



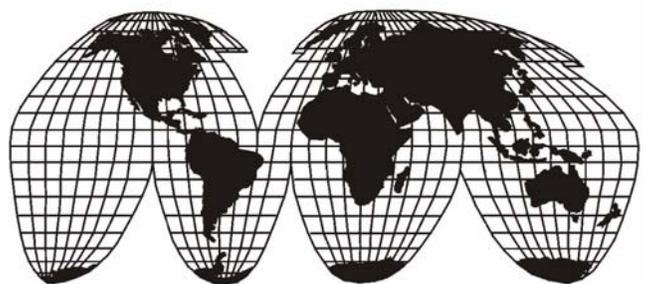
Mining Moments

U.S. Department of Labor
Mine Safety and Health Administration
National Mine Health and Safety Academy

Instruction Guide Series
IG 104

2008

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U.S. Department of Labor
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Mine Safety and Health Administration

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This instructor guide is intended to accompany DVD 622 - Mining Moments. The DVD contains short vignettes about safety issues in mining. The following information is designed to assist you in conducting a classroom discussion about each vignette.

What Are You Thinking?
(Always Wear Your Seat Belt)

Discussion Questions

- How many of you always wear your seatbelt when driving your car?
- What caused you to begin wearing your seatbelt? (law, near-miss, children, video, etc.)
- For those of you who always wear the seatbelt, do you even think about it any more or is it just automatic?
- How many of you ensure that passengers are buckled up?
- How many of you think you can jump from a piece of equipment if it is going over an embankment?

Recent Fatalities

- On April 25, 2007, a 65-year-old truck driver with 42 years mining experience was fatally injured. The victim was operating a haul truck that veered off the roadway, climbed a berm, and fell over a highwall onto a bench below. The victim was not wearing a seat belt at the time of the accident and was ejected from the cab of the truck.
- On September 7, 2007, a 54-year-old supervisor with 27 years experience was fatally injured. The victim was operating a track loader to remove excess material from an access road. The machine traveled over an embankment and landed approximately 125 feet below.
- On Monday, January 23, 2006, a 72-year-old contractor truck driver was fatally injured. The loaded truck was traveling down grade from the mine stockpile when the driver either fell or jumped from the truck and was run over by the rear tandem wheels.
- On May 23, 2006, at 9:50 a.m., a 23-year-old truck driver with 10 months of mining experience was fatally injured when he lost control of a water truck while descending a steeply graded access road. The vehicle overturned, slid, and landed in a field. The driver was partially ejected from the cab and received crushing injuries.

What Could Happen (Equipment Blocking)

Discussion Questions

- What blocking methods are used at your mine?
- Are blocking methods the same for all equipment?
- What keeps us from blocking equipment?
- What actions can we take to ensure that we block equipment when required?

Recent Fatalities

- On Wednesday, July 10, 2002, a 44-year-old mechanic/ truck driver was fatally injured while performing repair work on a haul truck. The transmission had become locked in gear and the mechanic was summoned to repair the truck. While attempting to free the transmission, the mechanic positioned himself under the truck to remove the drive shaft. When the drive shaft was removed, the truck rolled forward crushing the mechanic under the right rear set of tandem wheels. The parking brake had not been set and the truck had not been blocked to prevent movement.
- On April 4, 2005, a 47-year-old mechanic with 28 years mining experience was fatally injured. A forklift was being used to position a motor that was being installed on a continuous miner. The forklift engine was shut off to facilitate communication. The service brakes failed, allowing the forklift to drift forward. The victim was pinned against the continuous miner.
- On October 18, 2005, a 36-year-old miner with 3 years and 8 months mining experience was fatally injured at an underground mine. The victim had parked his articulated haulage unit and exited the operator's cab. He was found pinned beneath the haulage unit.
- On June 17, 2005, a 32-year-old equipment operator/mechanic with 5 years mining experience was fatally injured. The victim was removing toggle seat wedge bolts so that the broken pitman toggle seat could be replaced. The safety pins, provided by the manufacturer, had not been installed nor had other steps been taken to block/ secure this component against hazardous motion. The pitman assembly shifted and pinned the victim against the crusher framework.

Boom Lifts Aren't Cranes (Use the Right Tool)

Best Practices

- Ensure employees are trained to safely operate the equipment they are using.
- Use equipment only for its intended purpose.
- When using boom lifts in work areas with limited space, ensure that the controls are placed in the slowest speed to avoid abrupt movement.
- Management should routinely monitor work areas to ensure that miners are protected from possible hazards.

Discussion Questions

- What are some other tool substitutions you have seen used?
- What are possible hazards created by using the wrong tools?

Recent Fatalities

- On Tuesday, February 3, 2004, a miner was fatally injured when he was thrown from the elevated bucket of a Simon-Telect 42-foot aerial bucket truck. The victim and two other miners were dismantling a shop building at a surface area of an underground mine. To remove one of the building's wooden support posts from the ground, a chain was attached between the aerial lift bucket and the post. When the victim applied upward pressure on the chain with the aerial lift, the post released from the ground, causing the aerial bucket to shift suddenly, throwing the victim out of the bucket. The victim fell approximately 22 feet to the ground.
- On September 16, 2004, a 35-year-old mechanic with 12 years mining experience was fatally injured. He used a hydraulic floor jack to lift a forklift. The victim was changing the starter on the machine when the jack apparently shifted and the forklift fell on him.

Accident Procedures

Discussion Questions

- What accident procedures are in place at your mine?
- What kinds of first aid do you feel competent to render?
- Are you prepared to protect yourself from bloodborne pathogens when rendering first aid?
- Where is the nearest first aid kit to where you work?
- Are there any EMT-trained miners in your work area?

Gravity

Best Practices

- Always set truck park brakes and block the wheels.
- Maintain equipment braking system in good repair and adjustment.
- Conduct pre-operational check to identify any defects that affect the safe operation of equipment before being placed into service.

Recent Fatalities

- On Tuesday, November 28, 2006, a 50-year-old haul truck operator was fatally injured while the victim was dumping waste material in the spoil dump. Condensation in the air lines froze and the brakes would not release. The victim exited the cab of the haul truck. The brakes finally released. The victim sustained fatal crushing injuries when the driver's side rear tandem wheels of the Caterpillar 789B haul truck he was operating came to rest on top of him.
- On Friday, August 19, 2005, two truck drivers, ages 51 and 56, were fatally injured after being struck by a truck. Both victims, along with two other truck drivers, were inside a pump house eating lunch. A parked, unattended, truck rolled about 65 feet down the haul road and struck the pump house. The other two drivers sustained fractures, cuts, and bruises.
- On Wednesday, February 27, 2002, a 43-year-old truck driver was fatally injured while loading an over-the-road haul truck at a surface load-out of an underground mine. The driver had loaded both of the 20-ton, bottom-dump trailers that were connected to the truck, but coal had spilled over the side of the second trailer. The driver got out of the truck to check the spillage, setting the tractor brakes but not the trailer brakes. While he was outside, the truck began moving down the road that had an approximate 6% grade. The driver attempted to re-enter the truck and was thrown from the truck, and then hit by this same truck. The truck traveled approximately 200 feet before striking a hillside and coming to a rest. The driver had about one year of experience as a truck driver, and this was his first trip to the load-out where the accident occurred.
- On Friday, September 24, 2004, a 63-year-old employee with 8 years of mining experience was fatally injured while attempting to dismount a Caterpillar D4H bulldozer. Apparently the victim trammed his bulldozer onto a sloped berm adjacent to a level graveled roadway. The victim then attempted to dismount the bulldozer with the blade elevated and the parking brake not engaged. During this process the bulldozer apparently began to drift forward, and the victim slipped and fell to the ground in front of the moving bulldozer. The victim was struck by the grousers on the left track and received fatal injuries.

Shift Change (Communications)

Best Practices

- Communication must be two-way.
- Let others know what you are doing.
- Never enter a work area without the communication process – it may save your life.

Discussion Questions

- What are some reasons why we don't communicate well between shifts?
(In a hurry, distracted, noisy environment, etc.)
- Would asking questions help you to get more information?
- Would taking notes help you to remember details?

Slam It (Guarding)

Discussion Questions

- What should you do if a guard is missing or damaged?
- When should guards be replaced?

Guarding Statistics

- Failure to properly guard equipment is the violation most frequently cited by MSHA inspectors.
- Proper guarding of mining equipment is one of the most important and obvious safety hazards to be addressed in the mining workplace.
- Equipment guards protect working miners from injury and death that can be caused by moving machinery parts.
- MSHA's analysis of reported guarding-related injuries shows that 38 percent of these injuries occur while equipment is running, and 50 percent occur during maintenance. At least 12 percent are attributed to hazards posed by handling the guard itself.

Recent Fatality

- On September 20, 2007, a 49-year-old laborer with 32 years experience (2 days at the mine) was fatally injured. The victim went behind a guard, used a wooden handle shovel to clean under a conveyor belt take-up pulley, and was entangled in the pulley.

Stop, Look, Analyze, Manage (SLAM) Do it Every Day, Every Job, Every Time

Discussion Questions

- Select a task you perform, and identify some hazards you may encounter.
- Do you have the proper knowledge, training, and tools for the job?
- How can those hazards be controlled or removed?

Recent Fatalities – select a few for a SLAM discussion

- On Saturday, January 6, 2007, a 26-year-old utilityman/laborer was fatally injured while attempting to load a bundle of wire mesh onto a scoop. Four bundles of wire mesh weighing approximately 6000 pounds connected by metal straps were stacked against the rib in an upright position. The utilityman was positioned between a scoop and the bundles of wire mesh. While cutting the metal straps, the wire mesh fell over pinning the utilityman against the scoop causing fatal injuries. The victim had approximately 2 years of mining experience and 14 weeks of experience at this mine and at this activity.
- On March 30, 2007, a 34-year-old dredge operator with 16 years mining experience was fatally injured. The victim was correcting a problem with the deck mounted suction winch when he fell from the dredge. He was found floating in water behind the dredge. There were no eyewitnesses to the accident.
- On April 3, 2007, a 40 year-old truck driver with 1 ½ years mining experience was fatally injured. The victim was hauling shot rock to the toe area of the main tailings dam and lost control of the truck on the roadway near the base of the dam. The truck rolled over and became partially submerged in a pond near the toe of the dam.
- On April 5, 2007, a 46-year-old tire contractor with 8 years experience was fatally injured. The victim was replacing tires on the front-end loader. He was pinned under the loader when it fell off the supporting jacks.
- On Tuesday, April 17, 2007, a 51-year-old excavator operator and a 38-year-old bulldozer operator with 15 years and 2 years of mining experience respectively were fatally injured when a highwall failed. Both miners were operating equipment beneath the highwall measuring approximately 275 feet high, 240 feet wide, and 90 feet deep. The work was being performed near old underground mine works.
- On April 18, 2007, a 52-year-old contractor laborer was fatally injured. The victim was standing on a horizontal pipe scaffold support when he lost his balance and fell about 57 feet.
- On April 18, 2007, a 50-year-old driller with 31 year mining experience was fatally injured. The victim was operating a drill positioned near the edge of a bench when the drill tipped on its side. The victim was ejected from the operator's cab and fell over the edge of the highwall.
- On June 8, 2007, a 49-year-old operator technician with 30 years mining experience was fatally injured. The victim was lifting a section of pipeline with a 20-ton crane. The outriggers were not used and the crane tipped onto its side. The victim jumped or fell and was crushed when the crane landed on him.
- On June 19, 2007, a 30-year-old underground blaster with 4½ years experience was fatally injured. The victim was traveling in a 2 cubic-yard Load-Haul-Dump (LHD) unit along a drift above a backfilled, previously mined stope. The LHD fell through the floor of the drift in a void that had developed in the backfill.

- On Monday, July 2, 2007, a 59-year-old bulldozer operator with over 35 years experience was fatally injured when he was struck by a pickup truck. The victim and two other operators were near their equipment when a foreman instructed them to move in preparation for a blast. The victim was apparently walking back to his bulldozer when the foreman, who was using the truck's side mirrors to drive, backed over him.
- On July 29, 2007, a 29-year-old contractor miner with 3 years experience was fatally injured. The victim and two other contractor miners were working on top of a service hoist located in the main mine service shaft. He was assisting another miner who was using a chipping hammer to remove concrete from around a steel shaft set. The miners had one foot on top of the service hoist and one foot on a cross section H-beam when one side of the beam collapsed. Both miners fell into the shaft. They were both wearing safety harnesses and lanyards but the victim's lanyard was not secured. The other miner was caught by his lanyard but the victim fell 1,000 feet to the shaft bottom.
- On Saturday, August 4, 2007, a 25-year-old section foreman sustained a fatal head injury while assisting electricians in replacing a torque shaft on a continuous mining machine. During the installation of the new torque shaft, the shaft became stuck in the operator's side of the cutting head motor. In an attempt to remove the shaft, the motor was run momentarily. As the motor continued to turn, the shaft contacted the motor and rotated, striking the victim in the head.
- On Friday, August 10, 2007, two company officials of a shaft and slope sinking contractor and a visiting retiree of the contractor were fatally injured while being lowered into a shaft which was under construction. As the bucket was lowering the men into the shaft, it suddenly tipped and ejected them. They fell approximately 500 feet down the shaft.
- On August 29, 2007, a 41-year-old wash plant operator with 1½ years experience was fatally injured. The victim was preparing to patch a hole in a discharge pipe located under the classifier. He was positioned on a plank placed across the top of an open tank located under the pipe. The plank broke and he fell approximately 7 feet to the bottom of the empty tank.
- On September 16, 2007, a 53-year-old contractor with 33 years experience was fatally injured when he fell approximately 350 feet down a mine air shaft. There was no scheduled work to be performed across the railing near the shaft. The concrete floor was being sanded in preparation for installing automatic closing doors between two fans inside the fan housing.
- On October 25, 2007, a 19-year-old contractor ironworker with 20 weeks of experience was fatally injured. The victim was standing on 2 x 10 x 72-inch planks that were nailed to cross members and placed across a 48-inch diameter hole where a duct was to be installed. Several of the planks dislodged and he fell approximately 75 feet.
- On Monday, November 12, 2007, at approximately 4:39 p.m., a miner with over six years experience was fatally injured in a machinery accident. The accident occurred in the belt entry when a feeder breaker was being positioned over the belt tailpiece while the 72-inch wide belt conveyor was running. The anchored tailpiece broke free and was pulled down the entry, striking the victim in the back. The victim succumbed to injuries on December 4, 2007.

Task Training – Warehouse Fork Truck

Discussion Questions

- When is task training required?
- Who does the training?
- What problems do you encounter when getting task trained? (newer miners)
- What problems do you encounter when providing task training? (experienced miners)

Recent Fatalities

- On July 19, 2007, two contractor ironworkers (28-year-old with 3 years experience and 19-year-old with 44 weeks experience) were fatally injured. They were working from the basket of a mobile man lift installing material on a building being erected at the site of a future surface mine. The boom was fully extended about 90 feet above ground when the unit became unstable and toppled over.
- On Friday, November 16, 2007, at 8:50 p.m., a 66-year-old truck driver was fatally injured while attempting to dump spoil. The truck over-traveled the edge of the dump and rolled down the spoil slope approximately 70 feet and came to rest upside down in a pool of water approximately 6 feet deep. Miners attempted to rescue the driver but were unable to open the truck doors. A track hoe was used to lift the truck out of the water but the victim drowned prior to the rescue. The victim was wearing his seat belt. He had 1 week 3 days total mining experience operating the dump truck.

Any Job Big or Small – Do It Right or Not at All

Best Practices

- Use the right equipment for the job.
- Know the weight of your load so you can avoid tipping.
- Avoid overloading.
- Awkward loads should be adequately secured prior to lifting.

Recent Fatalities

- On June 8, 2007, a 49-year-old operator technician with 30 years mining experience was fatally injured. The victim was lifting a section of pipeline with a 20-ton crane. The outriggers were not used and the crane tipped onto its side. The victim jumped or fell and was crushed when the crane landed on him.

Every Day, One Good Deed, Pay it Forward
(Work Together for Safety)

Discussion Questions

- What responsibility do you have for the safety of the miners you work with?
- Can you think of examples when someone has protected you from harm?
- What could have been the result without that protection?
- What is your first reaction when someone points out that you are about to do something unsafe?

