INVITED SPEAKERS

1. A NEW TESTING METHOD FOR DETERMINATION OF UNCOFINED COMpressive STRENGTH (UCS): CORE STRANGLE TEST (CST)

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Prof. Dr. Isik YILMAZ is lecturer and scientist in Cumhuriyet University in Turkey and a specialist on the subjects of engineering geology, rock mechanics, soil mechanics, GIS, soft computing techniques in rock / soil parameter estimation and hazard / susceptibility mapping of landslide and liquefaction. He has 5 books and more than 100 papers published in many International Journals. He is the Editor and/or Editorial board member of many International Journals such as; Environmental Geology, Environmental Earth Sciences, Bulletin of Engineering Geology and the Environment, Scientific Research and Essays, International journal of Soft Computing, Journal of Engineering and Applied Sciences, The Open Geology Journal, Journal of Environmental Protection, etc.

ABSTRACT: A new testing method for indirect determination of Unconfined Compressive Strength (UCS) of the rock core samples is herein presented. As known, there are some methods for indirect estimation of UCS such as; point load index ($I_s$), Schmidt hammer, sonic velocity, block punch strength test etc. However point load index testing method is widely used to estimate the UCS, there are many problems and limitations related to this method as reported in the recent literature. It was obtained that CST proposed in this paper namely “Core Strangle Test (CST)” had minimized some of the deficiencies, limitations etc. The principle of this test depends on the “strangle” type of loading a core along a circle perpendicular to the core axis. In the first stage of the studies, blocks of different type of rocks having the strength in a range from weak to strong were collected and cored for UCS, Point Load Index and CST tests. These tests were then conducted and relationships between UCS with $I_{s(50)}$ and CST were empirically explained and discussed in a point of the view of the usefulness of the method developed. Performance of indirect estimation of tensile strength of rocks from Core Strangle Test (CST), and potential use of Core Strangle Index (CSI) in rock mass classification systems is also presented. As a result of this study, higher performance was obtained, and CST tests led to considerably lower errors in determining the tensile strength when compared with the results obtained from point load index tests. Moreover, it was found that CSI can also be used as an alternative input parameter in rock mass classification systems ($RMR$ and $Q$) by means of intact rock strength.

Key-words: Core Strangle Test (CST); unconfined compressive strength; rocks; tensile strength; rock mass classification.

2. MUCK CLASSIFICATION: RAW MATERIAL OR WASTE IN TUNNELLING OPERATION.

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Area of interest: Engineering and safety of the excavations, Industrial and Computer Engineering.

ABSTRACT: Tunnel construction, structural diaphragms, debris from quarry exploitation require careful consideration of the spoil management, as this involves environmental, economic and legal requirements. In this paper a classification that considers the interaction between technical and geological factors in determining the features of the resulting muck is proposed. This gives indications about the required treatments as well as laboratory and field characterisation tests to be performed to assess muck recovery alternatives. While this reuse is an opportunity for excavations in good quality homogeneous grounds (e.g. granitic mass), it is critical for complex formation. It is therefore necessary to define a procedure that enables to assess the properties of natural ground and of the relative spoil or waste arising from the excavation or exploitation phases. This approach is presented in this paper for some tunnelling cases, where the materials are resulting from the tunnel excavation carried out with a large diameter Earth Pressure Balance shield (EPB) through a complex geological succession, from a tunnel in metamorphic rocks excavated by TBM and drill and blast and finally from the cut an cover method in urban area in alluvial coarse formation. Physical parameters and technological features of the materials have been assessed, according to their valorisation potential, for defining re-utilisation patterns. The methodology proved to be effective and the laboratory tests carried out on the materials allowed the suitability and treatment effectiveness for each muck recovery strategy to be defined.

3 IMPLEMENTATION OF REAL TIME GEOTECHNICAL MONITORING AT AN OPEN PIT MOUNTAIN COAL MINE IN WESTERN CANADA

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Taught courses: Underground mining, Surface mining design, Rock mechanics, CAD for Mining, Mining software and Projects coordinator.
A certified Professional Engineer with over 25 years, international experience in mining consulting, mining education and operations. Proven success in managing numerous mining projects, delivering innovative, top-quality work on-time and on-budget. Strong academic, strategic and analytical skills. Holds extensive experience negotiating, structuring and managing risk for complex projects regarding feasibility, mine planning and optimization, monitoring of environmental aspects in mining regions, rehabilitation and restoration of degraded lands by industrial activities and mine closures. A solid team player with ability to develop strong business relationships.

ABSTRACT: The evolution of geotechnical monitoring technology for assessing slope stability issues in real time has progressed rapidly in the last few decades. The technology has advanced the safety of open pit operations and has the potential to change planning parameters, particularly in activities adjacent to public infrastructure, based on the additional confidence that operators gain from instantaneous access to information as pits are excavated and waste dumps are constructed.

This paper summarizes the experience of a coal mine operating in the rugged topography of the Alberta foothills, excavating extremely structurally complex coal deposits within thrust and fold belt geology. In the last decade, the geotechnical monitoring at this site progressed from manual (daily to monthly) monitoring of a network of survey prisms and piezometer installations, to real time (hourly or less) monitoring of slopes and slope foundations by multiple robotic total stations sampling prism networks on pit walls and dumps, slope scanning radar, piezometers and some manually monitored borehole slope inclinometers.

During this period, the mine experienced a number of slope failures on both pit walls and waste rock dumps. Backanalysis of these failures from the monitoring data has refined the understanding of the speed failures progress at, and the best metrics and thresholds to define how alarm systems should respond to deformation. Case studies are presented for both pit foot wall and dump failures.

4. GEOTECHNICAL APPLICATIONS FOR 3D LASER SCANNING
Graeme Cowie & Gary Buchanan, Maptek Europe, Edinburgh, UK
Gary Buchanan is regional Sales Director - Maptek Europe at Maptek
Education: Deakin University, University of Technology, Sydney

Gary Buchanan's Summary: Degree qualified Geologist and Environmental Scientist with professional experience in technical services, IT, geology exploration and resource evaluation, project management, site management and sales management.

Professional experience is varied and international. Numerous junior positions held with large, multinational, Australian construction materials company providing a diversified background to management. Mid level management experience in the United Kingdom and Sales Management Experience in the European mining market. Current challenge is to build on existing commercial relationships with clients and develop new business
within the European market. Career goal is to develop a holistic understanding of business management through education and experience and aim for a senior to executive level position in a modern, technically focused company.

ABSTRACT: Maptek presents the latest technological advancements and techniques in measuring, recording and analysing geotechnical structures using laser scanning technology. Three-dimensional laser scanning technology provides many advantages to surveyors, geologists and geotechnical engineers. Such professionals can collect valuable data at a safe distance from the working face, in large quantities, at high resolution. The latest advancements in software provide geotechnical engineers with the ability to perform large scale, first pass recording and analysis of the geotechnical structures measured by the scanner, expediting the process of identifying potential safety issues or rock competence limitations in open pit operations.

Once the physical scanning of the rock faces has been complete, the software kinematic analysis tool helps to identify the kinematic feasibility for sliding, wedge failures and toppling failures of an excavated face. The components examined include slope dip, slope dip direction, daylight envelope, slip limit, lateral limits, polar friction cone and planar friction cone.

In combination, the laser survey instrument and software tools provide a safe and effective methodology for measuring, recording and identifying potential geotechnical issues in open pit excavations.

5. MANAGEMENT BY VALUES (MBV) CONDITIONS IN MINING INDUSTRY

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Education: He received the Doctor of technical sciences in mining and geological engineering with a specialization in organization and economics of mining, Faculty of Geoengineering, Mining and Geology University of Technology since 2010. Between 1999-2001 he followed postgraduate studies "Management in market economy", University of Wroclaw, Faculty of Law and Administration. He had a training about "Economic valuation and investment decision-making methods", Colorado School of Mines in 2001 and a training in "Methods for evaluation of investment projects in industry - geological mining by European standards", Imperial College of London in 1999.

His specialisation is organization and economics of mining.

**Functions performed:** member of the Scientific Council of the Geological Institute of the National Research Institute, member of the Polish Academy of Sciences Mining Sciences / Wroclaw, member of the Faculty of Geoengineering, Mining and Geology University of Technology, member of the Scientific Council of the Institute of Mining University of Technology, editor, monthly ores and Nonferrous Metals, editor, quarterly Cuprum, Secretary of the Foundation for the Lower Silesian Cluster of Commodities in Wroclaw, Coordinator of the Office of the Polish Technology Platform on Sustainable Mineral Resources.

**ABSTRACT:** Authors try to answer the question, what are the key success factors of managing the mining enterprise. Modern management methods were analyzed in the context of the mining industry, operating in challenging economic conditions in markets that are increasingly more global, complex, professionally demanding and constantly changing. The article outlines the approach that modern management methods, especially Management by Values (MBV), understood as defining key goals of the company and stating what core values define the company’s identity, leads to its stable growth. The authors present the results of a survey conducted in a mining company with the use of the Organizational Culture Assessment Instrument (OCAI) developed by Kim Cameron and Robert Quinn. Based on this example it is possible to suppose that mining companies do not have a dominant type of culture but two of these types (market and hierarchy) are stronger than others because of conditions in which they operate (e.g. law regulations, normalization). First of all, however, the key organisation values in mining are focused on stability and control - safety, people, responsibility and trust. The relations between values and efficiency presented in the article, suggest that MBV can be a good method in long term management that is oriented on the value of the organisation’s economic growth.