MNM Fatal 2010-06

- Exploding Vessels Under Pressure Accident
- May 14, 2010 (Tennessee)
- Cement Operation
- Mechanic
- 35 years old
- 4 years of experience

Overview

The victim died when the drill steel extension rod (drill steel) he was cutting exploded. He was using a torch to cut approximately 4 feet of steel off a 12-foot section of 1 ¾ inch diameter drill steel. The hollow drill steel exploded when the initial cut was made. The flying shrapnel from the drill steel struck the victim.

The accident occurred because management policies, procedures, and controls for cutting drill steels were inadequate and did not protect persons performing the task. Investigators determined that the most likely cause of the explosion was the presence of an explosive type material within the inner diameter of the drill steel that was ignited by an oxyacetylene torch during the cutting process. The steel shattered along a length of approximately 8 feet and appeared to have multiple areas where failures initiated. Additionally, the victim was not trained to perform the task assigned.

Root Causes

Root Cause: Management policies, procedures, and controls for cutting drill steels were inadequate and failed to protect persons performing the task.

Corrective Action: Management policies, procedures, and controls were established to ensure that persons can safely perform the task of cutting drill steels by assuring the steels are not blocked. Drill steels must be drained, ventilated, and thoroughly cleaned of any residue prior to cutting.

Root Cause: Management failed to properly task train the welder in performing his task.

Corrective Action: Management established safe operating procedures and task trained all miners regarding the procedures to safely cut drill steels.

Best Practices

- Always examine materials before applying heat, cutting or welding.
- Never apply heat to materials without ensuring that flammables/combustibles/explosive materials are not present.
- Always examine materials with hollow spaces or cavities to ensure gases can vent before applying heat.
- Never apply heat to materials where pressure build up is possible.