

CDN Resource Laboratories Ltd.

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REFERENCE MATERIAL: CDN-ME-1801

Recommended values and the “Between Lab” Two Standard Deviations

Gold	0.911 gt	±	0.058 gt	30 g FA, instrumental	Certified value
Silver	108.0 ppm	±	6.0 ppm	4-Acid / ICP	Certified value
Copper	0.284 %	±	0.010 %	4 Acid / ICP	Certified value
Lead	3.08 %	±	0.10 %	4 Acid / ICP	Certified value
Zinc	7.43 %	±	0.30 %	4 Acid / ICP	Certified value
Iron	29.47 %	±	1.08 %	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-1801 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 ₂	16.5	Na ₂ O	<0.1
Al ₂ O ₃	2.7	MgO	2.2
Fe ₂ O ₃	41.3	K ₂ O	0.4
CaO	0.7	TiO ₂	0.1
MnO	0.3	LOI	22.8
S	33.1	C	0.5

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 ± 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-1801-1	0.895	0.989	0.914	0.941	0.890	0.892	1.018	0.921	1.037	0.960	0.922	0.929	0.857	0.926	0.917
ME-1801-2	0.953	0.899	0.930	0.863	0.890	0.891	0.895	0.906	1.025	0.945	0.929	0.905	0.865	0.926	0.889
ME-1801-3	0.914	0.897	0.949	0.907	0.920	0.935	0.992	0.888	0.980	0.961	0.944	0.908	0.845	0.904	0.901
ME-1801-4	0.956	0.898	0.903	0.916	0.860	0.872	0.914	0.908	0.995	0.945	0.935	0.908	0.872	0.918	0.892
ME-1801-5	0.944	0.880	0.899	0.899	0.870	0.851	0.936	0.903	0.993	0.960	0.944	0.910	0.848	0.902	0.884
ME-1801-6	0.971	0.872	0.908	0.906	0.910	0.861	0.921	0.912	0.982	0.975	0.934	0.919	0.851	0.911	0.924
ME-1801-7	0.943	0.928	0.917	0.928	0.890	0.896	0.918	0.981	1.004	0.962	0.922	0.904	0.880	0.928	0.901
ME-1801-8	0.917	0.852	0.919	0.919	0.870	0.887	1.028	0.893	0.972	0.976	0.938	0.942	0.893	0.936	0.937
ME-1801-9	0.916	0.888	0.894	0.897	0.890	0.885	0.929	0.929	1.011	0.944	0.940	0.903	0.853	0.928	0.920
ME-1801-10	0.908	0.896	0.898	0.910	0.910	0.885	0.920	0.912	1.024	0.975	0.909	0.932	0.849	0.939	0.920
Mean	0.932	0.900	0.913	0.909	0.890	0.886	0.947	0.915	1.002	0.960	0.932	0.916	0.861	0.922	0.909
Std. Dev.	0.025	0.037	0.017	0.021	0.019	0.023	0.047	0.026	0.022	0.013	0.011	0.014	0.016	0.013	0.017
% RSD	2.67	4.12	1.84	2.29	2.18	2.56	4.99	2.84	2.16	1.31	1.21	1.50	1.84	1.38	1.93

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-1801-1	104	107	108	106	110	114	105.1	117	111	108	108.0	110.8		113.0	108.0
ME-1801-2	103	108	107	107	112	114	107.4	116	111	108	107.9	109.6	103	111.0	107.0
ME-1801-3	102	109	106	107	112	122	107.0	118	114	110	107.8	110.2	103	110.0	106.0
ME-1801-4	105	106	109	108	111	111	107.0	118	111	109	107.2	108.6	103	110.0	107.0
ME-1801-5	103	105	107	108	110	120	105.6	118	114	111	107.8	110.6	102	110.0	108.0
ME-1801-6	104	106	108	108	111	113	106.5	118	112	109	107.0	109.3	102	111.0	109.0
ME-1801-7	102	106	109	107	108	109	105.3	117	111	112	106.6	108.3	100	110.0	110.0
ME-1801-8	102	105	106	107	112	115	107.5	122	115	110	106.6	111.1	104	109.0	109.0
ME-1801-9	105	105	107	112	109	114	105.2	116	111	106	107.2	110.1	102	111.0	109.0
ME-1801-10	101	108	106	106	110	111	103.2	115	113	106	106.0	109.0	100	112.0	110.0
Mean	103.1	106.5	107.3	107.6	110.5	114.3	105.98	117.5	112.3	108.9	107.21	109.76	102.1	110.70	108.30
Std. Dev.	1.370	1.434	1.160	1.713	1.354	4.001	1.350	1.900	1.567	1.969	0.671	0.954	1.364	1.160	1.337
% RSD	1.33	1.35	1.08	1.59	1.23	3.50	1.27	1.62	1.40	1.81	0.63	0.87	1.34	1.05	1.23

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-1801-1	0.282	0.283	0.275	0.288	0.289	0.278	0.290	0.299	0.291	0.288	0.290	0.288		0.280	0.281
ME-1801-2	0.283	0.296	0.273	0.288	0.292	0.275	0.280	0.301	0.289	0.284	0.292	0.289	0.285	0.290	0.278
ME-1801-3	0.281	0.288	0.274	0.284	0.294	0.299	0.280	0.307	0.291	0.285	0.289	0.287	0.285	0.280	0.275
ME-1801-4	0.289	0.275	0.274	0.281	0.291	0.283	0.290	0.302	0.290	0.286	0.290	0.286	0.284	0.270	0.280
ME-1801-5	0.284	0.279	0.278	0.286	0.284	0.281	0.290	0.304	0.292	0.287	0.291	0.291	0.286	0.280	0.277
ME-1801-6	0.281	0.276	0.277	0.281	0.292	0.275	0.290	0.302	0.287	0.286	0.293	0.288	0.283	0.280	0.280
ME-1801-7	0.281	0.280	0.271	0.285	0.293	0.278	0.290	0.301	0.288	0.287	0.287	0.285	0.282	0.280	0.287
ME-1801-8	0.278	0.280	0.274	0.277	0.288	0.276	0.290	0.299	0.293	0.286	0.286	0.290	0.285	0.280	0.280
ME-1801-9	0.281	0.278	0.274	0.285	0.284	0.286	0.290	0.305	0.289	0.289	0.294	0.293	0.282	0.280	0.280
ME-1801-10	0.280	0.274	0.274	0.279	0.286	0.278	0.280	0.304	0.287	0.285	0.288	0.297	0.281	0.280	0.278
Mean	0.282	0.281	0.274	0.283	0.289	0.281	0.287	0.302	0.290	0.286	0.290	0.289	0.284	0.280	0.280
Std. Dev.	0.003	0.007	0.002	0.004	0.004	0.007	0.005	0.003	0.002	0.001	0.003	0.004	0.002	0.005	0.003
% RSD	1.04	2.38	0.71	1.32	1.27	2.59	1.68	0.86	0.71	0.52	0.89	1.23	0.61	1.68	1.13
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-1801-1	2.90	3.00	2.99	2.95	3.08	3.07	3.15	3.10	3.10	3.09	3.12	3.04		3.07	3.03
ME-1801-2	2.90	3.01	2.93	2.93	3.14	3.09	3.13	3.13	3.11	3.07	3.12	3.02	3.06	3.10	3.01
ME-1801-3	2.94	3.03	2.97	2.94	3.15	3.09	3.13	3.16	3.11	3.07	3.10	3.03	3.07	3.04	2.98
ME-1801-4	2.87	3.05	2.99	2.90	3.13	3.06	3.18	3.13	3.11	3.06	3.11	3.08	3.04	3.04	3.03
ME-1801-5	2.94	3.10	3.01	2.93	3.08	3.10	3.17	3.15	3.13	3.08	3.10	3.04	3.07	3.08	3.01
ME-1801-6	2.93	3.06	3.00	2.92	3.13	3.10	3.17	3.15	3.12	3.06	3.12	2.99	3.02	3.07	3.03
ME-1801-7	2.95	3.01	2.96	2.95	3.06	3.03	3.16	3.14	3.10	3.07	3.08	3.00	3.02	3.09	3.07
ME-1801-8	2.95	3.00	3.00	2.87	3.11	3.04	3.14	3.15	3.13	3.06	3.09	2.99	3.00	3.08	3.02
ME-1801-9	2.98	3.00	2.99	2.92	3.04	3.13	3.14	3.10	3.10	3.07	3.13	3.01	3.03	3.13	3.02
ME-1801-10	2.95	3.00	2.98	2.91	3.09	3.07	3.15	3.16	3.15	3.07	3.10	3.06	3.09	3.13	3.01
Mean	2.93	3.03	2.98	2.92	3.101	3.08	3.15	3.14	3.12	3.07	3.11	3.03	3.04	3.08	3.02
Std. Dev.	0.032	0.034	0.023	0.024	0.037	0.030	0.018	0.022	0.016	0.009	0.014	0.030	0.030	0.031	0.023
% RSD	1.10	1.13	0.79	0.84	1.18	0.98	0.56	0.71	0.53	0.31	0.46	0.99	0.97	1.01	0.76
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-1801-1	7.27	7.35	7.35	7.58	7.53	7.51	7.71	7.77	7.25	7.62	7.38	7.41		7.48	7.32
ME-1801-2	7.31	7.50	7.28	7.58	7.64	7.42	7.66	7.80	7.17	7.51	7.37	7.41	7.56	7.80	7.24
ME-1801-3	7.25	7.52	7.29	7.49	7.70	7.46	7.70	7.97	7.18	7.57	7.34	7.49	7.66	7.60	7.18
ME-1801-4	7.32	7.39	7.31	7.34	7.63	7.59	7.93	7.85	7.23	7.54	7.36	7.52	7.59	7.40	7.28
ME-1801-5	7.25	7.37	7.39	7.50	7.47	7.63	7.66	7.89	7.20	7.51	7.35	7.36	7.66	7.71	7.25
ME-1801-6	7.28	7.40	7.41	7.45	7.63	7.49	7.83	7.83	7.16	7.44	7.40	7.45	7.57	7.54	7.29
ME-1801-7	7.26	7.33	7.20	7.52	7.59	7.51	7.81	7.82	7.20	7.40	7.25	7.47	7.49	7.55	7.45
ME-1801-8	7.22	7.41	7.32	7.36	7.54	7.46	7.65	7.78	7.20	7.48	7.34	7.45	7.43	7.63	7.34
ME-1801-9	7.27	7.40	7.29	7.55	7.46	7.54	7.75	7.95	7.14	7.49	7.30	7.53	7.37	7.53	7.29
ME-1801-10	7.19	7.40	7.30	7.36	7.49	7.49	7.75	7.90	7.29	7.52	7.34	7.58	7.46	7.72	7.27
Mean	7.26	7.41	7.31	7.47	7.57	7.51	7.74	7.86	7.20	7.51	7.34	7.47	7.53	7.59	7.29
Std. Dev.	0.039	0.060	0.059	0.092	0.082	0.063	0.090	0.069	0.045	0.062	0.042	0.065	0.101	0.121	0.071
% RSD	0.53	0.81	0.81	1.23	1.08	0.84	1.16	0.88	0.62	0.83	0.57	0.88	1.34	1.60	0.98

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-1801-1	28.80	28.90	27.80		29.60	29.40	31.28	30.09	29.28	30.00	30.34	33.95		29.90	29.30
ME-1801-2	28.80	29.50	27.30		30.00	28.90	31.01	30.27	29.34	29.77	30.10	34.08	29.70	29.90	29.30
ME-1801-3	28.60	29.20	27.70		30.30	28.90	31.07	30.92	29.24	29.68	30.11	33.95	29.90	>30.0	28.90
ME-1801-4	28.90	28.50	27.70		30.00	29.70	31.45	30.43	29.31	29.75	30.29	34.12	29.90	29.60	29.20
ME-1801-5	28.70	28.80	28.10		29.60	29.50	31.58	30.73	29.35	29.97	30.21	33.74	29.80	29.70	29.00
ME-1801-6	28.60	28.70	27.90		30.10	29.40	31.31	30.42	29.26	29.79	30.17	33.69	29.60	29.70	29.60
ME-1801-7	28.60	28.40	27.60		29.40	29.90	31.32	30.38	29.29	29.85	29.93	33.78	29.50	29.70	29.70
ME-1801-8	28.40	28.80	27.80		29.90	29.10	31.36	30.16	29.28	29.75	30.02	34.00	29.20	29.70	29.10
ME-1801-9	28.60	28.60	27.70		29.30	29.70	30.92	30.82	29.22	29.80	30.19	33.90	28.40	29.50	29.30
ME-1801-10	28.40	28.70	27.80		29.60	29.00	31.16	30.78	29.30	29.84	29.93	34.51	28.80	29.90	29.20
Mean	28.640	28.810	27.740		29.780	29.350	31.246	30.500	29.287	29.820	30.129	33.972	29.422	29.733	29.260
Std. Dev.	0.165	0.328	0.207		0.326	0.360	0.205	0.293	0.041	0.100	0.139	0.236	0.524	0.141	0.246
% RSD	0.57	1.14	0.74		1.09	1.23	0.66	0.96	0.14	0.33	0.46	0.69	1.78	0.48	0.84

Notes: Ag results from Lab 8 were removed for failing the t test.
 Cu results from Lab 8 were removed for failing the t test.
 Pb results from Lab 1 and Lab 4 were removed for failing the t test.
 Zn results from Lab 8 were removed for failing the t test.
 Fe results from Lab 3, Lab 7 and Lab 12 were removed for failing the t test.
 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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Certified by



Duncan Sanderson, Certified Assayer of B.C.

Geochemist



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