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APPLICATION OF GEOPHYSICAL AND GEOCHEMICAL METHODS AS EXPLORATION TOOLS IN IDENTIFYING EXTENSIONS OF THE PENJOM GOLD DEPOSIT, PENJOM GOLD MINE, KUALA LIPIS, PAHANG.

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ABSTRACT

The Penjom Thrust is the dominant geological feature controlling the distribution of ore in Penjom Gold Mine. The Penjom Thrust, which strikes NE (035°) and dips to the southeast (30°-40°) is developed by a westward- directed compressional deformation event. Considerable shear stresses along the Penjom Thrust have remobilised much of the carbon within the shale sequence to form a graphitic "alteration" zone. The carbonaceous Penjom Thrust appears to be the main driving force behind the gold mineralisation, acting as both the main fluid conduit into the footwall and as a cap preventing fluid into the hanging wall. The thrust is later intersected by a series of north-south and northwest-southeast structures. Thus, areas of similar deformation along the strike of the Penjom Thrust may be prospective for similar deposits. Rock types are also important, especially in their responses to structural deformation which have developed favourable sites for mineralisation. The most significant unit in the mine area is the tonalite intrusion complex. Dilation zones at the hinges of folded tonalites and tonalite contacts with sedimentary units are the most favourable sites for gold mineralisation. The Penjom exploration team has utilised geophysical (IP dipole-dipole) and geochemical (Partial Leach) methods to identify these targets. The results show that the IP dipole-dipole survey is very useful to map the location of the Penjom Thrust and other key geological

features, while the multi-element soil geochemistry survey maps the gold mineralisation hotspots and correlating elements along the thrust and at its footwall.