

# CDN Resource Laboratories Ltd.

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## REFERENCE MATERIAL: CDN-ME-1804

Recommended values and the “Between Lab” Two Standard Deviations

Gold	1.602 gt	± 0.092 gt	30 g FA, instrumental	Certified value
Silver	137 ppm	± 7 ppm	4-Acid / ICP	Certified value
Copper	0.402 %	± 0.016 %	4 Acid / ICP	Certified value
Lead	4.33 %	± 0.19 %	4 Acid / ICP	Certified value
Zinc	9.94 %	± 0.44 %	4 Acid / ICP	Certified value
Iron	31.26 %	± 1.25 %	4 Acid / ICP	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:** June 6, 2018

### ORIGIN OF REFERENCE MATERIAL:

Standard CDN-ME-1804 was prepared from ore received from Trevali's Caribou deposit. The Caribou deposit is an advanced stage lead-zinc deposit is located 50 kilometres west of Bathurst, New Brunswick, Canada.

The Caribou deposit is a volcanic hosted massive sulphide deposit (VMS). The VMS deposits typically form lenses of polymetallic massive sulphide. Most deposits are zoned vertically and laterally from a high-temperature, vent-proximal, Cu-Co-Bi-rich veined and brecciated core to vent-distal Zn-Pb-Ag-rich hydrothermal sediments. The vent complex is commonly underlain by a highly deformed sulphide stringer zone that extends hundreds of metres beneath deposits and consists of veins and impregnations of sulphides, silicates, and carbonates that cut chloritized and sericitized volcanic and sedimentary rocks.

### 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.

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

	Percent		Percent
SiO <sub>2</sub>	8.2	Na <sub>2</sub> O	<0.1
Al <sub>2</sub> O <sub>3</sub>	1.4	MgO	1.6
Fe <sub>2</sub> O <sub>3</sub>	44.7	K <sub>2</sub> O	0.3
CaO	1.2	TiO <sub>2</sub>	<0.1
MnO	0.4	LOI	24.5
S	34.5	C	1.0

**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:** 30 gr. fire assay pre-concentration, AA or ICP finish.  
**Ag, Cu, Pb, Zn, Fe:** 4-acid digestion, AA or ICP finish.

**Results from round-robin assaying:**

Fire Assay	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
	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
ME-1804-1	1.59	1.53	1.615	1.580	1.65	1.55	1.685	1.625	1.731	1.610	1.602	1.654	1.539	1.63	1.590
ME-1804-2	1.59	1.58	1.600	1.580	1.60	1.63	1.658	1.607	1.734	1.594	1.634	1.601	1.581	1.62	1.545
ME-1804-3	1.59	1.54	1.620	1.600	1.56	1.47	1.701	1.625	1.696	1.599	1.680	1.628	1.553	1.62	1.595
ME-1804-4	1.57	1.47	1.605	1.560	1.60	1.53	1.710	1.632	1.668	1.615	1.589	1.634	1.568	1.65	1.625
ME-1804-5	1.54	1.46	1.600	1.585	1.57	1.52	1.739	1.594	1.668	1.602	1.670	1.620	1.594	1.62	1.630
ME-1804-6	1.56	1.54	1.580	1.545	1.57	1.46	1.717	1.601	1.689	1.593	1.653	1.617	1.554	1.65	1.625
ME-1804-7	1.60	1.56	1.615	1.585	1.60	1.54	1.751	1.597	1.748	1.597	1.650	1.607	1.545	1.61	1.565
ME-1804-8	1.59	1.55	1.605	1.565	1.55	1.48	1.695	1.513	1.720	1.593	1.636	1.596	1.522	1.59	1.605
ME-1804-9	1.57	1.47	1.605	1.630	1.60	1.51	1.733	1.608	1.768	1.622	1.628	1.620	1.514	1.66	1.590
ME-1804-10	1.62	1.57	1.600	1.570	1.54	1.39	1.725	1.626	1.753	1.604	1.622	1.652	1.535	1.60	1.605
Mean	1.58	1.53	1.605	1.580	1.58	1.51	1.711	1.603	1.718	1.603	1.636	1.623	1.551	1.62	1.598
Std. Dev.	0.023	0.044	0.011	0.023	0.032	0.064	0.028	0.034	0.036	0.010	0.028	0.020	0.025	0.023	0.027
% RSD	1.42	2.90	0.70	1.48	2.04	4.24	1.62	2.14	2.07	0.62	1.73	1.21	1.62	1.40	1.70

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
	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t
ME-1804-1	131	135	135	145	136	135	132.0	148	141	140	134.8	135.9	131	138	139
ME-1804-2	134	130	139	137	138	139	131.6	148	140	141	136.1	136.2	129	145	138
ME-1804-3	131	135	136	133	138	140	132.6	147	139	138	134.7	134.8	131	140	135
ME-1804-4	132	137	138	137	134	142	133.6	147	141	138	137.0	135.5	127	140	136
ME-1804-5	131	136	139	137	134	143	134.8	1460	138	139	133.8	135.6	127	144	138
ME-1804-6	132	134	143	140	133	140	134.5	150	140	139	135.0	134.3	129	145	138
ME-1804-7	132	139	144	137	137	146	135.6	150	139	141	133.3	133.6	129	142	139
ME-1804-8	138	137	141	143	139	143	131.3	150	141	139	133.9	137.3	129	141	137
ME-1804-9	136	137	144	132	137	143	132.0	146	140	139	135.3	136.4	130	140	136
ME-1804-10	133	138	143	137	135	137	131.6	148	139	138	133.6	138.7	127	142	136
Mean	133	136	140	138	136	141	133.0	148	140	139	134.7	135.8	129	142	137
Std. Dev.	2.357	2.530	3.293	3.994	2.025	3.259	1.548	1.563	1.033	1.135	1.169	1.468	1.524	2.359	1.398
% RSD	1.77	1.86	2.35	2.90	1.49	2.31	1.16	1.06	0.74	0.82	0.87	1.08	1.18	1.67	1.02

**Notes:** Ag results from Lab 8 and Lab 13 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
	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu
ME-1804-1	0.404	0.399	0.390	0.411	0.397	0.378	0.410	0.430	0.409	0.408	0.404	0.408	0.394	0.390	0.402
ME-1804-2	0.398	0.384	0.393	0.411	0.402	0.391	0.410	0.427	0.415	0.411	0.409	0.405	0.390	0.390	0.398
ME-1804-3	0.408	0.400	0.388	0.399	0.397	0.400	0.410	0.429	0.410	0.406	0.408	0.407	0.390	0.390	0.394
ME-1804-4	0.406	0.405	0.393	0.401	0.389	0.395	0.410	0.431	0.413	0.411	0.402	0.406	0.384	0.400	0.406
ME-1804-5	0.406	0.406	0.402	0.409	0.390	0.393	0.410	0.426	0.406	0.411	0.401	0.409	0.386	0.400	0.393
ME-1804-6	0.399	0.401	0.407	0.407	0.386	0.378	0.410	0.428	0.413	0.405	0.406	0.403	0.394	0.390	0.399
ME-1804-7	0.411	0.406	0.408	0.398	0.400	0.386	0.400	0.430	0.411	0.411	0.404	0.403	0.391	0.400	0.405
ME-1804-8	0.413	0.411	0.401	0.417	0.401	0.397	0.410	0.424	0.410	0.409	0.404	0.402	0.391	0.390	0.402
ME-1804-9	0.420	0.405	0.407	0.408	0.394	0.387	0.410	0.423	0.411	0.404	0.411	0.404	0.392	0.390	0.398
ME-1804-10	0.410	0.417	0.403	0.403	0.389	0.390	0.410	0.426	0.407	0.411	0.408	0.401	0.388	0.400	0.393
Mean	0.408	0.403	0.399	0.406	0.395	0.390	0.409	0.427	0.411	0.409	0.406	0.405	0.390	0.394	0.399
Std. Dev.	0.007	0.009	0.008	0.006	0.006	0.007	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.005	0.005
% RSD	1.60	2.15	1.89	1.49	1.45	1.90	0.77	0.63	0.67	0.68	0.78	0.66	0.83	1.31	1.19
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
	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb
ME-1804-1	4.09	4.28	4.27	4.45	4.31	4.20	4.55	4.44	4.42	4.37	4.39	4.39	4.38	4.13	4.37
ME-1804-2	4.09	4.18	4.32	4.26	4.38	4.48	4.52	4.49	4.44	4.42	4.44	4.35	4.37	4.18	4.36
ME-1804-3	4.19	4.26	4.22	4.15	4.31	4.46	4.56	4.44	4.38	4.41	4.43	4.40	4.36	4.16	4.31
ME-1804-4	4.17	4.26	4.27	4.19	4.23	4.46	4.56	4.42	4.42	4.41	4.39	4.36	4.45	4.12	4.37
ME-1804-5	4.21	4.28	4.38	4.21	4.24	4.39	4.57	4.46	4.39	4.39	4.33	4.38	4.29	4.21	4.30
ME-1804-6	4.26	4.28	4.45	4.25	4.21	4.35	4.58	4.51	4.41	4.39	4.38	4.28	4.33	4.07	4.33
ME-1804-7	4.24	4.14	4.47	4.18	4.35	4.43	4.51	4.54	4.41	4.38	4.38	4.31	4.37	4.17	4.35
ME-1804-8	4.21	4.20	4.40	4.36	4.41	4.37	4.54	4.45	4.38	4.38	4.38	4.29	4.24	4.20	4.35
ME-1804-9	4.22	4.27	4.45	4.08	4.31	4.37	4.55	4.40	4.38	4.36	4.41	4.36	4.22	4.13	4.32
ME-1804-10	4.24	4.15	4.42	4.16	4.26	4.30	4.54	4.37	4.40	4.40	4.40	4.26	4.23	4.18	4.30
Mean	4.19	4.23	4.36	4.23	4.30	4.38	4.55	4.45	4.40	4.39	4.39	4.34	4.32	4.15	4.34
Std. Dev.	0.060	0.057	0.089	0.108	0.066	0.085	0.021	0.051	0.021	0.019	0.030	0.049	0.076	0.042	0.028
% RSD	1.42	1.34	2.04	2.55	1.54	1.94	0.47	1.14	0.47	0.44	0.68	1.14	1.77	1.02	0.64
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
	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn
ME-1804-1	9.81	9.91	9.85	10.30	9.72	9.85	10.25	10.65	9.57	9.73	9.71	10.01	10.10	10.00	9.93
ME-1804-2	9.76	9.75	9.96	10.35	9.84	9.84	10.30	10.53	9.57	9.89	9.80	9.99	10.10	10.20	9.89
ME-1804-3	9.83	9.98	9.81	10.05	9.72	9.82	10.37	10.62	9.53	9.84	9.78	10.04	10.10	10.20	9.77
ME-1804-4	9.85	10.10	9.89	10.10	9.54	10.00	10.25	10.70	9.60	9.88	9.73	10.10	10.10	10.20	9.98
ME-1804-5	9.82	10.00	10.15	10.30	9.59	9.85	10.30	10.56	9.51	9.91	9.66	10.06	9.96	10.30	9.73
ME-1804-6	9.74	9.97	10.30	10.25	9.50	9.75	10.43	10.60	9.60	9.74	9.70	10.20	9.97	9.91	9.90
ME-1804-7	9.87	10.10	10.30	10.05	9.70	9.75	10.19	10.61	9.65	9.84	9.70	9.95	10.10	10.30	10.00
ME-1804-8	9.90	10.10	10.15	10.50	9.80	9.75	10.31	10.55	9.59	9.78	9.66	10.15	9.93	10.00	9.94
ME-1804-9	10.10	9.98	10.30	10.25	9.62	9.75	10.23	10.49	9.62	9.71	9.74	10.22	9.92	10.00	9.85
ME-1804-10	9.95	10.20	10.20	10.15	9.73	9.79	10.28	10.52	9.59	9.84	9.73	10.07	9.83	10.20	9.76
Mean	9.86	10.01	10.09	10.23	9.68	9.81	10.29	10.58	9.58	9.82	9.72	10.08	10.01	10.13	9.87
Std. Dev.	0.104	0.125	0.196	0.144	0.110	0.078	0.070	0.065	0.041	0.071	0.045	0.089	0.101	0.140	0.095
% RSD	1.05	1.25	1.94	1.41	1.14	0.80	0.68	0.61	0.43	0.73	0.46	0.88	1.01	1.38	0.96

**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
	% Fe	% Fe	% Fe	% Fe	% Fe	% Fe	% Fe	% Fe	% Fe	% Fe	% Fe	% Fe	% Fe	% Fe	% Fe
ME-1804-1	30.5	30.8	29.8		30.9	30.5	33.5	33.0	>30.0	32.0	31.5	36.7	31.1	>30.0	31.7
ME-1804-2	30.5	30.1	30.2		31.3	31.2	33.2	32.7	>30.0	32.3	31.6	36.2	31.1	>30.0	31.5
ME-1804-3	30.8	30.8	29.6		31.0	30.8	33.8	33.0	>30.0	32.2	31.7	36.7	31.3	>30.0	31.5
ME-1804-4	30.8	31.3	30.0		30.4	31.7	33.5	33.3	>30.0	32.3	31.6	36.7	31.1	>30.0	31.7
ME-1804-5	30.8	31.0	30.6		30.4	31.2	33.5	32.8	>30.0	32.1	31.1	36.7	30.9	>30.0	31.2
ME-1804-6	30.6	30.8	31.2		30.1	31.6	33.7	33.0	>30.0	32.0	31.4	36.4	30.9	>30.0	31.4
ME-1804-7	31.1	31.2	31.1		31.2	30.9	33.4	33.1	>30.0	32.0	31.4	36.3	31.1	>30.0	31.7
ME-1804-8	31.2	31.3	30.8		31.5	30.8	33.4	32.8	>30.0	31.9	31.2	36.1	30.4	>30.0	31.6
ME-1804-9	31.5	31.1	31.2		30.9	31.0	33.6	32.6	>30.0	31.9	31.4	36.3	30.7	>30.0	31.6
ME-1804-10	31.5	31.9	30.9		30.6	30.7	33.2	32.8	>30.0	32.1	31.4	36.3	30.2	>30.0	31.3
Mean	30.9	31.0	30.5		30.8	31.0	33.5	32.9		32.1	31.4	36.4	30.9		31.5
Std. Dev.	0.377	0.467	0.599		0.447	0.386	0.178	0.200		0.141	0.168	0.233	0.349		0.175
% RSD	1.22	1.50	1.96		1.45	1.24	0.53	0.61		0.44	0.53	0.64	1.13		0.56

**Notes:** Cu results from Lab 8 were removed for failing the t test.  
Pb results from Lab 7 were removed for failing the t test.  
Zn results from Lab 8 were removed for failing the t test.  
Fe results from Lab 7 and Lab 12 were removed for failing the t test.  
Fe values were higher than Lab 9 and Lab 14 detection limit.  
Lab 4 did not report Fe values.

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

Activation Laboratories, Ancaster, Ontario, Canada	Bureau Veritas, Vancouver, BC, Canada
Activation Laboratories, Thunder Bay, Ontario, Canada	Certimin S.A., Lima, Peru
ALS Canada, North Vancouver, BC, Canada	MS Analytical, Langley, BC, Canada
ALS, Loughrea, Ireland	SGS, Vancouver, BC, Canada
ALS, Lima, Peru	SGS, Lima, Peru
ALS, Perth Australia	SGS, Lakefield, Ontario, Canada
Bureau Veritas, Perth, Australia	TSL Laboratories Ltd., Saskatoon, SK, Canada
Skyline Assayers & Laboratories, AZ, USA	

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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



Duncan Sanderson, Certified Assayer of B.C.

Geochemist



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