Quadrant II – Transcript and Related Materials

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Notes

Systematic collection of representative fraction of any material from its bulk is called sampling. As defined by Boxter and Parks, “Sampling is the process of taking small portion of an article such that the consistency of the portion shall be representative of the whole.” Sample is a finite part of a statistical population whose properties are studied to gain information about the whole. The value of a sample depends on the volume or quantity of material which actually represents and the degree of accuracy it represents.

In sampling we have mainly three types they are

- Chemical sampling:- In chemical sampling the samples are taken for assaying and determining the content valuable and deleterious components in the body of the useful minerals.
- Technological sampling:- In this method samples are collected for the study of technological properties of the raw material made in the course of its beneficiation and processing .
- Technical sampling:- Samples are taken to study a technical properties of raw materials which does not requires metallurgical or chemical treatment. (Mineralogical sampling, Geo-physical sampling)

Grab sampling : As the term indicates that grab sampling is not true sampling. A specimen picked up from ore or a mineral deposits or a portion of mineralized rock, which taken out of an ore body are called grab samples. The samples are taken and analysed to obtain a preliminary idea about the nature and grade of whole deposit a, to know appreciate metal content.

Channel or Groove or Trench Sampling : It is the most accepted method of sampling which best suited to bedded, banded and vein type of deposits, this method consist of cutting channels across the face of exposed ore and collecting resulting chips, fragments and dust from each channels to make a sample. In some cases the channel may also be cut along a line making a small angle with thickness of deposit The process involves the following steps. The exposure is cleaned first and remove the unwanted materials. If necessary the rock face may be trimmed at cutting point of the deposit. The location of channel is marked by a set of parallel lines. The inner part is excavated keeping a constant channel cross section. Finally excavated material is collected, pulverised carefully and sampling site is labelled. The cutting of channels depends on ore body or metal deposit.

Chip or point sampling : The method is less laborious and used as a regular method of known samples, is used for hard or uniform ores where it is difficult to cut channels. In this method the samples are collected by taking a small series of chips of rocks on a regular grid pattern from the working face in regular intervals. The blasted, broken material are sampled. The shape of grid is adopted to the morphology and structure of deposit. The main advantage of this sampling is its high productivity.

Face or Muck or Lump Sampling :The term face sampling covers sampling of exposed faces of ore and waste, this method of taking samples may be referred to the group of point sampling. One of three lumps of rocks are gathered in the face are taken from a pile of broken mineral with the purpose of finding deforming mineral and also the chemical composition. It is very simple, quick and cheap procedure but the accuracy of this method is very low.

Bulk Sampling :This type sampling method is used in checking of the reliability of other types of samples and sometimes may be taken to determine a correction factor for use in a estimate based on samples of other types. The samples are taken by blasting down drift blocks or a section in a stope or otherwise obtaining a sample of several tons to several hundreds or even

thousands of tons, either from trench, pit ,channel or from the run-of-mine, where the entire lot is milled separately .

Drill hole sampling : This method is more convenient for the determination of the deposits boundaries. Here samples consists of the cuttings from drill holes.