

Uranium Minerals of Bukulja Mountain controls on Storage Reservoir Water.

Zoran Nikic¹, Jovan Kovacevic²

¹Faculty of Forestry, University of Belgrade, 11030 Belgrade, Kneza Visislava 1, Serbia

²Geological Institute of Serbia, 11000 Belgrade, Rovinjska 12, Serbia

The Garaši storage lake formed on the southern slope of the Bukulja Mountain, when the Ljig stream was impounded at its source, for water supply to the town of Aranđelovac and the surrounding communities. The storage volume of the lake is $6270 \times 10^3 \text{ m}^3$ and the dam length is 380 m. The Bukulja Mountain is located about 70 km south of Belgrade, central Serbia. Geology of the Bukulja consists of lithological members that range from the Paleozoic to the Quaternary. The area is characterized by a very complex structure, from many fault systems in different strike directions. A Tertiary granitoid emplaced in Paleozoic metamorphic rocks has been largely exposed by weathering. Long geological investigations have identified on the Bukulja many occurrences and several deposits of uranium minerals that belong to the group of low-temperature lateral-secretion (lithogene) hydrothermal and infiltration deposits. The identified uranium minerals are uraninite, sooty pitchblende, autunite and coffinite. These deposits are complex in structure and geology; vein and impregnated minerals are common, and less common are lenses, columnar jointing and nests within mineralized structures. Uranium concentrations measured are low, around 100 ppm. The Garaši lake water quality, in terms of the beta-radioactivity, has been monitored by an authorized state agency from 1991 and the quality variation trend analysed for the period from 1991 to 2004. This paper will present geology, uranium deposits, occurrences, and mineralogical characteristics of uranium minerals in granitic rocks of the Bukulja. It will explain and graphically represent the trend of increasing lake water radioactivity for Garaši storage reservoir.

Key words: uranium, granites rocks, water supply, water radioactivity, storage reservoir.