



INTRODUCTION

The Black Hill and Carbine Hill grids lie in the south-eastern corner of E.L. 42/71, ie immediately to the south of the Renison Mine Lease. Exploration on both grids is directed towards tin; expected types of mineralisation include Renison style replacement bodies and fault infilling.

Parts of the area covered by the grids have been previously investigated by Renison Ltd and by earlier explorers: in particular, in the vicinity of the old Grand Prize and Kapi workings. However this report is restricted to an evaluation of the VLF and magnetic surveys conducted during the 1983-84 field season, with some examination of the regional aeromagnetic and gravity surveys.

EXPLORATION TARGETS AND GEOLOGIC SETTING

The Black Hill and Carbine Hill grids overlie Dundas Group sediments which occupy the southern and eastern parts of this section (ie, the south-eastern rectangle) of E.L. 42/71. These sediments consist of siltstones (some carbonate-rich), sandstones, conglomerates, black shales, etc. Komysan (1984) has mapped rhyolitic and mafic tuffs within these units. That section of E.L. 42/71 which remains ungridded (between the Commonwealth Hill grid and the Black Hill/Carbine Hill grids consists of apparently unprospective Melba Spilites. To the north of the spilites, lies a large area of ultramafics. The intersection of serpentinites in drill holes near the Grand Prize workings suggest that this complex (the 'Serpentine Hill' pyroxenite-serpentinite) may join the 'Razorback' ultramafics which lie immediately to the south of the E.L. (see Figure 2).

The responses from the Razorback and Serpentine Hill ultramafics dominate the aeromagnetic map and the former imposes a strong gradient on the ground magnetics over the Black Hill grid. Determination of the extent and structural nature of the ultramafics would enable any (small) prospective anomalies to be resolved in the magnetics and the boundaries themselves are areas of interest (for deposits similar to the old Razorback mine -see below).

There are several old mines and workings within the gridded areas; some of these, such as the Kapi and Great Northern mines, contained base metals rich in silver. However most, if not all, of these deposits were fissure veins of limited tonnage. The most significant (known) tin occurrence within the gridded areas is the Grand Prize mine, which is a mineralised fault within the Dundas Group sediments. The fault is deeply weathered (to at least 250m in places) and cassiterite was mined from the oxidised zone.

The most sought-after target is for a Renison style massive