

John W. Grubb

- Adjunct Professor, Mining Engineering Department, Colorado School of Mines
- Previous to CSM:
 - 40+ years of experience in the mining industry
- Consulting experience:
 - Advisor to numerous mining companies and governmental agencies over last 8 years
- Degrees:
 - BS, Mining Engineering, Virginia Tech
 - MS, Industrial Administration, University of Tennessee
 - PhD, Mining Engineering, Colorado School of Mines



John Grubb: Teaching and Research

Academic Activities:

- CSM Courses (in past 5 years):
 - MNGN 316 “Coal Mining Methods”
 - MNGN 424 “Mine Ventilation”
 - MNGN 427 “Mine Valuation”
 - MNGN 482 “Mine Management”
 - MNGN 510 “Mineral Resource Development”
 - MNGN 565 “Mine Risk Management”
- Education Innovation:
 - New course development – MNGN 482, MNGN 510, MNGN 565
 - Course update and revision – MNGN 316, MNGN 424 and MNGN 427
 - Developed tutorial for use of Carlson mine planning software

Research Activities:

- PhD Thesis and post-graduate research: “Preventative Measures for Spontaneous Combustion in Underground Coal Mines”
- Initiation of and continued participation in NIOSH-funded research in “Computational Fluid Dynamics Modeling of Underground Mines”
- Technical Assistance for the “Purchase of Navajo Mine by the Navajo Nation – a Project in Sustainable Development” – first major mine operated by a Native American nation

John Grubb: Current Research Projects

- Methane Explosion Modeling and Prevention in Longwall Gobs
 - Funded by: NIOSH
 - Co-PIs: Dr. Jürgen Brune, Dr. Gregory Bogin, and Dr. John Grubb
- Preventative Measures for Spontaneous Combustion in Underground Coal Mines
 - Funded by: Self
 - Co-PIs: Collaborate with Dr. Basil Beamish (formerly of Queensland University) and companies undertaking preventative programs
- Technical Assistance for the Purchase of Navajo Mine by the Navajo Nation – a Project in Sustainable Development
 - Funded by: Self
 - Co-PIs: None

Methane Explosion Modeling and Prevention in Longwall Gobs

Project objectives:

- Determine the potential for explosion propagation through rubble and void zones in longwall gobs from numerical modeling and confirm the findings with physical testing with a Gob Explosion Simulation Apparatus (GESA) to be built at the CSM Edgar Experimental Mine.
- Utilizing Computational Fluid Dynamics (CFD) models that have been created over the first stage of the project, apply findings from above work and develop practices to prevent longwall gob gas explosions.

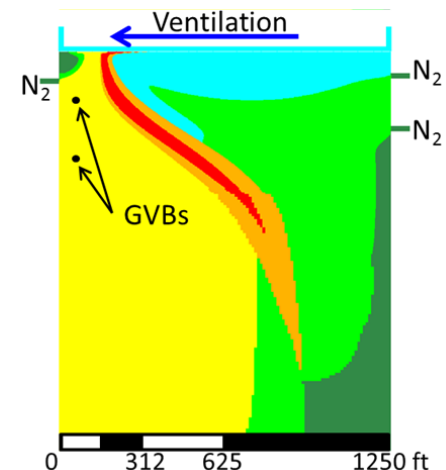
The plan view at right, which was developed with CFD in the first stage of this project, shows an explosive gas zone (EGZ) extending from the gob to near the face of the longwall. Progressive sealing, nitrogen inertization, and gob vent boreholes (GVBs) are being utilized to manage the hazards of spontaneous combustion and methane accumulations on the longwall face.

Funded by: **NIOSH**

Funded Period: Initially from 2009 – 2014; currently year-to-year to possibly 2019

Principal Investigators:

Dr. Jürgen Brune
Dr. Gregory Bogin
Dr. John Grubb



Preventative Measures for Spontaneous Combustion in Underground Coal Mines

Project objectives:

- Continue to find and develop leading practices for prevention of spontaneous combustion in underground coal mines building on a worldwide survey completed in 2007 – 2008.
- Complete cost/benefit analyses of preventative methods and apply methods to mines as accepted by the management teams.

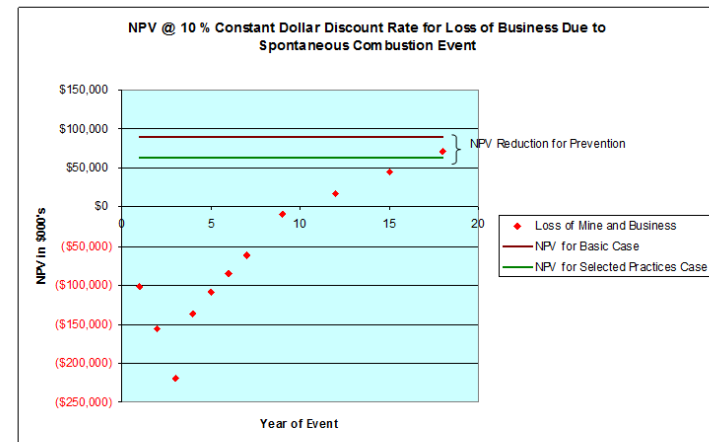
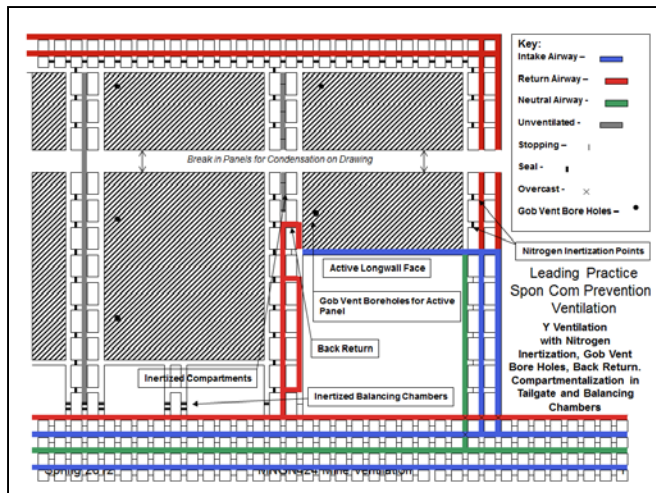
Funded by: Self

Funded Period: 2007 - present and continuing

Principal Investigators:

Dr. John Grubb

Collaborating with Dr. Basil Beamish, formerly of Queensland University



Graph for Loss of Business Due to Spontaneous Combustion Event



Technical Assistance for the Purchase of Navajo Mine by the Navajo Nation – a Project in Sustainable Development

Project objectives:

- Develop and implement strategies and systems to advise and assist the largest Native American nation in the acquisition and operation of a major mining operation through the wholly owned Navajo Transitional Energy Company (NTEC). This is the first time a Native American nation has extended its participation beyond that of mineral lessor for an operation that is a major source of its income.
- Assist NTEC as a Technical Advisor including the mentoring of the initial management team and advising the organization on mining operations and business relations with their customers, contractors, regulators, and other stakeholders.
- Assist NTEC in its goal to move beyond traditional coal-fired electrical generation to coal gasification and environmentally acceptable generation methods.

Funded by: Self
(Volunteered Services)

Funded Period: 2012 - Present and Continuing

Principal Investigators:
Dr. John Grubb

