Phyllic alteration-related Cu-Au mineralisation at Raitevarri, Norway

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The historic Raitevarri Cu-Au occurrence is situated 40 km SW of the Karasjok village in Finnmark, Norway. The Cu-Au occurrence is hosted by a quartz-hornblende-plagioclase gneiss unit enclosed within the Paleoproterozoic Karasjok Greenstone Belt. The sporadically mineralised zone in the gneiss has a length of more than 7 km.

Store Norske Gull A/S conducted soil sampling in the NW part of the gneisses in 2009, which revealed an oval-shaped multi-element soil anomaly of 300 m wide and 700 m long. A drilling campaign was conducted in the area and a previously unknown Cu-Au-mineralised body was discovered.

Two alteration styles are recognized from the drill cores: (1) a phyllic alteration, associated with quartz-muscovite-sulphide or quartz-tourmaline-sulphide±muscovite± chlorite veins and (2) a plagioclase-epidote-chlorite alteration assemblage, associated with quartz-epidote veins with amphibole selvages. The phyllic alteration is extensive in the studied bedrock and easy to detect from the hand-samples because of the bleached appearance. The phyllic alteration is associated with a significant gain in Cu, Au, Mo, Ag, As, Bi, Se, and Te as well as loss in Zn, Pb, Cd, and Mn.

The metal zonation in drill profile RAI-500 shows two central zones where Cu, Au, and Mo anomalies coincide. The Cu-Au-Mo enriched zones are surrounded by zones with elevated Zn, Mn, Pb, and Cd concentrations.

Current interpretation is that Raitevarri area encloses a metamorphosed porphyry-style mineralisation.