SEG 2024 Conference: Sustainable Mineral Exploration and Development

New genetic type of gold deposit for Timok, Serbia: the high-grade gold skarn mineralization at Coka Rakita project

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The Čoka Rakita deposit is located in the NW part of the Timok Magmatic Complex (TMC), in eastern Serbia, which is part of the Late Cretaceous Apuseni-Banat-Timok-Srednogorie magmatic-metallogenic belt. The spatial relationships between mineralization styles suggest that the TMC is generated by a long lasting (from ~89 Ma to 76 Ma) westward migrating arc magmatism beginning with the Majdanpek – Bor – Čukaru Peki Cu-Au belt, succeeded by the younger Kuruga high-sulfidation Cu-Au belt, the Timok Diorite Cu-Au porphyry belt, and the still younger NW Timok Au belt.

The various gold mineralization styles in the NW Timok are part of a large zoned magmatic-hydrothermal system; they are hosted by different lithological units and formed in different hydrothermal environments (from proximal porphyry-skarn mineralization toward distal epithermal). The distal sedimentary rock-hosted gold deposits have been the focus of intensive exploration of the company during the past decade. The Čoka Rakita deposit was discovered recently at the northeastern flank of a large monzonite intrusion, which is part of a distinct alkalic magmatic event in TMC and is associated to syn- and post-monzonite fertile hornblende-biotite-plagioclase±pyroxene-phyric monzodiorite sills and dikes. Low-grade disseminated gold mineralization has been intersected during historic exploration programs within the epiclastic and the diorite intrusive units. During recent years, an intensive drilling program has targeted the deeper levels of this system, which revealed the potential for new manto-type skarn mineralization, defined primarily as stratigraphically controlled stratabound gold-rich garnet skarn lenses within calcareous sandstones in the hanging-wall of the sill-like monzodiorite bodies.

The Čoka Rakita project is in the initial development stage with intensive exploration drilling and a Maiden Mineral Resource estimate completed in December 2023, reporting 1.78 million ounces of gold. The unique mineralogical and grade characteristics are new not only for the Serbian TMC, but for the entire Western Tethyan Belt.