



from the north) under this 'Mitre' labelling and gives the equivalent Dighem identification together with the respective EM channel amplitudes and Dighem's quantitative interpretation data.

This report evaluates the EM responses recorded by the Dighem survey and gives an order of priority for ground follow-up.

EXPLORATION TARGET AND GEOLOGIC SETTING

The area surveyed lies immediately to the SSE of the Renison Bell tin mine and a considerable proportion of the area consists of the same geological formation as the rocks immediately overlying Renison's mine host sequence (the Crimson Creek Formation). Thus the principal exploration target is for a massive pyrrhotite-cassiterite replacement body. Such a deposit would have strong magnetic and inductive (i.e. EM) responses.

There are many small vein type mineralised areas within the survey boundaries and other exploration targets might be large scale versions of these, or perhaps disseminated mineralisation bulking up to a low-grade deposit. Blissett (1962) has described many of the old prospects and workings; some contain tetrahedrite-chalcopyrite ('fahlore'); others have been classified as galena-sphalerite, chalcopyrite-bismuthinite-pyrite, or pyrrhotite-arsenopyrite-cassiterite veins. Pyrite is usually associated with all types. These occurrences are mostly fissure lodes occupying NNE or NNW striking fault or fracture zones. The host rocks are Cambrian or Pre-Cambrian sediments comprising a "variable succession of slate, siltstone, greywacke and breccia-conglomerate." There may be interbedded andesite and basaltic lavas and tuffs. In places there are basic (gabbro) and ultrabasic (serpentinite) intrusives. A large number of faults, mostly trending NNE or NNW intersect the area, which has been tightly folded. (Blissett, 1962).

Dighem anomalies should occur over large (though not necessarily economic) sized deposits of these types of mineral occurrences, but none would be expected over the disseminated style postulated above. A magnetic response would only occur over the last group of occurrences which contain pyrrhotite. EM responses of varying grades may be expected from graphitic bands within black shales known to occur in the area and weak anomalies may occur over shear zones.

RESULTS

The survey defined a total of fifty one anomalies of which one was grade 5, four were grade 4, six were grade 3, eleven were grade 2, seven were grade 1 and twenty two were possible anomalies. Several of the last mentioned were not picked by the automatic anomaly recognition program developed by Dighem, but were interpreted manually by the Dighem geophysicists, usually as interpolations between anomalies. The other anomalies had mostly strong responses, which gives credence to the mho estimates (i.e. grades) and means that they should be readily detectable on the ground (assuming reasonable accuracy for their location).

Although the nominal terrain clearance for the bird was 36m., a large part of the survey was flown at heights considerably greater than this. Figure 1 shows a plan of the recorded height using a 30m. contour interval. Whilst (considerably diminished) responses might be expected over good shallow conductors, deep-seated or weak conductors might not respond in such areas. That is, areas which are large enough to contain ore-body sized responses and which are over