

Perenti Prospect, Tanami, JV

Introduction

In 1968, Perenti copper prospect was discovered by Central Pacific Minerals N.L, about 240km NE of Alice Springs. An extensive programme of geochemical sampling and geological mapping was carried out prior to the drilling of three angle diamond holes DDNT-12-1, DDNT-12-2 and DDNT-12-3 in late 1969.

Detailed records of the geology, geochemistry and drill hole logs are available, but it appears that little if anything has been done on the project since the drilling in the late 1960's.

Present Study

The task was to re-examine drill core stored at NTGS core library in Alice Springs with a view to determining:

- 1) Whether existing detailed logging properly reflects the geology of the core;
- 2) Whether the geochemical values recorded seem reasonable given the observed mineralization in core;
- 3) Whether the style of mineralization could be re-interpreted in the light of advances in understanding over the past 30 years, or so, particularly in the light of the 10CG models.

Results

Two days were spent re-examining the available core and NTGS. It was immediately apparent there had been some confusion in the labelling and storage of core and/or the preparation of summary reports by CPM or others. It seems likely that core marked as being hole DDNT-12-1 is not certain whether this is the only problem and I suspect that some of the recorded analyses in the "final" reports are also confused from hole to hole and depth-wise since in some cases where analyses are given, core has obviously not been sampled. Some sample results given are from depths beyond the EOH.

In general where there is confidence that the core described in logs is correctly correlated with the actual hole, the core descriptions are very detailed and quite acceptable as being a trim and full record of lithologies intersected with some minor reservations in relating to an overestimation of hematite content. The same can be said where chemical analyses given can be compared with remnants of core i.e. analyses appear to properly reflect mineralization. No guarantees can be given about the precision of analyses in the late 60's early 70's however, but it is believed they will generally reflect the levels of mineralization adequately.

Core Available of NTGS

* NOTE: it is assumed that labelling is wrong and the core for hole DDNT-12-3 is actually DDNT-12-1, and vice versa. If this is true actual core held is:

Summary of core availability etc:

Hole #	Actual		Held		Missing		Examined		Split	
	From	To	From	To	From	To	From	To	From	To
DDNT-12-1	141'5"	418'	43'4"	325'	325'	418'	202'	325'	?	?
DDNT-12-2	40'	613'5	42'9"	606'4"	457'8"	508'4"	375'4"	606'4"	436'6"	498'6"
DDNT-12-3	195'8"	558'1"	195'8"	558'1"	414	490	367'6"	558'1"	310'	523'
									490'	523'

Core Examined: (assuming DDNT-12-1&3 are interchanged)

DDNT-12-1 – (Marked as DDNT-12-3 in core library)

202'1" to 325'10"

The outline core examined consisted of pink foliated granite with very minor dark coloured breccia veins at about 248' and 267'6" (see samples PC-01 & PC-02).

There is still some doubt about the labelling of core since the original logs record breccia from about 258'6" and the top of the "reef" at 302'6". The core examined did not show any of this and was relatively consistent foliated granite to the last tray at 325'10"; apart from minor thin breccia veins like those mentioned above.

DDNT-12-2

375'4" to 606'4" – (but no core available for interval 457'8" to 508'4")

Core lithology generally agrees with the logs being a well-foliated granite down to about 452'. Original logs describe the quartz reef project as starting at 446'8" but the core shows this contact at about 452'. Maybe some minor rearrangement has occurred in time, given that core is completely missing from the interesting zone of 457'8" to 508'.

At 508' core is a massive pink feldspar rock with very little quartz and minor chlorite. From 544' to the end of core at 606'4" the core consists of a quartz feldspar porphyry.

The correlation between core and litho-logs in the reports by Central Pacific Minerals NL (e.g. Report NT-12B 1970) is not completely convincing, and in the absence of core over the significant interval 458' to 508' approx. Assumptions must be made about the saleability of the analyses of mineralized sections.

DDNT-12-3 – (Marked DDNT-12-1 in core library)

367'6" to 558'1" (EOH)

From 367'6" to 414' the core consists of foliated granite, as described in the detailed drill-logs. Core is absent from 414' to 490', but original logs describe the top of the "reef" occurring at 468'11". From 490' split core is available showing quartz

rich fracture veins with abundant pulphide, pyrite, chalcopyrite and chalcocite. Sulphides are associated with latest stage quartz vein fill. There is little hematite or hematite alteration associated with this system. Core is intact from 523' to EOH at 558'1" and consists of brecciated granite, with pink feldspars, minor cross cutting quartz veins and chlorite matrix, with some minor sulphide.

Conclusions:

- 1) There is likely mislabelling of the core held at NTGS and still some questions relating to the lithologies and chemical analyses and to which core hole they actually apply.
- 2) Lithology descriptions are accurate where they were able to be confidently correlated to the core, with the reservation that the amount of hematite present is in most case overestimated.
- 3) Where mineralized core reunions, it confirms at least the right order of magnitude of values reported in analyses. The accuracy of gold values might be questioned given the time they were done.
- 4) The copper mineralization relates to latest – stage quartz veins in a very major shear zone cutting granite gneiss terrain.
- 5) Additional core samples have been taken for analysis from granite breccias previously not sampled to test whether copper values might extend into these breccias beyond the “reef” proper. It is not believed that the prospect represents a “true” 10CCG target as presented, but intrusion of the Mt Swan granite may have provided a drawing mechanism for the mineralization in the major sheer. Copious metasomatic fluid movement through this zone is evident from quartz and fluorite as well as the copper mineralization.

Recommendations:

- 1) As a matter of priority, copies of original reports held by Michael Green should be obtained, particularly results of an IV survey apparently alone across/along Perenti reef.
- 2) The IP might assist in assessing the possibility of more significant grades or tonnages mineralization at depth or along the line of the “reef” in zones of poor outcrop.
- 3) Given the marked variation in fluorite abundance between the three diamond holes, it is not unreasonable to conclude that the intensity of the mineralizing event might well vary substantially down dip and along the very major regional fracture, giving the possibility of the high grade Cu values in zones well away from the most strongly silicified zone of outcrop which was drilled.
- 4) Clearly a significant increase in grade is necessary to produce an economic deposit within the sheer itself, or a substantial expansion of a mineralized breccia system outside of the sheer and into adjacent granites and gneisses to give increased tonnages at reported in-grades.
- 5) It is unclear whether rock-chip samples collected were originally or routinely analysed for Au. It seems unlikely that this has been done but might be worthwhile. There is only limited core remaining of the “reef” which might still be worth Au analysis to check the original work. A boost in the economic unit value of the reef would help motivate further expenditure.

- 6) A moderate scale IP programme along strike from Perenti itself might be an effective next step on exploration, possible depending in an assessment of the results of the previous IP.