

MINERAGRAPHIC AND PETROGRAPHIC DESCRIPTIONS

SAMPLE NO: BRCD – 9 297.37 – 297.5 m

TYPE: Core

LOCATION: Borroloola Drilling 2006

FIELD IDENTIFICATION: A carbonate – minor quartz vein cuts an altered fine grained arenite host containing a series of dark stylolitic shears. The sample reacts weakly with dilute HCl.

SECTION TYPE: Polished Thin Section

CLASSIFICATION: *Mineralised (chalcopyrite, minor pyrite) veins cutting a pervasively altered – carbonatised and weakly deformed (stylolitic shears), moderately sorted arenite host.*

DESCRIPTION:

MINERALS PRESENT:

Quartz (clasts)	24%
(veins)	3%
Plagioclase	tr
Mg chlorite	2%
Sericite	tr
Carbonate - dolomite (matrix)	57%
(veins)	12%
Leucoxene	tr
Zircon	tr
Opagues	2%

Opagues (2%):

Chalcopyrite - dominant
Pyrite - minor

TEXTURE:

The sedimentary host is coarser grained than previously described samples and contains fine to medium grained (up to 0.8 mm), moderately to poorly sorted, subangular to rounded detrital grains and trace plagioclase grains in an altered, fine grained matrix. The detrital grains are generally matrix supported. The matrix has been pervasively altered to micritic carbonate that has also replaced some possible rounded feldspathic (?) clasts. A series of stylolitic shears comprising fibrous Mg chlorite and a dark residual phase (leucoxene, zircon) cut the matrix and, have, in turn, been cut by a series of sparry carbonate – quartz veins. Minor sulphides are associated with the carbonate veins.

In reflected light, coarse anhedral chalcopyrite, associated with minor pyrite, occurs within cross-cutting carbonate veins. Trace accessory leucoxene is apparent under reflected light.

ALTERATION/METAMORPHISM:

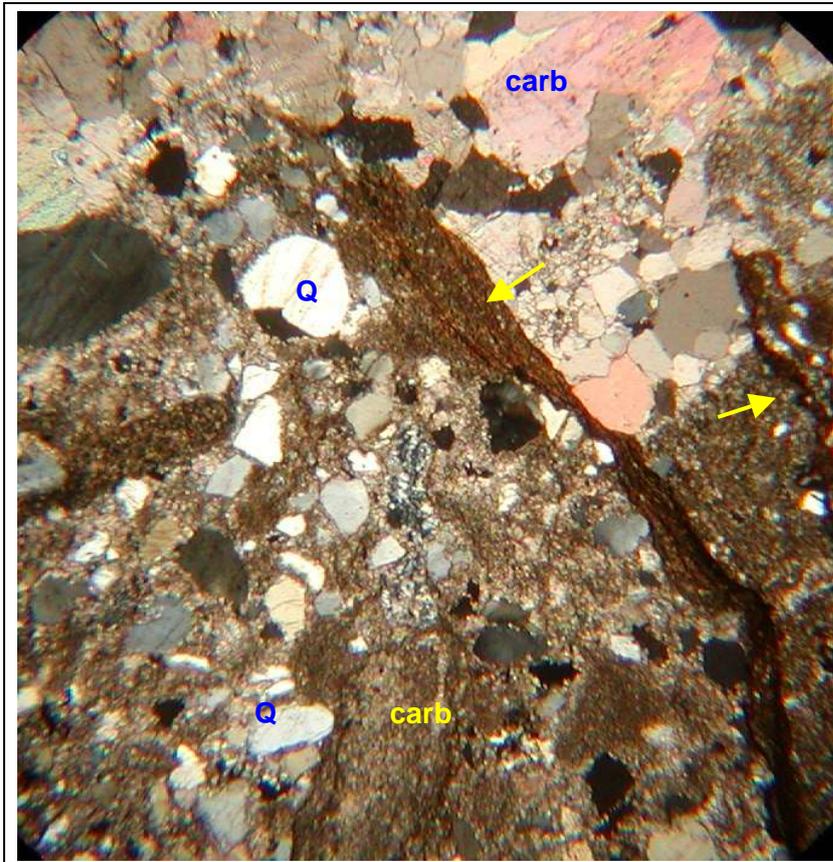
The preservation of relict detrital textures in the arenite host confirms that the metamorphic grade is low. The arenite matrix has been pervasively altered to micritic carbonate as a product of hydrothermal alteration associated with the introduction of carbonate – minor quartz veins that can be mineralised. The presence of stylolite veins provides evidence of deformation.

COMMENTS:

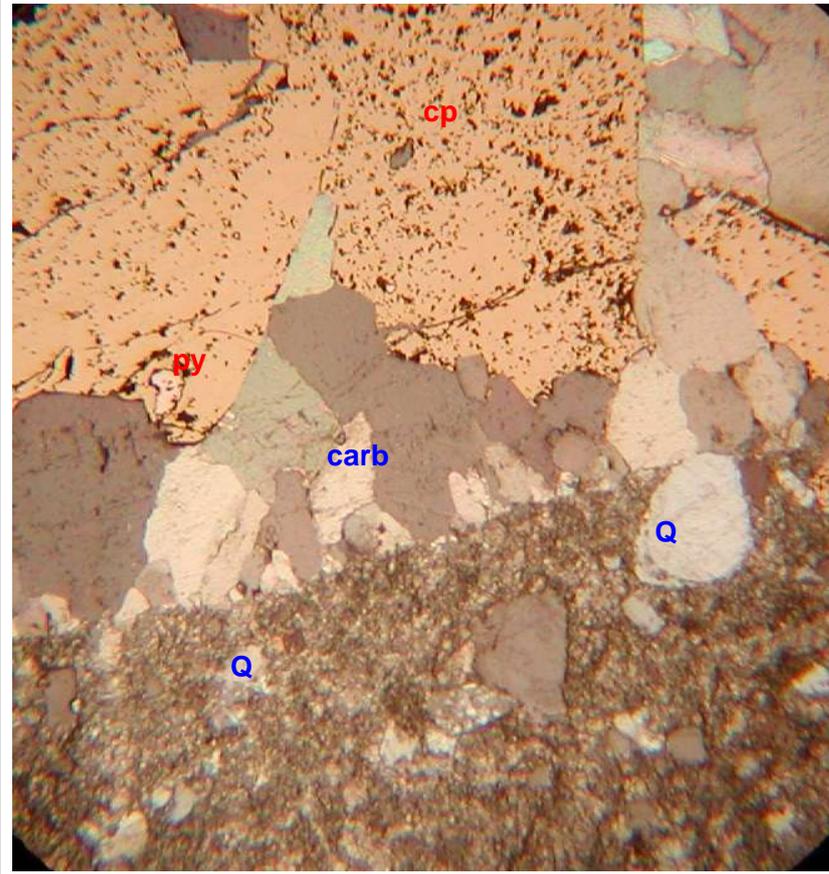
The arenite host is coarser grained and appears to be more mature than the previously described argillite hosts to mineralisation. The intensity of carbonate (dolomite) alteration is noteworthy and may represent a syn-tectonic alteration phase based on the presence of stylolitic shears. The

SAMPLE NO: BRCD – 9 297.37 – 297.5 m - CONTINUED
mineralised carbonate - quartz veins represent a slightly later phase.

Photomicrographs



Stylolitic shears (arrowed) have been cut by the carbonate vein in the arenite host containing moderately sorted detrital quartz (Q) grains. The arenite matrix has been replaced by micritic carbonate. Crossed polars. Field of view – 3 mm.



Mineralised
(chalcopyrite - cp and
pyrite - py) carbonate
(carb) vein cutting the
arenite host containing
rounded detrital quartz
(Q) grains. Crossed
polars under reflected
and transmitted light.
Field of view - 3 mm