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251144

Sample Number : 3161

Identification : Sericitic silty slate with a layer or layers of andesitic crystal tuff which has been impregnated with sulphides

Description :

The sample is a lightly weathered hand specimen of greenish grey, slaty rock, similar to 3160 but with a disrupted band (or possibly lenses) perhaps 20mm thick in which there are many soft clasts and pores up to 1mm in size.

A staining test revealed minor K-feldspar.

In thin section the fine slaty rock is seen to be very similar to Sample 3159, with angular, silt-sized grains of quartz, K-feldspar and muscovite in a matrix of aligned sericite. There are sparse droplet or pumice clasts localizing a few grains of oxidized sulphide.

The coarser regimes can be seen to be one or more sedimentary layers with simple contacts disturbed by translation of slaty cleavage. The layers differ mainly in carrying abundant phenoclasts of twinned, optically positive plagioclase up to 1.5mm in size. There are several andesitic lithic clasts, several cusped, formerly vitric clasts, now variously chlorite, albite and carbonate, and rare quartz phenoclasts. There are also many pores, concentrated especially within plagioclase clasts; some represent partial weathering of feldspar, but many have smaller cubic forms, consistent with loss of pyrite cubes about 0.2mm in size. There are also several limonite cubes after pyrite and a 1.5mm aggregate of limonite possibly after anhedral sphalerite grains. A porous fissure vein carries quartz, minor chlorite and oxides after sulphides.

An approximate mode of the coarse layers is :

10-15%	plagioclase phenoclasts
tr	quartz phenoclasts
0.5-1%	andesitic lithic clasts
1-3%	variously chloritized, albitized and carbonated vitric clasts
3-5%	pores and oxides after sulphides
0.2-0.3%	quartz-sulphide-chlorite vein
75-85%	silty sericitic slate matrix

Comments and Interpretations :

This sample is considered to represent the same type of sericitic slate as 3160, but it has a layer in which tuffaceous deposition of crystals and a few vitric and lithic clasts has been superimposed. The source of the tuff is andesitic. Such material may well have showered into a muddy, aqueous setting. The abundance of remnant sulphide textures within and near phenoclasts suggests that the coarser layer has acted as a permeable medium for mineralizing hydrothermal fluids which post-dated deposition of the rock.