

Mine Planning & Equipment Selection

**16th International Symposium
on Mine Planning and
Equipment Selection
2007**

December 11-13, 2007
Bangkok, Thailand

Volume 1 of 2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60560-326-1

Some format issues inherent in the e-media version may also appear in this print version.

Copyright (2007) by Mine Planning and Equipment Selection
All rights reserved.

For permission requests, please contact Mine Planning & Equipment Selection
at the address below.

Mine Planning & Equipment Selection
Box 68002 Crowfoot Post Outlet
Calgary, Alberta T3G 1Y0 Canada

Mine Planning & Equipment Selection
16th International Symposium on Mine Planning
and Equipment Selection
2007

TABLE OF CONTENTS

VOLUME 1

Real Option Theory and Some Key Points for Using it in Mining	1
<i>A.D. Akbari, M. Osanloo, M.A. Shirazi</i>	
Estimation of Strength Properties of Filling Massif with Using of SURPAC Geoinformation System	13
<i>A.I. Ananin, V.V. Prokhodov, V.I. Gamulka, V.S. Muzgina</i>	
A New Approach for Determination of Open Pit Loading Machines Efficiency	19
<i>B. Asi, M. Osanloo, A. Hekmat</i>	
A New Approach for Decision Making Based Genetic Algorithm in Mining Operations	33
<i>A. Bascetin</i>	
Investigation and Assessment of Silica in NW of Argentina	49
<i>M. Garcia, J. Avila, J. Lazarte, G. Mas, L. Bengochea</i>	
Determination of the Conveyor Belt's Resistance to Rolling on Idlers	59
<i>M. Bajda, M. Hardygora</i>	
Main Principles of Open-pits Geotechnologic Systems Sustainable Development	68
<i>S.Z. Galiev, A.A. Boyandinova, Z.A. Boyandinova, K.K. Zhusupov, E.N. Tatishev</i>	
Key Aspects of Underground Nickel Mining in Greece	80
<i>A. Benardos</i>	
Plain Water Jet Noise Emission: Effect of Stand-off Distance Variation	88
<i>A. Bortolussi, V. Dentoni, G. Massacci, I. Mulas</i>	
Redesigning Sill Pillar at Central Block Level 500 (L.500) in Ciurug Mine of Pongkor Gold Mine, PT.ANTAM Tbk.	101
<i>E. Budiman, A. Sudharto, A. Ardianto</i>	
Incorporation of Quarry Fines in the Cover Mortar Preparation	121
<i>R.C. Candia, W.T. Hennies, L.S. Idélzia, G. de Almeida, M.C. Candia</i>	
Blast Vibration Testing for a Marl Quarry Site	131
<i>M. Cardu, A. Giraudi</i>	
Dimension Stone Extraction As a Co-product of a Civil Engineering Work: a Case Study	145
<i>M. Cardu, E. Lovera</i>	
Application of Electro-Monorail Mine Haulage Systems in Underground Decline Development	159
<i>E.K. Chanda, W. Darcey, M. Kuruppu, B. Besa</i>	

Stepping out the Pace of Solving Ming Subsidence Problems, Improving the Restoration of the Integrated Mining Environment	176
<i>C. Jian, L. Jingchun</i>	
Identification of Good Management Practices in Illinois to Control Sulfate and Chloride Discharges: an Overview	188
<i>Y.P. Chugh, P.T. Behum, J. Nawrot, S. Mohanty</i>	
Iron Ore Exploitation in Brazilian Hillsides Submitted to Permanent Environment Protection	202
<i>A. Curi, J. R. Lopes, M. Barbosa</i>	
Development of Truck Dispatching System for Open Pit Mine Operations.....	212
<i>K. Dagdelen, S. Artittong</i>	
Cutoff Grade Optimization for Large Scale Multi-Mine, Multi-Process Mining Operations	226
<i>K. Dagdelen, K. Kawahata</i>	
Strategies for Dragline Rope Life Extension.....	234
<i>D. Dayawansa, M. Kuruppu, F. Mashiri</i>	
Dynamic Modeling Of A Dragline Front-End And Boom Stress Analysis For Efficient Excavation	247
<i>N. Demirel, S. Frimpong</i>	
Mechanical Vibration Transmitted by Hand-held Power Tools Used in Mining, Rehabilitation and Construction Work	255
<i>V. Dentoni, G. Massacci</i>	
Geographic Information Systems (GIS) Usage in Open-pit Mine Planning	267
<i>T. Dogan, K. Kapar, A. Kahrirman</i>	
Dust Emission in Dependence on Cutting Parameters in the Process of Mechanical Rock Destruction	285
<i>C. Drebenstedt, M.E.Q. Van Phan</i>	
Development of Technologies with Using of Conveyor Systems for Deep Opencasts of Kazakhstan	295
<i>A. Dyussebayev, Y. Sapakov, D. Bukeikhanov</i>	
Comparison of Pit Optimization and Mining Scheduling in Jalal-Abad Iron Ore Deposit Performed by NPVS™ and Four-X™	305
<i>B. Farshadi, M. Ghiasi</i>	
Management of Aquifer Depressurization System in Hazelwood Mine, Latrobe Valley, Australia	314
<i>J. Ferando, D. NAG</i>	
The Automated System of Disputcing of Excavator-railway Complex Work on Open-pit – «ADIS-RT»	330
<i>S.Z. Galiev, Y.A. Shabelnikov, A.S. Bertureev, Y.N. Seytaev, K.K.Ivanov, K.K. Zhusupov, Y.N. Tatishev</i>	
Software and Methodic Provision of the Calendar Planning of Mining and Transport Works at the Pits	338
<i>S.Z. Galiyev, A.A. Boyandinova, Z.A. Boyandinova</i>	
Possibilities for Storing Radioactive Waste in Romanian Underground Mining Spaces.....	349
<i>M. Georgescu, G. Buia</i>	

A Chance Constrained Integer Programming Model for Open Pit Long-Term Production Planning	359
<i>J. Gholamnejad, M. Osanloo</i>	
The Use of Electroosmotic Technique to Improve Safety Conditions of Abandoned Tailing Dams	373
<i>B. Grosso, M. Cigagna, P.P. Manca, P. Tronci</i>	
Effect of Sodium Silicate on Physical and Mechanical Behavior of Mine Backfill	388
<i>F. Hassani, S.M. Razavi, I. Isagon</i>	
Detection of Underground Object using Giant-Magnetostriction Vibrator to Support for Plumbing Construction	399
<i>E. Ha, Y. Kawamura, H. Okawa, M. Asaka, K. Mizutani</i>	
Software Support of Tribological Maintenance	410
<i>F. Helebrant, L. Hrabec, J. Jurman, J. Fries</i>	
Managing Mining Operation Integrated with “Push-Pull Approach” Community Development Program	421
<i>S.I. Winardi, A. Ardianto</i>	
Three Decades of Implosion in Brazil and Fifteen Years of Seismograph Monitoring	430
<i>W.S. Iramina, S.M. Eston, M.J.D. Dias</i>	
Role of Peripheral Speed of Diamond Wire Saw Machine in Cutting of Dolomitic Marble Stones	442
<i>S.C. Jain, S.S. Rathore</i>	
Gyro Stabilised Vertical Opening Inspection and Surveying System	453
<i>J. Langdon, A. Jarosz</i>	
Mine as a Logistic System	470
<i>V. Kebo, V. Strakos</i>	
Economic Model of the Conurbation Development	478
<i>V. Kebo, V. Strakos</i>	
SIMT Sensory Identification of Material Type and Detection of the Interfaces	485
<i>M. Kesting, L. Overmeyer, J. Niemeyer</i>	
Control of Ventilation Systems in Regime of Catastrophic Failures	500
<i>A.I. Koketayev</i>	
The Experimental Equipment and its Automation for Underground Coal Gasification	506
<i>K. Kostur</i>	
Path Following and Task Control of Unmanned Wheel Loader	512
<i>N. Koyachi, S. Sarata, K. Sugawara</i>	
Study on Correspondence Between Output Voltage of Cable Censer for Vibration Detection and Velocity	524
<i>Y. Kudo, Y. Kawamura, K. Oumura, H. Okawa, K. Mizutan</i>	
Measuring the Contribution of Maintenance in Mechanized Mining Operations	532
<i>U. Kumar</i>	
Rock Cutting Using an Abrasive Suspension Water Jet	541
<i>C.I. Lee, J.G. Kim, S.S. Han</i>	

The Development of the Mining Education Australia (MEA) Program	552
<i>G. Linda, T. Andrews</i>	
The Speeding-Up of Development of Clean Coal Technologies in China.....	563
<i>L. Guo, L. Wu, Z. Hu</i>	

VOLUME 2

Remote Operation and Maintenance Support Services: A Conceptual Framework.....	576
<i>T. Markeset, R. Kumar, U. Kumar</i>	
Potash Mining in Thailand – Backfill Materials and Technologies	587
<i>M. Masniyom</i>	
Effect of Tunneling in Final Open Pit Wall on the Stability of Pit Wall	599
<i>K. Matsui, T. Sasaoka, H. Shimada, M. Ichinose</i>	
Design of Mine Shafts.....	610
<i>I.I. Matunhire</i>	
Strategic Planning of Aggregate Quarrying	624
<i>M. Menegaki</i>	
ARENA Simulation of Continuous Lignite Excavation Systems	636
<i>T.N. Michalakopoulos, C.P. Roumpos, G.N. Panagiotou</i>	
Innovative Method to Recover and Recycle the Technological Materials Used in Dimension Stones Processing	648
<i>E. Michelotti, M. Cardu</i>	
Design of Measures for Decreasing of Ore Dilution by Broken Cement-containing Backfill	659
<i>V.S. Muzgina, A.I. Yedilbayev</i>	
Continuous Modeling of Open Pit Dynamics	665
<i>H. Askari-Nasab, J. Szymanski</i>	
The Surface Miner Sustainable Oil-shale Mining Technology Testing Results in Estonia	678
<i>O. Nikitin, E. Väli, J.R. Pastarus, S. Sabanov</i>	
Economic Comparison of Drilling Systems in Sublevel Stoping Method.....	688
<i>K. Oraee, A.H. Bangian</i>	
General Approach to Distribute Waste Rocks Between Dump Sites in Open Cast Mines	701
<i>K. Oraee, A. Goodarzi</i>	
Financial Evaluation of Sungun Copper Project Using DCF Method	713
<i>K. Oraee, F. Rashidinejad, B. Asic</i>	
An Optimization Algorithm to Assess Different Reserves Models for Open Pit Short Term Planning.....	721
<i>J.M. Ortiz, E. Rubio, J.L. Yarmuch</i>	
Investigation of Ground Vibration and Its Relation with Specific Charge in Two Iran’s Copper Mines.....	733
<i>M. Osanloo, H. Aliasghari</i>	
Remote Sensing Systems for Coal Mining Automation and Safety	742
<i>L. Overmeyer, B. Steyer</i>	

AMD and Slaking Behavior at Tanjung Enim Coal Mine in Indonesia	752
<i>J. Oya, H. Shimada, T. Sasaoka, M. Ichinose, K. Matsui</i>	
Automation in Arresting Dust in Opencast Coal Mines	760
<i>M. K. Panda, B. K. Pal, D.R.K. Parhi</i>	
Impacts of Out-of-seam Dilution on Clean Coal Quality	779
<i>A. Patwardhan, A. Moharana, Y.P. Chugh</i>	
Research on 3-D Geological Modeling and 3-D Volume Quantificational Prediction--A case study in Yunnan Province, China	791
<i>C. Jian-Ping, Z. Jie, L. Peng, H. Qing, T. Yi</i>	
Prediction of Dynamic Rock Pressure Manifestations by Method of Acoustic Probing in Underground Mines	806
<i>G.G. Pivnyak, A.N. Shashenko, A.B. Ivanov, E.V. Maslennikov</i>	
Economic Simulation Model for Selective Underground Mining Methods	811
<i>S. Planeta, J. Szymanski</i>	
Project ARGON: Applying Field Collected Stress Data to Develop a New Generation of Lighting	827
<i>U. du Plessis</i>	
New Type of Hydraulically Driven Rotation and Feed System for Drill Rig	836
<i>R.Y. Poderni, M.R. Chromoy, V. F. Sandalov</i>	
Safety Aspects of Manriding in Czech Deep Mines	842
<i>J. Polak</i>	
Quarrying, Processing and Application of Carpathian Cretaceous Sandstone in Moravian Region in the Czech Republic	856
<i>P. Pospisil</i>	
“One-Stop-Shopping” – An Alternative Purchase Approach	867
<i>M.J. Pouls</i>	
Influence of Rock Properties in Surface Mine Blast Design	890
<i>G.K. Pradhan, N.R. Thote</i>	
Analysis of Influence of Mineral Complex Use Level on Conditioness of Solid Minerals Resources	902
<i>B.R. Rakishev, A.A. Lisenkov, E.B. Rakishev</i>	
Technology of the Cutting Trech Passing by Dragline with Limited Linear Dimensions and Haulage-free Excavation of Stripping Rocks	908
<i>B.R. Rakishev, S.K. Moldabayev, G.E. Irgebayev, N.A. Shulayeva, Z.N. Khammetova</i>	
Theoretical Estimation of Granulometric Structure of Exploded Mining Rocks at the Quarries	913
<i>B.R. Rakishev, Z.B. Rakisheva</i>	
Non-Traditional Utilization of Uranium Deposits After Underground Mining Completion	920
<i>N. Rapantova, A. Grmela, B. Michalek, J. Unucka, D. Vojtek</i>	
A Prototype Holistic Cutoff Grade Model for Porphyry Coppers	930
<i>F. Rashidinejad, M. Osanloo, B. Rezai, B. Asi</i>	
Intelligent Data Analysis of Operational Conditions of Earth Moving Machinery	945
<i>M. Reformat, A. Pedrycz, J. Szymanski</i>	

Mining of Brown Coal and Reclamation Methodology in North-western Bohemia Region	960
<i>M. Rehor, V. Ondracek, H. Lorencova</i>	
Risk Assessment of Pillars Bearing Capacity Under Rock Dump in Estonian Mine “Viru”	966
<i>S. Sabanov, J.R. Pastarus, O. Nikitin, E. Vali</i>	
Experimental Insights on the Characteristics of Rock Slaking with Particular Reference to the Coal Bearing Rocks in Indonesia	973
<i>I.A. Sadisun, H. Shimada, M. Ichinose, K. Matsui</i>	
Detection of Location and Shape of Pile for Unmanned Loading Operation by Wheel Loader	981
<i>S. Sarata, N. Koyachi, K. Sugawara</i>	
Planning for the New Developments at a Cu-Mo Mine in Armenia	991
<i>J. Sattarvand, C. Niemann-Delius, J.H. Tacke</i>	
Lignite Mining in Germany in the Area of Conflict Between Ecology and Economy	999
<i>F.J. Schippers</i>	
Fully Mobile In Pit Crushing Systems in Open Pit Mines	1006
<i>D.L. Schroder</i>	
Fine Aggregates of Crushed Rocks Used in the Preparation of Concretes and Mortars	1014
<i>L. Soares, L.F. D'Agostino, L.Z. D'Agostino, W.T. Hennies</i>	
Silica Sand Production in Croatia	1023
<i>I. Sobota, B. Salopek, G. Bedekovic</i>	
Predicting the Time of Crew Evacuation During an Underground Fire	1039
<i>A. Struminski, B. Madeja-Struminska</i>	
The Research Project “Innovative Dewatering System for Environmental Protection and Increase in Efficiency”	1047
<i>M. Struzina, P. Jolas, C. Drebenstedt</i>	
Mine Plan Design and Equipment Selection for Ramp Down Development at Level 450 of South Ciurug - Pongkor Gold Mine Business Unit PT. Antam Tbk.	1060
<i>D. Sukristiyawan, D. Samsudin</i>	
Lowwall Stability Analysis, Case Study At Abimanyu Coal Open-Pit, PT Arutmin Indonesia Satui Mine, South Kalimantan, Indonesia	1074
<i>B. Sulistianto, R.K. Wattimena, I. Arif, M.S. Sulaiman, S. Widhy</i>	
Excavation Activities and Potential Resource Deposits: Case Histories in Thailand	1081
<i>S. Tangchawal</i>	
Desalinization of Stone Facades, Structures and Monuments	1092
<i>I. Tomasic</i>	
Permanent Support Design for an Existing Drainage Tunnel at Eli Mine in Turkey	1104
<i>L. Tutluoglu, C. Karpuz, A. Kocal</i>	
Automation: a Blessing or a Curse? Transferable Lessons for the Mining Industry	1122
<i>E. Widzyk-Capehart, E. Duff</i>	
Research on 3-Dimensional Laser Scanner System Monitoring the Land Sliding of the Strip Mine	1134
<i>Y. Fan, H. Zhen-qj, Q. Jian-guo, L. Hui, W. Chong-chang</i>	

Planning and Design of Medium-sized and Small Deposits of Ferrous and Non-ferrous Metals Mining in Kazakhstan	1142
<i>A.A. Zharmenov, V.S. Muzgina, A.Z. Terlikbayeva, S.K. Myrzaliyeva, V.D. Yugay</i>	
Modelling of Hydrogeomechanics Processes in Regions of Potash Minerals Deposits Excavation	1150
<i>M.A. Zhuravkov, A.L. Kanavalau, A.D. Smuchnik, V.M. Kirienko</i>	
Non-stationary Operating Conditions Analysis by Instantaneous Speed Monitoring for Mining Machines Diagnostics	1160
<i>R. Zimroz</i>	
Author Index	