18	--	60	60
Barium	--	500	500	330	--	330
Cadmium	32	4.0	32	140	20	140
Chromium	--	1.0	1.0	--	0.40	0.40
Cobalt	13	20	13	--	--	no benchmark
Copper	70	100	70	80	50	80
Lead	120	50	120	1700	500	1,700
Manganese	220	500	220	450	--	450
Mercury	--	0.30	0.30	--	0.10	0.10
Molybdenum	--	2	2	--	--	no benchmark
Nickel	38	30	38	280	200	280
Selenium	0.52	1.0	0.52	4.1	70	4.1
Silver	560	2.0	560	--	--	no benchmark
Thallium	--	1.0	1.0	--	--	no benchmark
Vanadium	--	2.0	2.0	--	--	no benchmark
Zinc	160	50	160	120	100	120

Ecological Soil Screening Levels (EcoSSL) - USEPA (2007).
Oak Ridge National Laboratory (ORNL) - Efroymson et al. 1997a,b.

Table 5-2. HQ Values for Plants from Direct Contact with Surface Soil

Analyte	Onsite		Background	
	Frequency of HQs > 1.0	Range of HQs > 1.0	Frequency of HQs > 1.0	Range of HQs > 1.0
Aluminum	195/195	32-430	20/20	260-370
Antimony	10/195	1.1-3.2	0/20	--
Arsenic	92/195	1.1-15	0/20	--
Barium	1/195	1.2-1.2	0/20	--
Cadmium	5/195	1-1.7	0/20	--
Chromium	195/195	1.9-93	20/20	7.5-10
Cobalt	12/195	1.1-2.7	0/20	--
Copper	88/195	1-39	0/20	--
Lead	171/195	1.1-250	8/20	1.1-2.7
Manganese	194/195	1.7-55	20/20	1.8-6.2
Mercury	2/195	1.1-1.6	0/20	--
Selenium	114/195	1.1-84	20/20	3.4-3.4
Silver	0/195	--	0/20	--
Thallium	68/195	1.2-6.8	4/20	1.1-1.2
Vanadium	195/195	2.7-16	20/20	8.4-11
Zinc	178/195	1-61	13/20	1.6-2.7

-- = All HQs values are less than 1.
Non-detects were evaluated at one-half the detection limit.

Table 5-3. HQ Values for Soil Invertebrates from Direct Contact with Surface Soil

Analyte	Onsite		Background	
	Frequency of HQs > 1.0	Range of HQs > 1.0	Frequency of HQs > 1.0	Range of HQs > 1.0
Arsenic	36/195	1-4.4	0/20	--
Barium	2/195	1.4-1.8	0/20	--
Chromium	195/195	4.7-230	20/20	19-25
Copper	78/195	1.1-34	0/20	--
Lead	60/195	1.1-18	0/20	--
Manganese	191/195	1.1-27	18/20	1.1-3
Mercury	30/195	1.1-4.7	0/20	--
Selenium	22/195	1.1-11	0/20	--
Zinc	190/195	1.1-81	13/20	2.1-3.6

-- = All HQs values are less than 1.
Non-detects were evaluated at one-half the detection limit.

Table 6-1. Exposure Factors for Representative Wildlife Species

Category	Feeding Guild	Selected Representative Species	Home Range Size (hectares)	Food Ingestion Rate (kg ww/kg BW/day)	Water Ingestion Rate (L/kg BW/day)	Sediment/ Soil Ingestion Rate (kg dw/kg BW/day)	Dietary Fraction
Avian	Terrestrial Omnivore	American Robin	0.48	1.21	0.14	0.025	50% plants; 50% terrestrial invertebrates
	Terrestrial Insectivore	Northern Flicker	35.5	0.58	0.11	0.012	100% terrestrial invertebrates
	Aerial Insectivore	Cliff Swallow	4,418	0.54	0.20	0.015	100% terrestrial invertebrates
	Aquatic Insectivore	American Dipper	1.5	0.0091	0.0087	0.00004	100% aquatic invertebrates
	Herbivore	Greater-Sage Grouse	1,942	0.10	1.03	0.0007	100% plants
	Piscivore	Belted Kingfisher	130	0.50	0.11	0.0014	100% fish
	Carnivore	Red-tailed Hawk	859	0.10	0.057	0	100% small mammals
Mammalian	Large Herbivore	Mule Deer	285	0.041	0.044	0.00013	100% plants
	Small Herbivore	Meadow Vole	0.027	0.325	0.183	0.00016	100% plants
	Carnivore	Red Fox	1,038	0.069	0.085	0.00052	75% small mammals; 25% plants
	Carnivore (T&E)	Canada Lynx	15,550	0.070	0.078	0.00053	100% small mammals
	Terrestrial Insectivore	Masked Shrew	0.39	0.97	0.17	0.040	100% terrestrial invertebrates
	Aerial Insectivore	Big Brown Bat	11,100	0.44	0.15	0	100% areial insects*
	Terrestrial Omnivore	Deer Mouse	0.077	0.27	0.15	0.0018	50% plants; 50% terrestrial invertebrates

See Appendix L for detailed information and sources.

*Aerial insects are assumed to be similar to emerging aquatic insects.

Table 6-2. Exposure Point Concentrations Used to Evaluate Potential Risks to Wildlife

Location	Analyte	Exposure Point Concentration (EPC) (a)						
		Surface Water ug/L	Soil mg/kg	Earthworm mg/kg ww	Small Mammals mg/kg ww	Plants mg/kg ww	Benthics mg/kg ww	Fish mg/kg ww
Onsite	Aluminum	4.9E+03	9.8E+03	6.7E+01	1.9E+02	2.2E+02	1.5E+03	1.0E+01
	Antimony	5.1E+00	1.7E+00	2.7E-01	5.5E-01	2.5E-01	2.8E-01	7.8E-03
	Arsenic	3.4E+01	5.4E+01	6.5E-01	1.1E-01	5.0E-01	2.1E+01	9.3E-01
	Barium	7.1E+01	1.3E+02	2.0E+00	2.4E+00	4.4E+00	7.1E+01	2.1E-02
	Beryllium	1.2E+00	1.0E+00	7.4E-03	3.3E-01	1.0E-01	2.2E-01	3.2E-02
	Cadmium	2.8E+01	7.3E+00	6.4E+00	4.9E+00	2.9E+00	3.3E+01	8.1E-01
	Chromium	1.9E+00	8.8E+00	4.5E+00	3.7E-01	2.6E+00	3.2E+00	9.9E-01
	Cobalt	1.6E+01	8.3E+00	1.6E-01	5.4E-02	1.3E-02	1.6E+01	1.6E-02
	Copper	3.1E+02	2.5E+02	3.7E+00	8.8E+00	1.1E+01	1.5E+02	3.0E+00
	Lead	1.6E+03	2.8E+03	7.8E+01	2.5E+01	4.1E+01	1.6E+02	4.7E-01
	Manganese	4.7E+03	2.6E+03	1.5E+01	5.5E+02	5.4E+02	1.3E+03	3.5E+00
	Mercury	1.0E-01	8.1E-02	7.4E-02	1.4E-03	2.0E-02	3.0E-02	1.2E-01
	Nickel	6.9E+00	6.9E+00	5.2E+00	6.2E-01	2.5E+00	3.0E+00	4.4E-01
	Selenium	5.1E+00	3.0E+00	3.3E-01	3.2E-01	2.5E-01	6.3E+00	1.0E+00
	Silver	2.7E+00	8.3E+00	2.7E+00	4.0E-01	1.0E-01	1.1E-01	7.8E-03
	Thallium	2.5E+00	1.2E+00	1.9E-01	4.4E-02	1.0E-01	1.1E-01	1.3E-02
	Vanadium	7.4E+00	1.6E+01	1.1E-01	6.7E-02	1.6E-02	7.4E+00	2.5E-02
	Zinc	3.3E+03	1.2E+03	1.4E+02	4.7E+01	2.2E+02	3.5E+03	7.0E+01
Background	Aluminum	6.6E+03	1.6E+04	1.1E+02	3.2E+02	8.6E+02	7.6E+02	9.4E+00
	Antimony	5.1E+00	1.5E+00	2.3E-01	4.7E-01	2.5E-01	7.8E-01	9.6E-03
	Arsenic	1.3E+01	8.7E+00	1.8E-01	1.6E-02	4.0E-01	2.6E+01	1.0E-01
	Barium	1.2E+02	1.1E+02	1.6E+00	1.9E+00	3.5E+00	1.2E+02	1.4E-02
	Beryllium	2.5E-01	7.1E-01	5.1E-03	2.3E-01	1.0E-01	6.2E-01	3.7E-02
	Cadmium	5.1E-01	3.6E-01	5.9E-01	2.7E-01	2.0E-01	4.0E+00	7.9E-01
	Chromium	3.5E+00	9.1E+00	4.6E+00	3.8E-01	3.6E+00	3.6E+00	1.4E+00
	Cobalt	5.3E+00	5.8E+00	1.1E-01	3.8E-02	9.1E-03	5.3E+00	2.5E-03
	Copper	6.6E+00	2.1E+01	1.9E+00	4.5E+00	8.0E+00	2.0E+01	2.6E+00
	Lead	2.3E+01	1.5E+02	7.3E+00	5.9E+00	1.9E+00	5.8E+00	4.1E-03
	Manganese	4.9E+02	8.0E+02	6.8E+00	1.7E+02	1.9E+02	1.5E+03	3.8E+00
	Mercury	1.0E-01	5.6E-02	6.6E-02	9.7E-04	1.6E-02	1.1E-01	1.6E-01
	Nickel	3.2E+00	8.1E+00	6.1E+00	6.6E-01	2.1E+00	2.2E+00	7.4E-01
	Selenium	5.1E+00	1.8E+00	2.2E-01	2.6E-01	2.5E-01	1.9E+00	6.1E-01
	Silver	4.4E+00	1.7E-01	5.4E-02	8.0E-03	1.0E-01	3.1E-01	4.1E-03
	Thallium	2.5E+00	7.3E-01	1.2E-01	2.6E-02	1.0E-01	3.1E-01	4.1E-03
	Vanadium	2.2E+01	2.0E+01	1.4E-01	8.4E-02	2.1E-02	2.2E+01	2.5E-02
	Zinc	6.6E+01	3.7E+02	9.5E+01	4.3E+01	5.5E+01	4.4E+02	3.4E+01

(a) Values shown in unshaded boxes are based on measured samples.
Values shown in boxes shaded in grey are computed using mathematical uptake models, as described in Appendix C.
Values shown in boxes shaded in orange identify EPCs that are not based on data from 2009; data from the baseline have been used.
Values shown in boxes shaded in yellow identify EPCs that are not based on data from 2009; data from the baseline have been used. The UCL is based on non-detected values.

Background for all media except soil includes Coal Creek immediately upstream of Elk Creek, Copley Lake, Splains Gulch, and Wildcat Creek.

Table 6-3. Selected Wildlife Toxicity Reference Values

Analyte	Toxicity Reference Values (mg/kg BW/day)					
	Mammals			Birds		
	NOAEL TRV	LOAEL TRV	Source	NOAEL TRV	LOAEL TRV	Source
Aluminum	1.93	19.3	3	110	no TRV	3
Antimony	0.059	no TRV	1	no TRV	no TRV	
Arsenic	1.04	4.7	1	2.2	22	1
Barium	51.8	no TRV	1	21	42	3
Beryllium	0.532	no TRV	1	no TRV	no TRV	
Cadmium	0.77	no TRV	1	1.47	no TRV	1
Copper	5.6	632	1,2	4.1	52	1,2
Lead	4.7	241	1,2	1.63	8.8	1,2
Manganese	52	159	1,2	179	776	1,2
Mercury, Inorganic	1.4	6.9	3	0.45	0.90	3
Mercury, Organic	0.25	4.0	2	0.039	0.180	2
Nickel	1.7	32	1,2	6.71	56	1,2
Selenium	0.143	1.21	1,2	0.29	0.93	1,2
Silver	6.02	no TRV	1	2.0	no TRV	1
Thallium	0.48	1.43	2	no TRV	no TRV	
Vanadium	4.16	2.1	1	0.344	no TRV	1
Zinc	75	411	1,2	66.1	172	1,2

See Appendix B for details on the selected TRV.

Source:
1 -- USEPA Eco-SSL (2007)
2 -- Engineering Field Activity West (1998)
3 -- Sample et al. (1996)

Table 6-4. Total HQ Values for Birds and Mammals

Location	Analyte	American Robin	Northern Flicker	Cliff Swallow	American Dipper	Greater-Sage Grouse	Belted Kingfisher	Red-tailed Hawk	Mule Deer	Meadow Vole	Red Fox	Canada Lynx	Masked Shrew	Big Brown Bat	Deer Mouse
Onsite	Aluminum	NC - 4	NC - 1	NC - 0.01	NC - 0.1	NC - 0.005	NC - 0.01	NC - 0.007	0.06 - 0.6	4 - 40	0.03 - 0.3	0.002 - 0.02	20 - 200	0.1 - 1	3 - 30
	Antimony	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - 0.02	NC - 1	NC - 0.02	NC - 0.001	NC - 6	NC - 0.006	NC - 1
	Arsenic	0.09 - 0.9	0.04 - 0.4	4E-04 - 0.004	0.009 - 0.09	2E-05 - 9E-04	0.006 - 0.05	2E-05 - 2E-04	7E-04 - 0.003	0.04 - 0.2	3E-04 - 0.001	2E-05 - 8E-05	0.6 - 3	0.006 - 0.03	0.05 - 0.2
	Barium	0.2 - 0.3	0.06 - 0.1	6E-04 - 0.001	0.02 - 0.03	2E-04 - 5E-04	1E-04 - 2E-04	2E-04 - 5E-04	NC - 5E-04	NC - 0.03	NC - 2E-04	NC - 1E-05	NC - 0.1	NC - 0.002	NC - 0.02
	Beryllium	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - 0.001	NC - 0.06	NC - 0.001	NC - 1E-04	NC - 0.09	NC - 6E-04	NC - 0.03
	Cadmium	NC - 4	NC - 2	NC - 0.02	NC - 0.2	NC - 0.004	NC - 0.07	NC - 0.01	NC - 0.02	NC - 1	NC - 0.01	NC - 0.001	NC - 9	NC - 0.06	NC - 2
	Chromium	0.9 - 2	0.5 - 1	0.004 - 0.007	0.006 - 0.01	3E-04 - 0.002	0.03 - 0.05	3E-04 - 5E-04	0.001 - 0.005	0.06 - 0.4	2E-04 - 9E-04	5E-06 - 3E-05	0.4 - 2	3E-04 - 0.002	0.07 - 0.4
	Cobalt	NC - 0.04	NC - 0.02	NC - 2E-04	NC - 0.02	NC - 5E-05	NC - 3E-04	NC - 3E-05	NC - 4E-05	NC - 0.001	NC - 4E-05	NC - 3E-06	NC - 0.07	NC - 0.003	NC - 0.005
	Copper	0.3 - 4	0.09 - 1	9E-04 - 0.01	0.03 - 0.3	7E-04 - 0.007	0.008 - 0.1	7E-04 - 0.008	9E-05 - 0.01	0.006 - 0.6	4E-05 - 0.005	3E-06 - 3E-04	0.02 - 2	3E-04 - 0.04	0.004 - 0.4
	Lead	20 - 90	8 - 50	0.07 - 0.4	0.2 - 0.9	0.01 - 0.08	0.01 - 0.07	0.01 - 0.06	0.001 - 0.05	0.06 - 3	5E-04 - 0.02	3E-05 - 0.002	0.8 - 40	9E-04 - 0.04	0.09 - 4
	Manganese	0.5 - 2	0.05 - 0.2	5E-04 - 0.002	0.02 - 0.07	0.003 - 0.006	8E-04 - 0.003	0.003 - 0.01	0.02 - 0.05	1 - 3	0.008 - 0.02	5E-04 - 0.002	0.8 - 2	0.01 - 0.03	0.5 - 2
	Mercury	0.3 - 1	0.2 - 1	0.002 - 0.008	0.002 - 0.007	3E-05 - 9E-04	0.09 - 0.4	3E-05 - 1E-04	2E-05 - 4E-04	0.002 - 0.03	4E-06 - 6E-05	8E-08 - 1E-06	0.02 - 0.3	1E-05 - 2E-04	0.003 - 0.05
	Nickel	0.09 - 0.7	0.05 - 0.4	4E-04 - 0.003	5E-04 - 0.004	4E-05 - 7E-04	0.001 - 0.009	4E-05 - 4E-04	4E-04 - 0.007	0.03 - 0.5	8E-05 - 0.002	3E-06 - 6E-05	0.2 - 3	1E-04 - 0.002	0.03 - 0.6
	Selenium	0.5 - 1	0.2 - 0.7	0.002 - 0.006	0.06 - 0.2	0.001 - 0.002	0.1 - 0.5	0.001 - 0.004	0.001 - 0.009	0.07 - 0.6	6E-04 - 0.005	4E-05 - 4E-04	0.4 - 3	0.007 - 0.06	0.07 - 0.6
	Silver	NC - 0.9	NC - 0.8	NC - 0.006	NC - 5E-04	NC - 2E-04	NC - 5E-04	NC - 8E-04	NC - 1E-04	NC - 0.006	NC - 1E-04	NC - 1E-05	NC - 0.5	NC - 2E-05	NC - 0.06
	Thallium	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	4E-04 - 0.001	0.02 - 0.07	1E-04 - 3E-04	6E-06 - 2E-05	0.2 - 0.5	1E-04 - 3E-04	0.03 - 0.09
	Vanadium	NC - 1	NC - 0.7	NC - 0.007	NC - 0.2	NC - 0.001	NC - 0.01	NC - 8E-04	2E-04 - 9E-05	0.004 - 0.002	2E-04 - 1E-04	1E-05 - 7E-06	0.4 - 0.2	0.005 - 0.002	0.02 - 0.01
	Zinc	1 - 4	0.5 - 1	0.004 - 0.01	0.2 - 0.5	0.001 - 0.007	0.05 - 0.1	0.001 - 0.003	0.003 - 0.01	0.2 - 0.9	6E-04 - 0.003	2E-05 - 1E-04	0.4 - 2	0.01 - 0.06	0.1 - 0.7
Background	Aluminum	NC - 9	NC - 2	NC - 0.02	NC - 0.06	NC - 0.02	NC - 0.01	NC - 0.01	0.2 - 2	10 - 100	0.07 - 0.7	0.004 - 0.04	40 - 400	0.05 - 0.5	8 - 80
	Antimony	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - 0.02	NC - 1	NC - 0.02	NC - 0.001	NC - 5	NC - 0.02	NC - 1
	Arsenic	0.03 - 0.3	0.009 - 0.09	8E-05 - 8E-04	0.01 - 0.1	4E-06 - 5E-04	6E-04 - 0.006	4E-06 - 4E-05	5E-04 - 0.002	0.03 - 0.1	9E-05 - 4E-04	3E-06 - 1E-05	0.1 - 0.5	0.007 - 0.03	0.02 - 0.09
	Barium	0.1 - 0.3	0.05 - 0.1	5E-04 - 9E-04	0.03 - 0.05	2E-04 - 5E-04	1E-04 - 2E-04	2E-04 - 4E-04	NC - 4E-04	NC - 0.02	NC - 1E-04	NC - 8E-06	NC - 0.1	NC - 0.003	NC - 0.02
	Beryllium	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - 9E-04	NC - 0.06	NC - 8E-04	NC - 7E-05	NC - 0.06	NC - 0.002	NC - 0.03
	Cadmium	NC - 0.3	NC - 0.2	NC - 0.002	NC - 0.02	NC - 2E-04	NC - 0.07	NC - 7E-04	NC - 0.001	NC - 0.08	NC - 7E-04	NC - 5E-05	NC - 0.8	NC - 0.007	NC - 0.1
	Chromium	1 - 2	0.5 - 1	0.004 - 0.008	0.007 - 0.01	3E-04 - 0.002	0.04 - 0.07	3E-04 - 5E-04	0.001 - 0.007	0.09 - 0.5	2E-04 - 0.001	5E-06 - 3E-05	0.4 - 2	4E-04 - 0.002	0.09 - 0.5
	Cobalt	NC - 0.03	NC - 0.02	NC - 2E-04	NC - 0.006	NC - 2E-05	NC - 6E-05	NC - 2E-05	NC - 2E-05	NC - 7E-04	NC - 2E-05	NC - 2E-06	NC - 0.05	NC - 0.001	NC - 0.004
	Copper	0.1 - 2	0.02 - 0.3	2E-04 - 0.002	0.004 - 0.05	3E-04 - 0.003	0.006 - 0.08	3E-04 - 0.004	6E-05 - 0.007	0.004 - 0.5	2E-05 - 0.002	1E-06 - 1E-04	0.004 - 0.5	4E-05 - 0.005	0.002 - 0.2
	Lead	1 - 6	0.7 - 4	0.005 - 0.03	0.006 - 0.03	0.003 - 0.003	1E-04 - 7E-04	0.003 - 0.01	5E-05 - 0.002	0.003 - 0.1	6E-05 - 0.003	4E-06 - 2E-04	0.06 - 3	3E-05 - 0.002	0.006 - 0.3
	Manganese	0.2 - 0.8	0.02 - 0.07	2E-04 - 7E-04	0.02 - 0.08	8E-04 - 0.002	6E-04 - 0.003	8E-04 - 0.004	0.006 - 0.02	0.4 - 1	0.003 - 0.008	2E-04 - 5E-04	0.2 - 0.8	0.01 - 0.04	0.2 - 0.5
	Mercury	0.3 - 1	0.2 - 0.9	0.002 - 0.007	0.006 - 0.03	2E-05 - 7E-04	0.1 - 0.5	2E-05 - 1E-04	2E-05 - 3E-04	0.001 - 0.02	3E-06 - 5E-05	6E-08 - 9E-07	0.02 - 0.3	4E-05 - 6E-04	0.003 - 0.04
	Nickel	0.09 - 0.8	0.06 - 0.5	5E-04 - 0.004	4E-04 - 0.003	5E-05 - 6E-04	0.002 - 0.01	5E-05 - 4E-04	3E-04 - 0.006	0.02 - 0.4	8E-05 - 0.001	3E-06 - 6E-05	0.2 - 4	9E-05 - 0.002	0.04 - 0.7
	Selenium	0.4 - 0.05	0.2 - 0.02	0.001 - 1E-04	0.02 - 0.001	0.001 - 1E-04	0.08 - 3E-04	0.001 - 2E-05	0.001 - 8E-05	0.07 - 0.6	5E-04 - 1E-05	3E-05 - 4E-07	0.2 - 0.01	0.002 - 7E-05	0.06 - 0.004
	Silver	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - 0.001	NC - 0.006	NC - 2E-04	NC - 1E-05	NC - 0.3	NC - 9E-04	NC - 0.06
	Thallium	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	NC - NC	4E-04 - 0.001	0.02 - 0.07	8E-05 - 2E-04	4E-06 - 1E-05	0.1 - 0.3	3E-04 - 9E-04	0.02 - 0.06
	Vanadium	NC - 2	NC - 0.9	NC - 0.009	NC - 0.6	NC - 0.002	NC - 0.01	NC - 0.001	3E-04 - 1E-04	0.007 - 0.003	3E-04 - 1E-04	2E-05 - 1E-05	0.5 - 0.2	0.01 - 0.007	0.03 - 0.01
	Zinc	0.6 - 2	0.3 - 0.8	0.003 - 0.007	0.02 - 0.06	0.001 - 0.002	0.03 - 0.07	0.001 - 0.003	7E-04 - 0.004	0.04 - 0.2	3E-04 - 0.001	2E-05 - 9E-05	0.3 - 1	0.001 - 0.008	0.05 - 0.3

[a] Ranges presented are the HQ values based on the LOAEL to the NOAEL
NC = Not calculated due to lack of TRV
NOAEL = No Observed Adverse Effect Level
LOAEL = Low Observed Adverse Effect Level

Onsite = vicinity of Standard Mine
Background = Coal Creek immediately upstream of Elk Creek, Copley Lake, Splains Gulch, and Wildcat Creek.