

Textural and mineralogical interpretation of the North San Vicente

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The field area for this study is located north of the San Vicente MVT deposit in the Junin region and corresponds to the sub-Andean area of Peru. The area contains dolomitic limestone of the Pucara group (Triassic-Jurassic in age) and intrusive rocks such as the San Ramon granite and the Tarma granodiorite. Samples collected in the area are composed dominantly of dolomite, with lesser sphalerite, pyrite, and calcite, and exhibited “zebra” and “breccia” textures. Select samples were chosen for thin sections and briquettes for a more complete microscopic description and interpretation of the mineralogy and textures observed. The sample displaying zebra texture has 3 distinct dolomite minerals present: 1) dolomite-I (dlm-I) (65%), characterized by subhedral crystals, irregular shapes and microlithic aggregates that form part of the host rock; 2) dolomiteII (dlm-II) (30%), characterized by crystalline aggregates up to 2 mm and moderately replaced by dolomite-III; and dolomiteIII (dlm-III) (5%), characterized by subhedral and euhedral crystals up to 3 mm in size. Metallic minerals such as pyrite, which are present in trace amounts, are cubic, irregular shaped, and granular aggregates up to 1.2 mm in size; they are present in cavities associated with the replacement of dlm-II by dlm-III. From this, the paragenetic sequence was determined to be dlm-I–dlm-II–dlm-III–pyrite. The sample displaying the breccia texture also contained 3 distinct dolomites: 1) dlm-I (20%) is present as subhedral crystals and microlithic aggregates that form part of the host rock; 2) dlm-II (30%) is present as crystalline aggregates less than 1.5 mm in size with a banded texture and have replaced the host rock and have themselves been moderately replaced by dlm-III; and dlm-III (10%) is present as both subhedral and euhedral crystals that are less than 2 mm in size. Metallic minerals, such as sphalerite (40%), are present as massive extensions (ef-I) and as islands replacing the earlier sphalerite (ef-II), which display massive and relict texture. Additionally, organic matter associated with dlm-II, is present filling interstices between the two generations of sphalerite. From this, the paragenetic sequence is determined to be dlm-I–dlm-II–sphalerite(ef-I+ef-II)–dlm-III. Geochemical analysis of Cu, Pb, Zn, Fe, Cd, Mn, and Ag was collected by atomic absorption and exhibits a high content of Zn in the samples, however, it is found disseminated in the pyrite structure; this indicates that the metallurgical extraction of zinc will be difficult. The mineralogy, textures, assemblages, and geochemical results determined from this study at the North San Vicente site are similar to the San Vicente deposit and likely represent a continuation of the mineralization.