HISTORICAL ASPECTS OF BULLI SEAM OUTBURSTS

Dr Chris Harvey

BULLI SEAM OUTBURSTS

- First reported outburst: Metropolitan Colliery; 30th September 1895
- First fatal outburst: Metropolitan Colliery; 10th June 1896
- Largest outburst: Tahmoor Colliery; 24th June 1985, 400 tonne of coal and 4,500 m^3 CO_2 (estimated)
- Most Number of outbursts; West Cliff Colliery: over 250 recorded incidents including the only recorded outburst off a longwall face.
- Last fatal Outburst: West Cliff Colliery; 25th January 1994

BULLI SEAM OUTBURSTS

Colliery	No. of Outbursts	Size in tonnes	Gas	Geological Structure
Appin	22	2 - 88	mainly CH_4 & CO_2 on dykes.	Predominantly strike slip faults; mylonite zones.
Brimstone (closed)	2	30	CO_2	Mainly dyke related structures with strike slip movement.
Corrimal (closed)	4	12	CH_4 & CO_2	Shear zone associated with minor faulting & dykes.
Kemira (closed)	2	60 - 100	CO_2	normal fault with mylonite.
Metropolitan	37	1 - 150	mainly CO_2 with minor amounts of CH_4	Predominantly with dykes & faults that exhibit slicken sides & mylonite.
South Bulli	7	1 - 300	mainly CO_2	Strike slip faults with mylonite; dyke zones & thrust faults.
Tahmoor	88	5 - 400	mainly CO_2	Mainly strike slip faults; with dykes (110° - 135°) & thrust faults: mylonite usually present.
Tower	19	1 - 80	mainly CH_4	Mainly strike slip faults with dykes.
West Cliff	250	4 - 350	mainly CH_4 with CO_2 to the NE development	Predominantly strike slip faults (100° - 110°) with slicken sides & mylonite; dykes and thrust faults have been associated with outbursts.

FATAL BULLI SEAM OUTBURSTS

COLLIERY	DATE	No. KILLED	SIZE (tonnes)	Gas	STRUCTURE
Metropolitan	10 June 1896	3	Unknown	CH_4 (firedamp)	Dyke & soft fault zone
Metropolitan	27 July 1926	2	140	CO_2	Fault with 5m throw
Metropol	2 Dec.	2	90	CO_2	Normal Fault

POST 1991 FATALITIES

Number of working groups were established to:

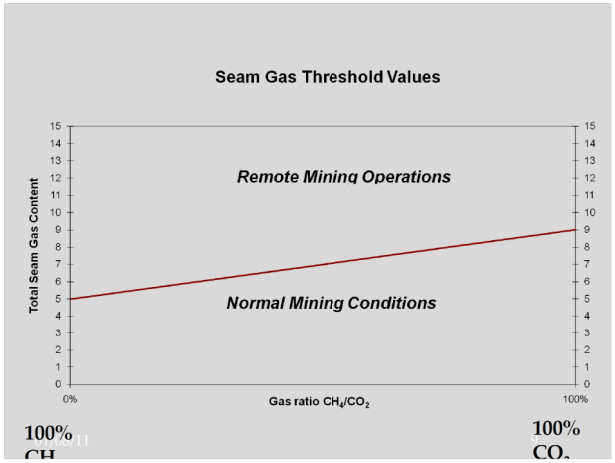
- Understand the outburst mechanisms
- Define gas content measurement
- Understand gas drainage techniques
- Develop management plan guidelines
- Research work especially by Dr. Rpju Lama

MANAGEMENT TOOLS

- Prediction
  - Identification of structure
  - Gas Content
  - Define the Stress Regime
- Prevention
  - Gas drainage
  - Gas Threshold values
  - Seam de-stressing
- Protection
  - Warning signs
  - Outburst Management Plans

ACTION

- Following the fatal outburst at West Cliff Colliery 1994 the need for management plans and compliance to specified threshold values were imposed
- 11th May 1994 all Bulli seam mines were issued with a notice under Section 63 of the Coal Mines Regulation Act 1982
  - Implement outburst management plans
  - Take gas samples in advance of all development roadways
  - Impose threshold level for "safe mining"
  - Require training in outburst warning signs



Dramatic results