

# CDN Resource Laboratories Ltd.

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## ORE REFERENCE STANDARD: CDN-W-3

Recommended values and the "Between Lab" Two Standard Deviations

*Tungsten concentration:* 1.73 ± 0.19 %  
*Copper concentration* 0.44 ± 0.036%  
*Bismuth concentration* 2142 ± 210 ppm

**PREPARED BY:** CDN Resource Laboratories Ltd.  
**CERTIFIED BY:** Duncan Sanderson, B.Sc., Licensed Assayer of British Columbia  
**INDEPENDENT GEOCHEMIST:** Dr. Barry Smee., Ph.D., P. Geo.  
**DATE OF CERTIFICATION:** July 26, 2006

### **METHOD OF PREPARATION:**

Reject ore material was dried, crushed, pulverized and then passed through a 200 mesh screen. The +200 material was discarded. The -200 material was mixed for 5 days in a rotary mixer. After internal assaying to test for homogeneity, splits were taken and sent to 11 laboratories for round robin assaying.

### **ORIGIN OF REFERENCE MATERIAL:**

The ore was supplied from underground workings at North America Tungsten's Cantung mine in the NWT. It is high sulphide consisting primarily of pyrite containing chalcopyrite. Native gold and bismuth are associated with the chalcopyrite. The tungsten occurs as scheelite.

### **Approximate chemical composition:**

Standard CDN-W-3 is a high sulphide material with approximately 19.6% sulphur.  
Whole rock analysis as follows:

	Percent		Percent
SiO <sub>2</sub>	25.3	MgO	3.9
Al <sub>2</sub> O <sub>3</sub>	2.4	K <sub>2</sub> O	0.6
Fe <sub>2</sub> O <sub>3</sub>	49.5	TiO <sub>2</sub>	0.1
CaO	8.4	LOI	6.5
Na <sub>2</sub> O	0.8		

### **Statistical Procedures:**

The mean and standard deviation for all data was calculated. Outliers were defined as samples beyond the mean ± 2 Standard Deviations from all data. These outliers were removed from the data and a new mean and standard deviation was determined. This method is different from that used by Government agencies in that the actual "between-laboratory" standard deviation is used in the calculations. This produces upper and lower limits that reflect actual individual analyses rather than a grouped set of analyses. The limits can therefore be used to monitor accuracy from individual analyses, unlike the Certified Limits published on other standards.

**Results from round-robin assaying are presented on the following page:**

**Assay Procedures:** **W:** Variety of methods: a) fusion, XRF b) digestion, ICP  
c) fusion, ICP-MS d) fusion, ICP

**Cu, Bi:** 4-acid digestion, AA or ICP finish.

**STANDARD REFERENCE MATERIAL CDN-W-3**

	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11
	W %	W %	W %	W %	W %	W %	W %	W %	W %	W %	W %
	1.68	1.63	1.86	1.79	0.79	1.81	1.73	1.54	1.83	1.69	1.66
	1.66	1.64	1.91	1.77	0.80	1.76	1.79	1.75	1.83	1.67	1.65
	1.60	1.61	1.86	1.81	0.71	1.78	1.72	1.44	1.82	1.65	1.64
	1.65	1.62	1.88	1.76	0.72	1.72	1.76	1.61	1.83	1.71	1.60
	1.64	1.64	1.87	1.76	0.68	1.75	1.75	1.50	1.82	1.64	1.67
	1.62	1.64	1.90	1.75	0.78	1.76	1.86	1.51	1.80	1.66	1.71
	1.61	1.60	1.89	1.82	0.79	1.80	1.75	1.55	1.81	1.67	1.69
	1.76	1.64	1.91	1.77	0.77	1.77	1.79	1.58	1.82	1.65	1.67
	1.73	1.65	1.91	1.78	0.74	1.78	1.72	1.62	1.81	1.70	1.63
	1.69	1.62	1.78		0.75	1.75	1.88	1.53	1.82	1.65	1.67
Mean	1.66	1.63	1.88	1.78	0.75	1.77	1.78	1.56	1.82	1.67	1.66
Std. Dev.	0.055	0.017	0.041	0.025	0.042	0.023	0.057	0.089	0.010	0.024	0.033
% RSD	3.29	1.04	2.20	1.40	5.63	1.30	3.21	5.71	0.53	1.44	1.99
	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %
	0.409	0.44	0.411	0.46	0.438	0.452	0.464	0.464	0.40	0.454	0.442
	0.412	0.45	0.406	0.45	0.431	0.447	0.469	0.456	0.40	0.444	0.443
	0.408	0.44	0.410	0.45	0.434	0.444	0.452	0.450	0.39	0.437	0.449
	0.404	0.44	0.415	0.46	0.425	0.462	0.462	0.449	0.39	0.440	0.456
	0.411	0.45	0.407	0.46	0.429	0.457	0.462	0.439	0.39	0.444	0.441
	0.409	0.45	0.410	0.46	0.433	0.450	0.452	0.451	0.39	0.430	0.446
	0.406	0.44	0.407	0.46	0.430	0.454	0.459	0.457	0.39	0.456	0.439
	0.406	0.44	0.408	0.46	0.433	0.452	0.451	0.457	0.39	0.449	0.435
	0.407	0.44	0.411	0.45	0.436	0.449	0.446	0.447	0.39	0.460	0.449
	0.405	0.43	0.408	0.46	0.437	0.452	0.461	0.453	0.39	0.449	0.443
Mean	0.408	0.442	0.409	0.457	0.432	0.452	0.458	0.452	0.392	0.446	0.444
Std. Dev.	0.003	0.007	0.003	0.005	0.003	0.005	0.007	0.006	0.004	0.009	0.006
% RSD	0.66	1.51	0.67	1.09	0.79	1.19	1.58	1.27	0.90	2.08	1.41
	Bi ppm	Bi ppm	Bi ppm	Bi ppm	Bi ppm	Bi ppm	Bi ppm	Bi ppm	Bi ppm	Bi ppm	Bi ppm
	2100	2100	2120	2200	2510	2029	2300	2748	2300	2100	1970
	2100	2200	2170	2160	2620	1986	2300	2558	2300	2060	1956
	2200	2200	2180	2210	2480	2049	2200	2579	2300	2060	2000
	2200	2200	2220	2170	2600	2091	2300	2603	2300	2100	1995
	2100	2200	2270	2260	2560	2014	2200	2648	2300	2140	1960
	2100	2200	2240	2190	2480	2011	2100	2530	2300	2080	1971
	2100	2200	2090	2250	2540	1990	2200	2536	2300	2120	1946
	2100	2200	2150	2240	2550	2026	2200	2511	2300	2120	1969
	2100	2200	2090	2210	2660	2018	2100	2661	2300	2200	1978
	2100	2200	2030	2150	2620	2013	2200	2567	2300	2110	1945
Mean	2120	2190	2156	2204	2556	2023	2210	2594	2300	2109	1969
Std. Dev.	44.1	0.0	78.6	40.0	63.8	31.8	70.7	51.8	0.0	43.6	19.5
% RSD	2.08	0.00	3.64	1.82	2.50	1.57	3.20	2.00	0.00	2.07	0.99

**NOTE:** 1). Cu data from Lab 9 was removed from the calculations for failing the “t” test.  
2). Bi data from Lab 5 and Lab 8 was removed from the calculations for failing the “t” test.

**STANDARD REFERENCE MATERIAL CDN-W-3**

**Participating Laboratories:**

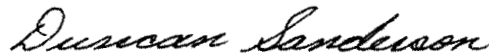
(not in same order as listed in table of results)

Acme Analytical Laboratories Ltd., Vancouver  
Assayers Canada Ltd., Vancouver  
ALS Chemex Laboratories, North Vancouver  
EcoTech Laboratory, Kamloops, B.C.  
Genalysis Laboratory Services Pty. Ltd., Australia  
GTK Laboratory, Finland  
International Plasma Labs. Ltd., Vancouver  
OMAC Laboratories Ltd., Ireland  
SGS-XRAL, Toronto  
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TSL Laboratories, Saskatoon

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Certified by



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Duncan Sanderson, B.Sc.  
Licensed Assayer of British Columbia

Geochemist



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Dr. Barry Smee, Ph.D., P. Geo.