

Summary of 2011 (3rd Quarter) Fatal Accidents at Metal/Nonmetal Mines with Preventative Recommendations

Four miners in the metal and nonmetal mining industry were killed as a result of mining accidents between June 30, 2011, and September 30, 2011.

One miner is dead as a result of a **Powered Haulage** accident and another miner was killed in an **Explosives** accident. Another miner was killed in an **Electrical** accident and another miner lost his life due to a **Fall of Person** accident.

Here is a brief summary of these accidents:

One miner was killed in Powered Haulage accident.

A miner was killed at a sand and gravel operation when he accessed an elevated platform near an unguarded head pulley and became entangled in the operating conveyor system.

One miner was killed in an Explosives accident.

A miner was killed at an underground gold mine when he was on a ramp waiting for a blast to be initiated. When the round was initiated, small rock and debris traveled through a 3-inch diameter diamond borehole, striking him.

One miner was killed in an Electrical accident.

A miner was killed at a portable sand and gravel operation when he opened the 480 volt feeder box at the motor control center, started to remove the leads and received a fatal shock.

One miner was killed in a Fall of Person accident.

A miner was killed at a sand and gravel operation when he was changing a screen in the plant and fell approximately 56 feet to the ground below. He was standing on a steel rail that had been placed between the midrail of the protective rail surrounding the screen deck work platform and the screen structure.

Mining Deaths from 2001 to 2011*-- Best Practices

Deaths continue to occur needlessly in metal and nonmetal mining. Between 2001 and 2011, to date, there were 94 powered haulage fatalities; 62 miners killed working around, under, or inside machinery; 36 were killed from falls; 31 fatalities occurred from falling/sliding material; 18 fatalities from roof or rib rolls; and 19 from electrical accidents. For the same period, 83 fatalities occurred in other categories.

*thru 9/30/11

Fatalities can be prevented. All miners should return home injury free each day. Effective safety and health management programs save lives. Workplace examinations for hazards can identify and eliminate the dangers that kill and injure miners. Effective and appropriate training will help ensure that miners recognize and understand hazards and know how to control or eliminate them.

Powered Haulage Accidents

These deaths can be prevented by following these Best Practices:

- Maintain Control of Mobile Equipment While in Motion.
- Maintain Operating Speeds Consistent with Conditions of Roadways, Grades, Clearance, Visibility, Traffic, and the Type of Equipment Used.
- Place Controls in the Park Position and Set the Parking Brake When Mobile Equipment Is Left Unattended.
- When Parked On a Grade, Chock the Wheels of Mobile Equipment or Turn Them Into a Bank.
- Barricade or Post Warning Signs at All Approaches to Areas Where Health or Safety Hazards Exist that Are Not Immediately Obvious.
- Inspect and Maintain Powered Haulage Equipment for Operational Reliability
- Assure Backup Alarms and Horns Function
- Sound Alarms and Horns Before Starting or Moving Equipment
- Stay Clear of Mobile Equipment
- Lock Out and Tag Out Equipment Before Performing Maintenance
- Communicate Miners' Locations
- Assess Risk Where Miners Work In Confined Spaces
- Avoid Pinch Points When Working Around Mobile Equipment
- Install Proximity Detection/Protection Systems

Falling/Sliding Material

These deaths can be prevented by following these Best Practices:

- Stay Clear of Suspended Loads
- Stay Clear of Persons Working Above
- Stay Out of the Line of Fire
- Conduct a Risk Analysis Before Beginning Work
- Inspect and Maintain Buildings for Structural Integrity
- Inspect and Maintain Equipment for Operational Reliability
- Routinely Examine Metal Structures for Indications of Weakened Structural Components (Corrosion, Fatigue Cracks, Bent/Buckling Beams, Braces Or Columns, Damaged/Loose/Missing Connectors, Broken Welds, Etc.)

Machinery Accidents

These deaths can be prevented by following these Best Practices:

- Conduct a Risk Analysis Before Beginning Work
- Lock Out and Tag Out Equipment Before Performing Maintenance
- Block Equipment in the Raised Position Before Working On or Under It

- Secure Raised Equipment to Prevent Accidental Lowering or Rolling
- Stay Clear of Suspended Loads
- Pre-plan Work in Confined Spaces
- Never Place One's Body or Limbs between Powered or Moving Equipment and Stationary Objects when the Equipment is Operating

Roof Falls, Rib Rolls and other Ground Control Issues

These deaths can be prevented by following these Best Practices:

- Perform Thorough Ground Examination
- Perform Examinations after Blasting and Whenever Conditions Change
- Scale Only from a Safe Location
- Never Work or Travel Under Unsupported Roof
- Stay Clear of the Tops and Toes of Highwalls and Stockpiles
- Use Ground Support Where Ground Conditions or Mining Experience in Similar Ground Conditions in the Mine Indicate It Is Necessary.
- Design, Install and Maintain Ground Systems to Control the Ground In Places Where Persons Work or Travel.

Fall of Person

These deaths can be prevented by following these Best Practices:

- Use Fall Protection When Working Where a Fall Hazard Exists
- Position Ladders to Ensure Stability and Eliminate Trip Hazards
- Face the Ladder When Climbing or Working From a Ladder
- Do Not Lean While Standing on a Ladder
- Maintain Three Points of Contact When Climbing a Ladder

Explosives Accidents

These deaths can be prevented by following these Best Practices:

- Plug a diamond drill hole that intersects any opening and map the hole.
- During blasting operations, consider mine specific conditions, including diamond drill holes and rock strata, and establish mine policies and procedures to protect all persons.
- When developing a blasting plan, make sure all drilled holes and open passageways that intersect the area to be blasted are known and taken into consideration before initiating any blast.
- Use a central blasting system and schedule blasting between shifts or on off-shifts when no one is present.
- Train persons to identify hazards associated with blasting activity and take action to correct them.
- Never initiate a blast until the blast area has been determined to be safe and all persons have been evacuated from the designated blasting area.
- Take special precautions to ensure that all roadways and regularly traveled areas are blocked to prevent access when blasting is being conducted.

Failure to **Lock Out and Tag Out (LOTO)** the source of power for equipment continues to result in mine fatalities. Over the last decade, 43 miners died in accidents that could have been prevented by ensuring that all electrical components are de-energized and that miners place **THEIR** lock and tag on the disconnecting device. So far in 2011, two such fatalities occurred involving a powered haulage conveyor accident and one involved an electrical accident. These three deaths would not have occurred if the power been de-energized and the disconnecting device locked and tagged out.

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 in a majority of those fatalities. MSHA inspectors continue to watch for these issues, discuss the root causes of these fatalities, and the ways to prevent recurrences of these fatalities, 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 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 **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

Through September 2011, 6 of the 10 (60%) miners killed had two years or less at the mine site and 4 of these miners (40%) had less than two year's of mining experience. Additionally, 5 of those 10 miners (50%) had less than two years of experience at that job or task, including 3 (30%) with less than one year at the job. Providing effective and appropriate training to miners is a key element in ensuring their safety and health. Mine operators and Part 46 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.

Action must be taken to prevent additional deaths. 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> .

Serious non-fatal and near miss accidents continue to occur at metal/nonmetal mines. Train all supervisors and miners to be alert for hazards and eliminate them when any are found. A split second of inattention can cost a life!

Printable posters addressing the common causes of these accidents can be found on the Alerts/Hazards section of MSHA's website, www.msha.gov.

All miners deserve a safe and healthy workplace and the right to go home safely at the end of every shift, every day. No one wants to read the following in the conclusion of a fatal accident report:

“The accident occurred because management policies and controls failed to identify the risks associated with the task. A risk assessment to discuss the task and identify possible hazards was not conducted prior to persons performing work.”

Or--

“The accident occurred because management policies, procedures, and controls were inadequate. The area was not examined and tested by an experienced person designated by the mine operator prior to work commencing. Additionally, procedures to ensure that persons scale loose ground and drill and bolt laminated roof areas were not followed.”