

# CDN Resource Laboratories Ltd.

## Certificate of Analysis

### STANDARD REFERENCE MATERIAL: CDN-W-6

<b>Tungsten</b>	<b>1.56 %</b>	<b>± 0.07 %</b>	<b>Fusion with XRF finish</b>	<b>Certified value</b>
<b>Bismuth</b>	<b>647 ppm</b>	<b>± 50 ppm</b>	<b>4 Acid digestion / instrumental finish</b>	<b>Certified value</b>
<b>Gold</b>	<b>0.357 gpt</b>	<b>± 0.028 gpt</b>	<b>30 g FA, instrumental finish</b>	<b>Certified value</b>
<b>Copper</b>	<b>0.380%</b>	<b>± 0.022 %</b>	<b>4 Acid digestion / ICP</b>	<b>Certified value</b>

Recommended values and the "Between Lab" Two Standard Deviations

**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.  
**PREPARATION CERTIFIED BY:** Ali Alizadeh, MSc, MBA, P Geo  
**CERTIFIED BY INDEPENDENT GEOCHEMIST:** Dr. Barry Smee., Ph.D., P. Geo.  
**DATE OF CERTIFICATION:** October 10<sup>th</sup>, 2023

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

Standard CDN-W-6 was prepared using the ore that was supplied by Fireweed Metals from their Mactung deposit, located in the Selwyn Mountain Range in the eastern-central Yukon side of the Yukon-Northwest Territories border, Canada. The Mactung property is a skarn deposit that is present on the eastern margin of the Selwyn basin in the Tombstone-Tungsten Belt (TTB) of the Canadian Cordillera. The mid-Cretaceous TTB is also host to other major mineral deposits and is spread over Alaska, Yukon, and Northwest Territories.

The deposit belongs to Tungsten suite intrusions of late Precambrian to Palaeozoic and metamorphosed clastic and interbedded carbonate rocks of the Selwyn basin. The mineralization occurs mainly as scheelite (CaWO<sub>4</sub>) with a significant presence of calcic mineral assemblages associated with large quantities of pyrrhotite, which was formed within permeable limestone units of the Cambrian-Ordovician host 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.

#### **Assay Procedures:**

**Au:** 30g FA / AA or ICP finish  
**Cu:** 4 Acid digestion / ICP or ES finish  
**Bi:** 4 Acid digestion / ICP or ICPMS finish  
**W:** Fusion with XRF 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  $\pm 2$  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

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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-W-6 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:



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Ali Alizadeh, MSc, MBA, P.Geo.

CERTIFIED BY INDEPENDENT GEOCHEMIST:



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Dr. Barry Smee, PhD, P. Geo.

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## 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 <sub>2</sub>	38.4	K <sub>2</sub> O	0.1
Al <sub>2</sub> O <sub>3</sub>	5.2	TiO <sub>2</sub>	0.1
Fe <sub>2</sub> O <sub>3</sub>	33.9	MnO	0.5
CaO	9.1	LOI	7.4
MgO	1.3	Total S	12.6
Na <sub>2</sub> O	0.1	Total C	0.1

### 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 Assayers & Laboratories, Tucson, AZ, USA
ALS Canada, North Vancouver, BC, Canada	

## APPENDIX II: Results from round-robin assaying:

Sample	Lab 1	Lab 2	Lab 3	Lab 8	Lab 4	Lab 5	Lab 6	Lab 7	Lab 9	Lab 10	Lab 11	Lab 12	Lab 13	Lab 14	Lab 15
	Au (g/t) 4Acid digestion and Instrumental finish														
W-6	0.379	0.341	0.378	0.348	0.360	0.343	0.347	0.362	0.35	0.371	0.347	0.363	0.383	0.369	0.36
	0.383	0.342	0.358	0.344	0.374	0.343	0.342	0.358	0.37	0.362	0.329	0.347	0.368	0.385	0.35
	0.370	0.356	0.367	0.351	0.339	0.342	0.353	0.398	0.37	0.371	0.340	0.343	0.360	0.354	0.35
	0.374	0.316	0.354	0.345	0.351	0.365	0.354	0.363	0.34	0.397	0.345	0.358	0.372	0.350	0.40
	0.391	0.342	0.348	0.368	0.346	0.344	0.364	0.349	0.36	0.364	0.343	0.358	0.354	0.357	0.34
	0.402	0.364	0.347	0.342	0.363	0.349	0.353	0.352	0.36	0.369	0.337	0.381	0.371	0.369	0.35
	0.372	0.355	0.358	0.354	0.338	0.343	0.343	0.365	0.32	0.380	0.327	0.357	0.376	0.364	0.32
	0.375	0.334	0.354	0.371	0.365	0.354	0.341	0.344	0.34	0.410	0.336	0.358	0.338	0.370	0.38
	0.365	0.360	0.337	0.350	0.353	0.389	0.359	0.354	0.35	0.363	0.344	0.402	0.376	0.393	0.36
	0.380	0.340	0.366	0.355	0.355	0.334	0.355	0.352	0.37	0.377	0.327	0.359	0.382	0.364	0.34
<b>Mean</b>	0.379	0.345	0.357	0.353	0.354	0.351	0.351	0.360	0.35	0.376	0.338	0.363	0.368	0.368	0.36
<b>Std. Dev</b>	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02
<b>% RSD</b>	2.86	4.13	3.27	2.77	3.25	4.52	2.18	4.17	4.64	4.17	2.25	4.71	3.77	3.62	6.26

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Cu (%) 4Acid digestion and Instrumental finish															
W-6	0.370	0.376	0.393	0.381	0.394	0.389	0.368	0.381	0.371	0.385	0.374	0.392	0.368	0.3513	0.373
	0.367	0.374	0.389	0.384	0.395	0.384	0.367	0.388	0.379	0.384	0.381	0.380	0.371	0.3524	0.374
	0.358	0.369	0.390	0.390	0.376	0.394	0.393	0.397	0.376	0.381	0.362	0.380	0.369	0.3514	0.365
	0.368	0.364	0.401	0.393	0.393	0.390	0.370	0.385	0.374	0.377	0.379	0.381	0.366	0.3507	0.371
	0.360	0.369	0.396	0.395	0.384	0.409	0.393	0.390	0.385	0.384	0.369	0.388	0.367	0.3546	0.371
	0.370	0.367	0.393	0.377	0.392	0.394	0.369	0.404	0.378	0.387	0.370	0.392	0.369	0.3538	0.372
	0.368	0.366	0.388	0.381	0.385	0.402	0.390	0.398	0.376	0.369	0.380	0.382	0.375	0.3550	0.367
	0.359	0.372	0.388	0.402	0.397	0.407	0.372	0.389	0.369	0.378	0.373	0.385	0.372	0.3613	0.372
	0.356	0.383	0.388	0.367	0.388	0.386	0.375	0.395	0.368	0.381	0.373	0.386	0.370	0.3574	0.368
	0.375	0.379	0.402	0.385	0.402	0.384	0.377	0.396	0.371	0.386	0.367	0.375	0.365	0.3514	0.370
<b>Mean</b>	0.365	0.372	0.393	0.386	0.391	0.394	0.377	0.392	0.375	0.381	0.373	0.384	0.369	0.3539	0.370
<b>Std. Dev</b>	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.007	0.01	0.01	0.01	0.01	0.00	0.00	0.00
<b>% RSD</b>	1.74	1.64	1.35	2.59	1.92	2.34	2.80	1.758	1.39	1.42	1.63	1.44	0.80	0.94	0.76
Bi (%) 4Acid digestion and Instrumental finish															
W-6	0.0613	0.0620	0.0670	0.0644	0.0660	0.0648	0.0651	0.0660	0.0685	0.08	0.0633	0.066	0.0483	0.0600	0.0648
	0.0614	0.0620	0.0669	0.0644	0.0663	0.0639	0.0643	0.0680	0.0666	0.08	0.0626	0.063	0.0501	0.0594	0.0653
	0.0604	0.0630	0.0666	0.0655	0.0640	0.0668	0.0637	0.0680	0.0666	0.08	0.0641	0.066	0.0479	0.0606	0.0652
	0.0609	0.0600	0.0693	0.0663	0.0655	0.0645	0.0646	0.0681	0.0672	0.08	0.0628	0.065	0.0514	0.0597	0.0637
	0.0613	0.0620	0.0687	0.0660	0.0646	0.0675	0.0631	0.0682	0.0678	0.08	0.0625	0.066	0.0509	0.0603	0.0646
	0.0582	0.0630	0.0677	0.0641	0.0652	0.0653	0.0644	0.0691	0.0679	0.08	0.0652	0.065	0.0503	0.0606	0.0649
	0.0621	0.0620	0.0651	0.0639	0.0678	0.0659	0.0642	0.0686	0.0686	0.08	0.0621	0.062	0.0495	0.0619	0.0645
	0.0625	0.0620	0.0669	0.0686	0.0665	0.0675	0.0644	0.0682	0.0685	0.08	0.0626	0.062	0.0503	0.0631	0.0642
	0.0628	0.0620	0.0666	0.0634	0.0680	0.0636	0.0648	0.0666	0.0684	0.08	0.0639	0.067	0.0471	0.0605	0.0646
	0.0607	0.0590	0.0678	0.0658	0.0672	0.0651	0.0642	0.0686	0.0693	0.08	0.0628	0.064	0.0477	0.0618	0.0642
<b>Mean</b>	0.0612	0.0617	0.0673	0.0652	0.0661	0.0655	0.0643	0.0679	0.0679	0.08	0.0632	0.065	0.0494	0.0608	0.0646
<b>Std. Dev</b>	0.0013	0.0013	0.0012	0.0015	0.0013	0.0014	0.0006	0.0009	0.0009	0.0000	0.0009	0.0018	0.0015	0.0011	0.0005
<b>% RSD</b>	2.12	0.00	1.76	2.36	2.00	2.14	0.87	1.383	1.32	0.00	1.50	2.75	3.02	1.88	0.75
W (%) Fusion XRF finish															
W-6		1.62		1.545			1.57	1.555		1.55		1.61			1.51
		1.62		1.550			1.57	1.530		1.57		1.53			1.50
		1.60		1.510			1.56	1.580		1.55		1.57			1.50
		1.62		1.575			1.54	1.555		1.57		1.54			1.51
		1.59		1.495			1.55	1.550		1.55		1.55			1.53
		1.61		1.530			1.57	1.550		1.56		1.53			1.47
		1.59		1.520			1.58	1.520		1.55		1.59			1.48
		1.60		1.525			1.55	1.525		1.57		1.58			1.52
		1.61		1.555			1.56	1.570		1.55		1.62			1.51
		1.60		1.490			1.57	1.550		1.55		1.58			1.51
<b>Mean</b>		1.61		1.530			1.56	1.549		1.56		1.57			1.50
<b>Std. Dev</b>		0.01		0.03			0.01	0.019		0.01		0.03			0.02
<b>% RSD</b>		0.73		1.77			0.77	1.228		0.55		2.04			1.18

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Notes: Bi results from Labs 10 and 13 were removed for failing the t test.  
Cu results assayed from Lab 14 were removed for failing the t test.

## APPENDIX III: QAQC

Table below illustrates percentages of over size (+275 mesh) material in CDN-W-6

Standard	Study Date	Total weight Screened (g)	Total weight Over size (g)	Percentage
W-6	May 14-2023	300	3.5	1.2%
	May 14-2023	300	3.5	1.2%
	May 14-2023	300	3	1.0%

Table below shows homogeneity test results of CDN-W-6

CDN-W-6	Au Original	Au Repeat	Between Sample Variance Wt	Sample Avg. Xt	Within-Sample Std.
	0.344	0.345	0.001	0.345	0.000
	0.352	0.343	0.009	0.348	0.000
	0.364	0.358	0.006	0.361	0.000
	0.346	0.342	0.004	0.344	0.000
	0.366	0.363	0.003	0.365	0.000
	0.351	0.345	0.006	0.348	0.000
	0.358	0.351	0.007	0.355	0.000
	0.335	0.348	0.013	0.342	0.000
	0.354	0.356	0.002	0.355	0.000
	0.325	0.348	0.023	0.337	0.001
	0.352	0.358	0.006	0.355	0.000
	0.364	0.350	0.014	0.357	0.000
	0.345	0.347	0.002	0.346	0.000
	0.356	0.350	0.006	0.353	0.000
	0.360	0.352	0.008	0.356	0.000
Statistics			Statistics	Gavg	SS
Mean	0.351	0.350	0.351	0.008	0.006
SD	0.0112	0.0061	C	C SQRT	
RSD	3.197	1.732	0.0001	0.01	
Based on Statistical procedures outlined in Annex B, ISO 13528:2015 guidelines, if "SS is < square root of C" Standard is considered homogeneous.					
<b>W-6 is statistically homogenous</b>					

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## APPENDIX IV: General Notes

### Intended Use

This Certified Reference Material, CRM, 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 Certified Reference Material 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 the product 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.

## 1- STATISTICAL PROCEDURES:

Round robin samples were sent to participating laboratories.

The mean and standard deviation for all data were calculated. Outliers were defined as samples beyond the mean  $\pm$  2 Standard Deviations from all data. These outliers were removed from the data and a new mean and standard deviation were determined. This method makes use of actual "between-laboratory" standard deviation in the calculations. This produces upper and lower limits that reflect actual individual analyses rather than a grouped set of analyses.

Statistical analysis was carried out by Dr. Barry Smee, an independent statistician. A statistical report is provided along with a certificate of analysis.

## 2- QA/QC PROCEDURES.

# CDN Resource Laboratories Ltd.

As of February 2021, all standards prepared by CDN Resource Laboratories will undergo QC Screening and Homogeneity testing. All material will be tested for nuggety gold and silver.

- CDN Resource Laboratories QAQC procedures include:
- **Screen QC** - After completion of homogenization, 300g of material will be collected from the mixer and will be re-screened through testing sieve. Over size should not exceed 3% of the total screened material. If over size exceeds 3% of the total screened material, material needs to be re-screened and re-homogenized.
- **Homogeneity QC** – CDN recommends conducting homogeneity study on all CRMs, based on ISO 13528 Annex B (Homogeneity and Stability of proficiency test items).

For homogeneity test, 15 randomly selected samples from each prepared grade will be sent to commercial assaying Laboratory. Each sample will be assayed twice and reported separately.

Assay results will go through a statistical work-up by checking the mean, standard deviation, and %RSD. Based on performed statistical works outlined by ISO 13528.