

## **GEOPHYSICAL PROSPECTING FOR SULPHIDE MINERALS IN BARIT-DANYORE NALA, GILGIT BALTISTAN, PAKISTAN**

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### **Abstract**

Barit porphyry copper deposit is located about 13 km northeast of the town of Gilgit, Northern Pakistan. It consists of stockwork of fractures, veins and veinlets with no dominant orientations. These structures are present in the Barit monzonite pluton near the contact with Rakaposhi volcanics. The host rocks are characterized by silicification and biotite alterations which are associated with sulphides such as chalcopyrite and pyrite. Magnetic and self-potential methods of geophysical exploration were used for metallic minerals prospecting in the Barit area. Geophysical profiles were planned across the target zones. Extremely rugged topography and steep slopes created serious problems in lying profiles and establishing stations for geophysical observations. However, efforts were made to have ample coverage of the prospective zones in order to avoid missing of any expected mineralized locality in the subsurface. More than 110 magnetic and self-potential observations were recorded at intervals of 5 and 10 meters along the profiles in the area. General trend of the contours of magnetic and self-potential anomalies are NNE –SSW akin to the regional geological strike of the area. Anomaly contours at three sites namely Barit 1, 2 and 3 in the vicinity of mineralized veins and previously dug adits clearly shows parallel to subparallel, elongated, lenticular bodies of limited extensions (small pockets) occurring side by side at shallow depths. Geophysical anomalies over the mineralized horizon has provided a strong reason to go for drilling. Later on these anomalies were proved by shallow drilling because significant amount of pyrite, chalcopyrite, azurite and malachite were observed in the core samples. Therefore, detailed geophysical and geochemical analysis and mapping of the area under investigation is recommended for further follow-up.