

ANVIL CYCLE

The Anvil District ores are metamorphic tectonites. Primary textures have been totally destroyed during deformation and metamorphic recrystallization. All deposits, however, still show a primary zoning of lithologies which has been called the Anvil cycle.

The base of the cycle consists of ribbon-banded, carbonaceous, pyritic quartzites. The carbonaceous quartzites are succeeded upward by pyritic quartzites, siliceous pyritic sulphides, massive pyritic sulphides and baritic massive pyritic sulphides. This same progression also occurs laterally with the carbonaceous quartzites being the most distal facies of a deposit.

Massive and baritic sulphides are thought to have a synsedimentary exhalative origin. The pyritic quartzites may be exhalative but are more likely the result of diagenetic silicification and pyritization. The ribbon-banded texture in the carbonaceous quartzites may well be the result of transposition of a stockwork vein system during the intense D1 and D2 deformations.

Anvil cycles are developed on a wide variety of scales and to varying degrees of completeness. Facies zoning can be used as top indicators in the poly-deformed ore horizons to decipher fold patterns and asymmetries.

Both wallrocks and certain ore facies are overprinted by a prominent, light beige, muscovite-quartz-pyrite/pyrrhotite alteration assemblage. This alteration totally encloses the Faro deposit. It is due in part to the reaction of the sulphides with the wall rocks during high temperature metamorphism.

Pyrrhotitic ores occur locally in all the deposits, although they are most common in the Faro deposit. Distribution of this ore type is irregular and appears to be related to metamorphic-deformation localization rather than primary zoning.