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METHODS OF CALCULATING MINERAL RESOURCES AT THE GRANITE DEPOSIT "KAMYANA GIRKA"

In geostructural concept deposite "Kamyana Girka" is located in the northwest part of Ukrainian Shield. The minerals are weathered and immutable diverse-grained granite of Korosten intrusive complex.

Depending on the form and the conditions of the deposit occurrence, as well as the geophysical exploration system and the amount of exploratory points, goals and purpose of calculating reserves, there could be used various methods of calculation.

Method of geological blocks was used on the basis of the geological structure of the deposit, conditions of occurrence of mineral and mining features of its design.

The reserves of field are classified by categories "A", "B", "C_1"by the results of detailed exploration. The deposit is divided into5 blocks: "A-I", "B-II" "B-III" "C_1-IV", "C_1-V". Let's consider the block "B-III".

Block area of the deposit hanging wall is of 234267 m^2, and the area of the footwall of the deposit is of 302273 m^2. The average thickness of the mineral is 50,6 m, the reserves amount is 13862,5 thousand m^3. The thickness of overburden rocks is 13.3m. The volume of overburden rocks is 3443,6 thousand m^3.

To verify the calculation of the resources volume we use geological information system Golden Software SURFER. It can calculate the volume of three-dimensional subjects limited by upper and lower surfaces.

As a result, the volume of minerals at granite deposit "Kamyana Girka" is the following:

For friable overburden:

Trapezoidal Rule:	4517870.4634239 m^3;
Simpson's Rule:	4517848.6308751 m^3;
Simpson's 3/8 Rule:	4517849.4545001 m^3.

For the rock overburden:

Trapezoidal Rule:	607162.30562163 m^3;
Simpson's Rule:	607114.36484496 m^3;
Simpson's 3/8 Rule:	607114.65522404 m^3.

For minerals:

Trapezoidal Rule:	62550205.941083 m^3;
Simpson's Rule:	62550288.432091 m^3;
Simpson's 3/8 Rule:	62550285.41614 m^3.

Comparing these two methods of calculating the volume of granite reserves, we conclude that the method of geological blocks is more accurate. This method allows determining the average value of calculation parameters and limits of their reliable interpolation and extrapolation with maximum justification for this stage of block exploration.