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The tectonic setting and mineralization characteristics of orogenic gold type, Nemat-Abad deposit , eastern Divandarreh block , Kurdistan province Iran

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The Nemat Abad deposit is located in Sanandaj–Sirjan Zone (SSZ) which is known orogenic gold deposits province in Iran. The Nemat Abad deposit is covered mainly by Precambrian to upper Mesozoic volcano-sedimentary sequences volcanic and pyroclastic rocks andesite and andesitic rhyodacite compositions with greenschist to amphibolite metamorphic grade, as well as cretaceous limestones. Muscovite schist units are host to main ore-bearing quartz vein in Nemat Abad deposit. Mineralization in the Nemat Abad deposit is controlled by crustal trust fault and several set flake shaped faults as well as shear zones which is created by trust. In this target, the large thrust fault has caused the uplift of the old units and the formation of orogenic-metamorphic vein mineralization as well as the iron-formation. Copper sulfide minerals were observed as chalcopyrite, chalcocite and abundant cubic euhedral pyrites from the iron-bearing sulfide mineral series. The presence of cubic pyrites can be observed along schistosity layers, of the muscovite schist units that are host to ore-bearing veins. The dominant alteration in this zone is silicic-sericite with the widespread presence of chlorite schists. In the central mineralization zone, there is gold-bearing sulfides mineralization with high amounts of base metal (Cu, Zn, Pb) arsenic and cobalt, which is associated with a halo of chlorite and sulfide alteration. The middle part of halo is sericite-carbonate with high amounts of titanium and potassium oxides. The outer part of alteration halo is carbonated with manganese minerals. We suggest that the hydrothermal-magmatic fluids have been involved in the enrichment of elements such as copper, lead, barium and have caused overprinted of gold-bearing metamorphic fluids. Based on performance of the crustal fault in this area and evidence extracted from satellite images and field studies, we suspect that gold may have higher grades at lower depths [1]. Acknowledgements This work was supported by a grant project from Geological Survey of Iran and IMIDRO and Deputy of Mining & Processing of Ministry of IMT, with project number 1401112003483 Reference [1]Padyar, F. Mohammadi, B. Shahidi, A. Gharaee, A. Mehri, B. Ebrahimi, N. 2025. Geological Survey & Mineral Exploration of Iran. 258.