

The mineralogy of alteration systems in Masjeddaghi, east of Jolfa, East - Azarbaijan Province

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(Received: 27/2/2009, in revised form: 21/7/2009)

Abstract: Masjeddaghi area is located about 35 km east of Jolfa, north of East-Azarbaijan province. Field and mineralogical studies show that quartz-diorite subvolcanic stock and quartz-andesitic volcanic rocks in this area were altered by both hypogene and supergene hydrothermal solutions. Alterations are genetically affiliated with four groups of (1) quartz, (2) sulfide, (3) sulfate, and carbonate veinlets and micro-veinlets. The principal hypogene alteration zones recognized in the area are (1) potassic; (2) potassic-phyllic; (3) phyllic; (4) phyllic-argillic; (5) intermediate argillic; (6) propylitic; and (7) silicified. Two zones of supergene alterations were identified: (1) leached and oxidized cap and (2) supergene sulfide blanket. The hypogene copper sulfide ore minerals in order of abundance are chalcopyrite, bornite, and chalcocite that were developed mainly in the potassic, potassic-phyllic, and phyllic alteration zones. The supergene minerals that are intimately related to hypogene alteration zones include kaolinite, goethite, limonite, Mn-oxides, jarosite, malachite, azurite, covellite, and chalcocite. Considerations indicate that the supergene sulfide blanket in this area has not been well-developed and does not have considerable thickness and ore tenor.

Keywords: *Masjeddaghi, Jolfa, mineralogy, alteration zones, mineralization.*

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