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UNITED NATIONS  
ECONOMIC COMMISSION  
FOR EUROPE



# *Best Practices for CMM Drainage and Utilization*



# *Session Overview*



- **Focus of This Session**
- **Background on Developing the Best Practice Guidance for Effective Methane Drainage and Use in Coal Mines**
- **Introduction of Session Speakers**



# *FOCUS OF THIS SESSION*



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# *The Problem*



**Methane released during coal mining is the cause of a significant number of accidents and is a powerful GHG**

**• Risk factors and barriers to widespread effective methane drainage and use has been identified by Ad Hoc Group of Experts:**

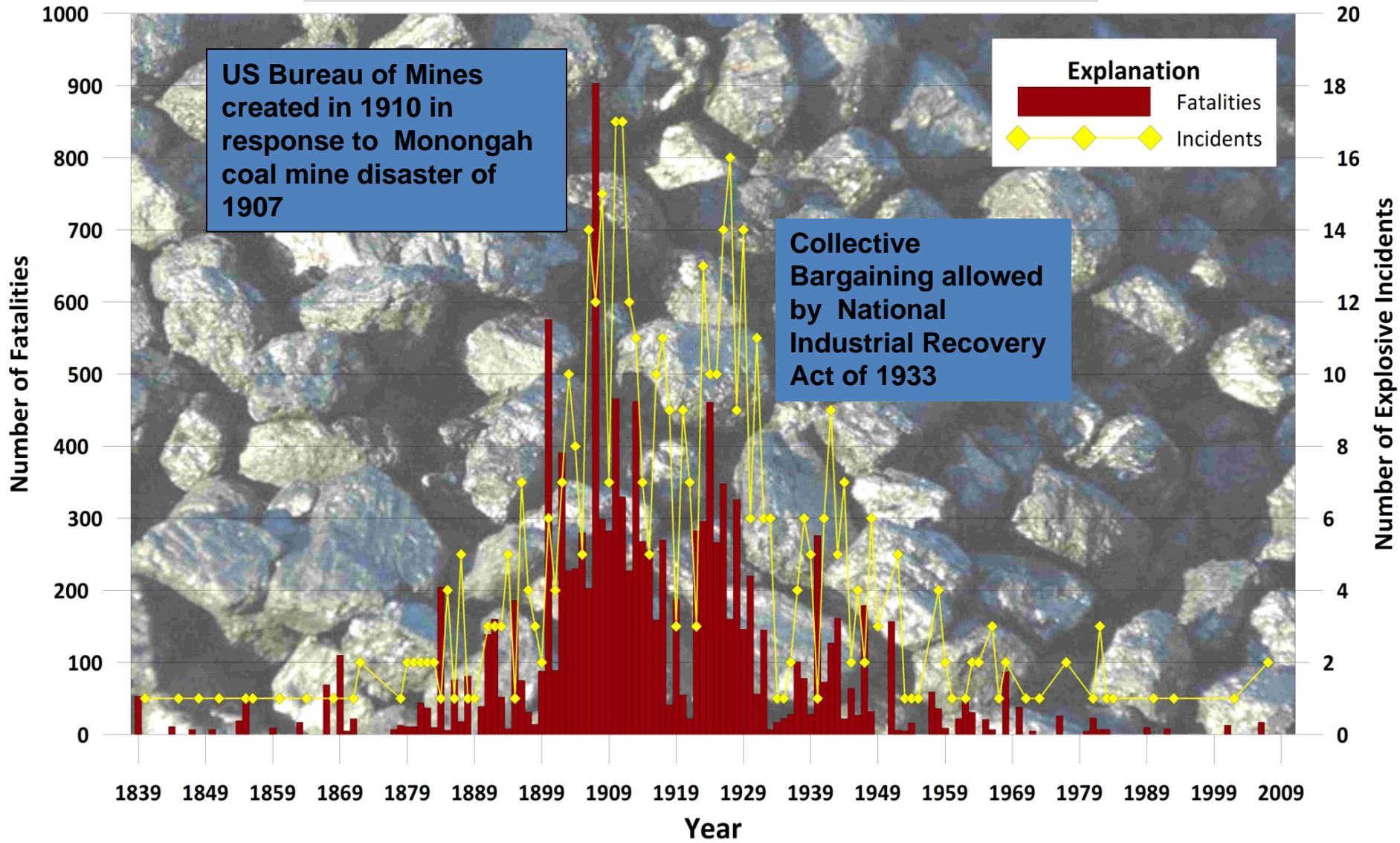
- Difficult geological conditions**
- Underinvestment in methane drainage and utilisation**
- Poor operational practices**
- Ineffective or counter-productive regulatory standards**
- Inadequate enforcement of safety regulations**



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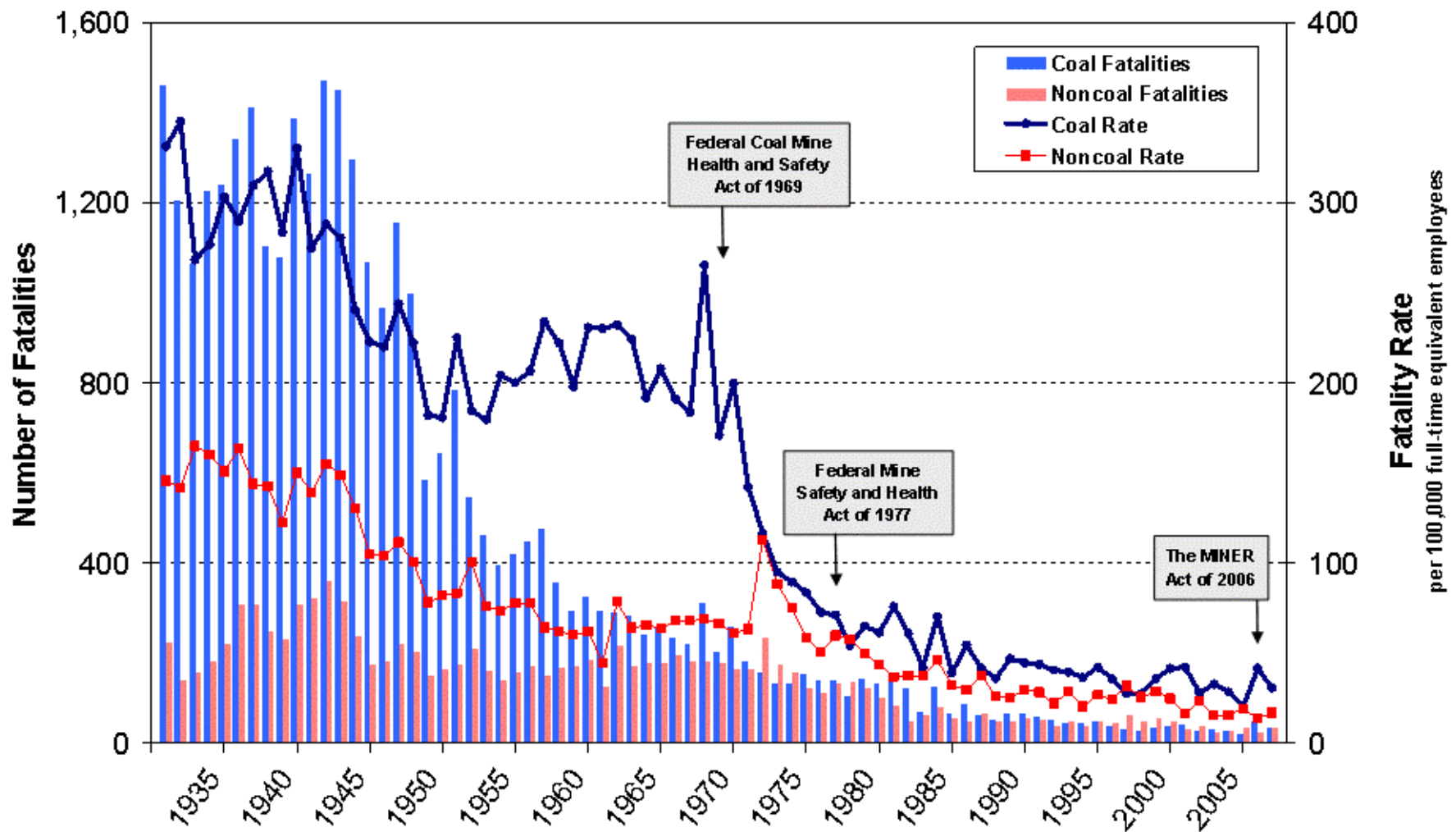
# U.S. Coal Mining Fatalities as a Result of Explosive Incidents\*



\*Note: Data presented here only reflects incidents with 5 or more fatalities.  
 Source data: NIOSH Mining Safety and Health Research

# Number of Occupational Fatalities and Fatality Rates in the Mining Industry by Commodity, 1931-2007

(Excludes office employees; Data source: MSHA)



NOTE: Noncoal includes metal, nonmetal, stone, and sand and gravel operations.

Revised: 09/09/2009

# *Mining Accidents at Gassy Coal Mines in USA: Regulations, Rules and Best Practices*



- **Sago – (2006, explosion, 12 deaths) MSHA promulgating new regulations regarding sealed areas to prevent another incident**
- **Loveridge Mine No. 22, West Virginia-( 1999 fire and explosion, no deaths)– NIOSH drafted white paper on best practices for welding/cutting in underground mines as a result of Loveridge and a couple other incidents**
- **West Elk Mine, Colorado – ( January 2000, spontaneous heating caused fire, not deaths) the MSHA-mandated CO detection rules in effect at the time of the incident resulted in safe evacuation of all miners during the event**



*BACKGROUND ON  
DEVELOPING THE BEST  
PRACTICE GUIDANCE FOR  
EFFECTIVE METHANE  
DRAINAGE AND USE IN  
COAL MINES*



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# *Best Guidance Project Objectives*



- **Coal industry lacks a global set of recommended principles and standards for methane recovery and utilisation**
- **Develop a guidance that is principle based that can be adapted to varying mining conditions**
- **Provide to the appropriate audience: managers, mine operators, regulators, government officials and technical professionals**



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# *Development of the Best Practice Guidance*



## **Lead Organisations:**

- **Methane to Markets Partnership**

International partnership aiming to further CH<sub>4</sub> recovery

- **UN Economic Commission for Europe**

Ad Hoc Group of Experts on Coal Mine Methane

- **US Environmental Protection Agency**

Expertise in domestic and international efforts on CMM recovery and utilisation, co-chair of Coal Subcommittee



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# Deliverables



- **Publication of “*Best Practice Guidance for Effective Methane Drainage and Use in Coal Mines*”**
  - Primarily a technical document, but accessible to managers and practitioners alike
- **Detailed objectives and principles, NOT prescriptive**
- **Available in multiple languages**
- **Follow-up plans are underway at UNECE**
  - Supportive workshop / seminar series: Add value and disseminate findings directly to mining professionals
  - Website will act as the home for a living document



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# *Participants(i)*

## **Executive Steering Committee**

- Pamela Franklin, Co-chair, M2M Coal Subcommittee
- Roland Mader, Vice Chairman, UNECE Ad Hoc Group of Experts on Coal Mine Methane
- Raymond C. Pilcher, Chairman, UNECE Ad Hoc Group of Experts on Coal Mine Methane
- Carlotta Segre, Secretary, UNECE Ad Hoc Group of Experts on Coal Mine Methane
- Clark Talkington, Former Secretary, UNECE Ad Hoc Group of Experts on Coal Mine Methane

## **Technical Experts Drafting Group**

- Bharathe Belle, Anglo American
- David Creedy, Sindicatum Carbon Capital Ltd.
- Erwin Kunz, DMT GmbH & Co. KG
- Mike Pitts, Green Gas International
- Hilmar von Schoenfeldt, HVS Consulting



# *Participants(ii)*



## **Stakeholder Advisory Group**

- **Yuriy Bobrov, Association of Donbass Mining Towns (Ukraine)**
- **Graeme Hancock, World Bank**
- **Martin Hahn, International Labour Organization**
- **Hu Yuhong, State Administration for Worker Safety (China)**
- **Sergei Shumkov, Ministry of Energy (Russian Federation)**
- **Ashok Singh, Central Mine Planning & Design Institute (India)**



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# *Participants (iii)*



## **Technical Peer Review Group**

- **John Carras, Commonwealth Scientific and Industrial Research Organisation (Australia)**
- **Hua Guo, Commonwealth Scientific and Industrial Research Organisation (Australia)**
- **Li Guojun, Tiefa Coal Industry Ltd. (China)**
- **Guy Pierce Jones, Trolex Ltd. (UK)**
- **B.N. Prasad, Central Mine Planning & Design Institute (India)**
- **Ralph Schlueter, DMT GmbH & Co. KG (Germany)**
- **Karl Schultz, Green Gas International (UK)**
- **Jacek Skiba, Central Mining Institute of Katowice (Poland)**
- **Trevor Stay, Anglo American Metallurgical Coal (Australia)**
- **Oleg Tailakov, International Coal and Methane Research Center, Uglemetan (Russian Federation)**

# *Document Contents*



**Chapter 1. Introduction**

**Chapter 2. Fundamentals of Gas Control**

**Chapter 3. Occurrence, Release, and Prediction of Gas Emissions in Coal Mines**

**Chapter 4. Mine Ventilation**

**Chapter 5. Methane Drainage**

**Chapter 6. Methane Utilisation and Abatement**

**Chapter 7. Cost and Economic Issues**

**Chapter 8. Conclusions and Summary for Policymakers**

**Chapter 9. Case Studies: UK, South Africa, China, Australia, Germany**



# *SESSION SPEAKERS*



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# Session Speakers



**Stephen Janaway, Sub-Surface Manager, Green Gas International, *Maintenance, Monitoring (Using Infrared Technology) & Management of Methane Drainage Systems to Provide Optimum Gas Purity***

**Danny Watson, Reservoir Engineer Marshall Miller and Associates, *A Comparison of Coalbed Methane Drilling Practices in the Southern Shanxi Province, China, through Advanced Reservoir Modeling***

**Hiroaki Hirasawa, Japan Coal Energy Center (JCOAL), *Coal Mine Methane Project in China (Japanese Government Assistance)***



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*Thank you*

