

## **Timok Cu-Au District, Serbia: A Review of Recent Exploration and Discovery**

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Since resumption of significant mineral exploration in Serbia's Timok belt after an approximately 15 year hiatus (~1990–2005), roughly 25 greenfield exploration prospects have been drill tested via ~350 to 400 holes (about 85 km, excluding resource-definition drilling). Most efforts focused on improving previously known occurrences and were generally unsuccessful. In contrast, the search for new deposit types, or beneath post- or pre-ore concealing rocks, was rewarded with the two major new discoveries: the Cukaru Peki high-sulfidation/porphyry Cu-Au deposit and the Bigar Hill Carlin-type Au trend. In addition, two previously unrecognized but potentially significant occurrences were identified at Ogašu Kučaina/Gold Corridor (low- or intermediate-sulfidation Au-Ag-polymetallic vein/breccia) and Čoka Rakita (Au porphyry). Notably, two of the five best documented drill intervals from various Timok greenfield programs occur in the periphery of the Čukaru Peki deposit and at Ogašu Kučaina and Gold Corridor.

The concealed Čukaru Peki Cu-Au deposit was discovered in early 2012, when the final hole of a phased 10-hole greenfields drilling program intersected Cu-Au mineralization of the Upper zone high-sulfidation deposit at approximately 520-m depth and the low-grade peripheral porphyry-style mineralization of the underlying Lower zone. This occurred after a nearly 11 year Freeport-McMoRan Exploration Corporation (FMEC) exploration program throughout Serbia, initiated through Phelps Dodge Exploration (PD) in late 2001 and continued through FCX's acquisition of Phelps Dodge Corporation in 2007. Reservoir Minerals (RM) had followed up on gold mineralization from 2006 to 2007 in an area initially drilled by Eurasian Minerals in 2005. The Freeport-Reservoir Timok joint venture expanded the land package and targets originally explored separately by FMEC and RM, with the Čukaru Peki deposit located in an area that had been controlled and partially explored by PD from 2005 to 2009, and subsequently by Rakita from 2010 to the present. An initial Upper zone inferred resource announced by Reservoir Minerals in early 2014 contains 65.3 Mt at 2.6% Cu and 1.5 g/t Au; portions of the deposit remain open-ended. With management support based on encouraging intercepts elsewhere, FMEC's team had time to apply key concepts and tools, including improved geophysical methods (CSAMT), confirmation of intra-ore ages of some volcanism, and increasing consideration of deep porphyry-type targets, all of which evolved in parallel with field work in the district. FMEC had applied CSAMT successfully elsewhere, which was critical to mapping beneath conductive postmineral sediments above Čukaru Peki, if not to directly detect the ore itself. Improved age dates gave further confidence that ore clasts entrained in some volcanic units might lead back to undiscovered deposits. Finally, discovery of concealed, very high grade porphyry mineralization in the early 2000s elsewhere worldwide made the search for a high-grade porphyry target plausible. Recognition of intermediate-sulfidation Au-polymetallic veins near Cukaru Peki as possible distal components of a porphyry deposit supported the concept.

In contrast to Cukaru Peki, the western Timok's extensive Bigar Hill sediment-hosted Au trend cropped out but remained unrecognized until discovery by Avala Resources/Dundee in 2008, when their concept-driven regional sampling program revealed these deposits.