

Upper Big Branch Mine—South

Mine ID: 46-08436

April 5, 2010 Accident

Final Report

December 6, 2011



On April 5, 2010, at approximately 3:02 PM, 29 miners died and two miners were injured as a result of a massive explosion at the Upper Big Branch South Mine.

Carl C. Acord	Steven J. Harrah	Joshua S. Napper
Jason M. Atkins	Edward D. Jones	Howard D. Payne
Christopher L. Bell, Sr.	Richard K. Lane	Dillard E. Persinger
Gregory S. Brock	William R. Lynch	Joel R. Price
Kenneth A. Chapman	Joe Marcum	Gary W. Quarles, Jr.
Robert E. Clark	Ronald L. Maynor	Deward A. Scott
Charles T. Davis	Nicolas D. McCroskey	Grover D. Skeens
Cory T. Davis	James E. Mooney	Benny R. Willingham
Michael L. Elswick	Adam K. Morgan	Ricky L. Workman
William I. Griffith	Rex L. Mullins	

Report Findings

- The 29 miners deaths were preventable
- Performance Coal and Massey management engaged in practices and procedures that resulted in non-compliance with the Mine Act and regulations

Report Findings

- The operator did not take proper measures to detect methane concentrations throughout the mine
- The operator did not comply with the approved ventilation plan
- The operator did not comply with the approved roof control plan

Report Findings

- The operator did not rock dust the mine adequately
- Accumulations of loose coal, coal dust, and float coal dust were not cleaned up and removed from the mine

Report Findings

- Explosion most likely started with initial methane/natural gas ignition by the cutting bits on the tail drum of the longwall shearer, which likely generated hot streaks on the sandstone roof or floor
- Flame from initial ignition then ignited an accumulation of methane resulting in a methane explosion
- The methane explosion ignited coal dust and float coal dust, which propagated into a major coal dust explosion

Root Cause

- Performance Coal and Massey management engaged in practices and procedures that resulted in non-compliance with the Mine Act and regulations
 - Intimidation of Miners
 - Illegal Advance Notice
 - Failure to comply with Training Plan
 - Failure to maintain required record books recording hazards known to the Company (Two sets of books)

Root Cause

- PCC and Massey's actions reflected a pervasive culture that valued production over safety creating a significant threat to the safety and health of UBB miners and contractors
- **Corrective Action:** Any commitment to health and safety must extend to all management members and corporate officers and be monitored and enforced at the highest level. Those that instill and condone a dangerous culture must be held accountable for their actions

Contributing Factor: Training

- PCC and Massey did not comply with the approved Training Plan. No or inadequate training in:
 - Hazard recognition
 - Roof control, ventilation & other mining plans
 - New work tasks

Contributing Factor: Examinations

- PCC and Massey did not ensure that adequate pre-shift, on-shift and weekly examinations were being performed
 - Did not identify hazards
 - Air courses not examined
 - Did not energize gas detectors for extended periods of time, did not take air quality measurements, and recorded false measurements
 - No regular examinations in tailgate entry near longwall face
 - On-shift respirable dust checks and methane tests not being performed as required

Contributing Factor: Correction of Hazards

- PCC and Massey did not ensure that hazardous conditions were immediately corrected or posted
- When recorded, numerous hazards remained uncorrected
 - Belt examination records

Contributing Factor: Longwall Shearer

- PCC and Massey did not maintain the longwall shearer in a safe operating condition
 - 2 worn bits present on face ring of tail drum
 - Missing carbide tips on 2 bits

Contributing Factor: Ventilation Plan

- PCC and Massey did not comply with the approved ventilation plan
 - Water sprays intentionally removed; others clogged
 - No measurable water pressure on shearing machine

Contributing Factor: Air Current

- PCC and Massey did not maintain the volume and velocity of the air current at a sufficient volume and velocity to dilute, render harmless and carry away flammable, explosive, noxious and harmful gases, dusts, and smoke and fumes

Contributing Factor: Roof Control Plan

- PCC and Massey did not comply with the approved roof control plan
 - Required supplemental roof support in tailgate entry not installed according to plan requirements

Contributing Factor: Rock Dusting

- PCC and Massey did not rock dust the mine adequately
 - 1353 samples in affected area, 90.5% or 1225 non-compliant

Contributing Factor: Dust Accumulations

- PCC and Massey failed to ensure that accumulations of loose coal, coal dust and float coal dust were cleaned up and removed from mine

Corrective Action

- This mine has been the subject of an ongoing investigation and has been under a Section 103(k) order
- MSHA will require the operator to develop a comprehensive corrective action plan to address the root cause and each of the contributory factors

Corrective Action

- The commitment to health and safety must extend to all mine management members and corporate officials and be monitored and enforced at the highest levels
- Those that instill and condone a dangerous culture must be held accountable for their actions or inactions

Contributory Violations



Contributory Violations

- Section 103(a) of the Mine Act (Advance Notice)
 - Regular practice
 - Communicated underground allowing an hour or more from gate to section
 - Correction of hazards and clean up of conditions prior to inspector arrival

Contributory Violations

- 30 C.F.R. § 48.3 (Training)
 - Experienced Miner Training
 - Task Training
 - Annual Refresher Training
 - Other deficiencies

Contributory Violations

- 30 C.F.R. § 75.360 (Pre-shift Examinations)
 - Failure to conduct pre-shift examinations
 - Failure to measure air quantities
 - Failure to record hazards, correct hazards
 - Failure to verify record by Mine Management
- Also issued to contractor – David Stanley

Contributory Violations

- 30 C.F.R. § 75.362 (On-shift Examinations)
 - Ongoing hazards not noted in on-shift
 - Failure to correct accumulation hazards
 - Failure to conduct methane checks
 - Failure to conduct equipment checks

Contributory Violations

- 30 C.F.R. § 75.364 (Weekly Examinations)
 - Failure to conduct weekly examinations.
 - Failure to examine evaluation points and measuring points
 - Failure to travel all required areas
 - Failure to correct hazardous conditions

Contributory Violations

- 30 C.F.R. § 75.363(a)
 - (Correcting or Posting Dangerous Conditions)
 - Failure to correct or post with danger signs until hazards corrected
 - Repeated notations of accumulations along belt conveyors
 - Failure to take air readings
 - Failure to take gas readings
- Also issued to contractor – David Stanley Consultants

Contributory Violations

- 30 C.F.R. § 75.1725(a) (Operation and Maintenance of Equipment)
 - Failure to maintain longwall shearer in proper operating condition
 - Missing or worn bits



Contributory Violations

- 30 C.F.R. § 75.370(a)(1) (Ventilation Plan)
 - The operator failed to follow the approved ventilation plan for this mine
 - Failure to maintain adequate number of water sprays on the shearer as required by the plan
 - Failure to maintain adequate water pressure on the shearer

Contributory Violations

- 30 C.F.R. § 75.321 (Failure to dilute and render harmless)
 - Failure to maintain the volume and velocity of the air current in the areas where persons work or travel at a sufficient volume and velocity to dilute, render harmless, and carry away flammable, explosive, noxious, and harmful gases, dusts, smoke, and fumes

Contributory Violations

- 30 C.F.R. § 75.220(a)(1) (Roof Control Plan)
 - Failure to provide 2 rows of supports in tailgate of longwall as required by the plan



Contributory Violations

- 30 C.F.R. § 75.400 (Coal Accumulations)
 - Coal accumulations include float coal dust, coal dust, loose coal, and other combustible materials were not cleaned up and removed





Contributory Violations

- 30 C.F.R. § 75.403 (Rock Dust)
 - 1353 samples in affected area, 90.5% or 1225 non-compliant
 - Failure to sufficiently inert coal dust, float coal dust and accumulations

Violations

- 12 contributory violations to Performance Coal/Massey, 9 flagrant
- 2 Contributory Violations to David Stanley Consultants (Contractor)
- 360 non contributory violations
 - 78 104(d)(2) orders
 - 12 flagrant

Penalties

- \$10,825,368 in total penalties for all violations, contributory and non-contributory issued to Performance Coal Company, et. al
- \$142,684 in total penalties for contributory violations issued to David Stanley Consultants (Contractor)

Conclusion

- The operator failed to follow the Mine Act and its regulations to provide for the safety and health of its miners. As a result, 29 miners were killed in a coal dust explosion started by a methane ignition due to: practices and procedures that encouraged noncompliance; lack of proper examinations; lack of equipment maintenance; failure to follow approved ventilation and roof control plans; and failure to clean up accumulations and rockdust adequately. All of these conditions contributed to the propagation of an explosion that was preventable

