Oil, Gas and Coalbed Methane Wells Near Coal Mines
Oil and Gas Well Hazards

• Inundation
  – Gas
  – Oil
  – Water

• Ignition source
  – Mine into casing
  – Drill into active mine

• Underground piping
  – Leaks
Inches From Disaster

850 psi
Natural Gas
Jurisdictional Problem

- Oil and gas wells are regulated by states
- MSHA only has jurisdiction over mines
  - Only when a coal mine is near an oil or gas well is MSHA able to take enforcement actions
  - Most oil and gas drillers and coal mines have been cooperative in dealing with this potential issue
Oil and Gas Wells

• 300 ft. diameter barrier
• Petition for modification
  – BuMines research 1970’s
  – Redrill, replug, prior to mining intersection
• Similar to many state regulations
Coalbed Methane (CBM)

- Methane produced from coal seams and surrounding strata
- CBM production reduces methane emissions during mining
- Several types of CBM wells
- Abandonment issues
  - Plugging
  - Location
Long Horizontal Holes

- **Water Infusion**: 30 – 50 ft. spacing
- **Degas**: 100 – 300 ft. spacing

**Plan View**: Horizontal Cross-panel Holes
- Grouted Standpipe
- Open Pneumatic Valve
- Collection Pipe
- Flex Pipe
- Detection Pipe

**From MSHA IR-1094**: "Piping Methane in Underground Coal Mines"

**Underground Methane Piping**
- Long Holes
- Mains
- Sub-mains
- Future Sub-mains

**+8,000 ft.**
Coal Seam Cross-section

To Pipeline

Dewatering Pump

Rat Hole Frac Stimulation Perforations

800 to 2,500 ft. 4 – 10 in. Cased Hole

Vertical Wells

Gob Wells

Gob Coal Seam Longwall Producing

Non-producing Gob Well

Direction of Mining

Plan View

Directionally Drilled Branches

Equivalent Vertical Holes

Directional Hole System

Up to 2 miles Equivalent Vertical Holes

Directionally Drilled Branches
CBM Benefits

• In-mine methane emissions reduced
  – 40 to 90% of in-seam methane removed
  – Higher production rates
  – Reduced loads on bleeders
  – Reduced incidence of face ignitions

• Supply of commercial gas

• Greenhouse gas emissions reduced
PIB 05-10 Coalbed Methane Wells (May 10, 2005)

- CBM wells are functionally equivalent to methane degas holes
- MSHA will regulate CBM wells near active mines under ventilation plan and map requirements for degasification holes
- District manager approval is necessary before mining near or through CBM wells or installing a methane drainage system in an active mine
Adverse Wells

• Many properties have severed estates
  – Surface
  – Coal
    • By Seam
  – Oil & Gas
    • CBM

• Oil and gas wells have been drilled into active mines without notifying mine
  – Drillers may not know about mines and hazards
Mining Into Pressurized Holes