RADIOMETRIC SURVEYS

The regional aeromagnetic survey flown over the West Coast Region of Tasmania was conducted without the support of a radiation spectrometer. This decision was based upon the problems associated with carrying extra weight in the extremely mountainous country, when it was not expected that there would be any radiometric anomalies which could be considered as potential economic mineralisation. This was an unfortunate decision as there are a number of tin bearing granites which may have a radiometric signature similar to the tin granites in New England, N.S.W., Slade (1982) and the Lachlan Fold Belt, Yeats et al (1982). The only radiometric data published (Collins et al 1981) shows tin granitoids to be the most radioactive due to an enrichment of radioactive elements especially uranium.

The data presented by Collins et al (1981), was based upon ground readings taken at selected sites. This data is invaluable as it can be used to equate count rates to percentage concentrations or p.p.m., assuming chemical equilibrium. The main disadvantage of this type of data is that it is very selective and samples are only taken from accessible areas. Airborne data samples a far larger area and usually produces sufficient readings to allow a statistical analysis of the data. The results of the ground survey were plotted on a series of K-U-Th (potassium -uranium -thorium) ternary diagrams, with the count rates adjusted to amplify the uranium contribution. The data from the Meredith Granite, Mt. Bischoff Porphyry, Pine Hill Porphyry, the Housetop Adamellite and skarn, the Murchison Granite, and the Heemskirk Adamellite and greisenised granite have been superimposed (Figure 21). The results shown can be summarised as follows:

(a) The two samples taken from the Housetop Granite Skarn (Kara Mine - wolfram) have a low potassium and an elevated uranium concentration.

(b) The Pine Hill and Mt. Bischoff Porphyry bodies are similar with a minimum of potassium and an elevated uranium level.

NOTE: These two classifications do not overlap any of the more typical granites.

(c) The Heemskirk Granite has been divided into two categories, "white granite" and "red granite". The ternary diagram classification shows that the "white granite" is located towards the uranium apex while the "red granite" is the more 'typical'.

(d) Superimposed on the Heemskirk field is the Meredith Granite. This shows as a tightly grouped cluster of points between the 'typical' granite and the higher responses of the Heemskirk "white granite". Within the Meredith Granite field it is possible to recognise a secondary subdivision based upon