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.

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