
Mining / Geotechnical Engineering

Expertise Numerical stress analysis of underground excavations; open-pit slope stability analysis and design; installation and analysis of geotechnical instrumentation; mine backfill exposure stability; mining-induced subsidence evaluation; numerical caveability analysis

Education Ph.D. (Mining Geomechanics), 2003
MScTech. (Engineering Geology, Environmental Geology, Hydrogeology), 2000
The University of New South Wales, Australia
BEng. (Geological Engineering), 1996
Royal Melbourne Institute of Technology University (RMIT), Australia

Honors Franki Award (highest grade average), Geological Engineering,
Royal Melbourne Institute of Technology, 1996

Professional Experience

2002 - Present *Itasca Consulting Group, Inc., Minneapolis, Minnesota*
Mining/Geotechnical Engineer

2001 - 2002 *Goldfields Australasia Ltd., Australia, Junction Mine*
Contract Geotechnical/Fill Engineer (November-January)

1999 - 2002 *University of New South Wales, Australia, School of Mining Engineering*
Research Student

1996 - 1999 *BHP Iron Ore Ltd., Australia, Mt. Whaleback Mine, Geotechnical Engineer*

1995 - 1996 *Newcrest Mining Ltd., Australia, Victorious Deeps & Enterprise Mines*
Assistant Geotechnical Engineer (December-March)

1994 - 1995 *Coogardie Gold N. L., Australia, Baley's Reward Mine*
Field Assistant (December-March)

Project Experience

Underground Mine Design: Routine underground mapping for rock mass classification; Empirical ground-support design, open-stope design and development of empirical database for crown and rib-pillar design; Optimization of the extraction strategy for a burst-prone mine environment at WMC Ltd's Junction Mine, W.A., Australia.

Numerical modeling analysis and design of underground room-and-pillar limestone mine, Vulcan Materials Company Ltd., Illinois, USA.

Caveability Analysis: Numerical modeling analysis and design of block cave undercut and extraction-level development at Northparkes Mines Ltd's E26 Lift 2 Mine, NSW, Australia; Numerical modeling analysis and design of block cave undercut and extraction-level development at Northparkes Mines Ltd's E48 Mine, NSW, Australia.

Numerical caveability assessment of Northparkes Mines Ltd's E48 Mine, NSW, Australia.

Numerical caveability assessment of BHP Billiton Diamonds Inc.'s Koala Mine, NWT, Canada

Mining-Induced Subsidence: Investigation of the impact of mining-induced subsidence on residential housing at the abandoned Bethlehem Steel Ltd., Grace Mine, Pennsylvania, USA; Evaluation of the subsidence zone-of-influence at Northparkes Mines Ltd's proposed E48 Block Cave Mine, NSW, Australia.

Mine Backfill: Field and laboratory testing of the geomechanical properties of paste fill; Supervision of quality control during commissioning of continuous paste-fill mixing plant; Development and implementation of plant-operation procedures for Goldfields Australasia Ltd's Junction Mine, WA, Australia.

Design, installation and numerical modeling calibration of paste fill stress and displacement instrumentation at Goldfields Australasia Ltd's Junction Mine, WA, Australia.

Investigation, design and implementation of stabilized rockfill in order to permit dilution-free crown pillar recovery at Goldfields Australasia Ltd's Crusader Mine, WA, Australia.

Three-dimensional numerical investigation of paste-fill exposure stability at Placer Dome Asia Pacific Ltd's, Kanowna Belle Mine and Birla Ltd's Nifty Copper Mine, WA, Australia.

Design of underhand paste-fill exposures at LionOre Ltd.'s Black Swan Mine and EKJV Ltd's Raleigh Mine, WA, Australia.

Design of paste-fill barricade structures for Placer Dome Asia Pacific Ltd's, Kanowna Belle Mine, BHP Billiton Ltd's Cannington Mine, EKJV Ltd's Raleigh Mine and at LionOre Ltd.'s Black Swan Mine, Australia.

Design of hydraulic-fill barricade structures for Cobar Management Ltd's CSA Mine, NSW, Australia.

Laboratory and numerical investigation of the liquefaction potential of paste fill at BHP Billiton's Ltd's Cliffs Nickel Project, WA, Australia.

Open-Pit Mining: Design, installation and analysis of slope monitoring instrumentation; Supervision of mine operators in the implementation of geotechnical slope designs; Numerical modeling of pit slope stability at BHP Billiton Ltd.'s Mt Whaleback Mine, WA., Australia.

Drill and Blast: Drill-and-blast pattern design and implementation; Implementation of final pit wall drill-and-blast practices at BHP Billiton Ltd.'s Mt Whaleback Mine, WA., Australia; Numerical investigation of stemming placement and flow mechanisms in order to minimize shock tube damage at Phelps Dodge Mines, Co., USA.

Waste Isolation: Numerical investigation of the effect of lithophysal shape and void fraction on the strength and modulus of lithophysal tuff; Numerical analysis of *in situ* slot test to determine rock mass deformation modulus; Numerical modeling analysis of high-level radioactive waste repository underground infrastructure at the Yucca Mountain Project, NV., USA.