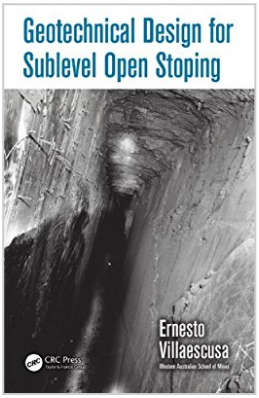

Geotechnical Design for Sublevel Open Stoping

By Ernesto Villaescusa

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The first comprehensive work on one of the most important underground mining methods worldwide, **Geotechnical Design for Sublevel Open Stoping** presents topics according to the conventional sublevel stoping process used by most mining houses, in which a sublevel stoping geometry is chosen for a particular mining method, equipment availability, and work force experience. Summarizing state-of-the-art practices encountered during his 25+ years of experience at industry-leading underground mines, the author:

- Covers the design and operation of sublevel open stoping, including variants such as bench stoping
- Discusses increases in sublevel spacing due to advances in the drilling of longer and accurate production holes, as well as advances in explosive types, charges, and initiation systems
- Considers improvements in slot rising through vertical crater retreat, inverse drop rise, and raise boring
- Devotes a chapter to rock mass characterization, since increases in sublevel spacing have meant that larger, unsupported stope walls must stand without collapsing
- Describes methodologies to design optimum open spans and pillars, rock reinforcement of development access and stope walls, and fill masses to support the resulting stope voids
- Reviews the sequencing of stoping blocks to minimize *in situ* stress concentrations
- Examines dilution control action plans and techniques to back-analyze and optimize stope wall performance

Featuring numerous case studies from the world-renowned Mount Isa Mines and examples from underground mines in Western Australia, **Geotechnical Design for Sublevel Open Stoping** is both a practical reference for industry and a specialized textbook for advanced undergraduate and postgraduate mining studies.

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Editorial Review

Review

"Because of its continuing importance in most of the world’s major metalliferous mining countries including, but not only, Australia, Canada, and the Scandinavian and South American countries, it is entirely appropriate that a book should now appear synthesizing 40 years’ accumulated international experience with modern sublevel open stoping methods. … The author…is supremely well qualified to undertake this important task…because of his directly relevant industry, applied research, teaching and consulting experience, and his extensive list of publications in the area. …Although, as the title suggests, the book has a geotechnical engineering orientation, it also contains considerable practical detail on open stoping layouts, design, and operations, and includes chapters on drilling and blasting, rock support and reinforcement, mine fill technology, and dilution control. …I believe that this book will serve multiple purposes. It will serve as a specialist textbook for mining courses at the advanced undergraduate and postgraduate levels. It will also provide an authoritative, practically oriented reference work for those involved in the industry, both in mining operations and as consulting engineers, particularly for those in the early stages of their careers and those seeking to develop new understandings and skills."
?From the Foreword by Edwin T. Brown, AC, Senior Consultant, Golder Associates Pty Ltd, Brisbane, Australia and Emeritus Professor, University of Queensland, Australia

About the Author

Ernesto Villaescusa possesses over 25 years of applied research experience. He has worked with mining houses such as MIM Holdings, Noranda, WMC Resources, Peñoles, Minera Autlan, CODELCO, BHP Billiton, Placer Dome Asia Pacific, and Normandy to develop guidelines for effective underground mining leading to the safe, economical extraction of ore. For the past 16 years, he has served as professor of mining geomechanics at the Western Australian School of Mines, where he has secured over $21 million of industry-funded mining research income, supervised over 30 masters and 10 Ph.D student theses, and been appointed to an industry chair in mining rock mechanics.

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From reader reviews:

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