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Orogenic gold deposit at the Tsagaan Tsahir Uul, Bayankhongor belt, west-central Mongolia

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The Tsagaan Tsahir Uul (TTU) gold deposit is located at the southeastern part of the Bayankhongor metallogenic belt in west-central Mongolia. The geology of the TTU deposit consists of Proterozoic tonalitic gneisses and marble-bearing schists, Proterozoic granitoid (647 Ma) and small dioritic stocks (250 Ma) and Permian lamprophyre dike (352 Ma). Gold mineralization in the TTU deposit is accompanied by quartz veins hosted in migmatized schist and granite.

There are two types of quartz veins. First group is 15 quartz veins that have NNW to NS direction with length of from 0.2 to 3.0 km. The width of these veins is between 0.2 to 0.5 m. Quartz veins consist mostly of crucified bandings of milky quartz, with associated silver-black band. The other vein is quartz-carbonate vein with 4 km length and from 5 to 50 m width. This vein cuts quartz veins. The veins composed of brecciated fragments of quartz and fracture filling carbonate-quartz matrix. Gold mineralization is accompanied by NWW-NS quartz veins, however, latter quartz-carbonate vein is barren. Ore minerals in quartz vein are pyrite, chalcopyrite, galena, sphalerite, tetrahedrite, arsenopyrite and native gold.

Based on the tectonic similarity of the deposit, the TTU probably belongs to orogenic type gold deposit (Groves, 1998). The geological, mineralogical and geochemical features of the TTU deposit will be compared with other worldwide orogenic gold deposits.

Keywords: Tsagaan Tsahir Uul deposit, Orogenic gold