

CDN Resource Laboratories Ltd.

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REFERENCE MATERIAL: CDN-ME-1902

Recommended values and the “Between Lab” Two Standard Deviations

Gold	5.38 gpt	± 0.42 gpt	30 g FA, instrumental	Certified value
Silver	356 ppm	± 19 ppm	30 g FA, gravimetric	Certified value
Silver	349 ppm	± 17 ppm	4 Acid / ICP	Certified value
Copper	0.781 %	± 0.027 %	4 Acid / ICP	Certified value
Lead	2.20 %	± 0.10 %	4 Acid / ICP	Certified value
Zinc	3.66 %	± 0.23 %	4 Acid / ICP	Certified value

Note 1: 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: November 25th, 2019

ORIGIN OF REFERENCE MATERIAL:

Standard CDN-ME-1902 was prepared by combining miscellaneous ores.

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	33.4	Na ₂ O	0.9
Al ₂ O ₃	6.7	MgO	2.5
Fe ₂ O ₃	26.5	K ₂ O	1.3
CaO	3.3	TiO ₂	0.3
MnO	0.2	LOI	15.8
Total S	18.0	Total C	0.8

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

Results from round-robin assaying:

Sample	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) by Fire Assay, 30g sample size and Instrumental finish														
ME-1902-1	5.21	5.33	5.50	5.14	5.36	4.75	5.207	5.596	5.183	5.589	5.257	5.60	5.43	5.31	5.49
ME-1902-2	5.21	5.56	5.63	4.99	5.25	4.70	4.948	5.598	5.251	5.411	5.309	5.10	5.06	5.14	5.74
ME-1902-3	5.29	5.51	5.71	5.43	5.31	4.97	5.465	5.649	5.162	5.358	5.200	5.44	5.42	4.94	4.89
ME-1902-4	5.17	5.27	5.63	5.15	5.44	4.90	5.440	5.652	5.105	5.538	5.454	5.65	5.59	4.70	5.60
ME-1902-5	5.25	5.04	3.59	4.91	5.26	4.75	5.347	5.632	5.215	5.473	5.404	5.55	5.73	5.08	5.62
ME-1902-6	5.52	5.42	5.83	5.24	5.43	4.94	5.344	5.673	5.207	5.431	5.274	5.39	5.72	5.17	5.54
ME-1902-7	5.25	5.27	5.42	5.80	5.63	4.93	5.347	5.618	5.131	5.313	5.391	5.75	5.48	5.31	5.53
ME-1902-8	5.51	5.64	4.29	5.65	5.51	4.65	5.106	5.637	5.112	5.474	5.305	5.68	5.44	5.35	5.46
ME-1902-9	5.23	5.58	4.76	5.71	5.65	4.53	5.601	5.600	5.324	5.382	5.403	5.41	5.53	5.28	5.59
ME-1902-10	5.44	5.17	5.24	5.21	5.65	4.57	5.253	5.656	4.962	5.472	5.235	5.75	5.20	4.94	5.37
ME-1902-11	5.43	5.36	5.52	4.92	5.31	4.91	5.349	5.596	5.278	5.281	5.253	5.56	5.78	5.14	5.34
ME-1902-12	5.27	5.08	5.07	4.92	5.46	4.64	5.072	5.623	5.209	5.519	5.403	5.44	5.65	5.04	5.65
ME-1902-13	5.34	5.64	4.95	5.22	5.29	4.99	5.665	5.597	5.042	5.524	5.272	5.36	5.56	5.01	5.38
ME-1902-14	5.20	5.43	5.42	5.76	5.44	4.98	5.316	5.665	5.318	5.468	5.415	5.50	5.60	5.18	5.46
ME-1902-15	5.29	5.29	5.24	5.38	5.20	4.57	5.173	5.665	4.925	5.294	5.241	5.15	5.11	4.87	5.46
Mean	5.31	5.37	5.19	5.30	5.41	4.79	5.309	5.630	5.162	5.435	5.321	5.49	5.49	5.097	5.47
Std. Devn.	0.11	0.19	0.60	0.31	0.15	0.17	0.19	0.03	0.12	0.09	0.08	0.19	0.22	0.18	0.20
% RSD	2.16	3.56	11.53	5.93	2.74	3.51	3.63	0.51	2.30	1.72	1.54	3.52	4.00	3.61	3.59
Ag (g/t) by 4 Acid digestion /Instrumental finish															
ME-1902-1	356	368	372	359	356	381	352	349	349	353.6	365	357	360		346
ME-1902-2	369	344	358	361	353	385	363	348	350	352.8	354	362	352		358
ME-1902-3	355	344	359	353	340	386	358	350	348	357.1	355	342	344		356
ME-1902-4	365	356	350	362	353	388	361	348	360	357.8	356	364	340		354
ME-1902-5	363	360	353	349	362	387	364	355	357	352.7	357	373	357		350
ME-1902-6	360	367	364	367	341	385	363	348	351	359.4	357	362	351		346
ME-1902-7	350	366	358	351	344	391	354	349	347	354.5	359	365	351		361
ME-1902-8	363	363	357	354	349	379	355	351	348	353.9	358	362	360		363
ME-1902-9	360	368	344	346	360	372	354	348	350	352.9	352	361	349		362
ME-1902-10	361	369	346	358	353	380	359	348	346	353.5	365	360	347		360
ME-1902-11	360	348	358	355	336	380	363	348	358	356.3	353	362	361		361
ME-1902-12	356	370	353	338	348	377	356	349	348	346.0	357	359	366		363
ME-1902-13	362	367	353	339	350	387	367	356	354	357.8	348	363	356		370
ME-1902-14	355	357	336	344	344	385	365	353	353	353.9	362	366	357		363
ME-1902-15	362	370	343	365	343	385	361	351	362	354.2	351	363	344		360
Mean	360	361	354	353	349	383	360	350.1	352	354.4	357	361	353		358
Std. Devn.	4.74	9.31	8.99	8.94	7.50	4.93	4.62	2.66	5.05	3.15	4.84	6.47	7.39		6.72
% RSD	1.32	2.58	2.54	2.53	2.15	1.29	1.29	0.76	1.43	0.89	1.36	1.79	2.09		1.88

Ag (g/t) by 4 Acid digestion Gravimetric finish

ME-1902-1	373	344	341	347	346	350	336	353	342	353.6	356.54	340	348	354	344
ME-1902-2	361	346	347	336	335	342	338	354	351	350.2	352.32	338	348	380	343
ME-1902-3	372	321	334	349	334	344	330	355	355	354.9	351.47	345	348	370	343
ME-1902-4	375	325	337	341	309	348	335	355	361	355.7	351.94	340	353	364	341
ME-1902-5	363	389	341	365	342	346	336	356	352	359.5	352.55	341	354	368	342
ME-1902-6	368	342	341	367	304	346	326	353	347	347.5	353.60	350	352	348	342
ME-1902-7	359	N/S	365	361	332	346	323	354	329	355.0	354.89	340	353	375	344
ME-1902-8	374	N/S	339	332	343	354	340	354	352	350.6	354.85	345	344	377	340
ME-1902-9	358	345	342	358	350	348	335	356	369	352.3	357.01	349	348	377	342
ME-1902-10	363	349	343	364	359	348	323	354	347	352.4	354.32	334	348	383	341
ME-1902-11	371	356	344	369	323	349	350	355	353	355.9	355.25	348	346	369	340
ME-1902-12	357	369	348	362	337	349	346	354	352	360.4	352.83	351	348	373	341
ME-1902-13	359	308	341	336	339	350	327	355	357	352.2	351.98	351	349	376	335
ME-1902-14	356	342	342	361	351	344	336	353	352	365.2	353.67	345	356	376	345
ME-1902-15	373	366	339	338	334	349	310	355	364	360.3	352.73	346	352	380	339
Mean	365	346	343	352	336	348	333	354	352	355.0	353.73	344	350	371	341
Std. Devn.	7.02	21.28	7.04	13.05	14.86	2.97	9.96	0.99	9.37	4.67	1.70	5.17	3.32	9.74	2.45
% RSD	1.92	6.14	2.05	3.70	4.42	0.86	2.99	0.28	2.66	1.32	0.48	1.50	0.95	2.62	0.72

Cu (%) by 4 Acid digestion Instrumental finish

ME-1902-1	0.778	0.794	0.798	0.776	0.781	0.787	0.804	0.77	0.769	0.769	0.779	0.801	0.77	0.77	0.770
ME-1902-2	0.775	0.791	0.780	0.778	0.772	0.792	0.822	0.77	0.772	0.760	0.774	0.797	0.77	0.77	0.771
ME-1902-3	0.772	0.776	0.787	0.767	0.750	0.782	0.810	0.77	0.770	0.763	0.778	0.774	0.74	0.76	0.771
ME-1902-4	0.783	0.790	0.775	0.782	0.788	0.797	0.803	0.78	0.772	0.772	0.771	0.800	0.74	0.78	0.776
ME-1902-5	0.774	0.793	0.780	0.756	0.786	0.799	0.812	0.78	0.777	0.768	0.766	0.801	0.78	0.78	0.771
ME-1902-6	0.782	0.800	0.795	0.773	0.747	0.790	0.808	0.79	0.781	0.778	0.779	0.801	0.79	0.77	0.769
ME-1902-7	0.764	0.800	0.778	0.770	0.766	0.790	0.796	0.78	0.770	0.773	0.796	0.802	0.76	0.77	0.787
ME-1902-8	0.772	0.792	0.785	0.769	0.777	0.790	0.804	0.78	0.754	0.774	0.783	0.796	0.80	0.77	0.797
ME-1902-9	0.781	0.795	0.756	0.766	0.784	0.786	0.793	0.78	0.751	0.765	0.770	0.790	0.78	0.77	0.796
ME-1902-10	0.774	0.788	0.764	0.799	0.783	0.793	0.809	0.78	0.786	0.782	0.778	0.796	0.76	0.77	0.781
ME-1902-11	0.768	0.788	0.786	0.805	0.754	0.801	0.816	0.78	0.787	0.774	0.771	0.802	0.77	0.77	0.785
ME-1902-12	0.779	0.789	0.781	0.749	0.781	0.788	0.808	0.78	0.754	0.765	0.783	0.800	0.78	0.76	0.794
ME-1902-13	0.773	0.788	0.783	0.763	0.779	0.809	0.804	0.78	0.773	0.777	0.772	0.759	0.77	0.77	0.796
ME-1902-14	0.789	0.793	0.746	0.752	0.767	0.796	0.812	0.78	0.780	0.773	0.775	0.803	0.76	0.76	0.795
ME-1902-15	0.781	0.810	0.753	0.785	0.770	0.790	0.799	0.79	0.781	0.777	0.763	0.793	0.77	0.77	0.790
Mean	0.776	0.792	0.776	0.773	0.772	0.793	0.807	0.78	0.772	0.771	0.776	0.794	0.77	0.77	0.783
Std. Devn.	0.006	0.007	0.015	0.016	0.013	0.007	0.008	0.006	0.011	0.006	0.008	0.012	0.016	0.006	0.011
% RSD	0.82	0.94	1.96	2.04	1.71	0.86	0.93	0.76	1.46	0.81	1.03	1.54	2.11	0.77	1.41

Pb (%) by 4 Acid digestion Instrumental finish															
ME-1902-1	2.25	2.22	2.26	2.20	2.22	2.17	2.27	2.24	2.17	2.111	2.20	2.13	2.20	2.29	2.20
ME-1902-2	2.27	2.18	2.23	2.21	2.22	2.17	2.40	2.25	2.17	2.117	2.20	2.13	2.19	2.31	2.21
ME-1902-3	2.19	2.17	2.26	2.19	2.15	2.16	2.30	2.25	2.17	2.147	2.17	2.06	2.20	2.28	2.20
ME-1902-4	2.28	2.20	2.20	2.22	2.21	2.23	2.33	2.28	2.18	2.128	2.17	2.22	2.24	2.30	2.22
ME-1902-5	2.26	2.20	2.22	2.15	2.26	2.20	2.32	2.27	2.19	2.133	2.18	2.11	2.20	2.29	2.20
ME-1902-6	2.20	2.23	2.27	2.19	2.14	2.18	2.38	2.28	2.20	2.147	2.20	2.13	2.23	2.27	2.20
ME-1902-7	2.20	2.25	2.21	2.17	2.16	2.20	2.35	2.28	2.17	2.143	2.17	2.15	2.18	2.29	2.25
ME-1902-8	2.24	2.22	2.23	2.18	2.20	2.17	2.39	2.25	2.14	2.132	2.18	2.06	2.22	2.31	2.26
ME-1902-9	2.29	2.23	2.15	2.18	2.22	2.17	2.34	2.27	2.11	2.116	2.14	2.09	2.23	2.32	2.26
ME-1902-10	2.23	2.25	2.18	2.29	2.23	2.22	2.39	2.28	2.17	2.143	2.21	2.13	2.20	2.32	2.24
ME-1902-11	2.26	2.20	2.21	2.29	2.13	2.20	2.32	2.28	2.21	2.147	2.19	2.12	2.21	2.30	2.25
ME-1902-12	2.24	2.25	2.22	2.15	2.21	2.16	2.32	2.27	2.13	2.110	2.17	2.14	2.19	2.27	2.25
ME-1902-13	2.23	2.23	2.23	2.16	2.20	2.24	2.33	2.25	2.19	2.134	2.16	2.19	2.18	2.31	2.28
ME-1902-14	2.19	2.25	2.11	2.13	2.18	2.23	2.37	2.24	2.19	2.128	2.16	2.08	2.17	2.31	2.26
ME-1902-15	2.26	2.24	2.15	2.18	2.21	2.15	2.32	2.25	2.16	2.122	2.13	2.11	2.21	2.31	2.25
Mean	2.24	2.22	2.21	2.19	2.20	2.19	2.34	2.26	2.17	2.130	2.18	2.12	2.20	2.30	2.24
Std. Devn.	0.03	0.03	0.04	0.05	0.04	0.03	0.04	0.02	0.03	0.01	0.02	0.04	0.02	0.02	0.03
% RSD	1.45	1.18	2.03	2.10	1.67	1.34	1.59	0.70	1.23	0.62	1.04	2.04	0.92	0.71	1.23
Zn (%) by 4 Acid digestion Instrumental finish															
ME-1902-1	3.62	3.68	3.81	3.75	3.76	3.50	3.86	3.65	3.55	3.631	3.48	3.76	3.67	3.87	3.67
ME-1902-2	3.66	3.65	3.75	3.77	3.70	3.50	3.95	3.63	3.56	3.590	3.47	3.72	3.53	3.86	3.68
ME-1902-3	3.65	3.58	3.78	3.70	3.58	3.49	3.90	3.64	3.56	3.619	3.41	3.60	3.49	3.87	3.66
ME-1902-4	3.67	3.63	3.70	3.78	3.77	3.57	3.86	3.66	3.56	3.622	3.46	3.74	3.53	3.87	3.71
ME-1902-5	3.65	3.63	3.74	3.66	3.76	3.55	3.89	3.65	3.59	3.583	3.49	3.74	3.48	3.89	3.67
ME-1902-6	3.64	3.66	3.81	3.74	3.57	3.51	3.88	3.66	3.60	3.648	3.52	3.75	3.55	3.88	3.67
ME-1902-7	3.62	3.68	3.72	3.71	3.67	3.55	3.83	3.66	3.59	3.631	3.48	3.75	3.53	3.92	3.74
ME-1902-8	3.77	3.65	3.75	3.69	3.71	3.48	3.88	3.67	3.54	3.598	3.48	3.70	3.51	3.86	3.79
ME-1902-9	3.77	3.65	3.61	3.64	3.76	3.48	3.83	3.66	3.46	3.575	3.44	3.72	3.57	3.91	3.77
ME-1902-10	3.68	3.60	3.65	3.78	3.73	3.59	3.91	3.66	3.57	3.627	3.45	3.76	3.56	3.89	3.73
ME-1902-11	3.67	3.63	3.77	3.80	3.60	3.58	3.94	3.67	3.62	3.606	3.46	3.72	3.48	3.88	3.75
ME-1902-12	3.76	3.59	3.75	3.57	3.74	3.55	3.92	3.63	3.48	3.564	3.46	3.75	3.51	3.85	3.76
ME-1902-13	3.65	3.61	3.74	3.60	3.73	3.59	3.89	3.67	3.56	3.639	3.41	3.70	3.49	3.86	3.78
ME-1902-14	3.81	3.62	3.55	3.55	3.66	3.57	3.92	3.66	3.57	3.629	3.48	3.74	3.53	3.90	3.76
ME-1902-15	3.70	3.72	3.62	3.73	3.63	3.52	3.84	3.64	3.54	3.623	3.41	3.73	3.56	3.86	3.74
Mean	3.69	3.64	3.72	3.70	3.69	3.54	3.89	3.65	3.56	3.612	3.46	3.73	3.53	3.88	3.73
Std. Devn.	0.06	0.04	0.08	0.08	0.07	0.04	0.04	0.01	0.04	0.03	0.03	0.04	0.05	0.02	0.05
% RSD	1.64	1.03	2.06	2.14	1.87	1.14	0.97	0.37	1.17	0.69	0.92	1.06	1.36	0.53	1.21

Notes:

Labs 14 did not report Ag 4 acid digestion with instrumental finish.

Au results assayed by fire assay with instrumental finish from Lab 6 were removed for failing the t test.

Ag results assayed by 4 Acid digestion with instrumental finish from Labs 6 were removed for failing the t test.

Pb results from Lab 7 were removed for failing the t test.

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

AGAT Labs, ON, 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
ALS, Reno, USA	Skyline Assayers & Laboratories, AZ, USA
Bureau Veritas, Perth, Australia	TSL Laboratories Ltd., Saskatoon, SK, Canada
Bureau Veritas, Vancouver, BC, Canada	


Legal Notice:

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.