Genetic features of the formation of gold-sulphide mineralizations in the Chore ore field

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To determine the conditions for the formation and localization of gold-sulfide mineralization in the ore field several deposits were selected (Kum Manor, Chore and East Duoba). The hydrothermal mineralizatsion experienced at 4-5 stages of formation in these deposits. In the mineral composition of ore bodies, mainly take part of minerals such as pyrrhotite, pyrite, arsenopyrite, molybdenite, chalcopyrite, sphalerite, galena, covellite, pale ore, burnonite, antimonite, cinnabar and hematite. The gold content in the ore bodies is directly dependent on the total amount of sulphides. In addition to Au (2-4 ppm), the ore contains Ag from 0.5 to 3.2 ppm, Pt - $2\text{-}5\cdot10^{-3}$%, Pd - $1\text{-}5\cdot10^{-3}$% and also W, Sn, Mo , Bi, Cu, Zn, Co, Ni, Sb, Hg in the amount of $2\cdot10^{-3}\text{-}3\cdot10^{-3}$%. The upper temperature interval for the formation of productive stages from the study of the temperatures of homogenization of fluid inclusions corresponds to 380^{o}C, and the lower temperature 90^{o}C, with salinities of 2.2-15.6 wt% NaCl eqvivalent. The pressure at mineral formation is estimated in the range of 300-500 bar. It is assumed that the gold-sulfide mineralization of the Chore ore field, as well as the sulfide-polymetallic, antimony, antimony-mercury and sulfide- and antimony-containing tin ore deposits of the region is associated with mantle sources [1]. This is consistent with the idea actively developed in recent years of super deep melting-fluid plumes originating in the lower mantle or at the core-mantle boundary and their "daughter" diapirs, which could have a significant effect on endogenous processes in the upper mantle and the earth's crust of the region [2].

[1] Vazirov & Malakhov (2014) The Ural Mineralogical School, 142-146. [2] Lutkov & Malakhov (2012) Bulletin TNU, 1/2 (81), 273-283.