COMMITTEE ON NATURAL RESOURCES
114th Congress Disclosure Form
As required by and provided for in House Rule XI, clause 2(g)(5)

Subcommittee on Energy and Mineral Resources legislative field hearing on:

- **H.R. 3734 (Rep. Cresent Hardy),** To amend the Surface Mining Control and Reclamation Act of 1977 to provide support to mining schools, and for other purposes. *"Mining Schools Enhancement Act."*

December 14, 2015

For Individuals:

Name: Hugh B. Miller
Address: 18965 W. 55th Circle, Golden CO 80403
Email Address: hbmiller@mines.edu
Phone Number: 303-273-3558

* * * * *

For Witnesses Representing Organizations:

Name:
Name of Organization(s) You are Representing at the Hearing:
Business Address:
Business Email Address:
Business Phone Number:

* * * * *

For Nongovernment Witnesses ONLY:

1. Please attach/include current curriculum vitae or resume. Please see attached.

2. Please list any federal grants or contracts (including subgrants or subcontracts) related to the subject matter of the hearing that were received in the current year and previous two calendar years by you or the organization(s) you represent at this hearing, including the source and amount of each grant or contract.

N/A

3. Please list any contracts or payments originating with a foreign government related to the subject matter of the hearing that were received in the current year and previous two calendar years by you or the organization(s) you represent at this hearing, including the amount and country of origin of each contract or payment.

N/A

HUGH B. MILLER

18965 W. 55th Circle
Golden, CO USA 80403
Email: *hbmiller@mines.edu*

Office Tel. (303) 273-3558
Home Tel. (303) 989-0079
Cell. Tel. (303) 949-9877

EMPLOYMENT HISTORY

Academic Appointments & Responsibilities

2005 - Present: **Colorado School of Mines, Department of Mining Engineering**
Associate Professor (2005 - Present)
Interim Department Head (Sept. 2012 – Jan. 2014)
Responsibilities include the education, mentoring, and professional development of undergraduate and graduate students, the pursuit of research activities, and performing service contributions both internal and external to CSM. Current teaching activities include courses related to Introduction to Mining, Mine Valuation, Project Feasibility, Senior Design Courses, Occupational Health & Safety, and social issues related to Mining. Areas of research include drilling & excavation engineering, hydro-excavation & waterjet technology, mine systems, occupational health & safety, international resource development, and mining issues impacting the developing World.

2006 - 2011: **University of Arizona, Department of Mining and Geological Engineering**
Adjunct Professor
Responsibilities of this position primarily focused on serving as a faculty advisor for graduate students in the UA Colleges of Engineering and Public Health.

1999 - 2005: **University of Arizona, Department of Mining and Geological Engineering**
Assistant Professor
Responsibilities included traditional contributions towards undergraduate and graduate education, research, and service. Teaching activities included undergraduate and graduate courses in Surface and Underground Mine Design, Mine Examination & Resource/Property Valuation, Mine Unit Operations, and Mine Health & Safety.

University of Arizona, MGE San Xavier Mining Laboratory
Laboratory Director & Faculty Advisor (1999-2005)
Responsibilities included oversight of all activities conducted at the facility, including undergraduate education, research, community outreach & tours, professional development/training, regulatory compliance, financial and personnel management, and site administration. The facility was the Mine Rescue Training Facility for the State of Arizona, home of the Laborers AGC Underground Tunnel Training Program, and recognized by federal and state regulatory authorities as a designated training facility.

International Center for Mine Health, Safety & Environment,
University of Arizona, Colleges of Engineering & Public Health
Co-Director (2001-2005)
This Center represents a unique collaboration between academic institutions in mining, public health, and environmental & earth sciences, in conjunction with select government agencies, international aid organizations, foreign universities, and several industry partners. The objective of this group is to promote creative, fiscally responsible, and sustainable improvement in the health and welfare of miners and mining communities in developing countries. Projects focused on activities in Sub-Saharan Africa, Philippines, and South America.

Professional Experience

2011-Present: **RAMEX Drilling Solutions, Inc.**
Board Member
RAMEX is a privately held company comprised of professionals from the mining, petroleum, and construction industries that focuses on the implementation of waterjet technology in advanced vertical and horizontal drilling systems.

2012 - 2015: **Society of Mining, Metallurgy, and Exploration, Inc. (SME)**
Board Member and Member of the Financial Strategic Committee
The Society for Mining, Metallurgy, and Exploration (SME) is the largest professional society in the World whose nearly 15,000 members represents all professionals serving the minerals industry in more than 85 countries. The Board consists of 7 members.

2007 - 2014: **Animas Resources Ltd.**
Board of Directors (2008-2014), Audit Committee (2010-2014) & Advisory Board Member (2007-2008)
Animas Resources was a Canadian publically traded mining company with exploration prospects and holdings in Mexico and the United States. The company was sold in August 2014

2005 - 2013: **Water Jet Technology Association and Industrial & Municipal Cleaning Association**
Board Member (2005-2013) & Officer (2007-2009, 2011-2013)
The WJTA is the largest professional organization devoted to the technology and commercialization of waterjet cleaning, cutting, excavation, and wide variety of other applications found in the manufacturing, chemical processing, mining, construction, and petroleum industries. The membership of the organization is comprised of professionals from industry, government, universities, and research organizations stemming from 37 countries. As one of 10 voting Board Members elected by the general membership, my responsibilities included the strategic planning of the association, oversight of association financial assets & resources, and the promotion of the technology & its safe application.

2008 - 2011: **Northwest Mining Association (renamed American Exploration & Mining Assoc.)**
Board of Trustees
The Northwest Mining Association is one of the largest, non-partisan trade organizations in the United States representing the interests of the general mining industry, with specific emphasis on resource exploration and development in the U.S. and Canada.

2001 - 2005: **Arizona Mine Emergency Association**
Board Member (2001-2005) & Officer (2003-2005)
The mission of the organization was to provide mine rescue coverage and training to operating mines throughout Arizona and the Southwestern United States. The Association was closely aligned and collaborated with the Arizona State Mine Inspectors Office, the U.S. Mine Safety and Health Administration, and the University of Arizona on a wide variety of emergency response and safety issues.

2001 - 2005: **Landmark Cast Stone, Inc.**
Director and Board Member
This company manufactured high-end nonstructural precast concrete architectural products for commercial construction and residential development. The company conducted business in five western states and was sold in 2005.

1996 - 1999: **IET Jet Technology, Inc.**
Director of Operations
Primary duties included oversight of projects associated with the design and development of waterjet technology, high pressure pumps, and hydroexcavation systems specifically adapted for use in mining, heavy construction, petroleum, and other industrial applications. The company was a subsidiary of International Engineering Technology, Inc.

1990 - 1996: **International Engineering Technology, Inc.**
Project Manager and Mining Engineer
Primary duties included project evaluations, economic feasibility studies, mine and equipment design, system and engineering analysis, equipment selection and scheduling, and cost estimation. These responsibilities also extended into the research and development of mining and drilling systems, including mechanical & hydro excavators.

1983 – 1993: Have been employed by the following Mining and Resource Companies in varying capacities, ranging from a consulting engineer to a full-time employee:

San Juan Minerals, Ltd.	Senior Mining Engineer
TVX Mineral Hill Mine	Consulting Mining Engineer
CR-VCM Joint Venture, Inc.	Mine Superintendent
Virginia Canyon Mining Co.	Mining Engineer
CSM Edgar Mine	Graduate Student Mine Foreman
Hecla Mining Co.	Summer Employment
Two Brothers Mining Co.	Summer & Part-time Employment
Petty Ray/Geosource Inc.	Summer Employment
Asamera Mining Co.	Summer Employment

EDUCATION

Colorado School of Mines

Ph.D. Mining Engineering, 1996
Minor Degree: Environmental Science and Engineering Ecology
Academic Emphasis: Mining Excavation Systems
Dissertation Title: "The Characterization of Crack Propagation and Brittle Failure Induced by Discrete, High Velocity Fluid Impacts in Crystalline Rock"
Thesis Advisor: Dr. Fun-Den Wang

M.Sc. Mining Engineering, 1991
Academic Emphasis: Metal/Nonmetal Mine Design and Project Evaluation/Feasibility
Thesis Title: "A Comprehensive Analysis of Underground Contract Mining Systems"
Thesis Advisor: Dr. Matthew J. Hrebar

B.Sc. Geophysical Engineering, 1986
Academic Emphasis: Mineral Exploration and Mining Engineering

Professional Certifications

Qualified Person (QP), Mining & Ore Reserves (MMSA)
Certified Mine Safety Professional, License No. #USA-933
Federally Certified (MSHA) Underground Mine Safety Instructor
BATF Explosives Licensee: Responsible Party & Possessor Designation
Blaster and Explosives Handler Training Certificate
MSHA Underground Miner Safety Certificate & Refresher Training Certificates

Honors & Awards (2000 to present)

SME President's Citation (February 2015)
SME Distinguished Member (February 2012)
SME, Mining & Exploration Division, Distinguished Service Award, March 2011
CSM, Mining Engineering Department, Undergraduate Student Teaching Award, May 2014
CSM, Mining Engineering Department, Undergraduate Student Teaching Award, May 2013
CSM, Mining Engineering Department, Undergraduate Student Teaching Award, May 2011
CSM, Mining Engineering Department, Undergraduate Student Teaching Award, May 2010
CSM, Mining Engineering Department, Undergraduate Student Teaching Award, May 2009
CSM, Mining Engineering Department, Undergraduate Student Teaching Award, May 2008
CSM, Mining Engineering Department, Undergraduate Student Teaching Award, May 2007
CSM, Mining Engineering Department, Graduating Student Faculty Award, 2006
UA, COEM, Excellence Award for Student Interface (Teaching & Student Advising), May 2005
UA, COEM, Excellence Award for Student Interface (Teaching & Student Advising), May 2004
UA Foundation, Sherrill Creative Teaching Award Nominee, December 2003
UA, COEM, Excellence Award for Student Interface (Teaching & Student Advising), May 2003
Meritorious Service Award, Arizona State Mine Inspectors Office, October 2002
UA, COEM, Excellence Award for Student Interface (Teaching & Student Advising), May 2002
UA, COEM, Excellence Award for Student Interface (Teaching & Student Advising), May, 2001
UA, COEM, Excellence Award for Student Interface (Teaching & Student Advising), May, 2000

Memberships in Professional Societies

Colorado Mining Association (CMA)
International Society of Mine Safety Professionals (ISMSP)
Mining & Metallurgical Society of America (MMSA)
American Exploration and Mining Association (AEMA)
Society for Mining, Metallurgy, and Exploration, Inc. (SME)
Society for Mining, Metallurgy, and Exploration, Inc., Colorado Section
Society for Mining, Metallurgy, and Exploration, Inc., Tucson Section
Waterjet Technology Association (WJTA)

Service to Professional Societies and Organizations (2010-present)

Northwest Mining Association (NWMA)
Trustee (2009-2011)
Chair, Academic Affairs Committee (2009-2011)
Member, Health & Safety Committee (2009-present)

Society for Mining, Metallurgy, and Exploration (SME)
SME Board Member (2012-2015)
Chair, SME Educational Sustainability Committee (2013-Present)
SME Financial Strategic Committee (2012-2014)
SME/CIM Program Chair, Safety Management & System Reliability Conference (Nov. 2012)
SME Safety & Health Committee, Acting Chair (2011-2012) & Member (2010-2013)
SME Associate Editor, Mining Engineering, Technical Papers/Transactions (2007-2013, 2015-present)
SME Tech Committee (2009-2012)
Session Chair, Narrow Vein Mining, 2012 SME Annual Meeting, Seattle, WA.
Chair, Mining & Exploration Division, Scholarship Committee (2010-2011)
Chair, Henry DeWitt Scholarship (2010-2011)
Chair, John S. Marshall Memorial Scholarship (2010-2011)
SME Strategic Nominating Committee (2009-2011)
Past Chair, Mining & Exploration Division, Executive Committee
SME Technical Session Co-Chair "This is My Mine", 2010 Annual Meeting
SME technical Session Co-Chair "100 years of Mine Technology", 2010 Annual Meeting
SME, Mining & Exploration Division, Chairman (2009/2010)

WaterJet Technology Association (WJTA)
Director (2005-2013)
Chair, Technical Short-Course Programming Committee (2008-present)
Board Secretary (2007-2009, 2011-2013)
Technical Paper Editorial Board (2007-2013)
Membership Committee (2005-2013)
American WJTA Conference & Expo, Awards Master of Ceremonies, Houston, TX (2011)
Chair, "Abrasive Jet Cutting IV", Technical Session, WJTA-IMCA Conference, (2011)

Miscellaneous Service to Professional Organizations
CSM Faculty Senate (2009-2012)
CDC/NIOSH National Occupational Research Agenda (NORA) Committee (2010-present)
Golden Kiwanis Club International, Member, Board of Trustees (2009-present)

Courses Taught (1999-present)

Colorado School of Mines (2005-Present)
Freshman Success Seminar
Engineering Statics
Introduction to Mining
Mine Safety & Health
Mining Engineering Laboratory
Mine Valuation
Mining Engineering Evaluation and Design I & II
Safety Management & Loss Control
Small Mine Design & Development
Social License in the Mining Industry
EIT Review, Engineering Economics

University of Arizona (1999-2005)
Introduction to Earth Engineering
Mine Surveying
Health and Safety in Mining
Mine Examination and Evaluation
Mine Resource Evaluation
Mine Design (Surface & Underground)
Underground Mine Safety & Health Laboratory (San Xavier Mine)
Underground Mine Operations

Professional Publications, Presentations & Short-courses

Author of 33 technical publications, 4 technical manuals, 2 book chapters, 3 technical abstracts, and 2 theses on a variety of technical subjects related to waterjet technology, hydraulic excavation, mine operations, blasting & excavation engineering, occupational health & safety, and property evaluation. Presenter at more than 44 technical meetings/conferences, 22 technical short-courses, and 30+ training modules.

Research Activities

Have actively participated in 28 public and privately sponsored research programs related to mining, occupational health & safety, and excavation technology, totaling more than $5 Million (US). Participation has varied from program management to principle investigator. Current activities include applied research into mining & excavation systems, waterjet technology, equipment operations, occupational safety & industrial hygiene, and international mining issues associated with capacity building and artisanal mining.