

The New Gold Deposit in the Lower Amur Region: Chulbatkan, Khabarovsk Region

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Abstract—The main characteristics of the Chulbatkan gold deposit are considered. This deposit consists of steeply dipping plate- and lens-shaped bodies with dissemination-veinlet mineralization in Late Cretaceous plagiogranites (Lower Amur complex) controlled by the NE- and NW-trending faults. The host rocks are affected by hydrothermal and metasomatic processes (beresitization, silicification, and carbonation). The only useful component in low-grade sulfide and non-rush ore is gold, while the silver content is insignificant. The resource potential of the deposit is estimated at 50 tons.

Keywords: gold, Chulbatkan, Lower Amur region

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INTRODUCTION

Decreasing gold prices have caused a respective reduction in the funding of geological prospecting by both state organizations and private companies. In the 2000s the rate of gold extraction corresponded to the rate of the increment of the reserves (chiefly owing to large deposits such as Sukhoi Log, Natalkinskoe, and Peschanka), while today the increment rate of the reserves is lower than the rate of gold extraction. Moreover, as of 2013, gold reserves (P1) made up as little as 13% of all of the classes of inferred resources (*Gosudarstvennyi...*, 2014).

The lower Amur region is an old gold-mining area where gold has been extracted since the 19th century from placers and primary ore deposits. The volume of primary gold extraction was small until the onset of industrial exploration of the Mnogovershinnoe deposit in the 1990s and then the Belogorskoe deposit in the 2000s. Interestingly, the large Albazino deposit with rush arsenic iron ores, which has been surveyed in 2006–2010, is located beyond the known metallogenic objects mentioned in the regional generalization work (*Metallogenesis...*, 2010). The discovery of this large deposit raises new questions regarding the regional gold metallogeny and, obviously, increases the regional potential of promising resources.

The Chulbatkan deposit, which is like the Albazino deposit, is located in the Amgun River valley (Fig. 1), on its right side, 20 km south of the Udinsk settlement. The deposit was found by geologists of the Kherpuchi geological survey party in the mid-1980s during a geological survey at a scale of 1 : 50000; it was then inter-

preted as a manifestation with uncertain promise determined by the growth of productivity of veinlets-disseminated gold mineralization with depth. Further appraisal, assessment, and prospecting of the deposit were performed in 2013–2016 at the expense of private investors (OOO Tret'ya GSK, which is part of the N-Mining Group). Prospecting works are continuing at the deposit, but its resource potential can already be estimated at 50 tons, with an average gold content of 1.5 g/t.

GEOLOGICAL STRUCTURE

The deposit is located in the Badzhal-Gorin structural-formation zone of the Sikhote Alin fold system, within whose limits Cretaceous (rarely Jurassic) terrigenous rocks are folded, faulted, and pierced in a complex manner by Cretaceous mafic and felsic intrusions. Thin mafic and intermediate dikes of Cretaceous–Paleogene age occur more rarely. In addition to gold mineralization, the study area is characterized by W, Mo, Bi, and Sn ore manifestations and geochemical anomalies.

The central part of the Chulbatkan deposit is located in a strike-slip zone, at the contact between the Chulbat plagiogranite intrusion and hornfels sandstones and siltstones, closer to the endocontact (Fig. 1). The main part of the mineralized zones is located within the intrusion, with rare thin bodies in the northeastern flank being hosted by hornfels terrigenous rocks. Flyschoid sequences represented by interleaving siltstones and sandstones with rare con-