

PROJECT DESCRIPTION

Boliden Mineral AB

Kristineberg, Lycksele,
Västerbotten, Sweden



Exploration between the two closed mines Rävliðmyran and Rävliðen has successfully led to more mineralizations being discovered. Two major lenses are defined: Rävliðen Norra (including Fredolage) and Nisse. An existing exploration drift from the old Rävliðen mine lead to this area and some test mining has been conducted. A ventilation shaft from the surface has been drilled to the exploration drift.

Initial project work by Boliden has identified longitudinal or transversal sublevel stoping as possible mining methods. The purpose of the rock mechanics pre-feasibility study is to provide input to mine planning in terms of rock mechanics design parameters.

ITASCA'S ROLE

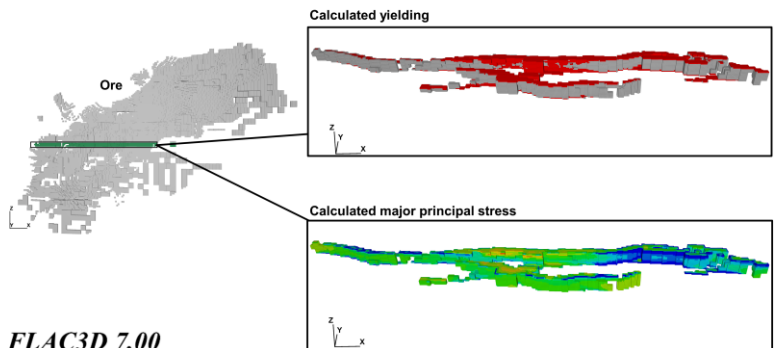
Itasca has analyzed possible mining methods, mining sequences, design parameters, location of infrastructure, reinforcement, and backfilling requirements. A geomechanical model was developed based on collected information including geological model, core logging, and core testing data. Rock mass properties for each domain were determined.

Empirical methods were used to evaluate stope dimensions, overbreak and rock support. Analytical methods were used to evaluate fill strength and rock support.

Numerical methods were used for evaluation of sill pillar thickness, pillar width, distance between main levels, mining sequence, distance to infrastructure and main gallery, stresses in sill pillars, and pillar widths between stopes.

The Itasca team also participated in a geomechanical risk assessment workshop with Boliden.

Analysis of sill pillar stability



FLAC3D 7.00
©2020 Itasca Consulting Group, Inc.

PROJECT RESULTS

The project resulted in concrete recommendations for the mine planning, including:

- When to switch between longitudinal and transversal sublevel stoping, depending on ore width and rock domain.
- Dimensions of the stopes, depending on longitudinal or transversal sublevel stoping, rock properties, and support measures.
- Distance between main levels and sill pillar thickness in different rock domains.
- Fill strength.
- Rock support for drifts, ramps, crossings, and longitudinal mining stopes, depending on width.
- Distance between ore and infrastructure, depending on depth and between ore and main gallery.

It was also shown that the mining sequence was not primarily dependent on rock mechanical issues.