CDN Resource Laboratories Ltd.

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REFERENCE MATERIAL: CDN-ME-2303

Recommended values and the "Between Lab" Two Standard Deviations

Gold	**3.71 gpt**	**±**	**0.33 gpt**	**30 g FA, AA or ICP or AA Finish**	**Certified value**
Silver	**323 ppm**	**±**	**22 ppm**	**FA, Gravimetric Finish**	**Certified value**
Silver	**330 ppm**	**±**	**8 ppm**	**4 Acid digestion / ICP Finish**	**Certified value**
Silver	**328 ppm**	**±**	**15 ppm**	**Aqua Regia digestion / ICP Finish**	**Certified value**
Copper	**0.377 %**	**±**	**0.012 %**	**4 Acid digestion / ICP Finish**	**Certified value**
Copper	**0.375 %**	**±**	**0.010 %**	**Aqua Regia digestion / ICP Finish**	**Certified value**
Lead	**6.83 %**	**±**	**0.29 %**	**4 Acid digestion / ICP Finish**	**Certified value**
Lead	**6.75 %**	**±**	**0.20 %**	**Aqua Regia digestion / ICP Finish**	**Certified value**
Zinc	**22.39 %**	**±**	**0.81 %**	**4 Acid digestion / ICP Finish**	**Certified value**
Zinc	**22.20 %**	**±**	**0.89 %**	**Aqua Regia digestion / ICP Finish**	**Certified value**
Iron	**14.39 %**	**±**	**0.56 %**	**4 Acid digestion / ICP Finish**	**Certified value**
Iron	**14.36 %**	**±**	**0.78 %**	**Aqua Regia digestion / ICP Finish**	**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: Ali Alizadeh, MSc, MBA, P Geo
INDEPENDENT GEOCHEMIST: Dr. Barry Smee., Ph.D., P. Geo.
DATE OF CERTIFICATION: September 14th, 2023

ORIGIN OF REFERENCE MATERIAL:

Standard CDN-ME-2303 was prepared from the ore provided by Hecla Mining's Greens Creek deposit blended with granitic rock. The Greens Creek deposit is a polymetallic, stratiform, massive sulfide deposit. The host rock consists of predominantly marine sedimentary, and mafic to ultramafic volcanic and plutonic rocks, which have been subjected to multiple periods of deformation. Mineralization occurs discontinuously along the contact between a structural hanging wall of quartz mica carbonate phyllites, and a structural footwall of graphitic and calcareous argillite. Ore lithologies fall into two broad groups: massive ores with over 50% sulfides and white ores with less than 50% sulfides. The massive ores are further subdivided as either base-metal or pyrite dominant. Massive ores vary greatly in precious-metal grade from uneconomic to bonanza Au (>.5 opt) and Ag (>100 opt). White ores are subdivided into three groups by the dominant gangue mineralogy: white carbonate, white siliceous, and white baritic ore. These ores tend to be base-metal poor and precious-metal rich. Major sulfide minerals are pyrite, sphalerite, galena, and tetrahedrite/tennanite.

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.

Assay Procedures:

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

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 database. 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.

Quality Assurance and Quality Control Procedures:

Screening Test: After completion of homogenization, three samples, 300g each of homogenized material was randomly collected and was re-screened by a testing sieve. Over size material of this standard and based on CDN's screening test was ~%1.0.

Homogeneity Test:

15 samples were selected selectively throughout the batch and were sent to an independent assay Laboratories for Homogeneity testing following directions of Annex B, Homogeneity and Stability of proficiency test items, ISO 13528:2015 Guidelines.

Assay results went through a statistical work-up by checking the mean, standard deviation, and %RSD. Based on performed statistical works outlined by ISO 13528; CDN-ME-2303 is statistically homogenized (Appendix III).

LEGAL NOTICE:

This certificate and the reference material described in it have been prepared with due care and attention. However, CDN Resource Laboratories Ltd. nor Barry Smee accept any 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

Ali Alizadeh, MSc, MBA, P.Geo.

Geochemist

Dr. Barry Smee, PhD, P. Geo.

APPENDIX I:
Whole rock analysis and 30 element ICP analysis (4-acid digestion) were also conducted on 3 samples.

APPROXIMATE CHEMICAL COMPOSITION (by whole rock analysis):

Analyte	Percent	Analyte	Percent
SiO_2	9.96	**Na_2O**	<0.01
Al_2O_3	0.70	**MgO**	3.34
Fe_2O_3	20.43	**K2O**	0.17
CaO	5.42	**TiO_2**	0.04
MnO	0.13	**LOI**	18.60
Total S	27.76	**Total C**	3.08

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

Activation Labs, Ancaster, Ontario, Canada	Bureau Veritas, Perth, Australia
Activation Labs, Thunder Bay, Ontario, Canada	Bureau Veritas, Vancouver, BC, Canada
ALS, Brisbane, Australia	Certimin S.A., Lima, Peru
ALS, Perth, Australia	MS Analytical, Langley, BC, Canada
ALS Lima, Peru	SGS Lakefield, ON, Canada
ALS, Loughrea, Ireland	SGS, Vancouver, BC, Canada
ALS Reno, NV, USA	Skyline, Nevada, USA
ALS Canada, North Vancouver, BC, Canada	

APPENDIX II: Results from round-robin assaying:

Standard	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 by Fire Assay, 30g sample size and Instrumental finish														
ME-2303	3.84	3.65	3.60	3.61	3.48	3.75	3.59	3.67	3.58	3.717	3.559	3.931	3.806	3.67	3.69
	3.79	3.94	3.62	3.79	3.84	3.67	3.47	4.14	3.34	3.754	3.525	4.093	3.464	3.86	3.72
	3.90	3.59	NSS	3.43	3.72	3.50	3.59	3.77	3.52	3.838	3.541	3.949	3.814	3.63	3.84
	3.91	3.62	3.87	3.81	3.26	3.86	3.72	3.64	3.43	3.868	3.544	4.126	3.599	4.05	3.79
	3.88	3.59	3.56	4.07	3.76	4.09	3.78	3.71	3.95	3.463	3.515	4.024	3.606	3.69	3.78
	3.85	3.54	3.88	3.61	3.75	3.77	3.62	3.90	3.80	3.861	3.547	4.117	3.581	4.11	3.71
	3.75	3.82	NSS	3.79	3.81	3.87	3.64	3.51	3.42	3.817	3.568	3.891	3.623	3.85	3.71
	3.71	3.56	NSS	3.92	3.76	3.87	3.79	3.82	3.52	3.666	3.511	4.014	3.733	3.91	3.77
	3.76	3.69	NSS	3.73	3.67	3.70	3.62	4.17	3.55	3.462	3.552	4.089	3.577	4.13	3.58
	3.61	3.50	NSS	3.92	3.51	4.00	3.40	3.64	3.50	3.513	3.563	4.205	3.562	4.13	3.64
Mean	3.80	3.65	3.71	3.77	3.66	3.81	3.62	3.80	3.56	3.696	3.543	4.044	3.637	3.90	3.72
Std. Devn.	0.09	0.14	0.16	0.18	0.18	0.17	0.12	0.22	0.18	0.16	0.02	0.10	0.11	0.20	0.08
% RSD	2.50	3.71	4.20	4.89	5.01	4.44	3.41	5.72	5.14	4.41	0.56	2.46	3.09	5.03	2.05
	Ag (g/t) by Fire Assay- Gravimetric finish														
ME-2303	323	355	334		NSS	288	346	309	318	311	330	326	312	312	318
	338	352	312		316	315	335	309	327	316	328	326	324	353	315
	334	333	311		311	307	333	303	320	312	327	331	334	350	313
	338	345	314		311	310	328	303	319	317	330	329	315	294	312
	326	347	313		332	304	337	310	318	311	329	323	325	351	317
	326	332	336		323	308	331	294	303	319	331	326	322	350	313
	327	344	312		317	308	335	312	321	315	331	342	329	341	321
	329	345	311		307	305	348	293	321	311	333	335	329	350	306
	332	349	307		306	310	325	304	311	316	335	319	330	349	325
	337	341	309		334	308	344	292	307	306	327	325	319	346	316
Mean	331	344	316		317	306	336	303	317	313	330	328	324	340	316
Std. Devn.	5.56	7.41	10.27		10.26	7.10	7.67	7.490	7.28	3.86	2.56	6.51	7.00	20.02	5.21
% RSD	1.68	2.15	3.25		3.23	2.32	2.28	2.473	2.30	1.23	0.77	1.98	2.16	5.89	1.65
	Ag (g/t) by 4Acid digestion Instrumental finish														
ME-2303	331	330	328	331	337		329	328	291	332	329	312	>DTL	300	321
	330	332	331	334	333		329	328	284	332	330	330	>DTL	300	325
	331	318	331	333	336		329	329	262	339	324	331	>DTL	300	327
	328	328	329	333	332		329	328	297	332	321	327	>DTL	300	324
	336	329	329	337	337		323	328	299	328	326	327	>DTL	300	329
	329	325	330	335	333		329	327	297	333	330	319	>DTL	300	319
	331	327	331	320	335		334	329	296	344	326	338	>DTL	300	330
	331	324	332	332	331		333	330	285	326	328	327	>DTL	300	325
	328	332	331	333	334		332	326	303	338	320	333	>DTL	300	324
	327	331	331	333	336		336	329	269	331	327	328	>DTL	300	322
Mean	330	328	330	332	334		330	328	288	334	326	327		300	325
Std. Devn.	2.53	4.35	1.25	4.56	2.12		3.62	1.135	13.51	5.38	3.51	7.24		0.00	3.44
% RSD	0.77	1.33	0.38	1.37	0.63		1.10	0.346	4.69	1.61	1.08	2.21		0.00	1.06
	Ag (g/t) by Aqua Regia digestion Instrumental finish														
ME-2303	332	338	327	328	342		325	329	120	325	328	329	>DTL	315	314
	336	342	326	328	340		330	330	109	317	325	334	>DTL	314	315
	332	333	327	326	343		337	330	117	316	329	330	>DTL	316	317
	329	336	325	329	342		331	330	130	316	326	333	>DTL	319	313
	338	339	326	329	345		334	331	130	311	328	327	>DTL	315	313
	332	339	327	329	342		332	332	115	316	328	334	>DTL	317	318
	328	339	325	328	342		326	329	116	319	334	326	>DTL	316	313
	332	334	325	326	339		331	329	117	319	323	320	>DTL	325	318
	333	335	328	329	344		336	328	115	318	331	320	>DTL	316	317
	332	335	327	328	340		322	327	131	326	327	327	>DTL	325	315
Mean	332	337	326	328	342		330	330	120	318	328	328		318	315
Std. Devn.	2.91	2.83	1.06	1.15	1.85		4.84	1.434	7.64	4.42	3.07	5.12		4.02	2.06
% RSD	0.88	0.84	0.32	0.35	0.54		1.46	0.435	6.37	1.39	0.94	1.56		1.27	0.65

	Cu (%) by 4Acid digestion Instrumental finish														
ME-2303	0.376	0.381	0.369	0.374	0.385	0.376	0.378	0.376	0.374	0.390	0.378	0.374	0.3962	0.40	0.366
	0.376	0.387	0.376	0.372	0.382	0.385	0.378	0.379	0.375	0.386	0.381	0.394	0.3962	0.40	0.366
	0.373	0.369	0.375	0.377	0.389	0.375	0.379	0.377	0.363	0.387	0.376	0.393	0.3977	0.39	0.363
	0.372	0.383	0.374	0.380	0.381	0.376	0.375	0.377	0.371	0.390	0.380	0.386	0.3971	0.40	0.356
	0.375	0.376	0.372	0.378	0.387	0.377	0.371	0.372	0.375	0.378	0.380	0.391	0.3937	0.40	0.368
	0.370	0.374	0.372	0.379	0.384	0.376	0.377	0.376	0.369	0.387	0.380	0.381	0.3964	0.39	0.361
	0.366	0.379	0.373	0.361	0.388	0.371	0.377	0.375	0.378	0.389	0.378	0.399	0.3992	0.40	0.366
	0.375	0.377	0.377	0.375	0.381	0.379	0.384	0.376	0.375	0.378	0.376	0.389	0.4044	0.40	0.365
	0.371	0.378	0.377	0.378	0.382	0.372	0.383	0.372	0.381	0.392	0.377	0.397	0.3968	0.40	0.371
	0.379	0.381	0.379	0.375	0.386	0.377	0.379	0.375	0.374	0.387	0.380	0.389	0.3910	0.40	0.369
Mean	0.373	0.379	0.374	0.375	0.385	0.376	0.378	0.376	0.374	0.386	0.379	0.389	0.3969	0.40	0.365
Std. Devn.	0.004	0.005	0.003	0.005	0.003	0.004	0.004	0.002	0.005	0.005	0.002	0.007	0.003	0.004	0.004
% RSD	0.995	1.320	0.798	1.458	0.768	1.019	0.977	0.579	1.325	1.239	0.485	1.926	0.875	1.059	1.172
	Cu (%) by Aqua Regia digestion Instrumental finish														
ME-2303	0.364	0.376	0.397	0.375	0.377	0.384	0.377	0.380	0.381	0.367	0.376	0.375	0.3787	0.38	0.376
	0.364	0.383	0.374	0.375	0.377	0.372	0.383	0.380	0.355	0.364	0.373	0.376	0.3787	0.39	0.375
	0.366	0.375	0.373	0.376	0.382	0.372	0.390	0.378	0.369	0.360	0.374	0.372	0.3776	0.38	0.374
	0.360	0.380	0.375	0.374	0.383	0.370	0.369	0.380	0.385	0.357	0.377	0.373	0.3775	0.38	0.376
	0.364	0.376	0.375	0.377	0.382	0.371	0.388	0.384	0.387	0.358	0.378	0.373	0.3701	0.38	0.376
	0.357	0.379	0.373	0.379	0.382	0.366	0.391	0.383	0.371	0.360	0.373	0.381	0.3715	0.38	0.368
	0.370	0.373	0.373	0.374	0.381	0.371	0.372	0.382	0.378	0.367	0.378	0.374	0.3741	0.38	0.367
	0.372	0.371	0.372	0.371	0.372	0.372	0.382	0.380	0.365	0.368	0.375	0.361	0.3777	0.38	0.376
	0.370	0.376	0.374	0.378	0.378	0.373	0.390	0.375	0.373	0.368	0.378	0.365	0.3815	0.38	0.381
	0.358	0.372	0.374	0.374	0.374	0.374	0.373	0.379	0.384	0.375	0.375	0.375	0.3750	0.38	0.373
Mean	0.365	0.376	0.376	0.375	0.379	0.373	0.382	0.380	0.375	0.364	0.376	0.373	0.3762	0.38	0.374
Std. Devn.	0.005	0.004	0.007	0.002	0.004	0.005	0.008	0.003	0.010	0.006	0.002	0.006	0.004	0.003	0.004
% RSD	1.412	0.991	1.978	0.616	1.002	1.229	2.173	0.673	2.706	1.548	0.533	1.520	0.936	0.830	1.097
	Pb (%) by 4Acid digestion Instrumental finish														
ME-2303	6.72	7.01	6.74	6.76	6.74	6.76	6.76	6.74	6.33	6.56	7.00	6.68	>DTL	6.99	7.04
	6.69	7.01	6.81	6.82	6.67	6.84	6.77	6.73	6.10	6.53	7.06	6.98	>DTL	7.04	6.92
	6.72	6.75	6.78	6.82	6.75	6.75	6.77	6.75	5.36	6.54	7.06	7.00	>DTL	7.04	7.04
	6.68	6.96	6.75	6.79	6.71	6.79	6.77	6.72	6.44	6.58	7.02	6.89	>DTL	7.06	7.00
	6.79	6.90	6.79	6.89	6.74	6.76	6.68	6.74	6.52	6.55	7.08	6.93	>DTL	6.99	6.98
	6.71	6.85	6.79	6.86	6.73	6.79	6.76	6.66	6.44	6.64	7.03	6.79	>DTL	7.01	7.00
	6.72	6.93	6.75	6.55	6.72	6.69	6.83	6.68	6.51	6.58	7.02	7.11	>DTL	6.96	7.05
	6.70	6.89	6.82	6.87	6.67	6.84	6.85	6.69	5.74	6.39	7.04	6.94	>DTL	7.05	6.96
	6.67	6.95	6.80	6.84	6.69	6.76	6.84	6.80	6.41	6.67	7.02	7.02	>DTL	7.02	7.06
	6.67	6.93	6.82	6.82	6.73	6.77	6.91	6.87	5.44	6.55	7.04	6.95	>DTL	7.00	6.95
Mean	6.71	6.92	6.79	6.80	6.72	6.78	6.79	6.74	6.13	6.56	7.04	6.93		7.02	7.00
Std. Devn.	0.04	0.08	0.03	0.10	0.03	0.04	0.06	0.06	0.45	0.07	0.02	0.12		0.03	0.05
% RSD	0.53	1.12	0.44	1.42	0.43	0.65	0.94	0.91	7.36	1.13	0.34	1.75		0.45	0.68
	Pb (%) by Aqua Regia digestion Instrumental finish														
ME-2303	6.70	6.91	6.72	6.64	6.71	6.48	6.69	6.58	0.74	>4.00	7.02	>5	>DTL	6.786	6.88
	6.77	7.01	6.74	6.67	6.69	6.74	6.77	6.62	0.72	>4.00	7.00	>5	>DTL	6.838	6.84
	6.74	6.85	6.74	6.63	6.75	6.70	6.94	6.59	0.72	>4.00	6.99	>5	>DTL	6.811	6.85
	6.66	6.92	6.74	6.69	6.75	6.68	6.77	6.58	0.80	>4.00	6.97	>5	>DTL	6.809	6.93
	6.82	6.92	6.73	6.68	6.76	6.74	6.86	6.64	0.79	>4.00	7.03	>5	>DTL	6.803	6.88
	6.74	6.96	6.75	6.66	6.71	6.59	6.84	6.65	0.71	>4.00	7.03	>5	>DTL	6.797	6.75
	6.68	6.87	6.72	6.66	6.73	6.73	6.72	6.62	0.76	>4.00	6.99	>5	>DTL	6.832	6.73
	6.70	6.88	6.72	6.62	6.66	6.71	6.76	6.60	0.71	>4.00	7.06	>5	>DTL	6.854	6.87
	6.76	6.91	6.78	6.67	6.76	6.72	6.92	6.47	0.77	>4.00	6.97	>5	>DTL	6.873	7.01
	6.73	6.91	6.77	6.63	6.65	6.74	6.59	6.60	0.78	>4.00	7.03	>5	>DTL	6.818	6.80
Mean	6.73	6.91	6.74	6.66	6.72	6.68	6.79	6.60	0.75		7.01			6.822	6.85
Std. Devn.	0.05	0.05	0.02	0.02	0.04	0.08	0.11	0.05	0.03		0.03			0.03	0.08
% RSD	0.70	0.66	0.31	0.36	0.60	1.26	1.58	0.76	4.54		0.42			0.40	1.20

	Zn (%) by 4Acid digestion Instrumental finish														
ME-2303	21.3	22.2	22.0	22.9	22.6	22.5	21.7	22.5	19.5	22.95	21.78	21.24	>DTL	22.21	22.5
	21.2	22.5	22.5	22.9	22.3	22.5	22.2	22.8	19.9	22.69	21.76	22.21	>DTL	22.38	22.7
	21.2	21.6	22.4	23.1	22.6	22.4	22.0	22.7	19.4	22.97	21.81	22.21	>DTL	22.21	23.1
	21.0	21.9	22.4	23.2	22.3	22.5	22.0	22.8	19.6	23.01	21.80	21.87	>DTL	22.34	23.0
	21.3	22.1	22.2	23.0	22.6	22.7	21.8	22.4	19.8	22.49	21.67	22.08	>DTL	22.37	23.1
	21.3	21.9	22.3	23.2	22.4	22.6	22.1	22.3	19.5	22.90	21.83	21.63	>DTL	22.02	22.8
	21.4	21.9	22.2	22.2	22.6	22.3	22.0	22.4	19.9	22.96	21.73	22.69	>DTL	22.15	23.2
	21.0	21.8	22.5	23.0	22.4	22.7	22.4	22.3	19.9	22.27	21.72	22.05	>DTL	22.45	22.6
	20.9	22.2	22.5	23.0	22.3	22.4	22.4	22.4	20.1	22.95	21.69	22.35	>DTL	22.29	22.9
	21.2	21.8	22.6	23.0	22.5	22.5	22.4	22.6	19.6	22.89	21.65	22.09	>DTL	22.37	22.7
Mean	21.2	22.0	22.4	23.0	22.5	22.5	22.1	22.5	19.7	22.81	21.74	22.04		22.28	22.9
Std. Devn.	0.16	0.26	0.18	0.28	0.13	0.13	0.25	0.19	0.23	0.25	0.06	0.40		0.13	0.24
% RSD	0.76	1.18	0.82	1.24	0.60	0.57	1.13	0.86	1.17	1.08	0.28	1.80		0.59	1.04
	Zn (%) by Aqua Regia digestion Instrumental finish														
ME-2303	21.6	22.8	22.1	22.1	22.1	21.4	21.3	22.2	19.3	>20.00	21.69	>15	>DTL		22.2
	21.7	23.1	22.2	22.2	22.2	22.2	22.6	22.3	17.8	>20.00	21.64	>15	>DTL		22.7
	21.5	23.1	22.2	22.3	22.4	22.1	23.0	22.1	18.9	>20.00	21.74	>15	>DTL		22.9
	21.4	23.2	22.2	22.2	22.4	22.0	21.9	22.1	19.5	>20.00	21.64	>15	>DTL		22.6
	21.9	23.3	22.4	22.3	22.4	22.1	22.8	22.4	19.4	>20.00	21.75	>15	>DTL		23.0
	21.7	23.4	22.3	22.4	22.3	21.8	23.1	22.3	19.0	>20.00	21.74	>15	>DTL		22.6
	21.5	22.9	22.1	22.1	22.2	22.1	22.2	22.2	19.1	>20.00	21.71	>15	>DTL		22.6
	21.5	22.9	22.2	22.0	21.9	22.2	21.7	22.2	18.5	>20.00	21.73	>15	>DTL		22.9
	21.6	22.9	22.2	22.4	22.2	22.1	23.1	21.2	19.0	>20.00	21.76	>15	>DTL		23.6
	21.7	22.8	22.3	22.1	22.0	22.2	22.0	22.1	19.4	>20.00	21.74	>15	>DTL		22.6
Mean	21.6	23.0	22.2	22.2	22.2	22.0	22.4	22.1	19.0		21.71				22.8
Std. Devn.	0.14	0.21	0.09	0.14	0.17	0.25	0.64	0.33	0.51		0.04				0.37
% RSD	0.67	0.92	0.41	0.62	0.78	1.13	2.86	1.51	2.70		0.20				1.62
	Fe (%) by 4Acid digestion Instrumental finish														
ME-2303	14.2	15.0	14.10	14.25	14.25	13.85	14.00	14.35	14.4	14.62	14.68	14.13	>DTL	14.6	14.6
	14.2	15.0	14.20	14.35	14.10	14.35	14.10	14.25	14.3	14.47	14.70	14.85	>DTL	14.7	14.4
	14.3	14.5	14.20	14.35	14.25	13.90	14.10	14.30	13.7	14.59	14.79	14.74	>DTL	14.5	14.6
	14.0	14.8	14.15	14.30	14.15	13.95	14.10	14.25	14.2	14.65	14.82	14.60	>DTL	14.7	14.5
	14.3	14.8	14.20	14.55	14.25	13.90	13.90	14.25	14.4	14.33	14.77	14.70	>DTL	14.7	14.5
	14.1	14.8	14.20	14.45	14.20	14.00	14.05	14.30	14.2	14.69	14.75	14.42	>DTL	14.5	14.6
	14.2	14.8	14.15	13.80	14.20	13.75	14.20	14.35	14.7	14.78	14.73	15.08	>DTL	14.5	14.7
	14.2	14.6	14.30	14.50	14.05	14.05	14.20	14.30	14.4	14.26	14.80	14.64	>DTL	14.7	14.5
	14.1	14.8	14.25	14.40	14.05	13.95	14.20	14.00	14.8	14.81	14.74	14.92	>DTL	14.6	14.7
	14.0	14.8	14.30	14.35	14.15	13.95	14.30	14.15	13.8	14.62	14.73	14.73	>DTL	14.6	14.5
Mean	14.2	14.8	14.21	14.33	14.17	13.97	14.12	14.25	14.3	14.58	14.75	14.68		14.6	14.6
Std. Devn.	0.11	0.15	0.06	0.21	0.08	0.16	0.12	0.11	0.34	0.18	0.04	0.26		0.09	0.10
% RSD	0.76	1.03	0.45	1.45	0.55	1.13	0.82	0.74	2.41	1.23	0.30	1.80		0.60	0.66
	Fe (%) by Aqua Regia digestion Instrumental finish														
ME-2303	14.8	15.0	14.10	13.75	14.15	13.70	13.95	14.35	14.8	13.99	14.69	14.17	>DTL	14.83	14.2
	14.8	15.0	14.10	13.80	14.15	14.20	14.40	14.40	13.3	13.77	14.76	14.35	>DTL	14.88	14.5
	14.8	15.0	14.05	13.75	14.20	14.10	14.75	14.30	14.1	13.71	14.77	14.24	>DTL	14.72	14.6
	14.7	14.9	14.10	13.85	14.15	14.05	14.40	14.30	14.8	13.68	14.75	14.36	>DTL	14.79	14.3
	14.8	15.0	14.15	13.85	14.25	14.20	14.60	14.45	14.9	13.51	14.75	14.09	>DTL	14.75	14.8
	14.6	15.0	14.10	13.80	14.15	13.85	14.55	14.45	14.2	13.74	14.69	14.43	>DTL	14.74	14.4
	14.7	15.0	14.10	13.75	14.20	14.15	14.25	14.40	14.5	13.79	14.74	14.18	>DTL	14.75	14.4
	14.8	14.9	14.05	13.75	14.10	14.15	14.05	14.35	14.1	13.86	14.73	13.76	>DTL	14.78	14.6
	14.9	14.8	14.15	13.80	14.25	14.15	14.65	13.75	14.5	13.89	14.77	13.77	>DTL	14.83	15.0
	14.7	14.9	14.15	13.75	14.00	14.15	13.95	14.35	14.9	14.07	14.75	14.24	>DTL	14.76	14.4
Mean	14.8	15.0	14.11	13.79	14.16	14.07	14.36	14.31	14.4	13.80	14.74	14.16		14.78	14.5
Std. Devn.	0.08	0.07	0.04	0.04	0.07	0.17	0.29	0.20	0.50	0.16	0.03	0.23		0.05	0.24
% RSD	0.57	0.47	0.26	0.30	0.52	1.18	2.05	1.42	3.48	1.16	0.20	1.63		0.34	1.65

Notes:

Ag results assayed by fire assay, with gravimetric finish from Lab 14 were removed for failing the t test.
Ag results assayed by 4 Acid digestion with ICP finish from Labs 9 and 14 were removed for failing the t test.
Ag results assayed by Aqua Regia digestion with ICP finish from Lab 9 were removed for failing the t test.
Cu results assayed by 4 Acid digestion with ICP finish from Labs 14 and 15 were removed for failing the t test.
Pb results assayed by 4 Acid digestion with instrumental finish from Lab 9 were removed for failing the t test.
Pb results assayed by Aqua Regia digestion with ICP finish from Labs 9, 10, 11 and 12 were removed for failing the t test.
Zn results assayed by 4 Acid digestion with instrumental finish from Labs 1 and 9 were removed for failing the t test.
Zn results assayed by Aqua Regia digestion with ICP finish from Labs 9 and 10 were removed for failing the t test.
Fe results assayed by Aqua Regia digestion with ICP finish from Labs 1 and 9 were removed for failing the t test.

APPENDIX III: QAQC

Table below illustrates percentages of over size (+275 mesh) material in CDN-ME-2303

Standard	Study Date	Total weight Screened (g)	Total weight Over size (g)	Percentage
ME-2303	May 10 2023	300	2	0.7%
	May 10 2023	300	2.5	0.8%
	May 10 2023	300	3	1.0%

Table below shows homogeneity test results of CDN-ME-2303

	Au Original	Au Repeat	Between Sample Variance Wt	Sample Avg. Xt	Stdev of Sample Avg	Within-Sample Std.
ME-2303	3.954	3.998	0.044	3.976	0.013	0.002
	3.916	3.688	0.228	3.802	0.003	0.052
	3.996	3.963	0.033	3.980	0.014	0.001
	3.763	4.061	0.298	3.912	0.003	0.089
	4.030	3.777	0.253	3.904	0.002	0.064
	3.805	4.010	0.205	3.908	0.002	0.042
	3.635	3.847	0.212	3.741	0.014	0.045
	3.841	3.908	0.067	3.875	0.000	0.004
	3.643	3.950	0.307	3.797	0.004	0.094
	4.050	3.843	0.207	3.947	0.007	0.043
	3.824	3.840	0.016	3.832	0.001	0.000
	3.789	3.737	0.052	3.763	0.009	0.003
	3.635	3.857	0.222	3.746	0.013	0.049
	3.812	4.046	0.234	3.929	0.005	0.055
	3.908	3.680	0.228	3.794	0.004	0.052
Statistics			**Gavg**	**SX**	**SS**	
Mean	3.840	3.880	3.860	0.083	**0.055**	
SD	0.1367	0.1243	**C**	**C SQRT**		
RSD	3.560	3.203	**0.0257**	**0.16**		
Proof of Homogeneity	Based on Statistical procedures outlined in Annex B, ISO 13528:2015 guidelines, If "SS is < square root of C" Standard is considered homogeneous. **ME-2303 is statistically homogenous**					

APPENDIX IV: General Notes

Intended Use

This Certified Reference Material, fit for use as a control sample in routine assay laboratory quality control when inserted within runs of test samples and measured in parallel to test samples. This material can also be used for method development, use as independent calibration verification check standard or for validation of accuracy in a method validation exercise.

This CRM can also be used to assess inter-laboratory or instrument bias and establish within-laboratory precision and within-laboratory reproducibility. The certified concentrations and expanded uncertainty for this material are property values based on an inter-laboratory measurement campaign and reflect consensus results from the laboratories that took part in the exercise.

Handling

Do not use if the seal is broken or there are any signs of contamination.

The material is packaged in either Tin Tie envelopes, foil envelopes or jars that must be shaken before use.

Storage information

The material should be stored in a dry place, in such a way that it does not compromise the integrity of the CRM. The material should be stored in conditions which will ensure it does not absorb moisture.

Certificate is not valid if re-packaged by a third party.

Metrological Traceability

The values quoted herein are based on the consensus values derived from statistical analysis of the data from an inter-laboratory measurement program. Traceability to SI units is via the standards used by the individual laboratories all of which are accredited to the ISO17025 general requirements for the competence of testing and calibration laboratories and who have maintained measurement traceability during the analytical process.

Period of Validity

The certified values are valid for this product, while still sealed in its original packaging, until notification to the contrary. The stability of the material will be subject to continuous testing for every five the duration of the inventory. Should product stability become an issue, all customers will be notified and notification to that effect will be placed on the http://www.cdnlabs.com/ website.

Minimum Sample Size

Most of the laboratory's reporting used a 0.5g sample size for the ICP and a 30g sample size for the fire assay. Our certified gold values are based on 30 g Fire Assay determinations. For optimal results, we strongly recommend you assay our standards with similar methods using "at least" 30 g of material. Using a smaller sample weight may result in erratic values. These are the recommended minimum sample sizes for the use of this material.