



Moranbah North Coal

QUEENSLAND MINING INDUSTRY HEALTH & SAFETY INNOVATION AWARDS  
2006

# METHANE DRAINAGE EMERGENCY ISOLATION SYSTEM

## A CULTURE OF INNOVATION

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## IDENTIFIED PROBLEM

- The results of an ACARP project for simulation of mine fires led to the design of the Methane Drainage Emergency Isolation System.
- Nine different fire scenarios were modelled using computer software
- Scenario 1 – caused an ignition of gas and fuel
- When the supply of gas is unable to be shut off, the fire remains out of control.
- GAG and Ventilation changes were shown to be ineffective.



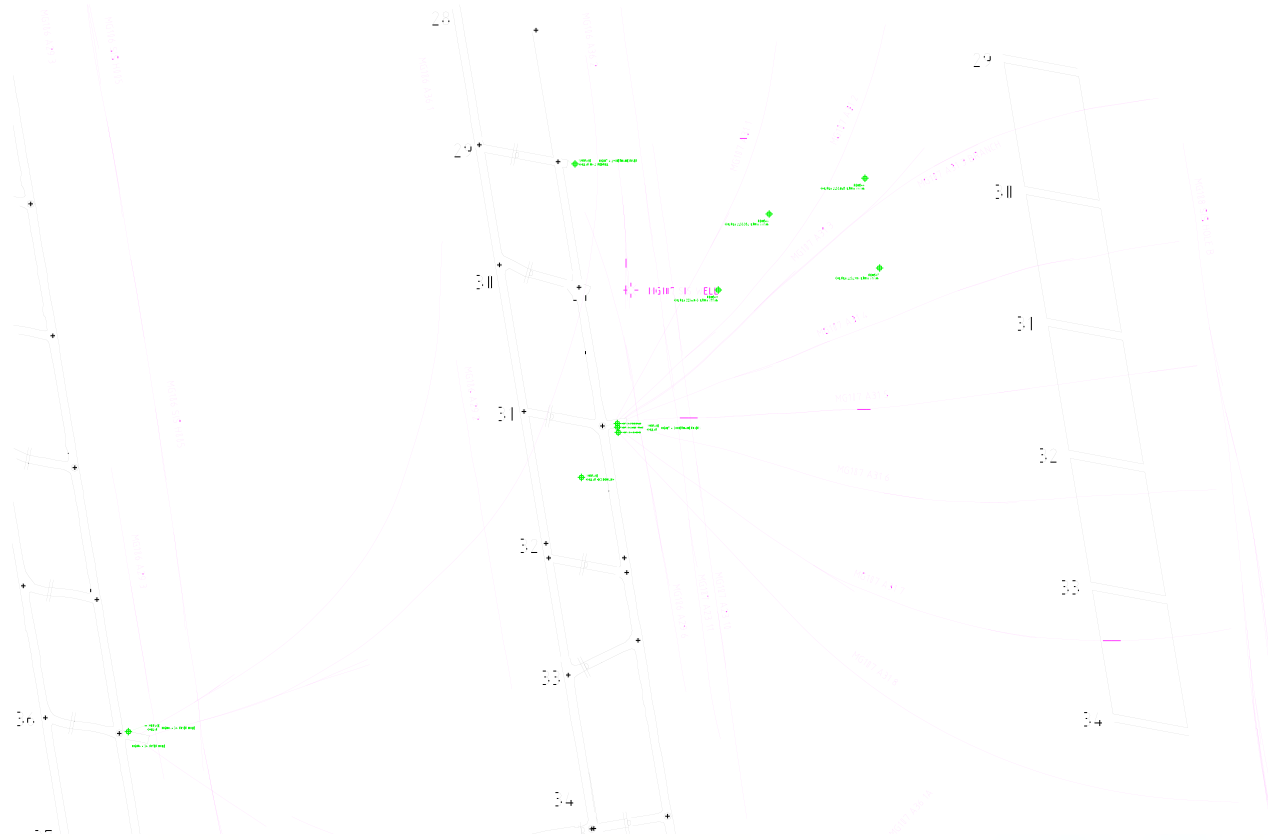
200 l/sec flow



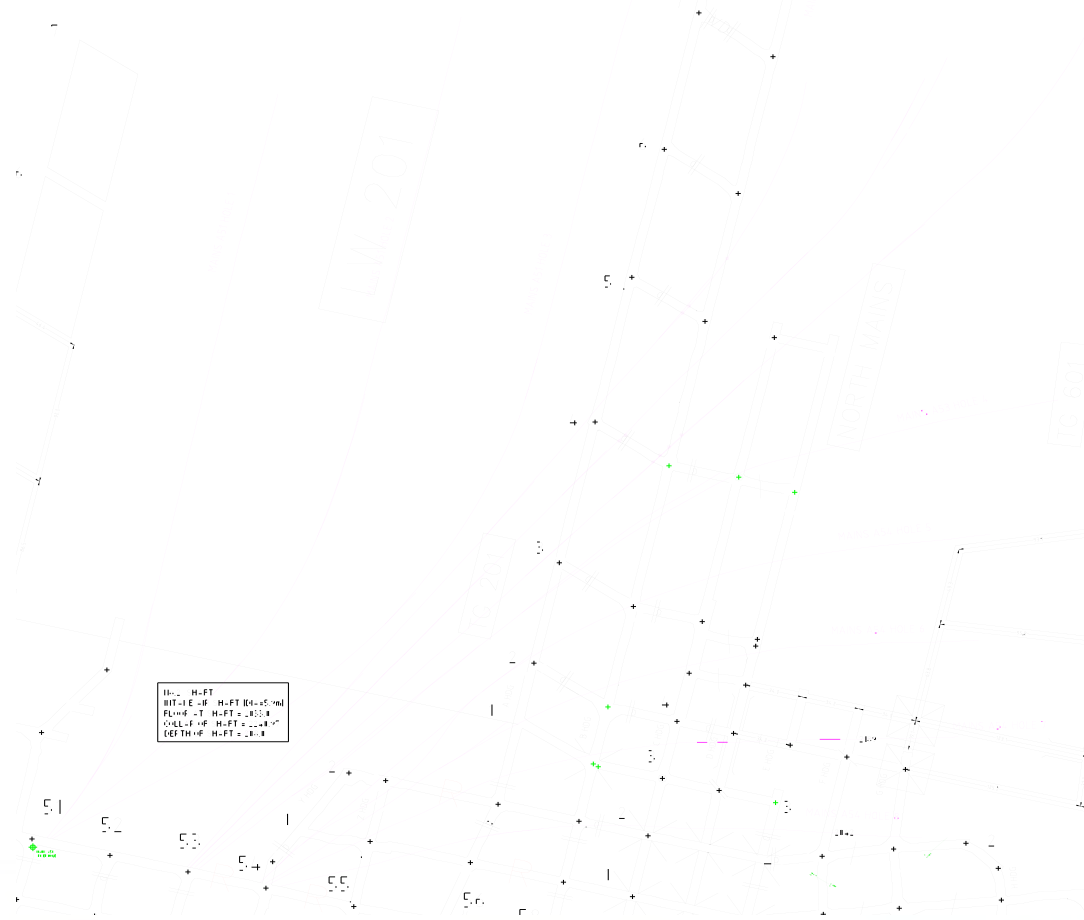
Equivalent of one MNC drainage hole



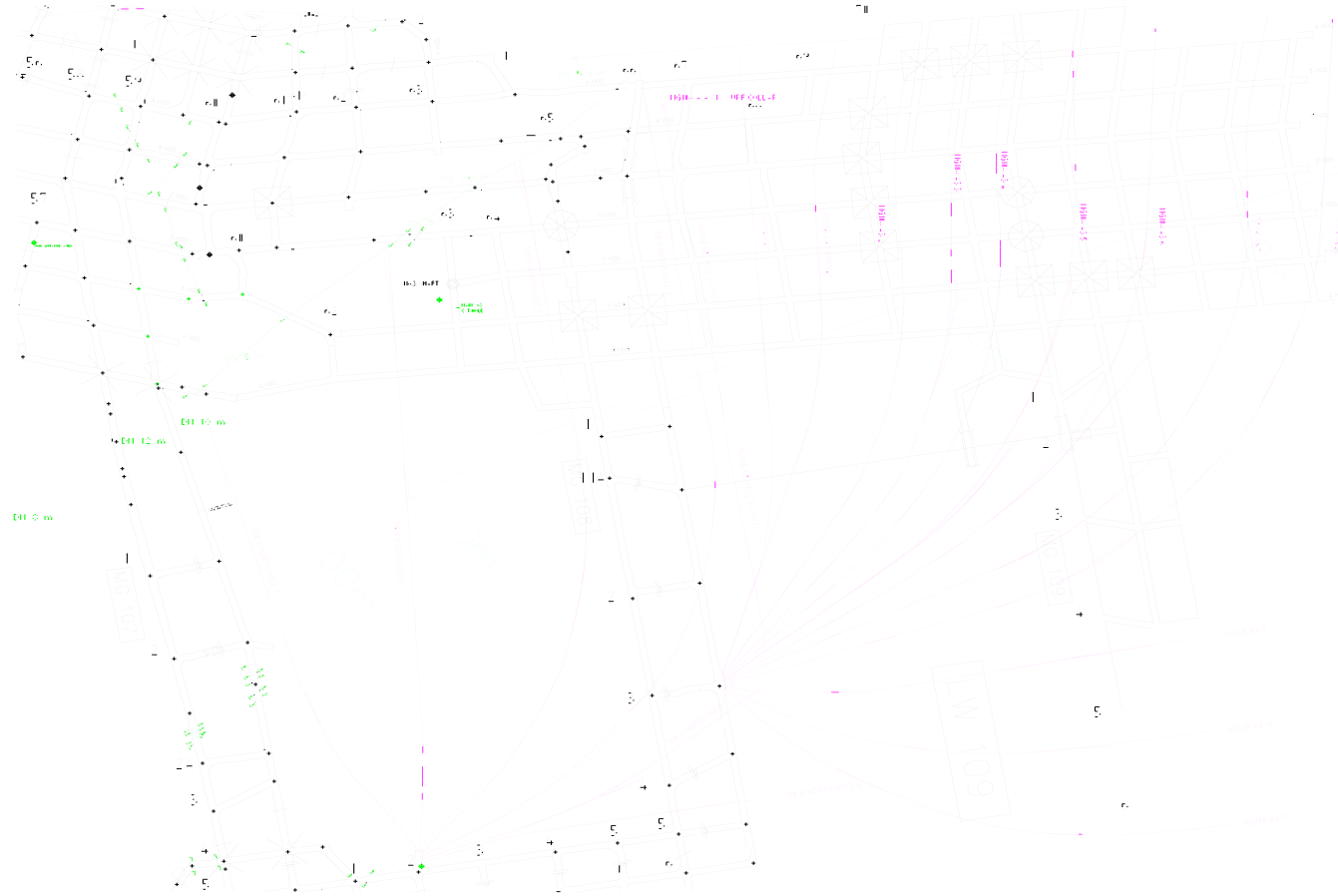
# INSEAM DRILL PATTERNS AND DRILL SITES



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## SOLUTION REQUIREMENTS

- Safety Factors – Rapid response
- Retain effectiveness with interrupted air supply
- Needed to be pressure rated
- Materials – Suitable for underground use
- Failure in Operation – Robust design
- Damage to System - Collision/strata failure
- Damage to System - Personnel misuse





# THE INNOVATION METHANE DRAINAGE EMERGENCY ISOLATION SYSTEM

- Design
  - Trial installation to determine effectiveness
- Interrupted or failure of Air Supply
  - Include accumulator/reservoir and check valve to maintain pressure
- Pressure Rated
  - Rated above expected operating pressures
- Materials
  - Suitable for underground use



# THE INNOVATION METHANE DRAINAGE EMERGENCY ISOLATION SYSTEM

- Failure in Operation
  - Ball valves to reduce the chance of blockage
  - Manual valves remain as a redundancy
- Damage to System
  - Installation of protection devices, increased visibility, robust design, and inspection and maintenance scheme
  - Easy to use, minimal training and lockout system

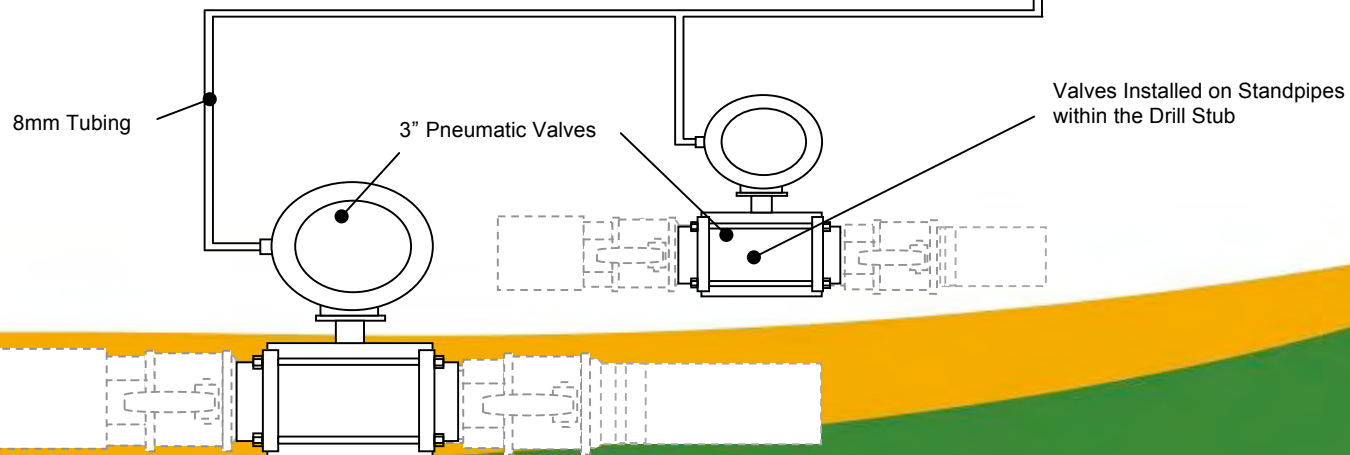
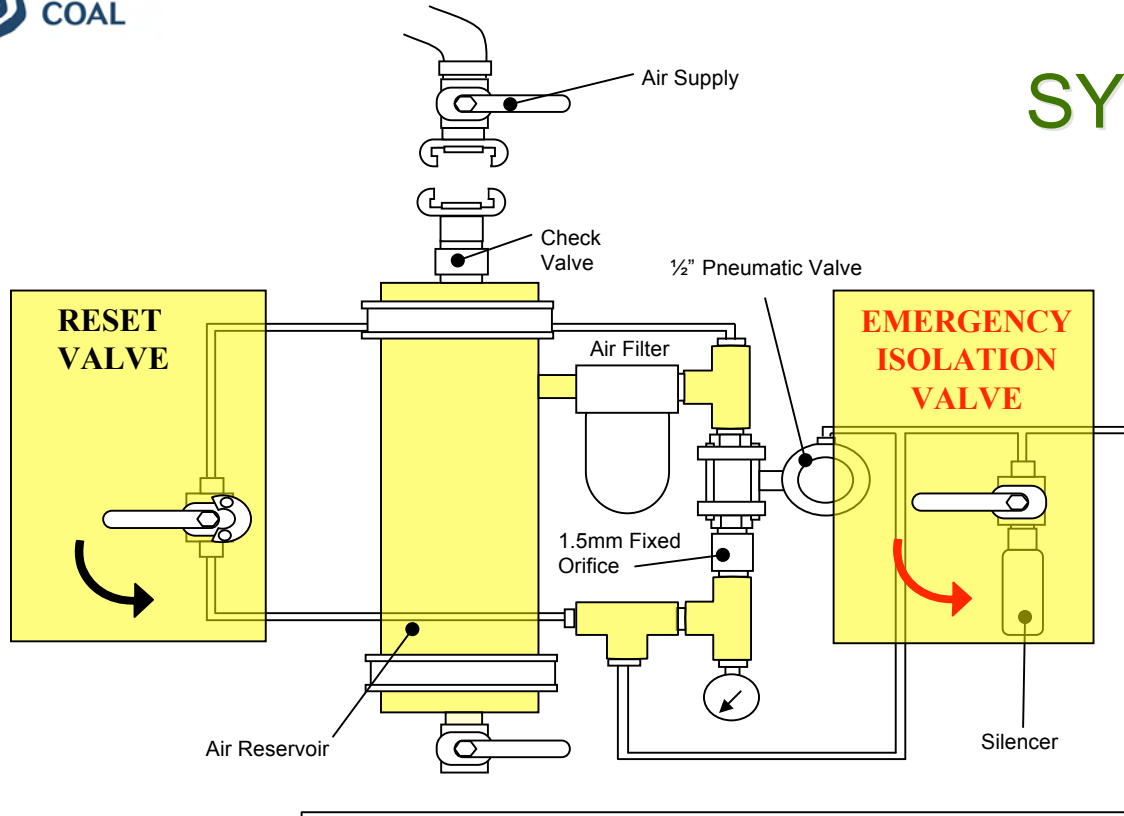


# THE INNOVATION METHANE DRAINAGE EMERGENCY ISOLATION SYSTEM

- Safety Factors
  - Eliminates the need to enter a drill stub
- Engineering
  - Enables localised isolation of the methane gas at its source within seconds



# SYSTEM DESIGN





A CULTURE OF INNOVATION

**SIMPLE**  
**COST EFFECTIVE**  
**RELIABLE**



# QUESTIONS

- Please do not hesitate to ask any questions

