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Vancouver Petrographics Ltd.

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Sample : 27553C,

Summary

The rocks are summarized as follows:

27553C : (331 oz/T Ag, 0.49% Cu)

- The rock is a dacite which has been fragmented and cut by
- 1) an earlier vein of quartz-siderite-sphalerite-tetrahedrite-chalcopyrite-pyrite-stephanite?-galena, and
 - 2) a later brecciation with matrix of calcite

The silver-bearing phase associated with tetrahedrite has properties very similar to those of stephanite. The mineral is considered to be a silver-bearing phase because of the very high silver content of the rock. It is possible that all the silver is in tetrahedrite, but the optical properties of stephanite? suggest a silver sulfosalt.

John Payne
John Payne,
December 1981

27553C Dacite, fragmented and cut by early vein of Quartz-Siderite-Sphalerite-Tetrahedrite-Chalcopyrite-Pyrite-Stephanite?-Galena, later brecciation with groundmass of Calcite.

The sample contains fragments of dacite (outside thin section) and of chert? (in thin section), and fragments of an earlier vein set in a groundmass of later calcite. Fragments are up to several cm across, averaging several mm across.

dacite	4- 5%	late matrix	
chert	0.5	calcite	30-35%
quartz	25-30		
siderite	20-25		
sphalerite	4- 5		
tetrahedrite	4- 5		
chalcopyrite	½- 1		
pyrite	½- 1		
stephanite?	0.5		
galena	minor		
chalcocite	trace		
covellite	trace		
sericite	1- 2		

Dacite forms extremely fine grained, slightly porphyritic fragments up to 2 cm across. In the section, chert forms a few fragments up to 1.5 mm across. These consist of very fine grained aggregates of quartz grains with moderately abundant extremely fine grained non-reflective (possibly carbonaceous) opaque.

Quartz occurs as very fine to medium grained aggregates with irregular textures. Locally it occurs with calcite in late veins as medium grained aggregates.

Siderite forms subhedral to anhedral grains up to 1 mm across, generally intergrown with quartz. It is distinguished from calcite by its much higher refractive index. Commonly siderite contains moderately abundant semiopaque inclusions of extremely fine grain size.

Sphalerite commonly forms patches up to 2 mm across, generally without many other sulfides. Other patches contain moderately abundant tetrahedrite, chalcopyrite, stephanite?, and galena in widely varying proportions; other sulfides commonly are concentrated along the borders of sphalerite patches. One patch appears to contain subhedral sphalerite with interstitial tetrahedrite-stephanite?. Sphalerite is colorless in thin section, reflecting a low Fe content. Some grains are angular.

Tetrahedrite forms patches up to 2 mm across, generally associated with other sulfides. Intimately intergrown with tetrahedrite in many of the patches is a mineral tentatively identified as stephanite, although identification is not complete. The mineral has the following properties: hardness about that of galena, color slightly greyer than tetrahedrite, reflectivity about 25 (slightly lower than that of tetrahedrite, strongly anisotropic with no distinctive colors (light creamy grey to dark brownish grey) [stephanite should have violet to dull green anisotropic colors]. Intergrowths have curved borders, with grain size from 0.05 to 0.5 mm.

Chalcopyrite occurs in patches along the border of tetrahedrite, locally intergrown with sphalerite and galena, and in places alone or with pyrite. Patches average 0.05-0.1 mm in size, with the largest up to 1 mm across.

Pyrite forms scattered anhedral to subhedral grains averaging 0.02-0.05 mm in size throughout the earlier vein material. Some of the

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occurs with quartz in a texture suggesting that this material formed by replacement of the original dacite. A few pyrite clusters have grains up to 0.15 mm across.

Galena occurs in intergrowths with sphalerite and chalcopyrite, mainly as grains from 0.05-0.1 mm in size.

Chalcocite and covellite form a few patches up to 0.3 mm across, probably as a secondary replacement of primary chalcopyrite, or possibly of tetrahedrite. Grain size of covellite is extremely fine.

Sericite occurs as irregular intergrowths in quartz-rich patches, also suggesting that some of the quartz formed by replacement of dacite. Some sericite-rich patches are present, with sizes up to 2 mm across. One large patch contains a few grains of pyrite up to 0.2 mm in size.

Calcite occurs as a matrix of a late brecciation as patches up to a few cm across, with grain size ranging widely, generally being coarser (up to 2 mm) in the larger patches.