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- iii) The "Hellyer Stringer Zone project" is being completed by Dr. J. B. Gemmell, CODES, University of Tasmania. Progress report 3 was issued during the reporting period and a final report is currently due. Recent work has focussed on a regional cross section (approximately 10500N), the Pb isotope characteristics of the Stringer Zone, regional oxygen isotope variations and detailed isotopic and mineralogical studies of phases in stage 2A, B and C Stringer veins. This project has led to a proposal for investigation of the significance of Pb isotopes in potential source rocks.

In addition Dr. R. Henley of Epithermex International, was contracted to review the geology and geochemistry of the Mt. Charter alteration system to determine if it exhibited any hangingwall style alteration features indicative of a VMS deposit at depth that may now be partially remobilised.

The initial problem has since been broadened to include studies of a more regional nature. An initial report (appendix 4) has been followed up by two pilot studies:

- i) Rb-Sr isotope characteristics and alteration geochemistry (Appendix 5). Samples from lithologies footwall to the Hellyer ore position on Bruce Gemmell's research section (approx. 10500N) indicated that the Rubidium concentration and Rb/Sr ratio may be used, with an "alteration index filter", as a vector for VMS alteration from 200-2000m from the alteration zone. Follow up work, on down hole variation distal to the Hellyer alteration system using samples from DDH'S MAC-11 and MAC-19, is in progress. Assay results have been received (Appendix 5) but interpretation is not complete. Studies at Mt. Charter and Hangingwall to the Hellyer ore position are recommended.
- ii) A review of structural and stratigraphic relationships in the QHV and possible structural architecture models for the district that may influence the understanding of the setting of VMS mineralisation (Appendix 6).

A further recommendation of the initial report was the compilation of a comprehensive database of reports, papers and data from the Mackintosh district.

3.2 Mackintosh lineament study

The initial lineament study, (McNeill, 1990) has been expanded to include interpretation of recent image processed Ba, As, Cr, Ti and Zr 'C' horizon soil geochemistry. Results are shown on plates MAC-306, 311 and 313.