

MNMM Fatal 2010-23

- Falling Material Accident
- December 23, 2010 (Florida)
- Crushed Stone Operation
- Contract Blaster
- 35 years old
- 12 years of experience

Overview

The victim was killed while conducting a post-blast examination. After firing a blast, he walked immediately to the blast site to examine the shot material. He was standing to the east of the shot material when the ground collapsed, engulfing him in the water filled pit.

The accident occurred because mine and blasting contractor management policies, procedures, and controls were inadequate. A large cavity had been detected in the drill pattern on December 17, 2010. However, neither mine nor contract management established any policies, procedures, or controls to ensure that persons could safely perform work at the blast site. The full extent of the cavity was not known before the blast was initiated.

Methods such as advance drilling and geophysical surveys, electrical resistivity, ground penetrating radar or other available methods were not used to identify subsurface cavities and voids. Effective workplace examinations to identify and correct all hazards were not conducted. No procedures were in place requiring a waiting period before persons conducted post-blast examinations.

In December 2008, a similar cavity was encountered in this pit. At that time, extensive drilling was conducted to determine the full extent of the cavity.



Root Causes

Root Cause: Mine management did not have any policies, procedures, or controls in place to protect persons at the blast site.

Corrective Action: Mine management established Standard Operating Procedures (SOP) for detecting cavities that includes drilling to determine the full extent of any cavities detected.

Root Cause: Blasting contractor management did not conduct a risk assessment to determine the potential hazards or to establish safe work procedures at the blast site.

Corrective Action: Blasting contractor management established Standard Operating Procedures for conducting blasting at the mine. These safe operating procedures address activities regarding loading the blast, conducting the blast, and conducting post- blast examinations.

Best Practices

- Conduct effective workplace examinations in areas where contractors are working. Identify all hazards, and take action to correct them.
- Establish mining plans based on geological evaluations and implement procedures to effectively protect all persons.
- Establish methods to identify subsurface cavities and voids such as advance drilling and geophysical surveys (ground penetrating radar - GPR), electrical resistivity, or other available methods.
- Wait at least 15 minutes or longer before conducting post-blast inspections. Take additional time if geological anomalies or other hazards are identified during drilling or blasting.
- Keep a safe distance from cracks or any other signs of unstable ground conditions.
- Tie off using a secure anchorage zone.
- Wear a life jacket where there is a danger from falling into water.