



MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region
80 Diego Silang Street, Baguio City 2600

Doc. Control No.

MGB-CAR-QSP-
GSD-ALSS-006

Rev. No.

ØØ

Page 2 of 6

Effective Date

08/30/2017

PROCEDURE IN THE SAMPLING METHOD

1.0 PURPOSE

This procedure details on the complete sampling method of both solid and water samples before the analysis/analyses

2.0 SCOPE

This procedure is pertinent to sampling method that is being used in the MGB-CAR Laboratory on solid and water samples received.

3.0 ASSOCIATED DOCUMENTS

3.1 Procedure on Receiving Sample/s

3.2 Work Instruction Manual

3.3 Manual on Standard Analytical Procedures of the Mines and Geosciences Bureau Laboratory (Revised Edition; Diliman Quezon City; 2001)

4.0 DEFINITION OF TERMS

4.1 **Sample** - is a small amount of material that contains all the components in the proportion in which they occur in the original lot.

4.2 **Crushing** - breaking the ore/sample to pass a screen of some limiting size

4.3 **Pulverizing/Grinding**- disintegrating the ore into smaller and Powderly-like form

4.4 **Screening** - shaking the powdered sample in a horizontal plane and tapping the screen against a table cloth to keep the meshes clean.

4.5 **Quartering** - sample is divided into quadrants, opposite portion (Q1 and Q3 where taken as sample and Q2 and Q 4 were take as rejects). This done three to four times to get smaller portion of representative sample

4.6 **Labeling** - the act of placing the mark on the sample vial where the sample is placed, the label corresponds to the label placed in the Request of Analysis form.

Prepared by:

FILOMENA B. DEL ROSARIO
Chemist IV

Reviewed by:

BENIGNO CESAR L. ESPEJO
OIC, Geosciences Division

Approved by:

FAY W. APIL
Regional Director

This document is a property of MGB-CAR and the contents are treated in strict confidentiality. Therefore, unauthorized reproduction is strictly prohibited, unless otherwise, permitted by the MGB-CAR. All inquiries regarding this procedure shall be directed to the Management who is responsible for its control.



MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region
80 Diego Silang Street, Baguio City 2600

Doc. Control No.

MGB-CAR-QSP-
GSD-ALSS-006

Rev. No.

ØØ

Page 3 of 6

Effective Date

08/30/2017

PROCEDURE IN THE SAMPLING METHOD

- 4.6 **Air -dried Sample** -sample dried in an open air.
- 4.7 **Oven-dried Sample** - sample dried in an oven at 100°C - 105°C.
- 4.8 **As received Sample** - sample that was already dried when received
- 4.9 **Sample Vial**- where the powdered sample is place.
- 4.10 **pH** – it is a term used universally to express the intensity of the acid or Alkaline condition of a solution. It is a way of expressing hydrogen-ion Concentration or more precisely the hydrogen ion activity. Most natural waters range between the pH 6-9. The pH measurement is an important consideration in determining the corrosive action of water and assessing treatment practices for industrial processes. Acidic waters can exert stress; acidic condition kills aquatic life, while basic conditions affect the reproduction of aquatic species.
- 4.11 **Total Solids (TS)** - the sum of the Total Dissolved Solids (TDS) and Total Suspended Solids (TSS)
- 4.12 **Total Dissolved Solids (TDS)** - include both natural and man-made, their origin extending from industrial pollution to mineral deposit. These are important, since they can be present in a concentration which are carcinogenic, mutagenic, teratogenic to human beings or toxic to wildlife or aquatic species.
- 4.13 **Total Suspended Solid (TSS)** - include both inorganic (sand/clay) and organic, such as bacterial particulate and plankton. TSS determination is important since they inhibit light penetration and can restrict the zone of primary production of fishes aside from influencing the temperature patterns. Suspended solids also serve as transport mechanisms for pesticides and other toxic substances that are readily absorbable by clay. It is the portion that is retain by filtration.
- 4.15 **Mercury (Hg)** – the chemical element of atomic number 80, a heavy silvery-white metal that is liquid at ordinary temperatures
- 4.16 **Heavy metals** are generally defined as metals with relatively high densities, atomic weights, or atomic numbers

5.0 RESPONSIBILITIES

- 5.1 **Laboratory Technician/Laboratory Aide**
- 5.1.1 Receives sample/s
- 5.1.2 Prepares solid sample/s for analysis
- 5.2 **Chemist III**
- 5.2.1 Receives sample/s
- 5.2.2 Prepares water sample/s for analysis

This document is a property of **MGB-CAR** and the contents are treated in strict confidentiality. Therefore, unauthorized reproduction is strictly prohibited, unless otherwise, permitted by the **MGB-CAR**. All inquiries regarding this procedure shall be directed to the Management who is responsible for its control.



MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region
80 Diego Silang Street, Baguio City 2600

Doc. Control No.

MGB-CAR-QSP-
GSD-ALSS-006

Rev. No.

ØØ

Page 4 of 6

Effective Date

08/30/2017

PROCEDURE IN THE SAMPLING METHOD

5.3 **Chief Chemist**

5.3.1 Receives sample/s

5.3.2 Prepares water sample/s for analysis

5.3.3 Supervises preparation of solid sample/s for analysis

5.4. **Mining Claims Examiner II**

5.4.1 Receives sample/s

5.4.2 Prepares water sample/s for analysis

6.0 **PROCEDURE**

6.1 As soon as the Laboratory Technician/Laboratory Aide received the Request for Analysis from the Chemist III, said personnel will proceed to the methods of sampling of the sample/s

6.1.1 Sample is Solid

6.1.1.1 Sample is Ore/Rock

6.1.1.1.1 Sample is examined if dried or not

6.1.1.1.1.1 If dried, ("As received")
sample is crushed
grind, quartered,
transferred to sample
vial and labeled
accordingly

6.1.1.1.1.2 If sample is wet, it is
oven dried or air dried,
crushed, grind,
quartered, transferred
to sample vial and
labeled accordingly

6.1.1.2 Sample is crushed ore

6.1.1.2.1 Sample is examined if dried
or not

6.1.1.2.1.1 If dried ("As received"),
sample is grind,
quartered, transferred
to sample vial and
labeled accordingly

6.1.1.2.1.2. If sample is wet, it is
oven dried or air dried,



MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region
80 Diego Silang Street, Baguio City 2600

Doc. Control No.

MGB-CAR-QSP-
GSD-ALSS-006

Rev. No.

ØØ

Page 5 of 6

Effective Date

08/30/2017

PROCEDURE IN THE SAMPLING METHOD

grind, quartered
transferred to sample
vial and labeled
accordingly

6.1.1.3

Sample is ground ore

6.1.1.3.1 Sample is examined if dried or not

6.1.1.3.1.1 If dried ("As received"),
sample is quartered,
transferred to sample
vial and labeled
accordingly

6.1.1.3.1.2 If sample is wet, it is
oven dried or air dried,
quartered, transferred
to sample vial and
labeled accordingly

6.1.2 Sample is water

6.1.2.1 Sample/s is/are checked if there is an empty
space on the container (Usually a 1-Liter plastic
bottle) and marked as such. No preservatives for
pH Determination, Total Solids(TS), Total
Dissolved Solids(TDS) and Total Suspended
Solid(TSS)

6.1.2.2 Sample/s for Hg Determination must have been
preserved with concentrated Hydrochloric Acid, so
that the sample/s is/are in acidic medium at pH
< 2, to maintain its integrity (Analysis must be
done 28 days after collection and preservation)

6.1.2.3 Samples are then checked if labeled

6.1.2.3.1 If there is none, sample/s is/are then
labeled according to the initials of the
client

6.1.2.4 Samples are kept in a place where temperature is
between 20-25°C

6.1.2.5 Sample for AAS Analysis



MINES AND GEOSCIENCES BUREAU
Cordillera Administrative Region
80 Diego Silang Street, Baguio City 2600

Doc. Control No.

MGB-CAR-QSP-
GSD-ALSS-006

Rev. No.

ØØ

Page 6 of 6

Effective Date

08/30/2017

PROCEDURE IN THE SAMPLING METHOD

- 6.1.2.5.1 Aliquot 100 ml of sample and transfer to 250ml beaker and cover with watch glass boil till sample is Reduced to 50ml;
- 6.1.2.5.2 Add 10 ml of Nitric Acid (HNO_3) and boil until small volume (about 25 ml);
- 6.1.2.5.3 Filter in a # 40 Whatman Filter Paper receiving filtrate in a 100ml Volumetric Flask, filter paper is washed with distilled water;
- 6.1.2.5.4 Cool and dilute to the mark

6.1.3 Sample is solid for pH Determination

- 6.1.3.1 Follow the same preparation for solid samples (6.1.1)
- 6.1.3.2 Soak the 10 grams of sample to 50 ml of distilled water overnight.

6.1.4 Sample is solid for AAS Determination

- 6.1.4.1 Weigh 1.0 gram of sample in 250ml beaker, cover with watch glass;
- 6.1.4.2 Moisten sample with water, and add 10ml HCl and 5ml HNO_3 , 2-3 drops of Hydrofluoric Acid (HF) and digest until syrupy;
- 6.1.4.3 Cool and add 10 ml HNO_3 and digest till syrupy;
- 6.1.4.4 Cool and add water to boil;
- 6.1.4.5 Filter in a #40 Whatman Filter Paper, receiving filtrate in a 100ml volumetric flask; and
- 6.1.4.6 Cool dilute to the mark with 1% HNO_3

6.2 Sample/s is/are then ready for analysis.

7.0 RECORDS

- 7.1 Request for Analysis
- 7.2 Logbook on Sample Preparation