GEOLOGICAL AND GEOTECHNICAL MAPPING FOR SLOPE STABILITY INVESTIGATIONS AT NORTH MARA MINE.

Alfred Kabinda – Barrick Tanzania

ABSTRACT.

The North Mara Gold Mine is located in the tropical and seismically active region of East Africa, near Lake Victoria. Recognition of the potential for slope instability in geologically disturbed, weathered, jointed, sheared and altered rocks of the North Mara mines requires detailed investigation on the nature of the rock masses forming pit walls. Local and overall slope angles for use in pit designs are based on assessment of geological structures, rock strength properties and hydrogeological conditions.

Structural geological conditions have the dominant influence on wall stability, hence investigations place strong emphasis on identifying structural discontinuities, particularly defect orientations and shear strengths; as well as rock compressive strengths and hydrogeological conditions of the area. Based on the analysis of field data and laboratory tests, slope angles are recommended for use in the pit design. Slope analysis is performed using conventional slope methods, assisted by the DIPS and SLIDE computer programs, which are based on Stereographic Projection and Limit Equilibrium methods, respectively.

The paper describes the approach outlined above.