Mineralogy, paragenesis and conditions of skarn formation Siah Kamar, west Dehsalm, East Lut Block

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(Received: 5/8/2013, in revised form: 16/12/2013)

Abstract: Siah-Kamar hornfelses and skarns are located about 5Km east of Dehsalm and 85Km west of Nehbandan city, southeast of Birjand Province and east of Lut Block. This Skarn formed by injected Rigi granitoid (Eocene age) into limestone and sandstone (Upper Cretaceous). Rigi Mountain is mainly granodiorite in composition and contains plagioclase, quartz, hornbelend and biotite minerals. Geochemistry and tectonic studies show that this pluton is calc-alkaline and I-type granite. Pyroxene, quartz and plagioclase are main minerals in hornfelses. Investigation of mineralogy and geochemistry Siah-Kamar skarns and hornfelses have indicated that formed during metamorphism and metasomatic stages (prograde and retrograde). Hornfelses and marbles are formed during metamorphism stage and prograde metamorphism stage formed anhydrous calc- silicate minerals assemblages (wollastonite, grossular- andradite and diopside). During retrograde metasomatism, these minerals have effected by alteration and replacement with hydrous calc- silicate minerals (epidote, chlorite and low termolite-actinolite). Finally during latest stage metasomatism, fine aggregates assemblage minerals such as of chlorite, quartz and clay minerals are formed. Presence of wollastonite, magnetite and andradite minerals shows that this skarn is formed nearly 550°C temperature and high oxygen fugacity (fO2=10-12-10-23). Siah- Kamar Skarn has calcic- skarn type.

Keyword: skarn; Siah- Kamar; Dehsalm; prograd; retrograde metasomatism.

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