

**MSHA
and
Coal Mine
Methane**

October 2010

Methane

Upper Big Branch

Death Toll Reaches 29

8 Dead at Southmountain No. 3

13 Victims at JWR #5

Darby Explosion Claims 5

**12 Miners Perish
at Sago Mine**

Methane Reduction Issues

- **Coalbed methane wells**
- **Methane flaring**
- **Ventilation air methane**

Coalbed Methane Extraction

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

**Be
Careful !**



CBM Benefits

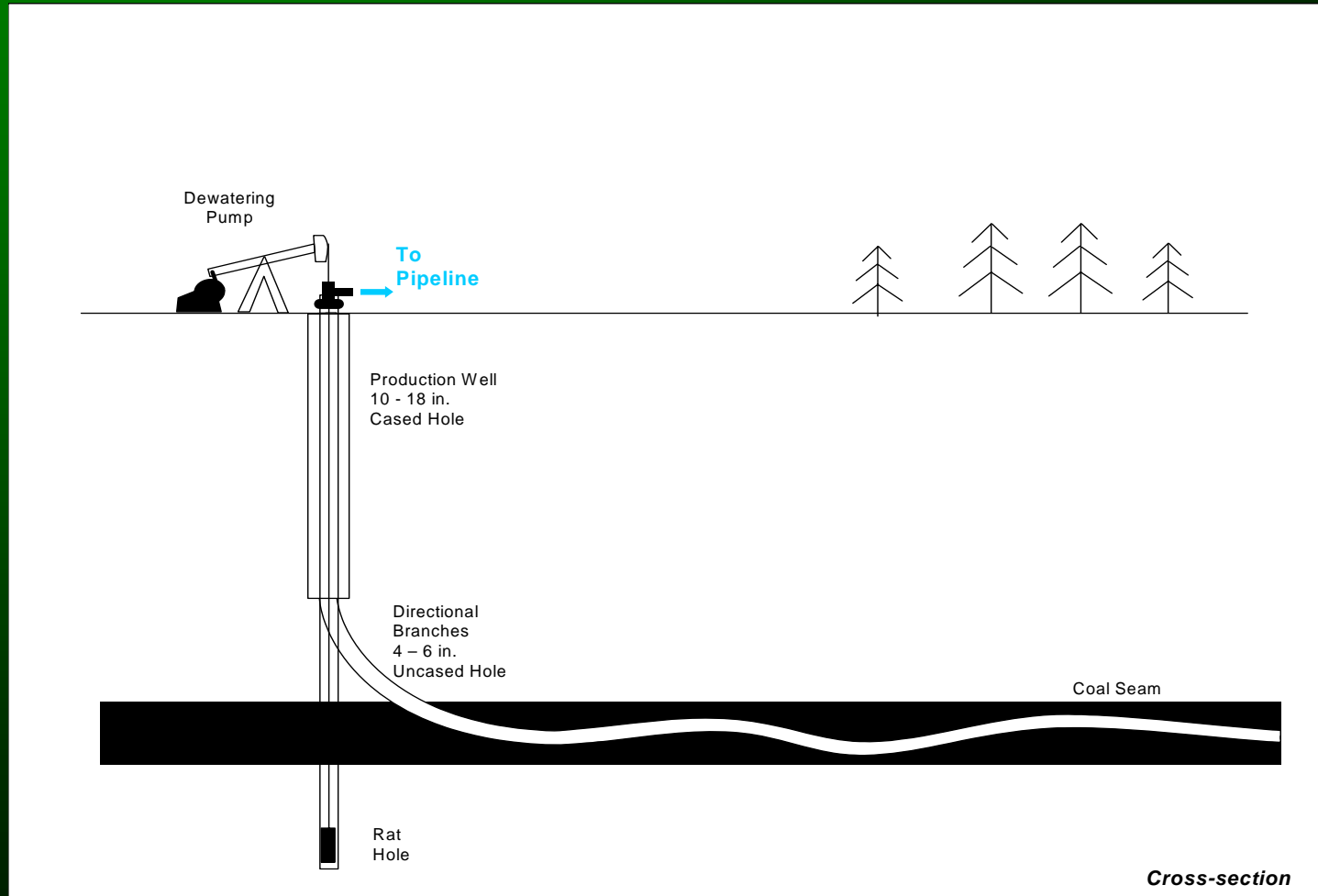
- **In-mine methane emissions reduced**
 - 40 to 90% of in-seam methane removed
 - Higher coal production rates
 - Reduced loads on bleeders
 - Reduced incidence of face ignitions
- **Supply of commercial gas**
- **Greenhouse gas emissions reduced**

PIB 05-10 Coalbed Methane Wells

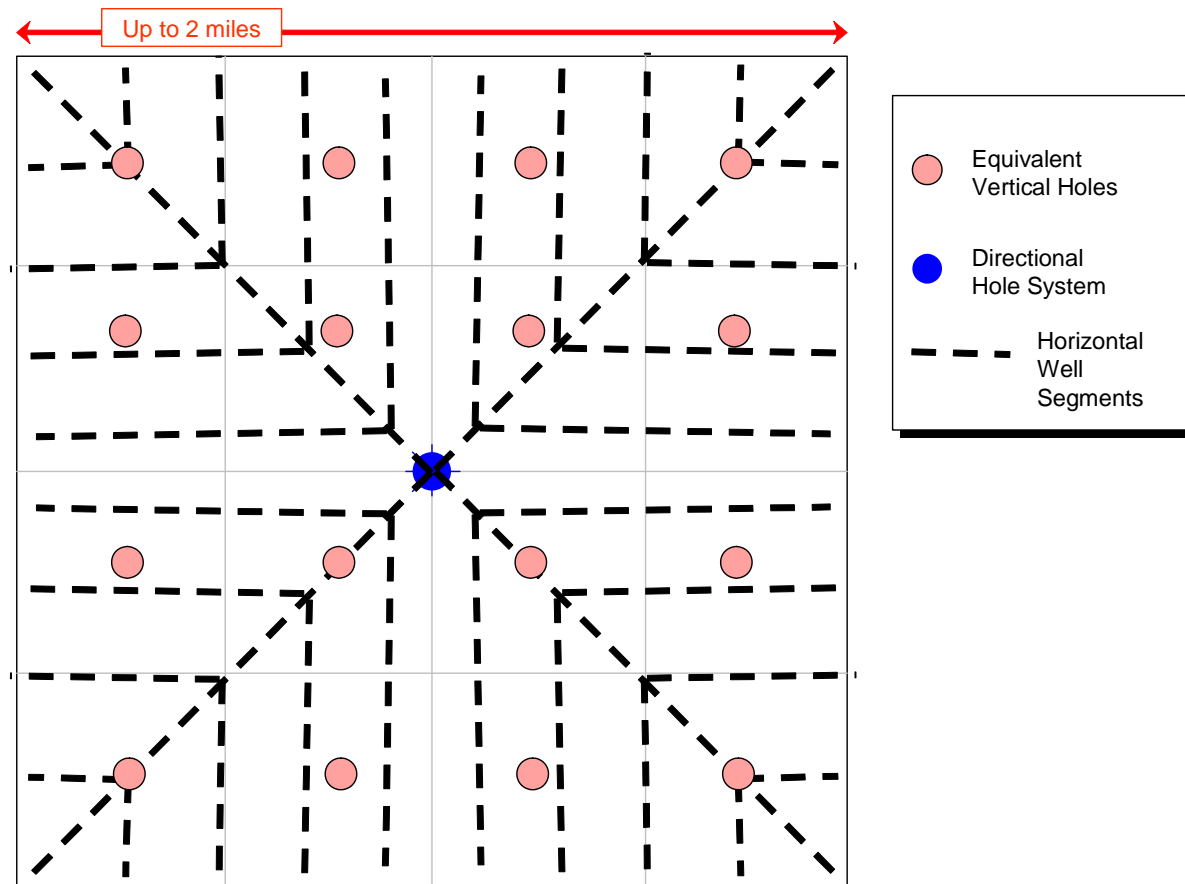
(May 10, 2005)

- **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**

Surface Drilled Directional Well



Surface Drilled Directional Well



Plan View

PIB 08-20 *Surface Drilled Coalbed Methane Wells with Horizontal Branches in the Coal Seam (August 27, 2008)*

- **Methane inundations and an ignition when intersected by mine**
- **Must maintain 300 ft. barrier as specified in 30 CFR 75.1700**
- **Petition for modification to mine through**



**Mining Into
Pressurized
Holes**

Methane Flaring

Flaring

- **API flares have a long history of safe operation**
- **Flash-back hazard similar to internal combustion engines used to power methane blowers**
- **MSHA has no policy on flaring**
 - **Flaring methane has been approved at a trona mine with adequate protection for miners**

Trona Mine Flare



**Ventilation
Air
Methane
Oxidization**

VAM

- **Oxidation of ventilation air methane**
 - Less than 2% methane
- **MSHA considers VAM under pt. 75**
 - Return air stream
 - Permissible electrical components
- **VAM units approved in mine ventilation plan**
 - Must protect miners from high temperature combustion

VAM Protection

- **Flame propagation speed**
 - Air velocity greater than flame propagation speed
 - If ventilation fails, velocity protection is lost
- **Methane sensor, diverter valves**
 - Reaction times
 - Line of demarcation

Methane Reduction Approval Processes

- **CBM wells:**
 - **Approved by District Manager in vent plan except;**
 - **Surface drilled directional wells require a petition for modification**
- **Flaring**
 - **Approved by District Manager in vent plan**
- **VAM**
 - **Approved by District Manager in vent plan**

District Manager Approval

- **Ventilation plan addressing methane reduction must be filed by mine operator**
- **Vent plan must be site specific and address mine conditions**
- **30 CFR 75.370 and 75.371 addresses ventilation plans**
- **30 CFR 75.372 addresses the ventilation map**

