

VBS → Gibraltar

AGE AND STRUCTURAL DEVELOPMENT OF CU-MO MINERALIZATION AT THE GIBRALTAR MINE, EAST CENTRAL BRITISH COLUMBIA

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Gibraltar is a low grade, base metal, bulk tonnage deposit which over 26 years (1972-1998) milled a total of 324,000,000 tons of ore averaging 0.351% Cu from four open pits. During that period the deposit was regarded as a Cu-Mo porphyry, albeit 'a porphyry with a difference', based on its metal signature, low grade and inferred genetic relationship with the host, Late Triassic (215.2±0.8 Ma, U-Pb zircon) Granite Mountain batholith.

Detailed pit mapping has established three distinct generations of quartz sulphide veins. Their relative age, distribution and variation in style and geometry are consistent with formation during progressive upright folding of several relatively flat-lying, pre-existing shear zones within the Granite Mountain batholith. Higher-grade ore is concentrated along the fold hinges where early bull quartz-sulphide veins are tightly folded and the density of axial planar veinlets is highest. Later, sulphide-rich quartz fissure veins with sheared sericitic envelopes formed during localized, late overturning of folds.

Ar-Ar plateau ages for sericite suggest partial to complete resetting of argon systems in older hydrothermal sericite at ca.100 Ma and possible new sericite growth during later Eocene deformation at ca. 50 Ma.

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This new data suggest that mineralization is likely of mid-Cretaceous age (108 to 105 Ma), related to magmatic activity associated with the newly dated Sheridan stock (108.1±0.6 Ma). A 105 Ma Ar-Ar plateau age for fuchsite in listwanite-altered basalt in Cache Creek melange indicates regional hydrothermal alteration at that time. In this interpretation mineralization at Gibraltar post-dated both intrusion and tectonic emplacement of the Granite Mountain batholith, which acted as a competent host that produced an array of dilational features during deformation; mineralizing fluids were generated at least in part during mid-Cretaceous magmatic activity.

Re-Os dating of Gibraltar molybdenite is in progress.

Key words: Gibraltar, Cu-Mo, deposit, Granite Mountain

Roundup 2000 poster

Feb. 9/00  
Andre Panteleyev doesn't buy younger age(s)  
for mineralization (i.e. re-set dates)  
Vic Preto doesn't buy younger age(s)  
i.e. this is a porphyry Cu-Mo system!