The Geochemistry and Textures of the Grevillea Gossan, Northwest Queensland

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A research thesis submitted in partial fulfilment for the requirements of the Degree of Bachelor of Science with Honours

CODES SRC
Centre for Ore Deposits and Exploration Studies
School of Earth Sciences, University of Tasmania
December, 1999
Notice in foreground the excellent ‘termite’s impression of the gossan’.

To my artistic family I would like to comment;

There cannot be art without fact,
As there cannot be science without imagination.
Abstract

The Grevillea deposit is a newly discovered Pb-Zn-Ag stratabound sediment-hosted deposit in the Lawn Hill Region of NNW Queensland. It lies in part of the Mount Isa Inlier which has been described as one of the richest mineral provinces in the world.

The study undertook varied geochemical analyses for determining element variations and the relationships, and elemental partitions in the regolith units. It was found that Ti, Pb, Si, Fe are surface indicators of mineralisation for the Grevillea deposit. Two types of rock units dominated the regolith, which overlies the massive pyrite zone: the jarosite limonites and the hematite limonites, and both act as sponges for metals derived from the ore. The jarosite types in the area are likely plumbojarosite and argentojarosite.

Textures were also studied in outcrop, on a handspecimen scale, and on microscopic scales to search for evidence of primary sulfides. Sections of ore sample were studied and some links were made to surface textures. These included sedimentary features, bladed and platey hematite, and framboidal structures. Light rare earth minerals (monazites) in the core were an unexpected unusual find as they are not normally associated with sedex style deposits. The monazites may have useful application in dating the deposit or gossan formation.
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Appendix 1 Literature Review: Gossan Forming Processes.

Appendix 2 North Limited Drillhole data for 15 235N, and 15 185N

Appendix 3 North Limited Diamond Drillhole Log RVD017

Appendix 4 -Regolith geochemistry: ICP-OES results from this study
- ICP-OES data for transects 152500N and 15 150N
 supplied by North limited.

Appendix 5 XRD Traces and Tables.

Appendix 6 PIMA and FTIR Traces. Geochemical techniques for
Gossan Analysis.

Appendix 7 Rock Catalogue