M. Poleva, Student
L. Kovalevych, research advisor
Zhytomyr State Technological University

DETERMINATION OF THE OPTIMAL METHOD OF COMPUTATION OF RESERVER FOR THE MIROPOL DEPOSIT

The Miropil deposit of granite gneisses is located in the western part of the Ukrainian shield.

A majority of researchers believe granite gneisses to be granites that have crystallized deep in the earth's crust either during the cooling of the magmatic melt under directed pressure or during the process of the magma's movement, as a result of which there is parallel arrangement of the mica (more rarely, of the other minerals).

Ore-reserve estimates include the determination of tonnages of ore and average grade or value per ton. Since the grade or content of valuable metal establishes the difference between rock that may and may not be classed as ore, tonnage cannot be estimated without considering the question of grade.

Determination of quantity and quality of minerals in the subsoil spend for the purpose:

- delineation of mineral deposits
- distribution of stocks according to their economic value, degree of exploration, categories of occurrence, conditions of extraction
- determination of calculation parameters
- quantitative account
- estimation of accuracy of calculation results

The main tasks of inventory calculation are:

- amount of minerals in the subsoil with its division into grades and categories of exploration;
- quality of minerals;
- technological properties of minerals;
- geological and mining technical conditions of occurrence;
- the degree of reliability of the parameters.

In this project, it is planned to perform the calculation of minerals by several methods, to evaluate their accuracy and to choose the most optimal method for calculating mineral reserves for the Miropil deposit of granite gneisses.

Depending on the form and conditions of occurrence of the deposit, the nature of the change in the content of useful components, the intelligence system and the density of reconnaissance points, goals and purpose of inventory counting, different methods of calculation are used.

Based on the geological structure of the deposit and the method of development, the calculation of granito-gneiss reserves is made using the geological blocks method on a topographic plan of scale 1: 2000.

In this project, in addition to the method of geological units, stocks are calculated by methods of parallel cuts and triangles and compared to them.

1. Method of vertical cross sections.

To determine the volume by the method of vertical sections, we build a plan and calculate the area of each figure. This method is used in determining the volumes of flashing and extraction blocks with elongated approximately parallel contours.

Vertical cuts were carried out through 3,3 m. As a result of the performed research, in determining the volume of the block, which was subjected to vertical parallel cross sections, V = 18808,287 м^3.

2. Method of horizontal cross-sectional.

As a result of the performed researches in determining the volume of the block received V = 19196,780 м^3.

3. Method of triangles.

When calculating stocks by way of triangles, all reconnaissance work on the plan within the contour computation is connected directly.

In addition, these lines should not intersect. As a result, they receive a network of closed triangles. If the sides of these triangles are perpendicular to the plane of the projection to draw a plane, then everything is supposed to split into a set of connected straight obliquely triangular prisms, the total volume of which is the uniform volume of the minerals V = 19223 м^3.

Comparison of the accuracy of different methods of measuring the volume of the block

Method of computation	**Actual indexes, m^3**	**Operational computation**	**Deviation, %**
vertical cross sections	18808,287	19197,503	2
horizontal cross sections	19255,11		0,3
method of triangles	18947, 67		1,3

The best way to calculate the reserves for the deposit in Miropil was by the method of horizontal sections. The method is quite simple to use and has a relatively small amount of computations. The largest deviation from operational accounting was when calculating the vertical cross-sectional method, so it should not be used.

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