

Sample Number : 10976

L.S.10 220.4m

Identification : Finely sandy to silty, chloritic mudstone
with minor pyrite and chalcopyrite

Description :

The hand specimen is a drill core sample of fine-grained, dark greenish grey, chloritic rock with a well developed planar foliation inclined at about 40° to the core axis. Small patches of pyrite and chalcopyrite are visible and there are many small chloritic clasts or lenses.

A staining test revealed no K-feldspar.

In thin section the sample displays a finely sandy to silty pelitic texture, modified by metamorphic foliation and segregation or disruption. In one corner of the section a 1.5mm fine (?) top to the pelite is seen to be in sharp contact with coarser sandy pelite. The sedimentary contact is inclined at about 35° to the metamorphic foliation.

The typical rock consists of numerous equidimensional, weakly strained grains of quartz, generally 0.02 to 0.2mm in size, scattered through a matrix of foliated chlorite. There are numerous concentrations of chlorite, but they do not appear to represent clasts and seem more like disrupted laminations or crude metamorphic segregations.

Specks of fine opaque oxides are common in the foliated chlorite. Coarser grains (0.1 to 0.5mm) of anhedral pyrite and chalcopyrite occur as sparse disseminations and lenticular aggregates, in some cases within structures which show quartzose segregations within pressure shadows.

An approximate mode is :

30-40%	quartz clasts
60-70%	chlorite
0.1%	opaque oxides (probably magnetite or ilmenite)
0.2-0.3%	pyrite
0.1%	chalcopyrite
0.3-0.4%	segregated quartz

Comments and Interpretation :

This sample is confidently interpreted to represent a finely sandy to silty mudstone which has been finely foliated by metamorphic processes. It is open to speculation whether the chloritic nature of the sample is solely attributable to metamorphism or whether it is inherited from a hydrothermal event. Small quantities of pyrite and chalcopyrite are present as sparse disseminations and within aggregates which appear to represent metamorphic segregations. The sulphides could be original sedimentary components.

A sedimentary contact was observed in thin section, inclined at about 35° to the foliation in the chlorite.