

# CDN Resource Laboratories Ltd.

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## REFERENCE MATERIAL: CDN-ME-1605

Recommended values and the “Between Lab” Two Standard Deviations

<i>Gold</i>	<i>2.85 g/t</i>	$\pm$	<i>0.16 g/t</i>	<i>30 g FA, instrumental</i>	<i>Certified value</i>
<i>Silver</i>	<i>269 ppm</i>	$\pm$	<i>13 ppm</i>	<i>30 g FA, gravimetric</i>	<i>Certified value</i>
<i>Silver</i>	<i>274 ppm</i>	$\pm$	<i>9 ppm</i>	<i>4-Acid / ICP</i>	<i>Certified value</i>
<i>Copper</i>	<i>0.380 %</i>	$\pm$	<i>0.016 %</i>	<i>4 Acid / ICP</i>	<i>Certified value</i>
<i>Lead</i>	<i>4.45 %</i>	$\pm$	<i>0.15 %</i>	<i>4 Acid / ICP</i>	<i>Certified value</i>
<i>Zinc</i>	<i>2.15 %</i>	$\pm$	<i>0.07 %</i>	<i>4 Acid / ICP</i>	<i>Certified value</i>

*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:** December 23, 2016

### **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.

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

Standard CDN-ME-1605 was prepared by combining a variety of low and high grade ores.

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

	Percent		Percent
SiO <sub>2</sub>	46.7	K <sub>2</sub> O	1.4
Al <sub>2</sub> O <sub>3</sub>	9.2	TiO <sub>2</sub>	0.6
Fe <sub>2</sub> O <sub>3</sub>	15.7	LOI	6.8
CaO	5.1	S	5.2
Na <sub>2</sub> O	0.9	C	0.9
MgO	5.0		

### **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:** Fire assay pre-concentration, AA or ICP finish.  
**Ag:** Fire assay pre-concentration, Gravimetric Finish, and 4-acid digestion, AA or ICP finish.  
**Cu, Pb, Zn:** 4-acid digestion, AA or ICP finish.

**REFERENCE MATERIAL CDN-ME-1605 (page 2 of 4)**

**Results from round-robin assaying:**

	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-1605-1	2.98	2.86	2.94	2.87	2.76	2.87	2.85	2.64	3.01	2.84	2.89	2.83	2.78	2.77	2.87
ME-1605-2	3.01	2.74	2.95	2.76	2.78	2.87	2.88	2.61	2.98	2.80	2.82	2.75	2.81	2.94	3.30
ME-1605-3	2.96	2.92	2.91	3.05	2.72	2.84	2.86	2.73	3.00	2.80	2.88	2.89	2.73	2.68	2.92
ME-1605-4	2.88	2.78	2.98	2.92	2.85	2.88	2.85	2.80	3.00	2.91	2.90	2.83	2.79	2.84	2.86
ME-1605-5	2.99	2.89	2.93	2.78	2.81	2.87	2.87	2.72	2.79	2.90	2.85	2.88	2.83	2.92	2.84
ME-1605-6	2.90	2.74	2.96	2.73	2.88	2.85	2.97	2.78	2.86	2.78	2.92	2.98	2.86	2.93	3.19
ME-1605-7	3.08	2.76	2.94	2.85	2.81	2.98	2.89	2.75	2.94	2.79	2.77	2.86	2.83	2.84	2.76
ME-1605-8	2.92	2.76	2.96	2.86	2.83	2.83	2.93	2.58	2.70	2.88	2.80	2.77	2.84	3.02	3.02
ME-1605-9	2.91	2.89	2.87	2.87	2.80	2.81	2.84	2.68	3.01	2.78	2.81	2.72	2.80	2.86	2.93
ME-1605-10	3.09	2.75	2.89	2.81	2.73	2.83	2.81	2.71	2.94	2.86	2.71	2.98	2.74	3.01	3.06
Mean	2.97	2.81	2.93	2.85	2.80	2.86	2.88	2.70	2.92	2.83	2.84	2.85	2.80	2.88	2.98
Std. Devn.	0.0733	0.0720	0.0331	0.0912	0.0496	0.0469	0.0462	0.0721	0.1066	0.0508	0.0655	0.0885	0.0433	0.1054	0.1683
% RSD	2.47	2.56	1.13	3.20	1.77	1.64	1.61	2.67	3.65	1.79	2.31	3.11	1.55	3.66	5.66
Gravimetric	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-1605-1	269	290	280	263	261			283	260	268	263	270	265	264	278
ME-1605-2	274	287	282	264	268			282	266	267	265	280	270	267	281
ME-1605-3	270	294	279	263	262			293	264	265	265	272	260	271	278
ME-1605-4	273	295	281	260	266			290	273	270	260	283	263	268	277
ME-1605-5	270	293	276	263	270			292	264	276	263	272	266	265	279
ME-1605-6	268	292	275	262	261			293	266	273	261	276	264	264	296
ME-1605-7	270	291	280	264	262			291	263	271	266	275	260	261	288
ME-1605-8	270	289	277	263	260			272	251	271	267	271	264	267	279
ME-1605-9	269	292	283	263	272			286	266	265	262	269	265	266	278
ME-1605-10	267	288	278	262	260			291	244	271	263	274	261	264	281
Mean	270	291	279	263	264			287	262	270	264	274	264	266	282
Std. Devn.	2.108	2.601	2.540	1.160	4.442			6.701	8.341	3.608	2.224	4.467	3.048	2.751	5.986
% RSD	0.78	0.89	0.91	0.44	1.68			2.33	3.19	1.34	0.84	1.63	1.16	1.04	2.13
Instrumental	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-1605-1		271	270	277	262	266	275		275		269	273	265	272	279
ME-1605-2		270	272	279	271	270	286		276		274	274	270	279	275
ME-1605-3		275	280	269	280	276	277		279		271	283	283	277	276
ME-1605-4		284	267	266	275	268	276		279		281	278	272	274	276
ME-1605-5		273	268	271	281	270	280		275		273	267	286	270	276
ME-1605-6		276	270	269	280	271	280		278		278	273	278	283	278
ME-1605-7		279	270	266	270	266	286		276		282	264	273	261	280
ME-1605-8		279	278	270	272	274	282		276		273	275	273	272	270
ME-1605-9		281	279	272	268	277	276		276		277	269	277	272	276
ME-1605-10		288	271	267	282	269	281		280		277	273	276	270	278
Mean		278	272	271	274	271	280		277		276	273	275	273	276
Std. Devn.		5.739	4.663	4.402	6.624	3.860	3.985		1.826		4.223	5.405	6.147	5.944	2.757
% RSD		2.07	1.71	1.63	2.42	1.43	1.42		0.66		1.53	1.98	2.23	2.18	1.00

**Notes:** Laboratories 6 and 7 did not report fire assay, gravimetric data for Ag.  
Laboratories 1, 8 and 10 did not report 4-acid instrumental data for Ag.

Ag fire assay, gravimetric data from laboratories 2 and 8 was removed for failing the t-test.

**REFERENCE MATERIAL CDN-ME-1605 (page 3 of 4)**

**Results from round-robin assaying:**

	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-1605-1	0.387	0.365	0.371	0.381	0.372	0.374	0.388	0.371	0.378	0.395	0.368	0.38	0.39	0.380	0.385
ME-1605-2	0.390	0.358	0.371	0.381	0.381	0.389	0.385	0.375	0.375	0.398	0.373	0.37	0.37	0.392	0.382
ME-1605-3	0.390	0.378	0.385	0.367	0.392	0.399	0.382	0.369	0.376	0.394	0.367	0.38	0.39	0.389	0.377
ME-1605-4	0.392	0.367	0.372	0.371	0.384	0.377	0.387	0.371	0.378	0.404	0.379	0.38	0.39	0.369	0.379
ME-1605-5	0.386	0.371	0.374	0.377	0.389	0.395	0.397	0.368	0.375	0.402	0.368	0.37	0.38	0.393	0.380
ME-1605-6	0.389	0.365	0.378	0.374	0.391	0.377	0.389	0.376	0.381	0.400	0.374	0.37	0.39	0.389	0.384
ME-1605-7	0.391	0.357	0.375	0.370	0.383	0.382	0.392	0.370	0.377	0.402	0.377	0.37	0.38	0.378	0.381
ME-1605-8	0.387	0.355	0.380	0.374	0.383	0.394	0.391	0.371	0.376	0.402	0.381	0.37	0.39	0.390	0.374
ME-1605-9	0.388	0.366	0.385	0.374	0.381	0.397	0.390	0.376	0.379	0.403	0.378	0.38	0.39	0.375	0.383
ME-1605-10	0.390	0.364	0.377	0.375	0.392	0.378	0.386	0.372	0.381	0.404	0.377	0.37	0.39	0.390	0.384
Mean	0.389	0.365	0.377	0.374	0.385	0.386	0.389	0.372	0.378	0.400	0.374	0.374	0.386	0.385	0.381
Std. Devn.	0.0019	0.0069	0.0053	0.0045	0.0063	0.0096	0.0042	0.0027	0.0022	0.0036	0.0051	0.0052	0.0070	0.0083	0.0035
% RSD	0.50	1.88	1.42	1.20	1.64	2.49	1.07	0.72	0.59	0.90	1.35	1.38	1.81	2.16	0.91
	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb	% Pb
ME-1605-1	4.54	4.44	4.36	4.47	4.09	4.42	4.86	4.39	4.47	4.44	4.33	4.37	4.16	3.77	4.52
ME-1605-2	4.53	4.45	4.34	4.58	4.35	4.51	4.87	4.42	4.45	4.48	4.48	4.40	4.36	3.70	4.45
ME-1605-3	4.50	4.48	4.37	4.36	4.42	4.57	4.91	4.43	4.49	4.43	4.51	4.53	4.38	3.68	4.04
ME-1605-4	4.57	4.54	4.35	4.36	4.36	4.40	5.06	4.44	4.52	4.48	4.43	4.48	4.38	3.81	4.39
ME-1605-5	4.60	4.54	4.38	4.44	4.50	4.50	5.01	4.42	4.44	4.49	4.29	4.53	4.46	3.59	4.20
ME-1605-6	4.55	4.59	4.43	4.43	4.50	4.48	4.94	4.44	4.49	4.45	4.44	4.51	4.51	3.88	4.24
ME-1605-7	4.52	4.56	4.42	4.39	4.31	4.41	4.99	4.43	4.49	4.46	4.46	4.37	4.32	3.80	4.28
ME-1605-8	4.40	4.44	4.50	4.42	4.31	4.55	5.01	4.42	4.47	4.43	4.51	4.48	4.25	3.91	4.34
ME-1605-9	4.45	4.47	4.52	4.41	4.29	4.56	4.99	4.41	4.49	4.41	4.39	4.58	4.33	3.85	4.54
ME-1605-10	4.60	4.51	4.43	4.42	4.45	4.46	4.97	4.38	4.52	4.48	4.39	4.52	4.40	3.64	4.50
Mean	4.53	4.50	4.41	4.43	4.36	4.49	4.96	4.42	4.48	4.45	4.42	4.48	4.35	3.76	4.35
Std. Devn.	0.0633	0.0537	0.0608	0.0634	0.1219	0.0629	0.0649	0.0196	0.0263	0.0276	0.0735	0.0730	0.0996	0.1067	0.1615
% RSD	1.40	1.19	1.38	1.43	2.80	1.40	1.31	0.44	0.59	0.62	1.66	1.63	2.29	2.83	3.71
	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn	% Zn
ME-1605-1	2.13	2.13	2.06	2.15	2.10	2.14	2.12	2.10	2.18	2.10	2.04	2.14	2.13	2.11	2.12
ME-1605-2	2.15	2.15	2.04	2.15	2.12	2.17	2.18	2.14	2.17	2.12	2.08	2.10	2.12	2.11	2.13
ME-1605-3	2.13	2.17	2.12	2.06	2.18	2.20	2.18	2.13	2.18	2.12	2.07	2.19	2.15	2.11	2.10
ME-1605-4	2.17	2.18	2.04	2.09	2.13	2.17	2.22	2.14	2.17	2.15	2.07	2.14	2.12	2.05	2.12
ME-1605-5	2.17	2.17	2.05	2.12	2.20	2.19	2.21	2.13	2.15	2.15	2.01	2.20	2.26	2.13	2.11
ME-1605-6	2.14	2.16	2.08	2.11	2.17	2.17	2.21	2.14	2.16	2.12	2.07	2.14	2.15	2.13	2.12
ME-1605-7	2.18	2.14	2.08	2.09	2.16	2.13	2.20	2.14	2.17	2.14	2.08	2.14	2.14	2.07	2.13
ME-1605-8	2.06	2.22	2.12	2.11	2.12	2.20	2.23	2.13	2.17	2.11	2.09	2.17	2.13	2.15	2.10
ME-1605-9	2.11	2.18	2.13	2.10	2.13	2.22	2.22	2.13	2.21	2.12	2.03	2.22	2.13	2.09	2.13
ME-1605-10	2.18	2.28	2.08	2.12	2.14	2.10	2.23	2.14	2.21	2.14	2.05	2.18	2.13	2.13	2.16
Mean	2.14	2.18	2.08	2.11	2.15	2.17	2.20	2.13	2.18	2.13	2.06	2.16	2.14	2.11	2.12
Std. Devn.	0.0374	0.0437	0.0324	0.0275	0.0314	0.0367	0.0333	0.0120	0.0195	0.0170	0.0256	0.0361	0.0403	0.0305	0.0175
% RSD	1.74	2.00	1.56	1.30	1.46	1.69	1.52	0.56	0.89	0.80	1.24	1.67	1.88	1.45	0.83

**Notes:** Cu data from laboratory 10 was removed for failing the t test.  
Pb data from laboratories 7 and 14 was removed for failing the t-test.  
Zn data from laboratory 3 was removed for failing the t-test.

**REFERENCE MATERIAL CDN-ME-1605 (page 4 of 4)**

**Participating Laboratories:**

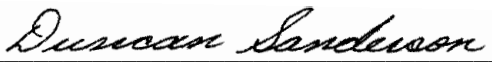
(not in same order as listed in table of results)

Activation Laboratories, Ancaster, Ontario, Canada  
Activation Laboratories, Thunder Bay, Ontario, Canada  
AGAT, Mississauga, Ontario, Canada  
Andes Analytical Assay Ltda., Santiago, Chile  
Argetest, Ankara, Turkey  
ALS South America, Lima, Peru  
ALS Loughrea (Omac), Ireland  
ALS Canada, North Vancouver, BC, Canada  
Bureau Veritas (Acme), Vancouver, BC, Canada  
Certimin, Lima, Peru  
MS Analytical, Langley, BC, Canada  
SGS, Lakefield, Ontario, Canada  
SGS, Lima, Peru  
SGS, Vancouver, BC, Canada  
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

  
Duncan Sanderson, Certified Assayer of B.C.

Geochemist

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