Table 4-4. Background Threshold Values (BTVs) for Inorganics in Montana Surface Soils

Parameter[1]	ProUCL BTV (mg/kg)	Distribution[2]	BTV Method[3]	Comparison Values	
				BGS NBC (mg/kg)[4]	EPA Residential Soil RSL (mg/kg)[5]
Aluminum	**25941**	N	UTL 95/90 N	26335	7700
Antimony	**0.4**	NC	UTL 95/90 KM	NC	3.1
Arsenic	**22.5**	None	UTL 95/90 BS	18.2	0.61
Barium	**429**	LN	UTL 95/90 LN	437	1500
Beryllium	**1.1**	None	UTL 95/90 BS	1.1	16
Cadmium	**0.7**	NC	UTL 95/90 KM	NC	7
Chromium	**41.7**	LN	UTL 95/90 LN	44.6	None
Chromium (III)	**41.7**	LN	UTL 95/90 LN	44.4	12000
Chromium (VI)[6]	**NC**	NC	NC	NC	0.29
Cobalt	**10.0**	N	UTL 95/90 N	9.7	2.3
Copper	**165**	None	UTL 95/90 BS	149	310
Iron	**24400**	None	UTL 95/90 BS	24640	5500
Lead	**29.8**	LN	UTL 95/90 LN	29.7	400
Manganese	**880**	G	UTL 95/90 GWH	929	180
Mercury[7]	**NC**	NC	NC	NC	1
Nickel	**31.4**	LN	UTL 95/90 LN	27.3	150
Selenium	**0.7**	NC	UTL 95/90 KM	NC	39
Silver	**0.3**	NC	UTL 95/90 KM	NC	39
Thallium	**0.41**	LN	UTL 95/90 LN	0.37	0.078
Vanadium	**52.6**	LN	UTL 95/90 LN	54.0	39
Zinc	**118**	LN	UTL 95/90 LN	116	2300

NOTES:

(1) Calculations based on fine fraction (< 250 µm) results for background sample set (n=112).

(2) Distribution tested with ProUCL v5.0 N = normal; LN = lognormal; G = gamma; None = none indicated; NC = not calculated due to nondetects.

(3) UTL 95/90 = Upper Tolerance Limit with 95% confidence/90% coverage. ProUCL v5.0 method selected based on observed distribution. N = normal; LN = lognormal; GWH = gamma Wilson-Hilferty; BS = nonparametric bootstrap; KM = Kaplan-Meier method.

(4) BGS NBC = British Geological Survey Natural Background Concentration method (modified to show upper 95% confidence/90th percentile).

(5) Regional Screening Level for residential soil direct contact. May 2013 values based on target hazard quotient (THQ) of 0.1.

(6) All Cr (VI) values in fine fraction samples were reported as <0.29 mg/kg.

(7) Mercury was analyzed on bulk samples only; all values were <0.05 mg/kg with the exception of one detectable concentration reported at 0.068 mg/kg.