# Certificate of Analysis Shea Clark Smith

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# GEOCHEMICAL REFERENCE STANDARD: A106010X

MEAN = 0.215% Cu 95% Confidence = 0.193 - 0.237

Prepared By: Shea Clark Smith / Minerals Exploration & Environemental Geochemistry

Certified By: Shea Clark Smith, MSc.( Geochemistry)., P.G.

Manufactured for: MEG LABS **Date of Certification:** February 1, 2007

#### **Origin of Reference Material:**

Geochemical Reference Standard A106010X was prepared from assayed drill cuttings derived from the Rosemont Mine in 2005. This is a typical Arizona porphyry copper system.

#### Method of Preparation:

The composites were dried at 100C for 24 hours, jaw crushed, and roll crushed to -420 um.

The entire amount was ball milled together for 10 hours.

Sizing tests of the final product show >95% pass -105 um (-140 mesh). Eight samples of the final product were submitted to 7 laboratories for round robin assaying by 4-acid digestion / ICP/OES and AAS. Data reported in percent (%).

The standard was packaged in 50 g envelopes, each envelope with a removable sticky-label.

# **Summarized Assay Results:**

#### PROJECT: A106008X COPPER STANDARD PERCENT (%)

DATA POINTS (ALL DATA)		27
MEAN (ALL DATA)		0.215
STANDARD DEVIATION (ALL DATA)		0.013
% RSD		6.05
RANGE OF VALUES - HIGH		0.250
RANGE OF VALUES - LOW		0.195
95% CONFIDENCE LIMITS 0.189	to	0.241

DATA POINTS (LAB AVERAGE DATA)	5
MEAN (LABS)	0.215
STANDARD DEVIATION (LABS)	0.011
CV (% RSD)	5.09
RANGE OF VALUES - HIGH	0.228
RANGE OF VALUES - LOW	0.199
95% CONFIDENCE LIMITS 0.193 to	0.237

#### Trace Metal Data (Not Certified): 5 Labs each 6 Samples

Ag	Mo
ppm	%
1.46	0.01

#### **Statistical Procedures:**

Acceptable assay limits for copper are based on the results of 6 samples shipped to each of 5 laboratories located in North America. The samples were submitted with other MEG standards in randomized order, so that as much as possible, real operating conditions were obtained from the participating laboratories. All of the data were used to determine an acceptable range, based on the mean and standard deviation of the "Lab Average Data". The acceptable reporting range is the "95% Confidence Limit", which is the mean +/- 2 standard deviations. Other statistics are provided to help the user assign viable acceptance boundries.

#### **Instructions and Recommendations for Use:**

Submit the entire contents of one 50 g envelope in random locations in the submittal, approximately every 20-30 samples. Use of blanks (samples with "below detection" concentration of analyte) are also recommended, randomly placed every 30-40 samples. The analytical request should be the same as that used for the round robin assays that generated this certificate.

# Raw Data Use to Calculate "True" Copper Value: (ordered randomly)

Sample	Lab 1 Cu %	Lab 2 Cu %	Lab 3 Cu %	Lab 4 Cu %	Lab 5 Cu %	
1	0.214	0.202	0.22	0.22	0.21	
2	0.218	0.196	0.25	0.22 0.2° 0.23 0.2° 0.22 0.2° 0.22 0.2° 0.23 0.2		
3	0.217	0.201	0.21	Cu % Cu %  0.22 0.2  0.23 0.2  0.22 0.2  0.23 0.2  0.23 0.2  0.23 0.2		
4	0.211	0.2	0.24	Cu % Cu %  0.22 0.21 0.23 0.21 0.22 0.21 0.23 0.21 0.23 0.21 0.23 0.21		
5	0.22	0.195	0.22	0.23 0.2 0.22 0.2 0.23 0.2 0.23 0.2		
6	0.203				0.20	

# **Major Constituents as Oxides (Not Available)**

Average of 1 sample: ALS	6 Chemex ME-1	MS61							
Raw Data:	Al%	Ca%	Fe%	K%	Mg%	Na%	S%	Ti%	Si%
ICP/MS Data (1)									
Conversion Factor	1.8899	1.3992	1.4297	1.2046	1.6579	1.348	2.4953	1.6681	2.1392
	A102	CaO	Fe2O3	K2O	MgO	Na2O	SO3	TiO2	SiO2
					8 -				estimated
% Oxide:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

#### **Participating Laboratories:**

Acme Analytical Laboratories Ltd. (Vancouver, BC) ALS Chemex (Reno, NV) Assayers Canada (Vancouver, BC)) Eco-Tech (Kamloops, BC) Florin Analytical (Reno, NV) Inspectorate America Inc. (Sparks, NV) SGS Canada Inc. (Toronto, ON)

#### **Legal Notice:**

This certificate and the referenced material have been prepared with due care and attention. However, Minerals Exploration & Environmental Geochemistry (MEG Labs), and Shea Clark Smith, MSc, P.G., accept no liability for any decisions or actions taken following the use of this geochemical reference material.

### Safety Notice:

A Material Safety Data Sheet (MSDS) is not required for this material. This material will not release or otherwise result in exposure to a hazaardous chemical, under normal conditions of use. Use regular precautions as for any work with fine powder material.

Certified By:	
	Shea Clark Smith, MSc., P.G.