

# BLASTING SAFETY ALERT

## 6 Fatalities from blasting accidents 2010-2013



The victim initiated a blast and was struck by fly rock.



Two miners entered this mine and were killed by carbon monoxide.



Rock from a blast struck the front-end loader and covered it.



Victim was struck by blast debris that traveled through a diamond core hole.



The victim was hit by debris after blast was initiated.

### Best Practices

- Conduct effective workplace examinations. Identify all hazards and take action to correct them.
- Ensure all active working areas are ventilated prior to allowing miners to work in those areas.
- Monitor air quality and gasses as frequently as necessary to determine the adequacy of control measures.
- Use properly maintained and calibrated gas detection instruments that provide audible and visual alarms when concentrations are outside of safe limits.
- Ensure all miners are trained to identify all potential hazards and emergency procedures, including evacuation procedures.
- Dispose of damaged or deteriorated explosive material in a safe manner and in accordance with the instructions of the manufacturer.
- Guard or barricade all access routes to the blasting area to prevent the passage of persons or vehicles.
- Before firing a blast, give ample warning to allow all persons to be evacuated.
- Clear and remove all persons from the blast area unless suitable blasting shelters are provided to protect persons from fly rock.

**Following Proper Procedures Can Save a Life**

# WINTER ALERT

During the winter season, hazardous situations can cause serious and fatal injuries. Recently, two fatalities have occurred in the metal and nonmetal mining community as a result of winter conditions. Please take the time to assess the potential hazards of work tasks, particularly tasks that are not frequently done at your mine site.



Dredge operator slipped into the river while walking on a snow covered barge.



A miner fell from a snow covered tanker car to a concrete floor.

**What can be done at your mine to address these winter weather hazards?**

## **Best Practices**

- Remove snow and ice on travelways
- Apply salt and sand where needed
- Examine walkways for safety hazards
- Apply paint/sand mixture to walking and working surfaces
- Conduct an examination of your work area for hazards
- Use appropriate personal protective equipment

**PLAN YOUR WAY – HAVE A SAFE DAY!**



# PIPE SAFETY

## Keep out of the danger zone

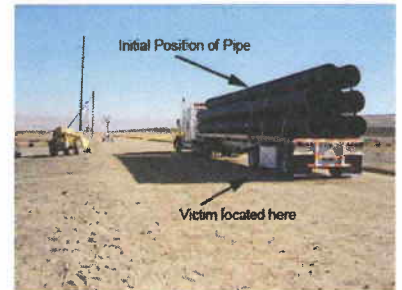
Since 2007, five miners died as a result of pipe related accidents at Metal and Nonmetal mines.



*Outriggers not used, crane tipped over crushing miner*



*Pipe slipped and struck miner*



*Contract truck driver struck unfastening a load of pipe*

### Best Practices

- Establish and discuss safe work procedures. Identify and control all hazards associated with the work to be performed along with the methods to properly protect persons.
- Task train all persons to recognize all potential hazardous conditions and to understand safe job procedures for elimination of the hazards before beginning work.
- Securely block equipment against hazardous motion while performing work.
- Implement measures to ensure persons are properly positioned and protected from hazards while performing a task.
- Monitor personnel routinely to determine that safe work procedures are followed.



*Pipe slipped and struck miner*



*Pipe shifted and struck miner during installation*

## Take a Moment for a Lifetime of Moments





# FALL PROTECTION AWARENESS

## Equipment Operators need Fall Protection Too!

Accessing, operating or maintaining self-propelled mobile equipment often requires activities such as climbing ladders or walking on machinery surfaces which expose miners to fall hazards, in all types of working conditions. Modern mobile equipment is designed to minimize slip and fall hazards; but large machinery, new and old, can require work at heights with a fall potential that can cause serious injury or death. 25 miners died as a result of falls from heights from 2005 through 2012 in Metal and Nonmetal mines.



### Best Practices

- Inspect equipment for icy, wet, or oily areas at the start of each shift and whenever conditions change. Before climbing on, off or around mobile equipment, wear Footwear that is free of mud or other substances that could cause slipping.
- Persons climbing on or off mobile equipment should face the machine. Both hands should be free for gripping the ladder, handrail, or handhold. When necessary, a cord, rope, or other line should be used to lift and lower lunch pails, thermos bottles, or tools.
- Walkways should be no narrower than their original manufactured widths, constructed with slip-resistant surfaces, and securely attached. Unobstructed access should be provided to all areas of the machine where a person might travel.
- Handholds or handrails should be within easy reach at critical locations.



## FALL PREVENTION SAVES LIVES

# ONE **FATAL** AND FOUR SERIOUS ACCIDENTS IN OCTOBER (AS OF 10/22/2013)

The M/NM mining industry should remain vigilant in providing a safe work environment in light of these serious accidents. Frank Bird, a US safety researcher, discovered that for every serious workplace accident there were 600 near misses. He developed the now famous pyramid diagram (below) to illustrate the underlying problems that maybe present when serious accidents occur. Take time today to examine your safety program and work areas.



Electrician was burned by an arch flash after energizing a 4160 volt breaker



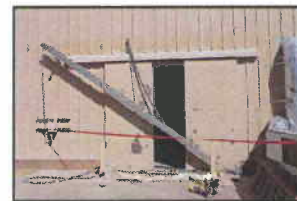
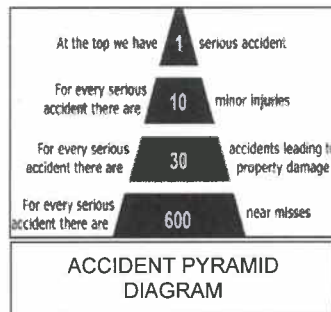
Miner was on a jaw crusher cat walk, and fell about 10 feet to the ground.



Miner fell several feet through roof that was under construction



Electrician was burned by an arch flash while using a hot stick in the plant's substation.



Electrician died after falling 8 feet from a ladder when a cable tray detached from the wall

## Best Practices

- Analyze the job before starting work
- Identify the hazards
- Follow manufacturer's service guides
- Take necessary safety precautions
  - De-energize and lockout all electrical circuits
  - Block equipment components to prevent movement
  - Establish safe access
  - Use proper tools
  - Wear protective clothing and personal protective equipment
  - Use fall protection
  - Watch out for fellow worker

**Safety... Something YOU can live with!**



# *MSHA Hazard Alert*



Two miners were killed in the metal and nonmetal sector in January, 2013. One miner died when a large rock fell and struck him while in a manlift taking samples from a highwall. The other miner was killed when caught between moving parts while repairing a leaking hydraulic cylinder on a lime preheater. The mining industry has made great strides in maintaining a safer and healthier work place, but more can be done. Take the time to assess the hazards associated with every task, particularly those not frequently done, and remove or control every hazard. When assessing risk, consider these issues:

**Work Zone** – What are the hazards? Who will be exposed?  
Should access to the area be limited while this activity is occurring?  
Should the area be posted with warning signs or barricaded?

**Physical** - Is mobile or stationary equipment operating in the area?  
Are suspended loads present? Any pressurized equipment, fluid or gas lines?  
Does equipment need to be shut down, locked, blocked or chocked?

**Chemical** - Will chemicals, gases or vapors will be used or liberated?  
Are the chemicals corrosive, toxic or a fire or health hazard?  
Have the MSDS been reviewed before the job begins and proper precautions taken?

**Equipment** - Is appropriate PPE available and in use?  
Are the necessary tools available and appropriately maintained?

**Training** - Is special knowledge or additional training or supervision needed?  
Do miners have the training to recognize and address the potential hazards of this task?

**Assessing the risk and addressing the hazards  
prevents accidents**

**Have a Safe 2013**





## **ACCIDENTS OCCUR WHEN YOU LEAST EXPECT IT – MAKE THE RIGHT DECISION TO PREVENT THEM!**

A recent spate of fatal accidents has occurred within a week at metal and nonmetal mines. These accidents might have been avoided had there been proper berms, proper risk assessment, and careful planning before work began.

MSHA is asking everyone to take a moment to focus on the tragic circumstances and consequences of these recent deaths. Everyone is encouraged to take the necessary actions needed to stop these type of accidents from recurring.



### **Best Practices**

- Identify all hazards, and potential hazards
- Examine your work area
- Never work on top of material in a hopper
- Be aware of people and activities in the area
- Ensure miners are trained and can demonstrate the use of fall arrest systems
- Be trained to safely operate the equipment
- Always wear seat belts when operating mobile equipment
- Maintain control of mobile equipment

**PLAN YOUR WAY – HAVE A SAFE DAY!**



# Slips, Trips & Falls Hazard Alert

In 2012, 329 accidents classified as Slips, Trips or Falls occurred at stone, sand and gravel operations. These accidents account for 22 percent of the total injuries reported at these operations.

- A haul truck driver, while descending stairs, slipped on a muddy platform.
- A driver tripped over a rock and fell.
- An employee was exiting a loader, while holding a radio and a water bottle. He fell five feet and hurt his back.

## Slip



A slip occurs when there is too little traction or friction between the shoe and walking surface.

## Trip



A trip occurs when a person's foot contacts an object in their way or drops to a lower level unexpectedly, causing them to be thrown off-balance.

## Fall



A fall occurs when you are too far off balance. Falls can occur at the same level or to a lower level.

- **Poor housekeeping is the leading cause of slips, trips and falls. Establish and maintain high standards for housekeeping in shops, offices and plant areas.**
- **Maintain eyes on the path of travel.**
- **Always maintain three points of contact when descending or ascending steps and stairs.**
- **When working in elevated areas presenting a potential fall hazard, consider conducting the elevated work out of a man lift, or identify appropriate anchorage points (able to hold 5,000 lbs) and wear protection devices such as lanyards and harnesses.**
- **Identify elevated work areas requiring frequent visits, and construct work platforms with handrails and toe boards to eliminate the need to wear harnesses/lanyards.**

NATIONAL STONE, SAND & GRAVEL ASSOCIATION



Natural building blocks for quality of life





# Hazard Alert: Heat Stress

Heat stress is a significant problem especially for miners in jobs that require heavy physical labor in hot or humid environments. It occurs when internal body temperature is higher than 100 deg. F. The purpose of this alert is to describe how to recognize risk factors that can cause heat stress, signs and symptoms of heat stress, and how to prevent it.

## Risk Factors for Heat Stress

- Heavy physical labor
- Hot or humid weather
- Direct sunlight
- Work near a hot equipment
- Wearing chemical protective clothing, some dust masks, other personal protective equipment
- Work in a very deep mine
- Lack of acclimatization
- Dehydration
- A previous heat-related illness, heart or lung disease, high blood pressure, overweight, age, thyroid disease, pregnancy, some medications. Ask your doctor if any medications, including over-the-counter, you are taking make you vulnerable to heat stress. For additional information see [www.aafp.org/aafp/2005/0601/p2133.html](http://www.aafp.org/aafp/2005/0601/p2133.html)

## Signs and Symptoms of Heat Stress (most serious at the top)

- Loss of Consciousness
- Seizures
- Hot and dry skin
- Confusion or delirium
- Headache
- Nausea
- Dizziness
- Weakness
- Irritability
- Thirst
- Heavy sweating
- Body temperature >100°F
- Muscle pains
- Cluster of red pimples or small blisters that may appear on the neck, upper chest, in the groin, under the breasts and in elbow creases

## Preventing Heat Stress

- Slow the pace of physical labor or reschedule it for a cooler time, like at night
- Take frequent work breaks
- Drink a lot of water
- Seek shade
- Wear light clothing that covers your skin
- Do not drink beverages with alcohol or caffeine; these promote urination and water loss
- Do not work alone
- Do not eat a heavy meal before working in heat
- Shield hot objects or move away from them
- Be alert for signs and symptoms of heat stress in others and yourself; stop work, cool off, and seek medical attention
- Use air conditioning (for example, in an environmental cab)

## What to Do if signs and symptoms are present.

Take the person or yourself to a cool and shaded environment to sit or lie down. If the person is alert, give them water to drink, in small portions. If the person is unconscious or nearly so, call an ambulance or get medical attention immediately. Severe heat stress (heat stroke) is a life-threatening emergency.

