# MINE VENT 2017 CONTENTS

## Keynote papers
- The complete renewal of Great Britain’s mining laws for the 21st century
  *J R Leeming*  
  3
- Regulator’s perspective on gas and ventilation management
  *(L Shearer)*  
  9
- Mine dust monitoring past and present
  *(J C Volkwein)*  
  11

## Case studies
- Optimal goaf hole spacing in high production gassy Australian longwall mines – operational experiences
  *(B Belle)*  
  15
- Auxiliary ventilation design – why and how mines waste so much power on inferior systems
  *(D J Brake)*  
  27
- Using liquid nitrogen for the inertisation of goafs
  *(D Caley)*  
  35
- An overview of ventilation and gas management systems in an underground coalmine in Iran
  *(F Hasheminasab, S M Aminossadati and R Bagherpour)*  
  41
- Determining ventilation system model inputs from field test work in the oil shale mine
  *(S Sabanov)*  
  47
- Case study – an analysis of reliability and efficiency: ultrasonic versus annubar technologies
  *(M J Shearer)*  
  51
- Emergency egress pathway prediction using ventilation models
  *(C M Stewart, S M Aminossadati and M S Kizil)*  
  57

## Coal seam gas, including gas drainage/storage and utilisation
- Gas reservoir and emission modelling to evaluate gas drainage to control tailgate gas concentration and fugitive emissions
  *(D J Black)*  
  65
- Coal seam gas predrainage optimisation through an enhanced knowledge of coal seam permeability
  *(M Blanch)*  
  73
- Gaseous products of weathered coal during the process of spontaneous combustion
  *(J Deng, J Song, J Zhao, Y Zhang, X Yi and Y Zhang)*  
  79

## Coal workers’ pneumoconiosis and respirable dust monitoring
- Products of reactive pyrite oxidation in the mine environment – implications for coal workers’ pneumoconiosis
  *(B B Beamish, C R Ward and D Chalmers)*  
  87
Pairwise evaluation of PDM3700 and traditional gravimetric sampler for personal dust exposure assessment

B Belle

Study on coal wettability for dust suppression in the presence of surfactants by sink test

Y Chen, G Xu, R Wang and B Albijanic

### Detection and control of spontaneous combustion, and diesel emissions control and measurement

Recognising the deficiencies of current spontaneous combustion propensity index parameters

B B Beamish and J Theiler

Wall-flow type diesel particulate filter system to replace existing wet element filter systems used in typical LHDs in underground coal operations

N Coplin

Tube bundle integrity testing methodologies

L Forrester

The effect of high geo-temperature environment on spontaneous combustion – an experimental study

C Lei, J Deng, Y Xiao, C Shu, K Wang and W Wang

Application of an environmental ‘black carbon’ particulate sensor for continuous measurement of DPM in three underground mines

J C Volkwein, C Barrett, E Sarver and A D A Hansen

### Health and safety hazard management

Application of side venting technique in mitigation of methane – air explosion and flame deflagration in ventilation air methane

M Ajrash, J Zanganeh and B Moghtaderi

Delivering a healthy atmosphere underground in a cost-conscious environment

J Black and D Reid

Diesel to electric – creating a positive paradigm in underground ventilation and cooling

W Harris, S Arsenault, C McGuire, B Rogers and D Witow

Incorporating research data in addressing methane and coal dust fire, and explosion hazards in coalmines

S Kundu, J Zanganeh, D Eschebach and B Moghtaderi

Computational simulation of gas explosion and its propagation in single entry gateroad

A Liu and T Ren

New generation of gas sensors for underground coal mining applications

B M Masum, S M Aminossadati, C R Leonardi, M S Kizil and M Amanzadeh

Introducing a new age of highly effective automatic explosion suppression barriers

A Spaeth, B Belle and H Phillips

Findings from preliminary testing to determine alternative sources of ethylene within sealed areas of underground coalmines

E Westthorp and J Phillips
A comparison of auxiliary ventilation systems and their predicted operational performances  
*H W Wu and A D S Gillies*

**Heat and refrigeration**

The use of mid-panel ventilation shafts to improve positional cooling efficiency in a Bowen Basin longwall mine – a case study  
*B Belle, D Brouwer and P Wild*

Accurately estimating heat load from conveyed rock  
*M A Tuck*

Heat load assessment and mine cooling strategies for a longwall coalmine  
*L van den Berg and M Olsen*

**Mine ventilation**

Application of modelling to improve ventilation and gas management in a single-entry longwall panel  
*D J Black*

Fan specification and tender adjudication for mine ventilation engineers with particular reference to turnkey projects  
*D J Brake*

Ventilation rules of thumb – friend or foe? Focusing on design upcast air velocities for shafts and raise bores  
*A S Derrington*

Safety impact of increased shaft ventilation on rope guided conveyances  
*M E Greenway, S R Grobler and R S Hamilton*

The history of mine ventilation in the United Kingdom  
*J R Leeming*

A review of ventilation and gas management in underground mines  
*B Robertson and A Self*

Operation of deep mill level zone mixed flow fans after the first fan upgrade – a parallel fans case study  
*R Sani, A Sianturi and K Lownie*

Inertisation of coal augering holes  
*M Watkinson and B Leisemann*

**Ventilation management**

Australian longwall ventilation systems  
*M Webber, B Belle and J Rowland*

A review of the strategy and gas monitoring results obtained during the use of Queensland Mines Rescue Service GAG unit at Crinum North mine  
*E Westthorp*

Author index