# Certificate of Analysis

# Shea Clark Smith /MEG, Inc.

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# **MEG-Ag.17.09**

Certified Reference Material
MEAN = 0.767 ppm Ag
95% Confidence = 0.691 to 0.859

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

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

**Manufactured for: MEG LABS** 

**Date of Certification:** Pending (This certificate is in process and not yet finalized)

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

Certified Reference Material MEG-Au.17.09 was created from mineralized rock from the Hycroft (Brimstone oxide) pit, Humboldt County, NV.

This material is not intended to be matrix-matched to any specific ore lithology.

#### **Method of Preparation:**

163 Kg of rock (with a natural concentration of 0.65 ppm Au and 23 ppm Ag)

was dried at 100C, jaw crushed, and roll crushed to -400 um.

Gold was added to the batch to achieve a concentration of about 0.75 ppm. Silver concentrations were not adjusted.

The batch was comminuted to powder in a ceramic ball mill for 192 hours.

Sizing tests of the final product show greater than 90% pass -74um (-200 mesh).

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

#### **Method of Analysis:**

Using the ICPMS capabilities of just one laboratory, homogeneity tests were done to estimate multielement distributions from a 4-acid digestion (0.5 gram) from each of ten samples.

Then, ten samples each to ten laboratories were digested (4-acid, total) followed by ICPMS, and these data were used to certify the material for silver concentration.

#### **Summarized Assay Results:**

PROJECT: MEG-Au.17.09

GOLD (PPM)

DATA POINTS (ALL DATA)			113
MEAN (ALL DATA)		0.767	
STANDARD DEVIATION (ALI		0.046	
% RSD	,		5.991
RANGE OF VALUES - HIGH			0.876
RANGE OF VALUES - LOW			0.661
95% CONFIDENCE LIMITS	0.675	to	0.859

DATA POINTS (LAB DATA)	11.000
MEAN (LABS)	0.767
STANDARD DEVIATION (LABS)	0.038
CV (% RSD)	4.975
RANGE OF VALUES - HIGH	0.844
RANGE OF VALUES - LOW	0.712
95% CONFIDENCE LIMITS 0.691	to 0.844

#### **Statistical Procedures:**

Acceptable assay limits are based on the results of 10 samples shipped to each of 6 laboratories.

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.

Standards with an RSD (Relative Standard Deviation) of near or less than 5% are termed "Certified", while RSD's between 5% to 15% are designated "Provisional". RSD's over 15% are "Informational".

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

Submit the entire contents of one 50 g envelope in random locations in the submittal, approximately every 10-20 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.

#### **Intended Use:**

The standard material can be used to validate the analysis of samples from silver ores with a similar grade. As a control sample in routine assay laboratory operations, it should behave within the limits as indicated statistically in this certification. Its intended use is to monitor inter-laboratory and instrumental bias within these limits.

The recommended concentrations and limits for this material are based on multiple assays from several laboratories and reflect a consensus of the inherent chemical concentration. These values are a first attempt at a chemical characterization to which later data may be added as experience with the material increases.

Slight variations in analytical procedures between laboratories will result in slight biases to the recommended statistical limits.

This standard material is not recommended for method development, nor instrumental calibration.

#### **Handling Instructions:**

The material is packaged in manila tin-top envelopes for easy open and close use. The material should be reblended just prior to use in the assay laboratory. This can be done with a micro-riffle splitter or rubber sheeting. Simple agitation and shaking is not sufficient to rehomogenize prior to use.

Normal safety precautions for handling powders are recommended. The use of safety glasses, dust inhalation protection, gloves, and a laboratory coat are suggested.

### **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.

#### **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.

## Assay Data Used to Calculate "True" Glold Value:

Sample	Lab 1 ppm	Lab 2 ppm	Lab 3 ppm	Lab 4 ppm	Lab 5 ppm	Lab 6 ppm	Lab 7 ppm	Lab 8 ppm	Lab 9 ppm	Lab 10 ppm	Lab 11 ppm
1	0.780	0.787	0.782	0.728	0.764	0.764	0.749	0.855	0.739	0.788	0.736
2	0.772	0.761	0.762	0.777	0.826	0.81	0.696	0.876	0.763	0.775	0.738
3	0.759	0.779	0.794	0.699	0.756	0.777	0.710	0.837	0.699	0.764	0.72
4	0.740	0.826	0.778	0.742	0.778	0.785	0.711	0.825	0.773	0.771	0.711
5	0.755	0.788	0.801	0.737	0.817	0.737	0.667	0.809	0.761	0.786	0.687
6	0.773	0.796	0.761	0.748	0.760	0.743	0.807	0.818	0.743	0.794	0.687
7	0.746	0.780	0.732	0.684	0.811	0.786	0.737	0.853	0.813	0.775	0.661
8	0.787	0.844	0.791	0.723	0.809	0.829	0.719	0.854	0.793	0.793	0.684
9	0.762	0.834	0.759	0.710	0.760	0.783	0.746	0.851	0.728	0.765	0.675
10	0.747	0.809	0.810	0.715	0.768	0.728	0.689	0.835	0.738	0.795	0.817
11	0.758							0.870			
-	nstituents		-								
-	10 samples:	4-acid, ICPMS				3.5.07	77.0/	~~.		~***	
Raw Data:		Al%	Ca%	Fe%	K%	Mg%	Na%	S%	Ti%	Si%	
ICP/MS Da	` /	6.74	0.09	2.05	1.75	0.07	0.13	3.40	0.08		
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 estimated	
% Oxide:		12.74	0.12	2.93	2.10	0.11	0.17	8.49	0.14	73.19	

## **Participating Laboratories:**

AMERICAN ASSAY

ACTLABS-ANCASTER

ALS-LIMA PERU

ALS-LOUGHREA

ALS-VANCOUVER

BV-INSPECTORATE

BV-VANCOUVER

MCCLELLAND

SGS-BURNABY

SKYLINE-TUCSON

Certified By:

Shea Clark Smith, MSc., P.G.