

Structural control of Vazante zinc mine in the Brasilia Mobile Belt, Vazante, Minas Gerais State, Brazil

PINHO, J.M.M. Geological Survey of Brazil - CPRM, Belo Horizonte, Brazil

The Vazante zinc mine is host by the Neoproterozoic Brasilia Mobile Belt, an east verging fold belt that bounds to the west the São Francisco-Congo Craton. The main ore mineralogy is composed of willemite and hemimorphite. The ore is structurally controlled by a fault zone, named Vazante Fault, the evolution of which is characterized by three main phases of movimentation occurred during the Brasiliano Cycle. The two first phases caused heterogeneous, brittle-ductile simple shear. The first phase was extensional, syn-sedimentation (growth fault), controlled by old weak zones of the basement. In the paleogeographic highs evolved cianobacterias and stromatolithic constructions. The second phase, the most important in the area, resulted from the closure of the Vazante Basin and is characterized by strike-slip movement, which was responsible for the present structural pattern of the rock in the fault zone. Both willemite and dolomites are sheared together. Directional movement, transpression, transtension and interbedding slip co-existed and succeeded themselves during this phase that is best displayed along the N50E/50NW fault plans. The last phase was extensional and related to the descompression of the fault zone after the main regional compression episode. During the second phase, zinc, which was introduced as sphalerite, reacted with remobilized silica to originate willemite. Present morphology of the tectonics pods resulted from strike-slip faults, which control the distribution of the ore lenses in the mine.