

Sample Number : 10980

L.S.9 366.3m

Identification : Sericitic and chloritic, laminated, pelitic sediment with deformed veinlets of pyrite-quartz-chlorite

Description :

The hand specimen is a drill core sample of fine-grained rock with alternating greenish grey and dark greenish grey bands about 0.3 to 5mm thick, oriented at about 30° to the core axis. The banding resembles sedimentary laminations. There are a few veinlets of fine brassy sulphide.

A staining test revealed no K-feldspar.

In thin section the light bands are seen to consist of abundant fine sericite, a few silt grains of quartz (0.03mm), minor flecks of chlorite and disseminated specks of opaque minerals of unidentified type. The sericite is foliated at about 12° to the banding. A typical mode is about :

97-99%	sericite
0.3-0.4%	quartz
1-3%	chlorite
0.1-0.2%	opaques (unidentified type)

The darker bands contain more chlorite and more quartz. Some quartz grains are angular splinters as large as 0.3mm long, but most are silt-sized and equidimensional. A typical mode is about :

88-92%	sericite
1-2%	quartz
7-10%	chlorite
0.1-0.2%	opaques (unidentified type)

Subhedral pyrite is present in the rock as grains varying from very fine to 0.5mm and generally in deformed fracture veinlets with quartz and chlorite. The greatest abundance of pyrite occurs in veins within the chloritic layers, but the veins do extend into the dominantly sericitic layers also. Overall the pyrite abundance in the rock is about 0.2 - 0.3%. Some disseminated opaque specks could be pyrite, but this is uncertain and some resemble oxide.

Comments and Interpretation :

This sample is confidently interpreted to have originated as a laminated pelitic sediment prior to regional metamorphism. It is unclear whether the sericite and chlorite are solely products of regional metamorphism of clay-sized components in shale or whether there has been some pervasive hydrothermal influence. Pyrite occurs in the sample in fracture veinlets with quartz and chlorite. The veins are deformed and are interpreted to be of pre-metamorphic or early metamorphic origin.

The laminations which are interpreted to be sedimentary layers are oriented at about 12° to the metamorphic foliation.