

Sample Number : 10981 H.A.8 35-7m

Identification : Probable rhyodacitic tuff or ignimbrite with sericite-carbonate alteration and pyrite-quartz-carbonate veining which pre-dated metamorphic foliation

Description :

The hand specimen is a drill core sample of medium light grey, strongly foliated rock with numerous phenocrysts or phenoclasts of quartz and moderate orange pink, altered feldspar. The foliation is oriented at about 45° to the core axis. There are stringers of fine pyrite, mainly parallel to the foliation.

A staining test revealed that the groundmass is rich in fine K-feldspar.

In thin section the large quartz grains (up to several millimetres) resemble deeply embayed quartz phenocrysts, but one does appear to be surrounded by a veneer of fine quartzofeldspathic host in a fashion suggestive of a lithic clast. Smaller quartz grains (about 0.1mm) scattered through the rock are anhedral. The orange pink phenocrysts or clasts are deformed grains of moderately twinned albite, heavily altered to carbonate which seems to be calcite; sizes range from quite small to several millimetres.

The dominant groundmass of the rock is a strongly foliated mass of sericite, microcrystalline to cryptocrystalline K-feldspar, minor quartz, specks of sphene or rutile and flecks of opaques, possibly oxides.

Subhedral to euhedral cubes of pyrite, ranging from tiny to about 0.2mm, are abundant in the rock. They occur mainly in veins and pods which are concordant with the foliation, but appear deformed. Sericite, carbonate and quartz accompany the pyrite. A few veins are not parallel to the foliation, but have been deformed by it. They contain pyrite, quartz and calcite.

An approximate mode is :

1-3%	quartz phenocrysts and/or possibly clasts
8-10%	albite phenocrysts or clasts, heavily carbonated
35-45%	groundmass sericite
35-45%	groundmass K-feldspar
3-5%	groundmass quartz
0.1-0.2%	groundmass rutile or sphene and opaques
2-3%	pyrite, mainly in veins and pods
0.2-0.3%	quartz and calcite in pyrite veins

Comments and Interpretation :

Shearing during metamorphism has greatly obscured the primary textures of this rock, but it seems fairly likely that the original rock was a rhyodacitic tuff or ignimbrite and that it had experienced heavy sericitization of its groundmass and heavy carbonation of its plagioclase phenocrysts prior to metamorphism. Abundant pyrite had also been introduced, largely as fissure veins with quartz and calcite.