

Detail Gravity Surveys

A number of detail gravity surveys have been undertaken, by the BMR and the Tasmania Department of Mines, mainly in the Zeehan area, except for one survey over the Que River ore body. Detail gravity surveying has not been used to any great extent by the exploration groups working in the area probably due to the high cost of carrying out a gravity survey in mountainous country.

Over the less mountainous area near Zeehan, Loh (1950) and Langron (1966), used gravity methods over known mineralisation. Loh reported that in the Mariposa area east of Zeehan gravity methods defined a 5 milligal anomaly over the mineralisation and that the anomaly extended beyond the then known limit of the ore body. The survey defined secondary anomalies which were previously unrecognised. Loh expressed an opinion that the problem associated with terrain in the area made the interpretation of smaller anomalies difficult.

The Oceana area one kilometre south of the old smelter at Zeehan was tested by Langron. In this area there was a well defined gravity anomaly associated with the mineralised centres. Drilling proved the source of the response to be siderite. Detail gravity surveys over the Silver King and Town Limestone failed to indicate any massive mineralisation.

A survey is being carried out by the Tasmania Department of Mines over the Zeehan to Renison area at present and the results are currently available from the Department. The results of this survey were plotted at a scale of 1:25,000 and contoured, then reduced to 1:50,000 (Plate 8).

Although not included in this review the terrain corrections calculated using the method described by Hammer (1939) and using a density of 2.67 gm/cc, were plotted and proved to be minor with respect to the main anomalies (eg. 2-3 milligals corrections compared to 10-20 milligal anomalies).

The gravity results over this area, (Plates 4 & 5), demonstrate the following features.

(1) A major gravity low east of 368000E and north of 363000N correlates with the Razorback, Black Hill and Commonwealth Hill areas. These results are difficult to explain as the magnetic data and the mapping by Brown (1982) show that the most intense gravity lows (ie -17 milligal) are located over ultrabasic bodies. The terrain corrections in this area are typically 1-2 milligals therefore an error of this proportion would remain small in comparison to the magnitude of the low. Unfortunately the survey did not extend far enough to the east to adequately test the response of the Pine Hill Porphyry body however, the coverage shows an intense gravity low adjacent to the porphyry. This leads to the conclusion that there could be similar, low density, porphyry sources under the entire area. Where this model produces