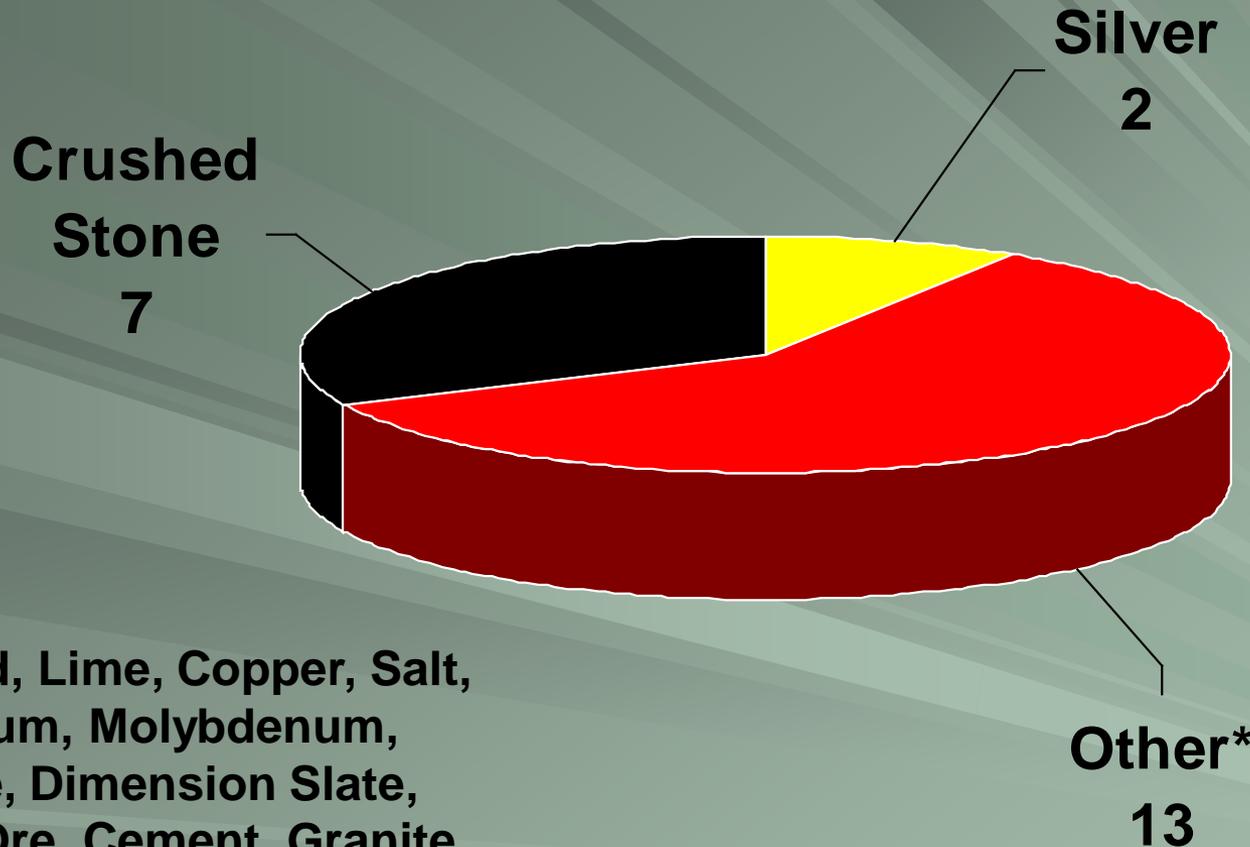


# 22 Metal and Nonmetal Fatal Accidents (CY – 2013)

- 5 Underground – 17 Surface
- 2 Contractors – 20 Mine Employees
- 7 Powered Haulage
- 4 Explosives
- 4 Falling/Sliding Material
- 2 Machinery
- 2 Fall of Person
- 1 Electrical
- 1 Fall of Highwall
- 1 Other (Drowning)

# MNM Fatalities by Commodity

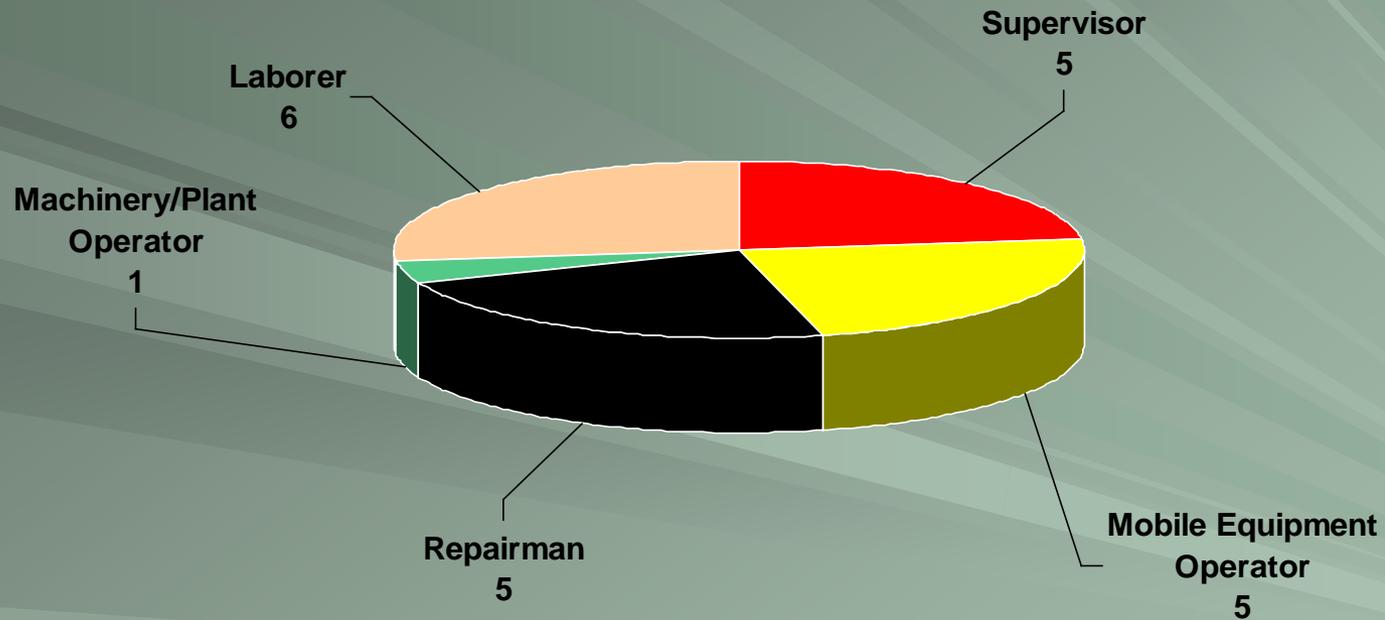


\* Gold, Lime, Copper, Salt, Gypsum, Molybdenum, Stone, Dimension Slate, Iron Ore, Cement, Granite, Sand, Sand & Gravel

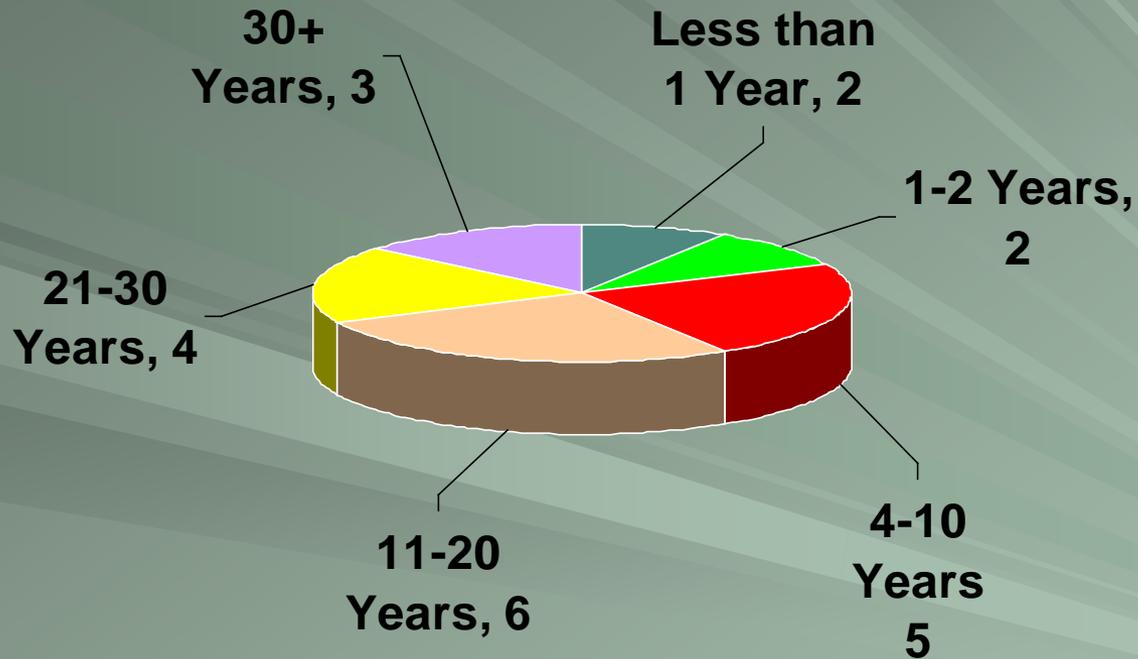
# MNM Fatalities by State

- Arizona – 1
- California – 2
- Colorado – 2
- Georgia – 2
- Kansas – 1
- Kentucky – 4
- Louisiana – 1
- Michigan- 1
- Missouri – 2
- Nevada – 2
- New Mexico – 1
- New York – 1
- Pennsylvania – 1
- Texas – 1

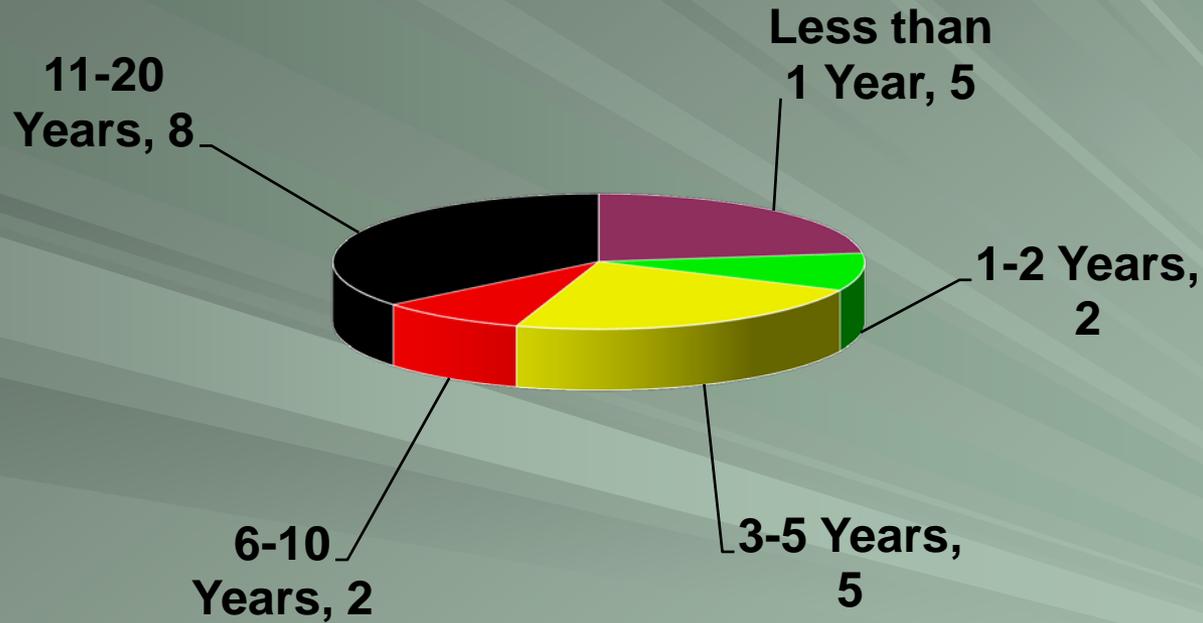
# MNM Fatalities by Occupation



# MNM Fatalities by Total Experience



# MNM Fatalities by Job Experience



# Powered Haulage



# Powered Haulage -- Best Practices

- Task train mobile equipment operators adequately
- Maintain mobile equipment
- Conduct adequate pre-operational checks
- Always wear a seat belt
- Ensure that loads are stable and secured before transporting.
- Never place yourself between rail cars without blocking them to prevent movement.
- Do not perform work on a belt conveyor until the power is off, locked, and tagged, and machinery components are blocked against motion.

# Blasting



# Blasting – Best Practices

- Establish and discuss safe work procedures before beginning work.
- Identify and control all hazards associated with the work to be performed and the methods to properly protect persons.
- Task train all persons in safe work procedures.
- Maintain and use all available methods of communication, such as sirens and radios, to warn persons of an impending blast. Establish methods to ensure that all persons are out of the blast area.
- 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 flyrock.
- Conduct effective workplace examinations.
- Ensure all active working areas are ventilated prior to allowing miners to work in those areas.
- Monitor gasses as frequently as necessary to determine the adequacy of control measures.
- Use properly maintained and calibrated gas detection instruments with audible and visual alarms to alert persons of concentrations outside of safe limits.

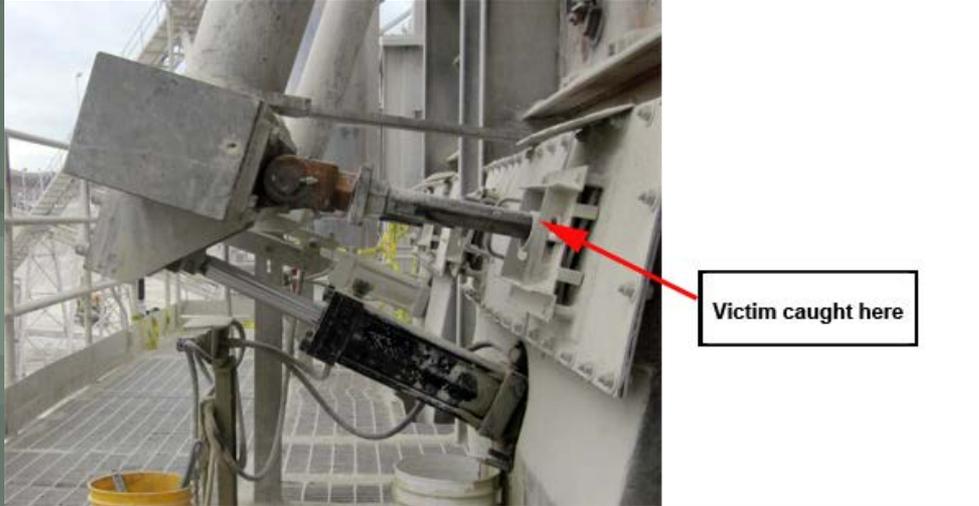
# Falling/Sliding Material



# Falling/Sliding Material – 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 to ensure energy cannot be released while performing work.
- Before working on or near equipment, ensure that the discharge operating controls are deenergized and locked out.
- Wear fall protection where there is a danger of falling.
- Implement measures to ensure persons are properly positioned and protected from hazards while performing a task.

# Machinery



# Machinery – Best Practices

- Establish and discuss policies and procedures for safely clearing a cone crusher.
- Consider a mechanical method for clearing material to minimize exposure to persons performing the work.
- Task train persons to recognize all potential hazardous conditions and to understand safe job procedures for elimination of the hazards before beginning work.
- Before working on or near equipment, ensure the equipment power is off and locked out/tagged out.
- Ensure the equipment has been securely blocked against hazardous motion to ensure energy cannot be released while performing work.
- Always maintain equipment in a safe operating condition.
- Implement measures to ensure persons are properly positioned and protected from hazards while performing a task.

# Fall of Person



# Fall of Person – Best Practices

- Establish and discuss safe work procedures.
- Identify and control all hazards associated with the work to be performed and the methods to properly protect persons.
- Task train all persons to recognize all potential hazardous conditions and ensure they understand safe job procedures for elimination of the hazards before beginning work.
- Remove snow and ice from work areas.
- Wear fall protection where there is a danger of falling.
- Follow the manufacturer's recommendations when installing a cable tray on a supporting structure.
- Ensure that the correct anchors are used and that the supporting structures are adequate when installing a cable tray.
- Properly position ladders used to reach elevated areas.

# Fall of Highwall



# Fall of Highwall – Best Practices

- Establish and discuss safe work procedures for working near highwalls.
- Identify and control all hazards.
- Train all persons to recognize adverse conditions and environmental factors that can decrease highwall stability and understand safe job procedures to eliminate all hazards before beginning work.
- Look, Listen and Evaluate pit and highwall conditions daily, especially after each rain, freeze, or thaw.
- Remove loose or overhanging material from the face.
- Correct hazardous conditions by working from a safe location.
- Ensure that work or travel areas and equipment are a safe distance from the toe of the highwall.

# Electrical



# Electrical – Best Practices

- Ensure that persons are trained on all electrical tests and safety equipment necessary to safely test and ground the circuit where work is to be performed.
- Positively identify the circuit on which work is to be conducted.
- De-energize power and ensure that the circuit is visibly open for circuits being worked on and circuits near the work area.
- Lock and Tag! Place your lock and tag on the disconnecting device.
- Use properly rated Personal Protective Equipment including Arc Flash Protection such as a hood, gloves, shirt, and pants.
- Ensure ALL electrical components in the enclosure are de-energized by testing for voltage using properly rated test equipment.
- Install warning labels on the terminal covers of bottom feed circuit breakers warning that "Bottom terminal lugs remain energized when the circuit breaker is open."

# Other (Drowning)



# Other (Drowning) – Best Practices

- Task train all persons to recognize all potential hazardous conditions and ensure they understand safe job procedures for elimination of the hazards before beginning work.
- Always wear a life jacket where there is a danger of falling into the water. Remove snow and ice from work areas.
- Ensure safe access is provided where persons are required to work or travel.
- Maintain three points of contact.
- Wear fall protection where there is a danger of falling.
- Provide communication devices and establish procedures requiring persons to alert coworkers when they are outside the dredge's handrails.

# Root Causes

- **Failure to**
  - **Provide Task Training (6 Fatalities)**
  - **Deenergize Power (5 Fatalities)**
  - **Maintain Equipment/Conduct Pre-operational Checks (2 Fatalities)**
  - **Provide Personal Protective Equipment (6 Fatalities)**