David Nutakor, BS, MS, Ph.D., EIT, PE

SKILLS SUMMARY

Multiple degrees with more than 15 years industry and research experience in geomechanics.

Responsible for planning, managing and supervising geotechnical and hydrogeological engineering teams at Newmont Mining Corporation, Rio Tinto Kennecott Utah Copper Mine, and Rio Tinto California Operations. The focus throughout my career has been associated with the development of innovative solutions through connection and engagement with leading external practitioners, including consultants and educational/research institutions. Most of my past projects involved collaboration between technical and operational groups to optimize the recovery of the mineral resource in the safest and most cost-efficient manner. I was also a geotechnical researcher and rock mechanics instructor.

EDUCATION

Ph.D. Geotechnical Engineering December 2008
Missouri University of Science and Technology, Rolla, Missouri

M.S. Geotechnical Engineering December 2003
University of Nevada, Reno, Nevada

B.S. Mining Engineering June 1996
University of Mines and Technology, Ghana

PROFESSIONAL EXPERIENCE

Principal Engineer (Geotechnical and Hydrogeological) March 2017 - Present
Rio Tinto California Operations

- Responsible for planning, managing and implementation of geotechnical and hydrogeological engineering programs, including auditing of the pit slope management program. This position requires risk evaluation and mitigation of a 900-foot deep pit slope using numerous pit slope monitoring vendors and consulting firms. It also involves coordination with California regulatory agencies, and significant interaction with Rio Tinto Safety, Health and Environmental Departments.

- Collaborate with universities, vendors, and Rio Tinto Growth and Innovation team on new research areas, including trialing and implementation.

- Establish and provide guidance to contractors and consultants on geotechnical and hydrogeological field investigations, including drilling, logging, sampling, laboratory testing, mapping, soil and rock mass classification, etc.

- Research collaboration work with Sisprobe Seismic Company on detection of old underground voids at Rio Tinto Borates and Lithium Mine using passive seismic method.

- Research collaboration work with University of California, Los Angeles (UCLA) and USGS on seismic hazard assessment of Rio Tinto Borates and Lithium Mine.

- Responsible for mentoring of junior engineers on pit slope monitoring data collection and stability analysis.

Senior Engineer (Geotechnical and Hydrogeological) January 2013 – March 2017
Rio Tinto California Operations

- Responsible for planning, managing and supervising geotechnical and hydrogeological engineering programs for Rio Tinto Borates and Lithium Mine in California. This position involved risk evaluation and management of a 900-foot deep pit slope using numerous pit slope monitoring vendors and consulting firms.

- Responsible for managing geotechnical and hydrogeological monitoring equipment providers and mentoring of junior engineers.

- Worked with Golder Associates on the development of a Level II Risk Register specific to critical geotechnical risks at the Bingham Canyon Mine based on Supplemental Hazard Study of one of the largest pit slope failures (Kennecott Manefay Slide) in the world.

Geotechnical Engineer May 2008 - January 2013
Rio Tinto Kennecott Utah Copper Corporation

- Responsible for open pit slope monitoring and slope stability evaluations using analytical and numerical tools at the Bingham Canyon Mine. Additional monitoring responsibilities included conveyor tunnel inspection and convergence measurement.

- Establish and maintain industry standards associated with laboratory testing of rock samples and estimation of rock mass strength.

- Responsible for managing geotechnical consultants and mentoring of junior engineers.

Teaching/Research Assistant in Geomechanics January 2006 – May 2008
Missouri University of Science and Technology, Rolla, Missouri

- Responsible for teaching and grading experiments in rock mechanics. Experiments included specific gravity and moisture-related properties of rock, deformation measurements in mine openings, elastic moduli and uniaxial compressive strength of rock, modulus of rupture and tensile strength of rock, triaxial compression test, slake durability test, point load strength index test, etc.

- Developed an interactive online training program on rockbolting.

Geotechnical Engineer January 2004 - January 2006
Newmont Mining Corporation, Nevada and Ghana

- Responsible for open pit slope monitoring and slope stability evaluations at Lone Tree and Carlin Mines in Nevada.

- Planned, managed, and supervised geotechnical and hydrogeological projects for Newmont mines in Ghana.

- Prepared budgets, supervised and managed consultants and drilling contractors.

- Responsible for mentoring and supervising Newmont geotechnical and hydrogeological staff.

Research Assistant in Geomechanics August 2001 - January 2004
University of Nevada, Reno

- Performed rock mechanics tests on rock specimens from Yucca Mountain site to determine the mechanical properties of rock joint and intact rock specimen.

- Developed an experimental method for testing rock joint properties.

SCHOLARSHIPS/AWARDS

- Best Teaching Assistant Award - Missouri University of Science and Technology, Rolla, Missouri, USA, 2007.

- National Institute for Occupational Safety and Health (NIOSH) Scholarship Award – PhD Studies at Missouri University of Science and Technology, Rolla, Missouri, USA, 2006.

- SME Award - Northeastern Nevada, USA, 2002 and 2003

- US Department of Energy Scholarship Award – MS Studies at University of Nevada, Reno, Nevada, USA, 2001

PROFESSIONAL REGISTRATION, MEMBERSHIP, AND SERVICE

- Engineer Intern Certification by Exam (certificate # 0T4588).
- Registered Professional Engineer (PE) by Exam.
- Member of American Society of Civil Engineers (ASCE).
- Member of Australasian Institute of Mining and Metallurgy (AusIMM).
- Member of Society for Mining, Metallurgy and Exploration (SME).
- Member of Association of Environmental and Engineering Geologists (AEG).
- Member of American Rock Mechanics Association (ARMA).
- Mine Safety and Health Administration (MSHA) instructor.
- Peer-reviewer of technical articles for publication in the SME Mining Engineering Journal.
- Rio Tinto technical risk auditor.
- Nominated technical expert of Rio Tinto Surface Mining Geotechnical Working Group.
- Delivery of technical presentations at industry conferences and forums of Civil and Mine Geotechnical Engineers.

PEER-REVIEWED TECHNICAL PUBLICATIONS

- Nutakor, D., et al. (2018), "Design Considerations for Weak Lakebed Sedimentary Rocks at Rio Tinto Minerals Boron Operations." *A Case Study in CSIRO Large Open Pit Book on Guidelines for Open Pit Slope Design in Weak Rocks (Editors: Derek Martin and Pete Stacey)*.
- Nutakor, D. (2012), "Mitigation of the CPlus Failure in Q7 Cut of Rio Tinto's Bingham Canyon Mine." *Society for Mining, Metallurgy, and Exploration (SME) Mining Engineering Journal,* Vol. 64, No. 6, pp. 107-111.
- Nutakor, D., et al. (2009) "A comparison of Two Instructional Approaches in Teaching Underground Rock Bolt Installation with a Jackleg Drill." *Int. J. Mining and Mineral Engineering*, Vol. 1, No. 3, pp.248–260.
- Nutakor, D., and Daemen, J.K.K. (2008) "Linear Behavior of Rock Joints in Uniaxial Joint Compression Tests." Transactions of the Society for Mining, Metallurgy, and Exploration, Vol. 324, pp 13-18.

CONFERENCE PUBLICATIONS AND TECHNICAL REPORTS

- Nutakor, D. (2010), “The Skybox Radial Slide Analysis using Kinematic and Limit Equilibrium Methods.” Technical Report Prepared for Rio Tinto Kennecott Utah Copper Mine.

- Nutakor, D. (2008), “Guidance Note on Slope Failure Analysis.” Technical Report Prepared for the Geotechnical Engineering Department of Rio Tinto Kennecott Utah Copper Mine.

- Nutakor, D., et al. (2008) “Evaluation of a Virtual Reality Simulator Developed for Training Miners to Install Rock Bolts Using a Jackleg Drill.” SME 2008 Transactions Preprint No. 08-054, Salt Lake City, Utah.

- Nutakor, D., et al. (2007) “Virtual Reality Simulator for Training Miners to Install Rock Bolts Using a Jackleg Drill.” SME 2007 Transactions Preprint No. 06-039 Denver, Colorado.

- Nutakor, D. (2005), “Significance of Uniaxial Compressive Strength of Rock in Surface Mining Operations.” Technical Report Prepared for Newmont Ghana Operations.

- Nutakor, D. (2004), “Gold Quarry Buttress Area Stability Analysis.” Technical Report Prepared for the Mine Engineering Department of Newmont Carlin Mine, Nevada.

- Nutakor, D., and Daemen, J., (2004), “Experimental Determination of Stiffness of Joints in Welded Tuff,” Long-Term Drift Stability, Task 18, Document ID: TR-03-018. Technical Report Prepared for U.S. DOE/UCCSN Cooperative Agreement DE-FC28-98NV12081.