

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

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