

0557

SAMPLE NUMBER: 562454 and 562455

SUMMARY:

These are very similar formerly glassy sparsely plagioclase-phyric dacitic lavas showing intense silica alteration and patchy chloritization, and weak pyrite mineralization associated with the silica alteration in 455.

HAND SPECIMEN:

These samples are heterogeneous-textured, strongly altered sparsely plagioclase-phyric dacitic lavas with alteration-induced false pyroclastic textures and trains of small pyrite crystals in 455.

THIN SECTION:

The least altered parts of these samples are beautifully preserved perlitically cracked glass that has crystallized following devitrification to an even-textured mosaic intergrowth of quartz and feldspar. About 5 modal% of each sample is made up of quite large blocky albitized plagioclase phenocrysts to at least 3mm long, that are almost entirely replaced by sericite and vary from euhedral to rounded. No mafic phenocrysts were apparently present in either sample, although quite large leucoxenitized FeTi oxide phenocrysts are not uncommon.

Significant areas of groundmass have been replaced by fine-grained to relatively coarse-grained (to 0.5mm long) silica in domains up to almost a cm long of exceptionally fine-grained even-textured material that resembles shale or tuff. Several angular discontinuous fractures filled by quite clear, relatively large intergrown quartz crystals in 454 are occasionally lined by small pyrite crystals, and the fine-grained intensely silicified areas of 455 are rimmed by trains of small pyrite and contain meandering thin seams of very fine-grained pyrite parallel to the length of the silicification zones. Calcite veinlets containing orange sphalerite clearly crosscut and postdate the silicification-pyrite development. 455 contains a stronger meshwork of sericite than 454, and also more intense silicification and chloritization zones.

OPAQUE MINERALOGY

Trains of tiny pyrite varying from euhedral to anhedral are present in the sample, although not abundant. Many pyrite grains are actually aggregates of five or six discrete crystals. A few tiny spots of sphalerite are present, but the pyrite crystals are inclusion- and alteration-free. The pyrite appears to be associated with silicification domains, and pre-dates calcite veinlets that contain coarser-grained orange-red Fe-rich sphalerite.