

GOLD PROSPECTING IN BLACK SHALES BASED ON MAPPING OF DEGREE OF ORGANIC MATTER GRAPHITIZATION

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Gold prospecting in black shales based on mapping of degree of organic matter graphitization TARKHANOV, G.V. Scientific-Industrial Center for Superdeep Drilling and Comprehensive Studies of the Earth's Interior Nedra, Yaroslavl, Russia. For gold prospecting in black shales we offer a technology based on mapping of degree of organic matter graphitization. It was tested at gold deposits of the Tyan Shan Mountains (West Uzbekistan) and the Caucasus (Georgia). The main diagnostic criterion is a reflectance of syngenetic organic microinclusions. By the degree of reflectance, which is controlled by the gradual changes of the crystalline structure of the organic matter, zones the different range of crystallinity from amorphous material to completely crystalline graphite are distinguished. A zone with a well-crystallized graphite is understood as an area of Au migration from syngenetic gold-bearing rocks. The content of non-carbonate carbon and Au in the rocks is lower than to the Clark. Prospects to find large Au deposits within this zone are very unrealistic. In the zone of amorphous organic material Au content in the rocks is close to the Clark. High Au concentration can be observed in the rocks enriched with organic matter. The highest probability to find Au deposits relates to a zone of poorly crystalline graphite especially its part, which joins the area of Au migration from syngenetic gold-bearing rocks. Au mineralization beneficial for commercial development tends to the rocks with a maximum dispersion of non-carbonate carbon content.