MNM Fatal 2010-13/14

- Fall of Material Accident
- August 12, 2010 (Nevada)
- Underground Gold Mine
- Maintenance Technician
  - 38 years old
  - 3 years of experience
- Leadman
  - 47 years old
  - 21 years of experience

Overview

Two miners were killed while attempting to locate and free an obstruction in a 24-inch diameter aggregate delivery pipe in a ventilation shaft. The pipe conveyed crushed aggregate material from the surface of the mine to an underground batch plant. The batch plant produced a cement rock fill ("CRF") that is used as backfill in the mine. This pipe traveled down one side of the 16-foot diameter shaft to a drop rock box silo at the 860 level. The miners were above the 820 foot level when the obstructed pipe failed catastrophically.

The accident occurred because management did not have adequate policies and procedures that provided for the safe operation, inspection, maintenance, and training regarding the aggregate pipe delivery system. Management failed to ensure that the pipe, its support system, and electrical system were maintained in a safe condition to protect all persons who could be exposed to a hazard from any failure of the system. Management failed to ensure that the 24-inch pipe, brackets, bolted connections, and bearing plates were maintained in a safe condition. Additionally, management failed to maintain the electrical sensors and alarm systems and ensure that these systems could not be by-passed. A broom handle was used to wedge the electrical control panel reset button so the aggregate delivery system would continue to operate and not trip out.

Root Causes

Root Cause: Management failed to establish policies and procedures to ensure that safety defects to the aggregate pipe system and the aggregate pipe electrical system were corrected in a timely manner to prevent the creation of hazards to persons. No procedures or polices were in place to ensure that installation of critical bolts was being adhered to in accordance with the manufacturer's and design requirements. The electrical system was by-passed.

Corrective Action: Management removed all systems from the shaft and built a new aggregate delivery system through a borehole eliminating the hazard. Policies and procedures have been established for the safe operation of the system and all persons have been trained regarding these policies and procedures.

Root Causes

Root Cause: Management failed to establish policies and procedures to ensure that persons could safely unplug the aggregate pipe system. No task training was provided for either miner involved in the accident to identify a risk assessment to determine potential hazards and to establish safe work procedures prior to performing the task.

Corrective Action: Management removed all systems from the shaft and constructed a new aggregate delivery system via a borehole eliminating the hazard. Policies and procedures have been established for the safe operation of the system and all persons have been trained regarding these policies and procedures.

Root Causes

Root Cause: Management policies, procedures, and controls were inadequate. Management failed to establish and pursue a systematic procedure of inspection and maintenance of the shaft.

Corrective Action: Management removed all systems from the shaft and constructed a new aggregate delivery system via a borehole eliminating the hazard. Policies and procedures have been established for the safe operation of the system and all persons have been trained regarding these policies and procedures.

Best Practices

- Routinely examine pipe support structures for indications of excessive corrosion and cracked, missing, or damaged: clamps, brackets, support beams, and connections.
- Conduct periodic visual and non-destructive examination on couplings and pipes for corrosion, abrasion thinning, cracking, and loose connections.

Best Practices

- Inspect and test process monitoring systems to ensure safety controls are functioning properly.
- Perform construction and maintenance in accordance with design drawings and specifications.
- Minimize exposure to hazards by using equipment such as air cannons and vibrators to prevent or clear blockages.
- Ensure that miners are in a safe position to avoid falling objects or materials.