

# **FATAL ALERT**

**On January 15, 2011**

A motorman working for an oil and gas drilling company was fatality injured while working a daylight tower shift on the drilling deck. The injury occurred when the motorman sustained injuries from complication of thermal injuries sustained during a flash explosion at the worksite. A significant contributing factor is inhalation of drilling mud and fuel resulting in possible asphyxiation. Once the drilling mud pumps were brought up to drilling pressure, the threaded pipe connection between the four-way standpipe and the nipple on the fill-up device failed. This allowed for the drilling mud to flow uncontrolled out of the 2 inch opening on the standpipe for several minutes. The drilling mud was flowing at approximately 3520 psi and covered the area near the air tugger, pipe stand storage and the driller's side end of the driller's shack. The drilling mud made contact with an ignition source and ignited. An explosion and fire ensued and was extinguished by the use of several fire extinguishers and water hoses that were located in the local vicinity of the accident. A possible ignition source could have been a 1000 watt halogen light that was in the area and found to have the glass cover compromised or another ignition source could have been metal sparks from the metal to metal grinding of the failed connection parts and related equipment.

The deceased was an experienced motorman in the oil and gas industry and had several years in the oil and gas extraction/drilling business.

## **Significant Factors:**

- Deceased was working as a motorman on an oil and gas drilling rig.
- The deceased and crew had just completed removing a hammer fitting that was attached to a hose on the fill-up device.
- As the pressure on the mud pumps came up to drilling pressure, the threaded connection between the four-way standpipe and the nipple connection on the fill-up device failed.
- The drilling mud under 3520 psi, flowed uncontrolled out of the now disconnected two (2) inch opening left by the failed threaded nipple out of the standpipe.
- The drilling mud, which has an oil to water ratio of 84.5% oil based diesel fuel, was released onto the drilling deck and into the open air under extreme pressure covering a large portion of the drilling deck, wind walls, driller's shack, derrick and related equipment.
- The oil based production drilling mud that was being released under extreme pressure was able to secure an ignition source producing an explosion/fire that erupted on the drilling deck.
- No flame resistant clothing (FRC's) was worn by deceased or any of the employees of oil and gas drilling rig..
- No FRC's were issued to any employee of oil and gas drilling rig.

## **Recommendations:**

- Brief all employees on the facts and circumstances of this fatal mishap.
- Brief/retrain all employees on the dangers of working around oil and gas drilling equipment, dangers of working around high pressure fluid delivery systems that can injure employees.
- An alternative method of connection should be used (a flanged or welded connection as opposed to the standard threaded connection).
- A program is established to ensure that all threaded connection is inspected daily for visible problems and routine replacement of threaded fittings subjected to high pressures applications be implemented.
- Brief/retrain all employees on the dangers of working around production drilling fluid that is 84.5% oil based and the possibility of flash fires and explosions.
- Asses the workplace to determine if hazards are present which necessitate the use of PPE (FRC's).
- Recommend that all employees working around oil and gas drilling equipment have additional training in hazard recognition and safe working locations.