

# GUIDELINES FOR OPEN PIT SLOPE DESIGN

EDITORS: JOHN READ AND PETER STACEY



# Guidelines For Open Pit Slope Design Download

**Derek Martin, Peter Stacey**



## **Guidelines For Open Pit Slope Design Download:**

Guidelines for Open Pit Slope Design John Read, Peter Stacey, 2009-11-09 Guidelines for Open Pit Slope Design is a comprehensive account of the open pit slope design process Created as an outcome of the Large Open Pit LOP project an international research and technology transfer project on rock slope stability in open pit mines this book provides an up to date compendium of knowledge of the slope design processes that should be followed and the tools that are available to aid slope design practitioners This book links innovative mining geomechanics research into the strength of closely jointed rock masses with the most recent advances in numerical modelling creating more effective ways for predicting rock slope stability and reliability in open pit mines It sets out the key elements of slope design the required levels of effort and the acceptance criteria that are needed to satisfy best practice with respect to pit slope investigation design implementation and performance monitoring Guidelines for Open Pit Slope Design comprises 14 chapters that directly follow the life of mine sequence from project commencement through to closure It includes information on gathering all of the field data that is required to create a 3D model of the geotechnical conditions at a mine site how data is collated and used to design the walls of the open pit how the design is implemented up to date procedures for wall control and performance assessment including limits blasting scaling slope support and slope monitoring and how formal risk management procedures can be applied to each stage of the process This book will assist in meeting stakeholder requirements for pit slopes that are stable in regards to safety ore recovery and financial return for the required life of the mine

**Guidelines for Open Pit Slope Design in Weak Rocks** Derek Martin, Peter Stacey, 2018-01-10 Weak rocks encountered in open pit mines cover a wide variety of materials with properties ranging between soil and rock As such they can provide a significant challenge for the slope designer For these materials the mass strength can be the primary control in the design of the pit slopes although structures can also play an important role Because of the typically weak nature of the materials groundwater and surface water can also have a controlling influence on stability Guidelines for Open Pit Slope Design in Weak Rocks is a companion to Guidelines for Open Pit Slope Design which was published in 2009 and dealt primarily with strong rocks Both books were commissioned under the Large Open Pit LOP project which is sponsored by major mining companies These books provide summaries of the current state of practice for the design implementation and assessment of slopes in open pits with a view to meeting the requirements of safety as well as the recovery of anticipated ore reserves This book which follows the general cycle of the slope design process for open pits contains 12 chapters These chapters were compiled and written by industry experts and contain a large number of case histories The initial chapters address field data collection the critical aspects of determining the strength of weak rocks the role of groundwater in weak rock slope stability and slope design considerations which can differ somewhat from those applied to strong rock The subsequent chapters address the principal weak rock types that are encountered in open pit mines including cemented colluvial sediments weak sedimentary mudstone rocks soft coals and

chalk weak limestone saprolite soft iron ores and other leached rocks and hydrothermally altered rocks A final chapter deals with design implementation aspects including mine planning monitoring surface water control and closure of weak rock slopes As with the other books in this series *Guidelines for Open Pit Slope Design in Weak Rocks* provides guidance to practitioners involved in the design and implementation of open pit slopes particularly geotechnical engineers mining engineers geologists and other personnel working at operating mines *Rock Engineering Design* Xia-Ting Feng, John A. Hudson, 2011-07-27 Given the recent advances in site investigation techniques computing access to information and monitoring plus the current emphasis on safety accountability and sustainability this book introduces an up to date methodology for the design of all types of rock engineering projects whether surface or underground Guidance is provided on the natu

**Guidelines for Slope Performance Monitoring** Robert Sharon, Erik Eberhardt, 2020-07-01 Although most mining companies utilise systems for slope monitoring experience indicates that mining operations continue to be surprised by the occurrence of adverse geotechnical events A comprehensive and robust performance monitoring system is an essential component of slope management in an open pit mining operation The development of such a system requires considerable expertise to ensure the monitoring system is effective and reliable Written by instrumentation experts and geotechnical practitioners *Guidelines for Slope Performance Monitoring* is an initiative of the Large Open Pit LOP Project and the fifth book in the *Guidelines for Open Pit Slope Design* series Its 10 chapters present the process of establishing and operating a slope monitoring system the fundamentals of pit slope monitoring instrumentation and methods monitoring system operation data acquisition management and analysis and utilising and communicating monitoring results The implications of increased automation of mining operations are also discussed including the future requirements of performance monitoring *Guidelines for Slope Performance Monitoring* summarises leading mine industry practice in monitoring system design implementation system management data management and reporting and provides guidance for engineers geologists technicians and others responsible for geotechnical risk management *Earth Science Software Directory* , 1995

**Guidelines for Evaluating Water in Pit Slope Stability** John Read, Geoff Beale, 2013-12-17 *Guidelines for Evaluating Water in Pit Slope Stability* is a comprehensive account of the hydrogeological procedures that should be followed when performing open pit slope stability design studies Created as an outcome of the Large Open Pit LOP project an international research and technology transfer project on the stability of rock slopes in open pit mines this book expands on the hydrogeological model chapter in the LOP project s previous book *Guidelines for Open Pit Slope Design* Read CSIRO PUBLISHING The book comprises six sections which outline the latest technology and best practice procedures for hydrogeological investigations The sections cover the framework used to assess the effect of water in slope stability how water pressures are measured and tested in the field how a conceptual hydrogeological model is prepared how water pressures are modelled numerically how slope depressurisation systems are implemented and how the performance of a slope depressurisation program is monitored and reconciled with the

design Guidelines for Evaluating Water in Pit Slope Stability offers slope design practitioners a road map that will help them decide how to investigate and treat water pressures in pit slopes It provides guidance and essential information for mining and civil engineers geotechnical engineers engineering geologists and hydrogeologists involved in the investigation design and construction of stable rock slopes *Journal of the South African Institute of Mining and Metallurgy* South African Institute of Mining and Metallurgy,1978 **Site Assessment and Remediation Handbook** Martin N. Sara,2003-06-27 Completely revised and updated the Second Edition of Site Assessment and Remediation Handbook provides coverage of new procedures and technologies for an expanded range of site investigations With over 700 figures tables and flow charts the handbook is a comprehensive resource for engineers geologists and hydrologists conducting site investi **Guidelines for Evaluating Water in Pit Slope Stability** John Russell Lee Read,Geoff Beale,2013 **Guidelines for Slope Performance Monitoring** Robert Sharon,Erik Eberhardt,2026-02-02 Although most mining companies utilise systems for slope monitoring experience indicates that mining operations continue to be surprised by the occurrence of adverse geotechnical events A comprehensive and robust performance monitoring system is an essential component of slope management in an open pit mining operation The development of such a system requires considerable expertise to ensure the monitoring system is effective and reliable Written by instrumentation experts and geotechnical practitioners Guidelines for Slope Performance Monitoring is an initiative of the Large Open Pit LOP Project and the fifth book in the Guidelines for Open Pit Slope Design series Its 10 chapters present the process of establishing and operating a slope monitoring system the fundamentals of pit slope monitoring instrumentation and methods monitoring system operation data acquisition management and analysis and utilising and communicating monitoring results The implications of increased automation of mining operations are also discussed including the future requirements of performance monitoring Guidelines for Slope Performance Monitoring summarises leading mine industry practice in monitoring system design implementation system management data management and reporting and provides guidance for engineers geologists technicians and others responsible for geotechnical risk management This book is an initiative of the Large Open Pit LOP Project and the fifth book in the Guidelines for Open Pit Slope Design series It summarises leading mine industry practice in monitoring system design implementation system management data management and reporting and provides guidance for engineers geologists technicians and others responsible for geotechnical risk management *Commerce Business Daily* ,1998-07 Backpacker ,2007-09 Backpacker brings the outdoors straight to the reader s doorstep inspiring and enabling them to go more places and enjoy nature more often The authority on active adventure Backpacker is the world s first GPS enabled magazine and the only magazine whose editors personally test the hiking trails camping gear and survival tips they publish Backpacker s Editors Choice Awards an industry honor recognizing design feature and product innovation has become the gold standard against which all other outdoor industry awards are measured *Open Pit Slope Design* John M. Marek,John F. Abel,1976

*Economic Analysis Applied to Open-pit Slope Design* William Cleamon Cassun,1976 **Pit Slope Manual** Mining Research Laboratories (Canada),Gerhard Herget,G. Larocque,M. King,1977 Pit Slope Manual - Chapter 2, Structural Geology Canada Centre for Mineral and Energy Technology,1977 **Analysis of Geologic Structure for Open Pit Slope Design** Richard Drake Call,1972 *Two- and Three-dimensional Slope Stability Analyses of Open Pit Mines Under Geomechanical Uncertainty and Rock Mass Properties Variability* Christian Obregon Mitma,2020 In open pit mining a major geotechnical challenge involves the excavation of the steepest possible slope angle to achieve the lowest stripping ratio while ensuring maximum ore recovery This generally means a good overall profitability since waste rock removal is kept to a minimum However steepening pit slopes may induce failures which may disprove the economic benefits that were initially aimed at and which may also result in loss of life damage to equipment and environment As a result the selection of slope angle is a critical decision that can have far reaching effects on the economics and operation of the mining project Traditionally slope stability assessments for pit slopes are carried out by means of a 2D deterministic analysis However there are two major drawbacks with this approach First a deterministic approach is unable to account for the variability and uncertainty in the rock mass strength properties Second a two dimensional analysis cannot capture the complex open pit geology and varying geometry which is inherently 3D in character This work deals with the geotechnical slope design of three open pit case studies by means of a probabilistic based approach in order account for the variability and uncertainty in the properties corresponding to both the intact rock and geological discontinuities Rock slope stability assessments are carried out at three different scales bench inter ramp and global pit slope by means of analytical and numerical tools Both kinematic and kinetic analysis for structurally controlled failure mechanisms were carried out at the bench scale by means of classical Limit Equilibrium Analysis LEA Also a novel Discrete Fracture Network DFN modelling technique was used for the stochastic representation of discrete rock blocks Slope stability analysis at the inter ramp slope was performed through a deterministic approach of major large scale discontinuities mapped during field geological characterization The global pit slope stability analysis focused on investigating the uncertainty in intact rock and rock mass Hoek Brown shear strength envelopes and was conducted using 2D 3D Limit Equilibrium Analysis LEA vs Finite Element Analysis FEA Finally deterministic vs probabilistic LEA vs FEA and 2D vs 3D slope stability analysis tools are compared and their results are discussed **Pit Slope Manual** Mining Research Laboratories (Canada),1977 ABSTRACT The paper describes procedures used to design pit walls Structural groundwater and mechanical properties are analyzed Mine planning design stages stability and financial analyses operating stages and associated designs are also examined Aspects of Slope Design in Open Pit Mining Dermot Ross-Brown,1973

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