

**GEOLOGICAL & GEOPHYSICAL APPRAISAL OF MASHKI CHAH PORPHYRY  
(CU-AU-MO) PROSPECT IN THE NEOGENE BALUCHISTAN VOLCANIC ARC  
BELT**

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**ABSTRACT**

The work is focused on the copper and gold exploration near Mashki Chah area of Neogene Baluchistan Volcanic Arc Belt which is one of the potential segments of porphyry copper gold rich Tethyan Metallogenic Belt. Integrated geophysical surveys (Magnetics, Induced Polarization & Resistivity) in an area of 1859.50 Acres, pointed out sulfide mineralization of huge dimension in this area in the foothills of Neogene age Dam Koh Volcano. Three exploratory wells were drilled to check the presence of sulfide mineralization. The geological work involved logging of the drilled cores, ore mineralogy, identification of alterations zones associated with porphyry system, petrography and geochemistry for gold, copper, molybdenum and silver.

Andesite porphyry and diorite porphyry are the main rock units encountered in the drilled cores are with considerable alteration. The ore minerals observed include, pyrite, chalcopyrite, magnetite, molybdenite, galena etc. in decreasing order of abundance. The alteration zones of a typical porphyry system are also present including propylitic and potash, while, some phyllic and argillic alteration has also been observed.

A total of 37 samples were randomly selected for geochemical analysis by applying standard AAS technique. The percentage of copper in the 37 randomly selective samples varies from 0.013 to 2.2 %; however, one sample had shown an anomalous concentration of 7.98% of copper. The geochemical concentration of gold varies from 0.2 to 3.08 ppm; silver concentration varies from 0.4 to 0.6 ppm while that of molybdenum varies from 6.5 to 290 ppm.

**Keywords:** (Baluchistan Volcanic Arc, Chagai, Porphyry Deposits, Geophysical Survey, Tethyan Metallogenic Belt)