

11-4-92

NOTE TO : Bill Jenkins  
FROM : Keith Hannan

SUBJECT : Isa District Sulphide  $\delta^{34}S$

Bill,

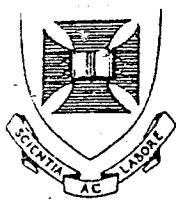
Attached are the results of a small isotope survey from last year. The data is for sulphides from the Eastern Succession and Southern 'Isa Valley' (Ayds Show, Eagles Nest, Cluny area and DDH 412 from the southern Navit area). All Isa Valley sulfide was sampled from Mount Isa Group rocks (DDH).

Note how sulphide from the prospects east of the Mt-Isa - Satellite (Paroo) Faults is quite heavy ( $\delta^{34}S > 15\text{‰}$ ); they belong to the 'horizontal' Basement population of Isa Mine and the Native Bee - South Native Bee areas. The Southern Navit samples ( $13\text{‰}$ ) possibly belong to what I call the 'hangingwall' or 'vertical' Basement population (eg South Native Bee ECV  $\delta^{34}S$  9-12‰, Hilton ~ 10‰, Isa Mine ECV < 13‰). Hence my suggestion of structurally - defined isotope domains that possibly correspond to distinctive fluid flow domains. How these <sup>might</sup> relate to the deformational history of the region is the big question.

Keith

CC. KJM, DSP.

apologies for paper quality - minmax policy?



DEPARTMENT OF GEOLOGY AND MINERALOGY

The University of Queensland  
Queensland, Australia, 4072

Telephone: (07) 377 2375  
International: 61 7 377 2375  
Telex: UNIVQLD A40315  
Facsimile: (07) 870 4993

Head of Department: Dr. G.R. Orme

February 18, 1991

Dr Keith Hannan  
Exploration-NW Queensland  
Mount Isa Mines Ltd  
Mount Isa QLD4825

Dear Keith,

Sulphur Isotope Analyses

Sample	Mineral	$\delta^{34}\text{S}$ ‰ CDT
QQ46658	pyrrhotite	1.4 DUGALD R.
QQ46659	chalcopyrite	1.6 DUGALD R.
QQ62302	pyrrhotite	-4.2 SUNSET (MARYK)
QQ62327	chalcopyrite	-3.1 QUAMBY <sup>syn-post</sup> RR
QQ62327	chalcopyrite	-3.4
QQ62328	pyrite	-2.7 QUAMBY <sup>postRR</sup>
QQ62330	chalcopyrite	-2.0 DUCHESS ?
QQ64807	chalcopyrite	17.3 SYD'S SHOW
QQ64807	pyrrhotite	19.2 SYD'S SHOW
QQ64808	chalcopyrite	19.6 EAGLES NEST
QQ64808	pyrrhotite	16.1 EAGLES NEST
QQ64809	chalcopyrite	22.9 SOUTH CLUNY <sup>8e</sup> 378
QQ64810	chalcopyrite	13.8 NOVIT E412 408.2m.
QQ64810	pyrrhotite	13.8 " E412
QQ76752	pyrrhotite	18.3 CLUNY 2408

1. NBS 122(0.5‰ CDT) and NBS 123(17.0‰ CDT) were used to establish a calibration curve.

2. Our final invoice for this work is enclosed.

Kind regards,

*Sue Golding*

Dr Sue Golding  
Manager, Isotope Geochemistry Laboratories