

Summary of 2012 3rd Quarter Fatal Accidents at Metal/Nonmetal Mines with Preventative Recommendations

Five miners in the metal and nonmetal the mining industry were killed as a result of accidents from July 1 to September 30, 2012.

Two miners are dead as a result of **Fall of Person** accidents. One miner died in a **Machinery** accident. One miner lost his life due to a **Falling Material** accident and another miner was killed in a **Powered Haulage** accident. One (20%) of the fatalities involved a contractor employee.

When our 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:

Two persons were killed in Fall of Person accidents.

A 49-year-old driller with 24 years of mining experience was killed at an underground gold mine. The victim was assigned to prepare the work area to set up a long-hole bench drill and was working near an open stope when he fell down the stope. He was inadvertently loaded out with the material and transported by a haul truck to the surface where he was later discovered.

A 34-year-old contract laborer with 6 days of experience was killed at a surface copper operation when he fell through a 6-foot by 8-foot hole, that was partially covered with 2-inch by 4-inch boards and ¾" thick plywood, into a chute approximately 30 feet to a conveyor belt. The victim was assigned fire watch duties on a welding/cutting operation on the floor above him.

One miner was killed in a Falling Material accident.

A 58-year-old equipment operator with 19 years of experience was killed at a cement operation. The victim was working on the roof of a 189-foot tall silo when the roof collapsed. Rescuers responded immediately and recovered the victim on September 4, 2012.

One miner was killed in a Machinery accident.

A 36-year-old foreman with 9½ years of experience was killed at a sand and gravel operation. He was operating an excavator on a dike separating two ponds when the ground beneath the excavator tracks failed, toppling the excavator into one of the ponds.

One miner was killed in a Powered Haulage accident.

A 49-year-old equipment operator with 18 weeks of mining experience was killed at a portable crushing operation. He was standing on the discharge end of a 150-foot stacker belt conveyor, greasing the head pulley, when a coworker started the conveyor. The victim fell off the conveyor approximately 50 feet to the ground below.

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 Best Practices:

- Provide and maintain a safe means of access to all working places.
- Establish policies and procedures for conducting specific tasks on belt conveyors.
- Ensure that persons are task-trained and understand the hazards associated with the work being performed.
- De-energize and lock-out/tag-out all power sources before working on belt conveyors.
- Block belt conveyors against motion before working near a drive, head, tail, and take-up pulleys.
- Maintain communications with all persons performing the task and ensure all persons are clear before starting belt conveyors.
- Sound an audible alarm before start-up if the entire length of the belt conveyor is not visible from the starting switch.
- Clearly label all switches on equipment and provide training to persons who operate and work in the vicinity of equipment.

Falling Material Accidents

These deaths can be prevented by following these Best Practices:

- Routinely inspect the entire silo including walls, top, hopper(s), feeders, conveying equipment, liner, roof vents, etc. Look for structural damage, exposed rebar, stress cracks, corrosion, concrete spalling/cracking, signs of overfilling, top lifts, dust spills from seams during loading, damage to climbing devices, and other related concerns. The structure should be inspected by a professional engineer knowledgeable in silo design and construction.
- Ensure a competent person conducts examinations to identify hazards.

- Prohibit use of and access on the silo and in the surrounding area if damage is discovered, until repairs are complete and/or a registered professional engineer has declared it structurally safe to use.
- Make modifications of or equipment additions to a silo under the direction of a professional engineer.
- Ensure process controls and dust collector baghouses are in working order to prevent overpressure, overfilling, or excessive vacuum. Dust leaving a silo may indicate structural damage or equipment malfunction.
- Ensure aeration systems and other means of enhancing hopper flow are in working order so asymmetric flow patterns do not develop within the silo and damage the walls, hopper, and roof.
- Provide silo level probes/weight measuring technology for /equipment to monitor silo material filling and discharge in the silo and keep it in working order.

Machinery Accidents

These deaths can be prevented by following these Best Practices:

- Inspect equipment before placing it in operation for the shift.
- Correct safety and operational defects on equipment in a timely manner to prevent the creation of a hazard to persons.
- Establish safe work procedures and identify and remove hazards before beginning a task.
- Ensure that persons are task-trained and understand the hazards associated with the work being performed before they begin the work..
- Block dozer against motion by lowering the blade, setting parking brake, and shutting off the machine.
- Never place yourself in a position that will expose you to hazards while performing a task.
- Monitor personnel routinely to determine that they are following safe work procedures.

Fall of Person Accidents

These deaths can be prevented by following these Best Practices:

- Always use fall protection with a securely-anchored lanyard when working where there is a danger of falling.
- Examine workplaces for changing conditions when the strata, drill patterns, or other workplace conditions change.
- Establish policies and procedures for safely clearing hung or stuck material and ensure that persons follow those safe policies and procedures.
- Ensure that persons are task-trained and understand the hazards associated with the work being performed.

- Ensure that areas are barricaded or have warning signs posted at all approaches where hazards exist that are not immediately obvious.
- Consider using a "miner in distress" call feature available on many communication and tracking systems carried by miners. This feature is designed to improve emergency response if a miner working alone or out of sight of other miners requires immediate assistance.
- Establish and discuss safe work procedures. Identify and control all hazards. Train all persons to recognize and understand safe job procedures before beginning work.
- Protect openings near travelways through which persons may fall by installing railings, barriers, or substantial covers.
- Keep temporary access opening covers secured in place at all times when the opening is not being used.
- Ensure that areas are barricaded or have warning signs posted at all approaches if hazards exist that are not immediately obvious.

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 have surfaced in some of those fatalities. MSHA's inspectors continue to watch for these issues, 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 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

During the 3rd quarter of 2012, 2 of the 5 (40%) miners killed had less than 6 months of experience. Providing effective and appropriate training to miners, especially to new 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.

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 Metal/Nonmetal mining sector, the fatal injury rate was .0084 per 200,000 hours worked and the all-injury rate was 2.28 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. 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.