

# CDN Resource Laboratories Ltd.

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## REFERENCE MATERIAL: CDN-CM-43

Recommended values and the “Between Lab” Two Standard Deviations

Gold	0.309 g/t ± 0.040 g/t	Certified value**	30 g FA, instrumental
Total Copper	0.233% ± 0.012%	Certified value	4 Acid / ICP
Total Iron	5.81% ± 0.42%	Certified value	4 Acid / ICP

### \*\*RSD higher than a normal certified value

**Note:** Standards with an RSD of near or less than 5% are certified; RSD's of between 5% and 15% are Provisional; RSD's over 15% are Indicated. Provisional and Indicated values cannot be used to monitor accuracy with a high degree of certainty.

**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:** March 13, 2018

### ORIGIN OF REFERENCE MATERIAL:

Standard CDN-CM-43 was prepared from Imperial Metal's Mount Polley mine low grade ore.

The Mount Polley Intrusive Complex (MPIC) hosts the Mount Polley copper-gold porphyry deposit. It consists of alkalic, marginally silica-undersaturated intrusions, and magmatic-hydrothermal breccias. Mineralization occurs in almost all constituent rock types of the MPIC. Nearly all economic mineralization is in breccias, or in mineralized stockwork veins in adjacent wall rock intrusion. As is typical of alkalic porphyry copper systems, mineralization at Mount Polley formed in a number of distinct zones rather than as a simple zoned deposit.

### METHOD OF PREPARATION:

Reject ore material was dried, crushed, pulverized and then passed through a 270-mesh screen. The +270 material was discarded. The -270 material was mixed for 5 days in a double-cone mixer. Splits were taken and sent to 15 commercial laboratories for round robin assaying for copper and iron and 20 commercial laboratories for round robin assaying for gold.

### Approximate chemical composition (from whole rock analysis) is as follows:

	Percent		Percent
SiO <sub>2</sub>	54.9	Na <sub>2</sub> O	4.1
Al <sub>2</sub> O <sub>3</sub>	16.7	MgO	2.2
Fe <sub>2</sub> O <sub>3</sub>	8.4	K <sub>2</sub> O	5.8
CaO	4.1	Total S	0.3
TiO <sub>2</sub>	0.5	LOI	2.4

**Statistical Procedures:**

The final limits were calculated after first determining if all data was compatible within a spread normally expected for similar analytical methods done by reputable laboratories. Data from any one laboratory was removed from further calculations when the mean of all analyses from that laboratory failed a t test of the global means of the other laboratories. The means and standard deviations were calculated using all remaining data. Any analysis that fell outside of the mean  $\pm 2$  standard deviations was removed from the ensuing data base. The mean and standard deviations were again calculated using the remaining data. 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 Confidence Limits published on other standards.

**Assay Procedures:**

Au was analyzed by twenty laboratories and Fe and Cu were analyzed by fourteen laboratories.

**Au:** 30 g sample fire assay pre-concentration, AA or ICP finish.

**Cu, Fe:** 4-acid digestion, instrument finish.

**Results from round-robin assaying:**

Instrumental	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11	Lab 12	Lab 13	Lab 14	Lab 15	Lab 16	Lab 17	Lab 18	Lab 19	Lab 20
	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t
CM-43-1	0.277	0.289	0.302	0.300	0.270	0.293	0.284	0.317	0.310	0.309	0.319	0.314	0.337	0.338	0.302	0.299	0.300	0.305	0.332	0.308
CM-43-2	0.287	0.286	0.283	0.342	0.275	0.293	0.367	0.290	0.311	0.314	0.338	0.319	0.313	0.338	0.319	0.326	0.301	0.302	0.346	0.303
CM-43-3	0.275	0.298	0.325	0.340	0.274	0.343	0.337	0.306	0.269	0.282	0.318	0.307	0.287	0.377	0.303	0.305	0.287	0.275	0.266	0.303
CM-43-4	0.271	0.272	0.303	0.297	0.271	0.297	0.310	0.292	0.333	0.315	0.321	0.315	0.291	0.360	0.303	0.324	0.286	0.298	0.297	0.292
CM-43-5	0.304	0.276	0.291	0.349	0.322	0.315	0.350	0.335	0.325	0.326	0.317	0.309	0.294	0.338	0.308	0.324	0.294	0.284	0.296	0.330
CM-43-6	0.286	0.307	0.344	0.293	0.262	0.309	0.324	0.302	0.310	0.319	0.295	0.322	0.337	0.342	0.317	0.306	0.321	0.311	0.322	0.285
CM-43-7	0.242	0.286	0.312	0.317	0.274	0.303	0.291	0.317	0.289	0.301	0.322	0.307	0.306	0.338	0.317	0.306	0.320	0.291	0.272	0.316
CM-43-8	0.265	0.263	0.309	0.296	0.263	0.340	0.355	0.282	0.300	0.305	0.290	0.319	0.378	0.345	0.310	0.297	0.309	0.294	0.314	0.313
CM-43-9	0.378	0.296	0.327	0.326	0.274	0.296	0.305	0.304	0.299	0.307	0.293	0.326	0.338	0.348	0.312	0.317	0.315	0.311	0.318	0.313
CM-43-10	0.327	0.295	0.282	0.290	0.266	0.314	0.316	0.276	0.282	0.302	0.306	0.321	0.386	0.338	0.310	0.312	0.284	0.284	0.322	0.303
Mean	0.287	0.286	0.311	0.318	0.276	0.310	0.325	0.305	0.305	0.309	0.313	0.315	0.320	0.347	0.310	0.312	0.304	0.297	0.307	0.307
Std. Dev.	0.038	0.014	0.019	0.022	0.018	0.019	0.029	0.016	0.019	0.013	0.016	0.007	0.030	0.013	0.007	0.011	0.013	0.012	0.027	0.013
% RSD	13.25	4.82	6.10	7.00	6.47	6.26	9.04	5.34	6.22	4.07	5.18	2.14	9.32	3.81	2.13	3.63	4.40	4.09	8.67	4.35
Instrumental	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11	Lab 12	Lab 13	Lab 14	Lab 15	Lab 16	Lab 17	Lab 18	Lab 19	Lab 20
	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %	Cu %
CM-43-1	0.236	0.229	0.237			0.232		0.232	0.234			0.232	0.236	0.234	0.227	0.223	0.248	0.221		0.213
CM-43-2	0.232	0.223	0.238			0.228		0.242	0.238			0.231	0.234	0.233	0.227	0.234	0.242	0.223		0.219
CM-43-3	0.235	0.227	0.238			0.232		0.244	0.241			0.231	0.236	0.235	0.227	0.233	0.246	0.221		0.216
CM-43-4	0.237	0.229	0.236			0.229		0.241	0.236			0.229	0.237	0.234	0.229	0.230	0.240	0.223		0.218
CM-43-5	0.236	0.230	0.235			0.226		0.238	0.232			0.227	0.235	0.231	0.227	0.236	0.239	0.223		0.216
CM-43-6	0.239	0.228	0.240			0.243		0.235	0.239			0.228	0.235	0.232	0.225	0.237	0.245	0.230		0.217
CM-43-7	0.240	0.232	0.237			0.239		0.244	0.235			0.226	0.235	0.235	0.223	0.232	0.243	0.226		0.212
CM-43-8	0.241	0.227	0.239			0.227		0.242	0.237			0.224	0.237	0.234	0.225	0.229	0.237	0.225		0.218
CM-43-9	0.234	0.234	0.235			0.223		0.245	0.238			0.224	0.235	0.233	0.223	0.225	0.241	0.226		0.216
CM-43-10	0.232		0.236			0.216		0.241	0.239			0.226	0.235	0.235	0.226	0.232	0.251	0.231		0.218
Mean	0.237	0.229	0.237			0.231		0.240	0.237			0.228	0.235	0.233	0.226	0.231	0.242	0.224		0.216
Std. Dev.	0.003	0.003	0.002			0.006		0.004	0.003			0.003	0.001	0.001	0.002	0.005	0.004	0.003		0.002
% RSD	1.23	1.38	0.72			2.77		1.85	1.16			1.32	0.36	0.49	0.91	2.05	1.45	1.28		1.02

**Notes:** Au results from Lab 5 were removed for failing the t test.  
Cu results from Lab 20 were removed for failing the t test.

**Results from round-robin assaying-Continue:**

Instrumental	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11	Lab 12	Lab 13	Lab 14	Lab 15	Lab 16	Lab 17	Lab 18	Lab 19	Lab 20
	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %	Fe %
CM-43-1	5.84	6.00	5.91			5.33		5.66	6.14			5.91	5.43	5.51	6.07	5.45	5.81	5.70		5.15
CM-43-2	5.73	5.89	5.91			5.91		5.76	6.12			5.98	5.43	5.61	6.09	5.55	5.81	5.71		5.11
CM-43-3	5.91	6.00	5.87			5.99		5.86	6.22			5.94	5.44	5.64	6.07	5.49	5.71	5.71		5.15
CM-43-4	5.95	6.09	5.85			5.93		5.70	6.12			5.81	5.41	5.80	6.04	5.47	5.67	5.66		5.24
CM-43-5	5.83	6.07	5.87			5.83		5.76	6.05			5.76	5.39	5.61	6.06	5.49	5.80	5.77		5.19
CM-43-6	6.09	6.02	5.88			5.64		5.69	6.19			5.87	5.46	5.65	6.01	5.69	5.89	5.76		5.24
CM-43-7	6.06	6.13	5.85			5.43		5.85	6.09			5.91	5.38	5.74	6.03	5.50	5.73	5.62		5.14
CM-43-8	5.81	6.01	5.95			5.82		5.84	6.20			5.86	5.43	5.53	5.96	5.67	5.63	5.88		5.29
CM-43-9	5.92	6.08	5.82			5.74		5.80	6.15			5.89	5.41	5.57	5.94	5.66	5.76	5.82		5.23
CM-43-10	5.82		5.89			5.57		5.77	6.17			5.94	5.39	5.58	5.91	5.62	5.96	5.76		5.20
Mean	5.90	6.03	5.88			5.74		5.77	6.14			5.88	5.42	5.63	6.03	5.55	5.76	5.74		5.19
Std. Dev.	0.117	0.070	0.039			0.228		0.074	0.055			0.066	0.025	0.095	0.051	0.095	0.080	0.080		0.060
% RSD	1.99	1.17	0.67			3.98		1.28	0.89			1.13	0.46	1.69	0.85	1.71	1.40	1.40		1.15

**Notes:** Fe results from Lab 20 were removed for failing the t test.

**Participating Laboratories:** (not in same order as table of assays)

Activation Laboratories, Ancaster, Ontario, Canada  
 Activation Laboratories, Thunder Bay, Ontario, Canada  
 Activation Laboratories, Kamloops, BC, Canada  
 AGAT Labs, Mississauga, Ontario, Canada  
 ALS Canada, North Vancouver, BC, Canada  
 ALS, Loughrea, Ireland  
 ALS, Lima, Peru  
 ALS, Perth, Australia  
 ALS, Reno, USA  
 Argetest, Turkey  
 Bureau Veritas, Vancouver, BC, Canada  
 Bureau Veritas, Perth, Australia  
 Certimin S.A., Lima, Peru  
 MS Analytical, Langley, BC, Canada  
 Mount Polley Internal Lab, BC, Canada  
 SGS, Lakefield, Ontario, Canada  
 SGS, Lima, Peru  
 SGS, Vancouver, BC, Canada  
 Skyline, Tucson, AZ, USA  
 TSL Laboratories Ltd., Saskatoon, SK, Canada


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This certificate and the reference material described in it have been prepared with due care and attention. However CDN Resource Laboratories Ltd. or Barry Smee accept no liability for any decisions or actions taken following the use of the reference material. Our liability is limited solely to the cost of the reference material.

Certified by

  
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Duncan Sanderson, Certified Assayer of B.C.

Geochemist

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