

Sample Number : 10963

R.H.16 225.0m

418121

Identification : Sericite-quartz schist with probable fine pyrite and post-metamorphic carbonate veins

Description :

The hand specimen is a small sample of greyish olive, finely sericitic rock with wispy foliation inclined at about 25° to the core axis.

A cobaltinitrite staining test revealed no K-feldspar, but produced some very weak diffuse staining.

In thin section the sample is seen to be an inhomogeneous rock, composed of sericite, quartz, carbonate, opaques, rutile and zircon. Sericite is ubiquitous, but forms internally foliated streaks and crudely lenticular aggregates, up to 15mm or so in length and up to 10mm in thickness. Some sericitic regimes carry disseminated quartz grains of sandy to silty appearance and some opaque cubes which may represent pyrite grains about 0.02 to 0.05mm in size. Much quartz occurs as "cherty", microcrystalline aggregates, commonly with grainsizes finer than 0.03mm, but some sutured aggregates have grainsizes as coarse as 0.5mm; most quartz shows obvious strain. Carbonate occurs mainly as replacement veins and patches. The coarsest grains, up to 0.7mm, are anhedral and appear to be calcite. Smaller brown rhombs and lozenges line the walls of parts of some veins and resemble siderite. Very minor constituents of the rock are rutile (as small aggregates and streaks of stumpy prisms) and zircon (as rare rounded, subhedral grains).

Opaque minerals are a minor component of the rock and their precise nature was not able to be determined with confidence from the thin section. Disseminated very fine grains commonly include cubic forms and may be largely pyrite, but the reflected lustre is not particularly brassy. Several veinlets and irregular patches of opaques, up to several millimetres in size, are not pyrite, ilmenite or magnetite and seem likely to be a black manganese mineral. The patches are closely associated with carbonate veins and seem to post-date them.

An approximate mode is :

| | |
|----------|--|
| 60-70% | sericite |
| 30-40% | quartz |
| 1-2% | calcite |
| 0.2-0.3% | (?)siderite |
| 0.1-0.2% | rutile |
| 0.2-0.3% | fine opaques (probably pyrite) |
| 0.2-0.4% | coarse opaques (probably manganese oxides) |
| rare | zircon |

Comments and Interpretation :

Confident interpretation of this sericite-quartz schist is not possible, but it seems fairly probable that it originated as a laminated shale, somewhat similar to the inferred precursor of 10962. Subsequent regional metamorphism accounts for foliation in the sericite, strain and suturing in the quartz, and structural disruption. It is not clear whether the sericite is purely a product of metamorphism or whether it was initiated by hydrothermal processes. Fine, disseminated, probable pyrite could be of hydrothermal or syngenetic origin. Carbonates appear to post-date metamorphism and probable manganese oxides may have formed from them.