

Rock Mechanics & Rock Engineering

Expertise Rock Mechanics, Mining and Tunneling Engineering

Education Licentiate in Engineering (Rock Mechanics), 1996
M.S. (Geotechnology), 1992
Luleå University of Technology, Luleå, Sweden

Professional Experience

2011 - Present *Itasca Consultants AB, Luleå, Sweden*
Senior Rock Mechanics Engineer

2006 - 2011 *Vattenfall Power Consultant AB, Luleå, Sweden*
Rock Mechanics Consultant

2000 - 2006 *SwedPower AB, Luleå, Sweden*
Rock Mechanics Consultant

1996 - 2000 *Boliden Mineral AB, Boliden, Sweden*
Rock Mechanics Engineer

1992 - 1996 *Luleå University of Technology*
Doctoral Student, Division of Rock Mechanics

1991 *Skanska, Div. Of Underground construction*
1990 *Foreman underground construction work*
Trainee

Project Experience

Infrastructure (Tunneling): Detailed design work for the Citybanan (City Link) commuter-train tunnel project in Stockholm, responsible project leader and scientific rock-mechanics support for the crossing between an existing subway station and the Citybanan link. Responsible for designing standard reinforcement classes for the complete Citybanan project, including analytical and numerical analysis. Analysis of tunnel intersections between the Citybanan commuter train tunnel and energy tunnels. The project included three-dimensional rock mechanics analysis.

Developed design guidelines for railroad tunnels in rock for Banverket (the Swedish Railroad Administration). Senior inspector, rock-mass and rock-support inspections at tunnels and rock slopes (cuttings), development of standards for inspections.

Advisor to insurance company in rock technical matters. Participated as an independent adviser for the project E6-Dovrebanan rock reinforcement, lining, grouting and drainage of tunnels.

Hydropower: Stability assessment of the rock abutment at the Vargfors hydropower dam, including borehole logging, assessment of rock and joint shear-strength properties and review and update of stability calculations for the rock abutment.

Rock mechanics scientific support, design for tunnel reinforce, grouting and reviewer for the Rio Esti Hydropower Project. Part of pool of engineers and rock experts for geotechnical design, including plan and perform geotechnical investigations and site supervision.

Scientific rock-mechanics support to site investigation for Changuinola 1 Hydroelectric Power Project to feasibility studies for Ruhudji Hydroelectric Power Project.

Scientific rock-mechanics support to feasibility studies, new constructions, rehabilitation, redevelopment and risk inventory regarding blasting and rock support design for hydroelectric power projects at several locations in Sweden and Norway.

Stress Measurements: Project manager and responsible field engineer for rock stress measurements using both overcoring and hydraulic fracturing methods in various projects both in Sweden and international, including both shallow and deep boreholes. Stress measurements are performed for design of new mine areas, hydroelectric plants, infrastructure projects and final nuclear waste deposits. Investigation of core dinking and overcoring rock stress measurements in high-stress environments through field testing (drilling and overcoring) and analyses. Analysis and interpretation of rock stress data for the Forsmark site including regional stress data, to assess the confidence of measured stresses with different methods, and to provide input to stress modeling and detailed site characterization.

Mining: Bulkhead design for a near-surface mine drift, to prevent flooding of the mine. Scientific rock-mechanics support and design of rock support at the re-opening of mines in Sweden and Finland.

Responsible for numerical study of ore pass, literature study of “control programs for rock reinforcement”, project for narrow mining test.

Rock-mechanics support and design work at the expansion of an open-pit mine, including design of transport tunnels, conveyer belt tunnels, large pits for ore storage, integration with conveyer belt tunnels and large pits for ore storage.

Rock mechanics work related to mining at several mines in Sweden. The work includes rock mechanics issues, plan and design, and design of reinforcement for shafts, drifts and mining rooms. Map and establish the condition of reinforcement. Monitor, map and establish the stability status of shafts, drifts and mining rooms. Support the mine in planning in mining sequences, layouts etc with respect to rock mechanics.

Teaching and Academic Experience: Teaching Atlas Copco personnel and undergraduate students in rock mechanics (Luleå Technology University of Luleå, Div of Mining and Geotechnical Engineering). Supervision of undergraduate thesis project regarding rock erosion in spillwater channels.

Discussion leader (informal opponent) at Mr. David Saiang's licentiate seminar at the Luleå University of Technology (2004): “Damaged Rock Zone Around Excavation Boundaries and its Interaction with Shotcrete.”

Member of the program committee of the Rock Engineering Research Foundation (BeFo). Former Swedish Rock Engineering Research Foundation (SveBeFo).

Member of the council for research applications to the BEFO-Formas research foundation.