MINERALOGICAL REPORT No. 8701

by Ian R. Pontifex MSc.

July 14th , 2005

TO :	Ms Fran Parker Newmont Exploration Pty Ltd Level 1, 85 Hutt St ADELAIDE SA 5000 Attention: Mr Adam Huddlestone
YOUR REFERENCE :	Order No. TBA
MATERIAL :	3 Outcrop samples Moorlands North EL22747
IDENTIFICATION :	Serial numbers 06256, 06257, 06258
WORK REQUESTED :	Thin section preparation, description and report with comments and interpretations as specified.
SAMPLES & SECTIONS :	Returned to you with this report.
DIGITAL COPY :	Enclosed with hard copy of this report.

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P06256 **Weakly bedded, silty to medium grained-sandy, low grade metamorphosed pelitic sediment, and/or (possibly argillic or phyllic-altered). Includes fine detrital muscovite. Extensive supergene limonite oxidation.**

Field Note : *Moorlands North EL22747, #3902963, E65443,4 N771060, outcrop*

Handspecimen

Microscopically thin sample is a typical variably reddish-brown to yellowish, intensely supergene ferruginised/oxidised rock. Through this camouflage, the rock is seen to be quite compact, very fine grained with poorly defined bedding or possible schistose/cleavage plane.

Thin section

Petrographically, approximately 50% of this thin section consists of extremely fine diffuse, mottled yellowish to brownish 'limonite'. At about x200 magnification this is seen to incorporate a microscopic decussate phyllosilicate texture, which is not especially distinctive, may be interpreted as poorly schistose (or even non-schistose) microcrystalline clay-sericite or chlorite. The exact genesis of this is difficult to identify, but seems to be possible low-grade metamorphosed-pelitic, although this cannot be clearly distinguished from possible pervasive argillic or phyllic (?hydrothermal) alteration. Indeed, the clear microdecussate character of this matrix tends to favour the latter.

The other approximate 40% of the thin section consists of discrete particles of :

		Approx. vol. % of whole sample
*	Angular single crystal quartz grains 0.01 to rarely 0.12mm size	35%
*	Grains of cryptocrystalline quartz ± sericite 0.05mm	7-10%
*	Random detrital muscovite flakes up to 0.2mm long	7-10%

The distribution of these components defines a weak bedding.

P06257 **Vaguely laminated extremely fine siliceous rock. Tentatively interpreted as a pervasively silicified ex-sediment suggested by relict layering with sparse ?bedded small grains and detrital muscovite, all within micro to cryptocrystalline and fibrous-colloform chalcedonic silica. Alternate possible interpretations are silicification being supergene, or sedimentary (chert) or hydrothermal-exhalative.**

Field Note : *Moorlands North EL22742, #3902962, E654435, N7771061, outcrop*

Handspecimen

Small elongate/subrounded rock piece with a weak planar/laminated fabric evident on the weathered surface (including roughly parallel "top" and "bottom"), which may represent bedding laminations or metamorphic S_1. Otherwise, very fine siliceous (?cherty_ consistency, iron-stained exposed surfaces.

Thin section

This thin section is dominated ("90%) by microcrystalline/cryptocrystalline quartz, including microscopically fibrous chalcedonic silica. Broadly this silica is "massive", but with a broad vague layering conformal to the poorly defined layering within the exposed surfaces of the handspecimen. At a much finer scale specific micromosaic textures throughout the quartz is patchy/diffuse heterogeneous, including small merging areas variably massive, microcolloform and microbotryoidal with scalloped rims around small voids. Microfibrous chalcedonic silica as noted above, and sparse microscopic pyramidal crystals are also present. Limonite staining has a sporadic patchy distribution particularly in random voids. Rare minute prismatic crystals of possible barite (?zeolite) occur in some voids.

All of these characteristics are typical of "low-temperature-silicification", which indeed may be supergene or possibly represent sedimentary chert (nodule) or exhalative/low-temperature epithermal. Regarding genesis however, there is sparse evidence of almost certain relict detrital grains, individual size about 0.1mm, sporadically along vague bedding. These are mostly limonitised particles ± possible ex-leucoxenised opaque oxide grains, and occur in

several discontinuous limonitic laminae, together with rare limonitised detrital muscovites (comparable to those in P06256?). Rare discrete quartz grains are negligible compared with those in P06256. There are no specific detrital heavy mineral grains.

P06258 **Small nodule-like sample, with an outer envelope zone of microcrystalline quartz micromosaic, including euhedral (some pyramidal crystals) containing dispersed minute (10 micron) crystals of muscovite and apparent tourmaline. Inner zone of cryptocrystalline silica (like P06256, 257) with central void including outline of leached-out calcite crystals. Objective genetic interpretation uncertain: may be a nodule in limestone as questioned in your field note, but has some possible hydrothermal implications alluded to in comments on P06256 and 257.**

Field Note : *Moorlands North EL22747: #3709850, E654433, N7771060. Chert nodule from Montejinni Limestone?*

Handspecimen

As indicated in the field note, this is a small elongate nodule-like sample, with a 35mm long axis, central to an ovoid zoning, and a maximum width at right angles, 20mm.

Thin section

The macroscopic outer envelope-like zone about 5mm thick/wide consists of fairly homogeneous quartz micromosaic, somewhat irregular (at microscale) due to individual crystals/grains commonly 0.2 to 0.5mm in size, variably subhedral/prismatic/pyramidal through to anhedral, and rarely microscopical radial/fibrous. These crystals are dusted by abundant minute (10 micron) crystals of muscovite and apparent tourmaline, randomly dispersed throughout.

A central ovoid core (10mm wide) is dominated by diffuse cryptocrystalline to microcrystalline and locally vaguely colloform siliceous micromosaic, much like the silica forming P06256 and 257, but with some euhedral microquartz crystals. This encloses an irregular central void which is ironstained. One or two rhombic outlines in the inner surface of this void suggests ex-carbonate crystals, removed by leaching.

Genesis uncertain, as noted in the header above.