

Contribution to the kinematic deformational evolution of the Fazenda Brasileiro Gold Mine, Paleoproterozoic Rio Itapicuru Greenstone belt, Brazil

¹BÉRENGER, M.; ²ORLANDI, P.H.; ¹VALERIANO, C.M.; ²ASSIS, C.M.; ²ALBUQUERQUE, R.S.; ¹PALERMO, N. ¹TEKTOS - Geotectonic Research group, Faculty of Geology, Rio de Janeiro State University, RJ, Brazil; ²Companhia Vale do Rio Doce, Mina Fazenda Brasileiro, Bahia, Brazil.

The Fazenda Brasileiro (CVRD) is the second largest gold mine in Brazil, located along a ductile shear zone ("Weber belt") in the southern portion of the Paleoproterozoic Rio Itapicuru greenstone belt, eastern São Francisco Craton.

The Weber belt comprises metabasic chloritic schists and associated metapelites. Gold mineralization is related to strong hydrothermal alteration involving sulphide-rich quartz veins.

Detailed underground structural analysis (1:250 scale) was performed at 390 m depth (sub-level 39) along horizontal sections that are parallel and at right angle with respect to the mineralized zones. Oriented samples were collected for microstructural observation.

Preliminary data show a homoclinal structure (184/50), with a penetrative cleavage (S1) subparallel to the lithological banding and mineralized zones. A strong low-rake (L1) stretching lineation is observed (104/11), associated to dextral shear as indicated by microscopic shear-sense criteria. Continued deformation took place at progressively shallower crustal levels, as indicated by brittle-ductile faults that are sub-parallel to S1. These faults display carbonate slickenfibres and associated striae with attitude sub parallel to L1, also indicating dextral movement.

Later discordant oblique faults produce large offsets with dextral and sinistral movement component. Shallow crustal level of faulting is indicated by unconsolidated breccia and gouge.