

Background for Metal Data collected by WCAS

The particulate matter collected and analyzed gravimetrically and elementally was performed at two ambient air monitoring sites located within the West Central Airshed Society's (WCAS) monitoring area. The elemental and gravimetric data presented was collected on 47mm Teflon filters by R&P Partisol samplers located at the Genesee and Wabamun ambient air monitoring stations. Samplers were analyzed for 65 metals by the Alberta Research Council.

The following is a summary of the metal analysis performed at the Genesee and Wabamun Ambient Monitoring Stations for 2004

				Genesee		Wabamun	
Elements	Method Detection Limit (µg/m ³)	Alberta Ambient Air Quality Objective (µg/m ³)		Number of samples detected above MDL (out of 24 samples collected)	2004 Average Genesee Ambient Station (µg/m ³)	Number of samples detected above MDL (out of 22 samples collected)	2004 Average Wabamun Ambient Station (µg/m ³)
PM _{2.5}	0.2	30			4.6		3.9
Particulate Matter less than 2.5 microns in diameter							
			Objectives from the Ontario Ministry of the Environment (µg/m³)		0.5 of the Method Detection Limit used for values below the MDL		0.5 of the Method Detection Limit used for values below the MDL
Al	Aluminum	0.0020833	193.00	23	0.04330	19	0.02221
Zn	Zinc	0.0004167	120.00	24	0.00441	22	0.00523
Ti	Titanium	0.0004167	120.00	20	0.00166	14	0.00090
Sr	Strontium	0.0003333	120.00	9	0.00037	3	0.00023
Mo	Molybdenum	0.0000417	120.00	6	0.00003	7	0.00003
Cu	Copper	0.0003333	50.00	7	0.00042	2	0.00018
P	Phosphorus	0.0041667	29.00	2	0.00235	1	0.00219
Sb	Antimony	0.0000083	25.00	24	0.00007	21	0.00010
Br	Bromine	0.0020833	20.00	1	0.00115	1	0.00112
Ba	Barium	0.0000417	10.00	22	0.00178	19	0.00108
Se	Selenium	0.0002083	10.00	1	0.00013	4	0.00018
Cl	Chlorine	0.1250000	10.00	0	0.06168	0	0.06246
Sn	Tin	0.0002083	10.00	0	0.00010	0	0.00010
Te	Tellurium	0.0000417	10.00	0	0.00002	0	0.00002
Pd	Palladium	0.0000208	10.00	0	0.00001	0	0.00001
Si	Silicon	0.0833333	5.00	15	0.25476	12	0.18584
Fe	Iron	0.0083333	4.00	21	0.02418	13	0.01499
Mn	Manganese	0.0004167	2.50	20	0.00077	11	0.00051
V	Vanadium	0.0000083	2.00	23	0.00012	21	0.00010
Pb	Lead	0.0001667	2.00	21	0.00060	18	0.00060
Cd	Cadmium	0.0000417	2.00	12	0.00005	14	0.00006
Ni	Nickel	0.0002083	2.00	5	0.00015	2	0.00013
Cr	Chromium	0.0002083	1.50	14	0.00032	17	0.00045
Ag	Silver	0.0000167	1.00	4	0.00002	0	0.00001
Hg	Mercury*	0.0000208	0.50	0	0.00001	0	0.00001
As	Arsenic	0.0000167	0.30	24	0.00015	21	0.00012
Co	Cobalt	0.0000417	0.10	4	0.00003	1	0.00005
Rb	Rubidium	0.0000083	none available	24	0.00009	21	0.00007
K	Potassium	0.0041667	none available	23	0.03423	20	0.03301
Na	Sodium	0.0041667	none available	23	0.02545	21	0.01944
Mg	Magnesium	0.0012500	none available	23	0.01034	20	0.00669
La	Lanthanum	0.0000042	none available	23	0.00004	18	0.00002
Cs	Cesium	0.0000004	none available	23	0.00000	20	0.00000
Tl	Thallium	0.0000004	none available	23	0.00000	20	0.00000
U	Uranium	0.0000004	none available	21	0.00000	16	0.00000
B	Boron	0.0006250	none available	19	0.00156	16	0.00122
I	Iodine	0.0001250	none available	19	0.00027	19	0.00027
Nd	Neodymium	0.0000083	none available	19	0.00002	9	0.00001
Bi	Bismuth	0.0000021	none available	19	0.00001	15	0.00001
Li	Lithium	0.0000417	none available	18	0.00010	16	0.00010
Ga	Gallium	0.0000083	none available	18	0.00003	13	0.00002
Y	Yttrium	0.0000042	none available	18	0.00001	11	0.00001
Ca	Calcium	0.0416667	none available	17	0.08726	9	0.05469
Zr	Zirconium	0.0000417	none available	16	0.00010	13	0.00009
Nb	Niobium	0.0000083	none available	16	0.00001	9	0.00001
Er	Erbium	0.0000004	none available	16	0.00000	8	0.00000
Yb	Ytterbium	0.0000004	none available	16	0.00000	9	0.00000
Gd	Gadolinium	0.0000017	none available	15	0.00000	8	0.00000
Pr	Praseodymium	0.0000042	none available	11	0.00001	5	0.00000
Ge	Germanium	0.0000042	none available	11	0.00001	7	0.00000
Eu	Europium	0.0000004	none available	10	0.00000	7	0.00000
Tb	Terbium	0.0000002	none available	10	0.00000	4	0.00000
Ce	Cerium	0.0000417	none available	9	0.00005	4	0.00003
Th	Thorium	0.0000033	none available	9	0.00001	5	0.00000
S	Sulphur	0.3333333	none available	7	0.25324	5	0.23556
Sm	Samarium	0.0000042	none available	7	0.00000	2	0.00000
Dy	Dysprosium	0.0000021	none available	7	0.00000	4	0.00000
Ta	Tantalum	0.0000042	none available	3	0.00000	0	0.00000
Be	Beryllium	0.0000042	none available	2	0.00000	1	0.00000
Ho	Holmium	0.0000013	none available	2	0.00000	0	0.00000
W	Tungsten	0.0000833	none available	1	0.00004	0	0.00004
Sc	Scandium	0.0002083	none available	0	0.00010	0	0.00010
Au	Gold	0.0000125	none available	0	0.00001	0	0.00001
Pt	Platinum	0.0000042	none available	0	0.00000	1	0.00000
In	Indium	0.0000013	none available	0	0.00000	0	0.00000

* Mercury is being analyzed at detection limits of 0.5 ng/filter (0.0005 µg/filter)