2.9 JUKES PROPRIETARY MINE (R. M. D. Meares)

2.9.1 Introduction

A preliminary inspection of the geology and mineralisation of this mine was carried out to assess the gold potential of the sulphide zone. Most previous assessments of this prospect have investigated the copper potential but little attention has been paid to the gold-silver content of the copper mineralisation. A suite of high grade copper samples collected from the mine dumps assayed up to 9.3 g/t Au and 90 g/t Ag. Although the suite is not representative of the mineralisation, it does indicate that the gold potential of the prospect should be closely investigated.

2.9.2 Geology and Mineralisation

The mine is located on a high saddle approximately 1 km south of the King River and 1.5 km NE of Mt. Jukes. Access is by a washed-out four wheel drive track up Traveller Creek from Crotty. The mineralisation consists of veinlet to semi-massive pyrite and chalcopyrite exposed in the old workings (3 adits) over a strike length of 120 m and a width of approximately 10 m. The average grade of the mineralisation deduced from systematic wall sampling by various previous parties and companies is approximately 1.6% Cu.

The mineralisation strikes NE and occurs within a NE-striking alteration zone at least 550 m long and 40 m wide, characterised by quartz-phyric tuffs and breccias now strongly chloritised with locally abundant hematite and magnetite, with minor barite and Mn-carbonates. The alteration zone strikes parallel to and occurs slightly west of the contact (in part faulted) between the Central sequence rhyolitic lavas and Eastern sequence quartz-felspar crystal-lithic tuffs and volcanoclastic sediments, respectively occurring to the NW and SE of the contact. The Eastern sequence has been correlated with the Tyndall Group (K. Corbett, pers. comm.). To the Wand NW of the mine area, the Central Sequence grades rapidly into a thick sequence of massive, unaltered rhyolitic lavas with local columnar jointing, spherulitic texture, and minor disseminated hematite. To the SW, the alteration zone is unconformably overlain by a flat-lying sequence of Jukes Breccia and Owen Conglomerate, forming the steep north face of Mt. Jukes.

Apart from the driving of three adits to prospect the mineralisation during the period 1897-1915, no mining of the zone has been attempted. The prospect has been tested by one D.D.H. (Z142003) drilled by International Nickel in 1973-74 to test the down-dip extension of the northern end of the sulphide zone. The hole intersected 6 m of 0.59% Cu, 2.7 g/t Ag, <0.5 g/t Au (139.2 m-145.2 m) down-dip from the mineralisation exposed in the No. 3 (middle) adit. The presence of a post-mineralisation fault bounding the mineralisation in the drill hole and in part of the adit suggests that some of the sulphide lens may have been faulted out.

2.9.3 Geochemistry

A suite of four samples, each averaging 2 kg and composed of selected pieces of chalcopyrite-rich mineralisation from the mine dumps at the mouths of the adits, was collected and assayed at the Mount Lyell laboratory for Cu, Pb, Zn, Ag, Co, Fe and Mn by A.A.S. and for Au and Ag by fire assay. Ag results were similar by both methods. Results are presented in Table 11 and indicated gold grades in the range 1.5 to 9.3 g/t Au. A sample (24716) from the No. 2 (lowest) adit consisted of chalcopyrite with abundant disseminated galena and minor sphalerite. Pb-Zn mineralisation is not mentioned in any previous report. Further detailed exploration will be conducted during the 1981/82 season.