

OVERVIEW OF COAL MINE METHANE IN VIETNAM

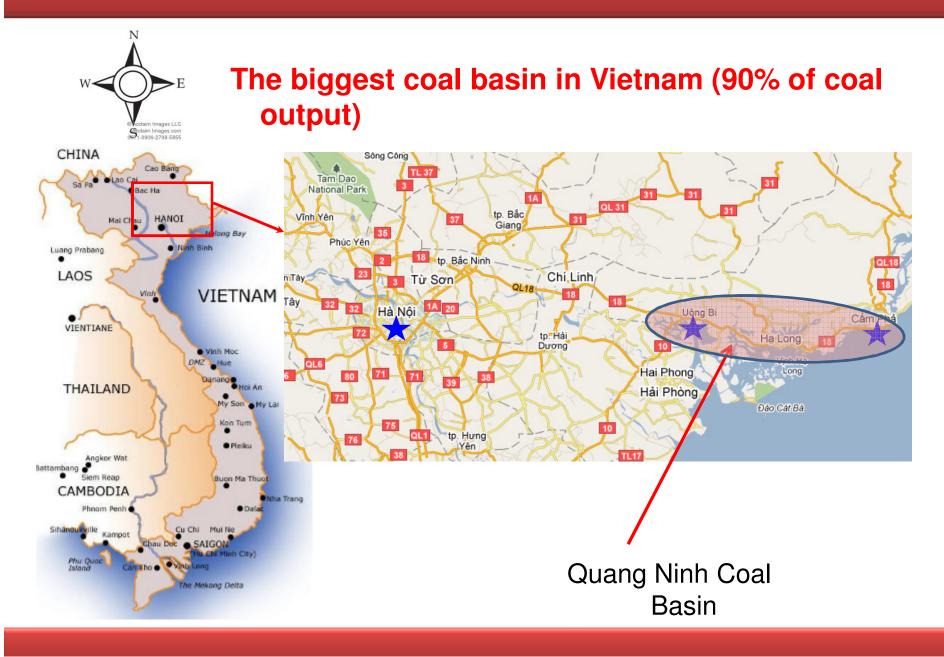
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INTRODUCTION OF VIETNAM COAL INDUSTRY (1)

- Main coal basin: Quang Ninh
- Number of coal mines:
 - ✓ Openpit coal mines: About 10 mines
 - ✓ Underground coal mines: About 30 mines
- Coal production: 45 millions tones (2012)
- Coal rank: Antraxite and semi-Antraxite (90%)
- Mining Method: Longwall (90%)
- Supporting: Single or set of dydraulic prop (mainly)
- Excavating method: Drilling and Blasting
- Gas drainage system: Khe Cham coal mine

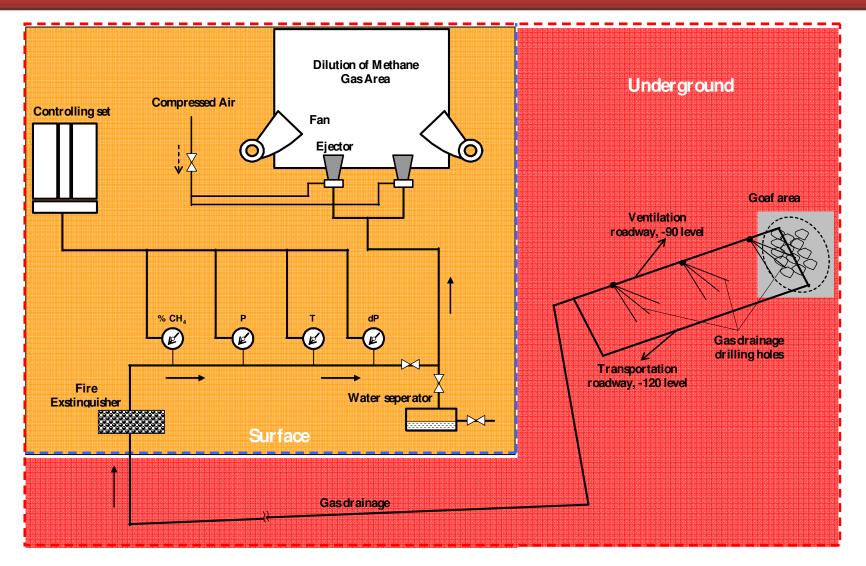
INTRODUCTION OF VIETNAM COAL INDUSTRY (2)



Coal mine methane in vietnam

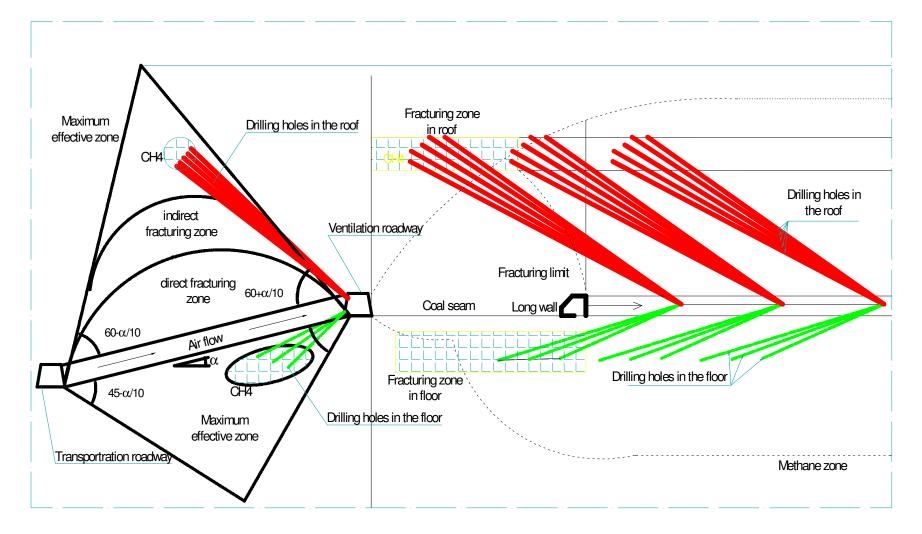
- The most gassy mines: Mao Khe, Khe Cham, Quang Hanh, Duong Huy
- In-situ gas content: up to 7.5 m³/T
- ➢ Gas emission: up to 15.5 m³/T.daily
- Gas dainage system: 01 system at Khe Cham coal mine
- Gas ultilization: Not yet
- Gas dilution in coal mine: Mine ventilation
- Gas control: Centralized Monitoring System (30 systems)
- CMM research agency: Mine Safety Center, Institute of Mining Science and Technology - Vinacomin

Methane drainage system in khecham (1)



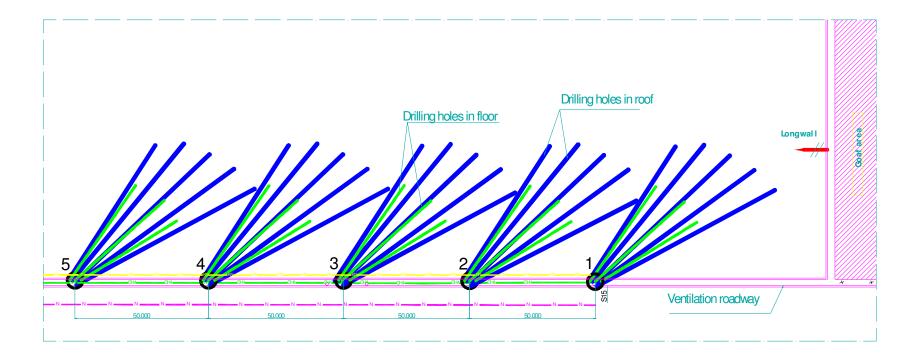
Block Diagram of Gas Drainage System in Khe Cham

Methane drainage system in khecham (2)



Bore Holes Arrangement in Roof and Floor

Methane drainage system in khecham (3)



Drilling Station Arrangement at Ventilation Roadway