

HYDROGEOLOGIC AND GEOTECHNICAL STUDY OF FÁBRICA NOVA MINE AREA, MARIANA (MG), BRAZIL

LOPES, G.A., MARQUES, E.A.G. and CALIJURI, M.L.

The main objective of this study was to evaluate the hydrogeologic and geotechnical conditions present in Fábrica Nova Mine area in order to allow a initial mining planning and evaluate possible environmental impacts of water level lowering. The geological – geotechnical modeling was achieved through a geotechnical description of core samples obtained from almost 100 boreholes, regarding a general description of rock material and its weathering degree. Collected data were used in the geomechanical characterization of rock materials as a support of the evaluation of slope stability during initial mining operations. A mathematics hydrogeologic model was based on a hydrogeologic conceptual model in which several vertical and horizontal geological sections were built, in order to define the geometry of the aquifer system. A detailed mapping of ground water springs and a monitoring of ground water level through piezometers was developed as an input data for modeling. Mathematics modeling allow the calibration of a model that can be used in future studies of ground water level lowering in Fábrica Nova Mine area, the calculus of water discharge of the whole aquifer system. Finally, an evaluation of main environmental impacts related with ground water level lowering is presented.