

## **Summary of 2012 3<sup>rd</sup> Quarter Fatal Accidents at Coal Mines with Preventative Recommendations**

Six miners in the coal mining industry were killed as a result of mining accidents between June 30, 2012, and September 30, 2012.

One miner was killed as a result of a **Machinery** accident. Two miners were fatally injured as a result of **Fall of Rib, Roof, Face or Back** accidents. Three miners were killed in **Powered Haulage** accidents.

When the investigations are completed, a detailed investigation report on each fatality can be found on the MSHA website at <http://www.msha.gov/fatals/fab.htm> .

Here are brief summaries of these accidents:

### **One miner was killed in a Machinery accident**

A 35-year-old move crew member with 5 years of mining experience received fatal crushing injuries when he was pinned between the conveyor boom of a remote controlled continuous mining machine and the outby rib of the No. 4 Right Crosscut. The continuous mining machine was moving to an adjacent entry in preparation for the oncoming day shift when the accident occurred.

### **Two miners were killed in Fall of Rib, Roof or Back accidents**

A 61-year-old general inside laborer with 38 years of mining experience was killed when he was struck by a section of mine roof. The victim was removing a roof bolt from an older area of the mine which was no longer in contact with the mine roof. A section of mine roof fell, striking the victim.

A 32-year old section foreman with 12 years of experience was killed. He was operating the continuous mining machine in preparation for the installation of a belt conveyor drive. The miner was positioned himself approximately 8 feet in by the last row of permanent support. A section of the unsupported roof approximately 6 ½ feet long, by 6 feet wide, by up to 8 inches thick fell, striking the victim and pinning him to the mine floor.

### **Three miners were killed in Powered Haulage accidents.**

A 25-year-old water truck driver with 31 weeks of experience was killed at a surface mine when he lost control of the water truck he was driving down a grade in an active work area of the mine. The truck struck a berm on the right side of the roadway, traveled across the roadway, struck an embankment on the left side of the roadway and overturned, ending up facing opposite the original direction of travel. The victim was found ejected from the truck.

A 43-year-old scoop operator received fatal crushing injuries when he was caught between a battery powered scoop and the coal rib while attempting to change the scoop's batteries. The scoop was parked at a battery charging station located four crosscuts from the working section when it was impacted by another scoop which was traveling outby adjacent to the charging station.

A 28-year old miner was killed when he was crushed between the coal rib and a large power center, weighing approximately 30 tons while he was moving longwall equipment.

### **Best Practices**

While some of the specific circumstances of these accidents remain under investigation, here are best practices that we can identify at this time to prevent accidents like these in the future:

#### **Powered Haulage Accidents**

**These deaths can be prevented by following these well known best practices:**

- Train all employees thoroughly on proper work procedures, hazard recognition and avoidance, and proper use of roadway berms.
- Conduct pre-operational checks to identify defects that may affect the safe operation of equipment before being placed into service.
- Never operate a truck or other mobile equipment without using a seat belt.
- Know the truck's capabilities, operating ranges, load-limits, and maintain the brakes and other safety features properly.
- Construct roadway berms to appropriate strengths and geometries. Ensure all grades and haulage roads are appropriate for the haulage equipment being used.
- Maintain control of equipment at all times, making allowances for the prevailing conditions (low visibility, inclement weather, etc).
- Observe all speed limits, traffic rules, and ensure that grades on haulage roads are appropriate for haulage equipment being used.
- Always select the proper gear and downshift well in advance of descending the grade.
- Maintain equipment braking and steering systems in good repair and adjustment. Never rely on engine brakes and transmission retarders as substitutes for keeping brakes properly maintained.
- Monitor work habits routinely and examine work areas to ensure that safe work procedures are followed.
- Do not attempt to exit or jump from a moving vehicle.
- Equipment operators should sound audible warnings when traveling around turns or blind spots, through ventilation curtains, and at any time the operator's visibility is obstructed.

- Always look in the direction of equipment movement and exercise caution in areas where clearance is tight and visibility is limited. Install warning signs to remind equipment operators of the hazards present in these areas.
- Assure that the area where equipment is parked is conspicuously marked with reflective material and/or signs if there is a potential for other equipment to strike parked equipment.
- Install Proximity Detection Systems on continuous mining machines and haulage equipment to prevent these types of injuries and fatalities.  
<http://www.msha.gov/Accident%20Prevention/NewTechnologies/ProximityDetection/ProximitydetectionSingleSource.asp>
- Ensure that equipment operators establish good communications between themselves and other miners that may be working around or near their equipment.
- STAY OUT of areas where clearance is tight (pinch points) and visibility is limited when haulage equipment is being used to move large equipment and/or components.
- Ensure that equipment operators establish good communications between themselves and other miners that may be working around or near their equipment.
- While moving equipment, ensure that all persons are located safely out of the route of travel, especially with limited visibility.
- Ensure that all large equipment and/or components are secured adequately to prevent unintended motion when moved.
- Inspect the mine floor properly in areas where large equipment and/or components will be transported to identify any irregularities that may cause unexpected movement of the equipment and/or components being moved, or with the machinery being operated to move the equipment.

### **Machinery Accidents**

**These deaths can be prevented by following these well known best practices:**

- Follow established communication procedures.
- Maintain control of equipment at all times.
- Conduct a risk analysis before beginning work.
- Ensure that all persons, including the continuous mining machine operator, are positioned outside the machine's turning radius before starting or moving the machine.
- Maintain clear visibility and communications with all personnel in the vicinity of the equipment, and minimize the number of miners working around or near continuous mining machines.
- Frequently review, retrain, and discuss the importance of staying out of any "RED ZONE" area while operating or working near a continuous mining machine.  
<http://www.msha.gov/webcasts/coal2004/REDZONE2.pdf> and

[http://www.msha.gov/Safety\\_Targets/Continuous%20Miner%20Package/RCCM.asp](http://www.msha.gov/Safety_Targets/Continuous%20Miner%20Package/RCCM.asp)

- Position the conveyor boom away from the operator or other miners working in the area when tramming or moving the machine.
- Install Proximity Detection Systems on continuous mining machines and haulage equipment to prevent these types of injuries and fatalities  
<http://www.msha.gov/Accident%20Prevention/NewTechnologies/ProximityDetection/ProximitydetectionSingleSource.asp>

## **Roof Falls**

**These deaths can be prevented by following these well known best practices:**

- Perform thorough pre-shift and onshift examinations.
- Post the end of permanent roof support with a readily visible warning or physical barrier to impede travel beyond permanent roof support. This serves to alert all miners of an approaching potential danger zone.
- Never travel beyond permanent roof support.
- Persons should never expose any portion of their bodies in by the last row of undisturbed permanent roof supports.
- Make frequent, thorough roof examinations and be keenly aware of changing roof conditions at all times. Give extra attention to the roof after activities occur that could cause roof disturbance.
- Do not mine extended cuts when adverse roof conditions are present. The cut depth should be limited to 20 feet or less. Before performing work in any area of the mine, observe the roof and ribs for hazardous conditions and correct hazards immediately.
- Install additional roof supports prior to removing old supports.
- Perform sound and vibration testing before installing or removing permanent roof supports.
- Only remove roof supports under the direction of a manager or foreman.
- Use roof screen (wire mesh) to control loose roof.
- Take extra precautions when working or traveling in older areas of the mine, paying particular attention to deteriorating roof conditions.

Violations of the priority standards identified as **Rules to Live By** continue to play key roles in mine fatalities. While not all of the fatality investigations have been completed and enforcement action taken, **Rules to Live By** standards continue to surface frequently. MSHA's inspectors continue to watch for these issues, and discuss the root causes of these fatalities and the ways to prevent recurrences, with miners and supervisors.

The importance and value of effective **Safety and Health Management Programs** is paramount to sending miners home safely at the end of their shifts. A thorough,

systematic review of all tasks and equipment to identify hazards is the foundation of a well-designed safety and health management program. Many root causes of fatal accidents show that management's policies, procedures, and controls were inadequate and failed to ensure that persons were protected from hazards that could have been identified, eliminated, or controlled. Operators and contractors need to implement effective safety and health management programs and periodically review, evaluate, and update them. If an accident or near miss does occur, find out why and act to prevent a recurrence. If changes to equipment, materials or work processes introduce new risks into the mine environment, address them immediately.

Conducting thorough **Workplace Examinations** every shift can prevent deaths when safety and health hazards are **found and fixed**. Miners are protected when workplace examinations are performed, problems are identified, and hazards are eliminated.

### **Training**

From July 1 through September 30, 2012, 2 of the 6 miners killed had one year or less experience at the activity they were performing when they were killed. Additionally, 2 of those 6 miners had less than one year of experience at the mine. Providing effective and appropriate training to miners is a key element in ensuring their safety and health. Mine operators and Part 48 trainers need to train miners and mine supervisors to take appropriate measures to eliminate the conditions that lead to deaths and injuries.

We have seen a dramatic drop in overall fatality and injury rates in the mining industry as a whole. In 2011, fatality and injury rates were the lowest ever in recorded history. The fatal injury rate for mining as a whole was .0114 per 200,000 hours worked, and the all-injury rate was 2.73 per 200,000 hours worked. In the Coal mining sector, the fatal injury rate was .0156 per 200,000 hours worked and the all-injury rate was 3.38 per 200,000 hours worked. While mining deaths and injuries have reached historic lows, more actions are needed to prevent mining injuries, illnesses and deaths.

Printable posters addressing the common causes of these accidents can be found on the Alerts/Hazards section of MSHA's website, [www.msha.gov](http://www.msha.gov). Fatalgrams describing each fatality and Best Practices to prevent a recurrence can also be found on the agency's website.

**All miners deserve a safe and healthy workplace and the right to go home safely at the end of every shift, every day.**