

CATASTROPHE ALERT

November 22, 2013,

Five Workers/welders were welding piping associated with a new tank battery being built for when a spark ignited gas vapors in the piping causing an explosion that injured the 5 individuals. A pre-job safety analysis was accomplished. A hot work permit was then accomplished and signed and an LEL reading was taken at the south side of the site. The hot work was for the welding of the sales line that was being conducted away from the tank battery. Shortly after the safety meeting the crew began welding the sales line for the dehydration unit.

A Welder finished his portion of the sales line and was told to weld the load line onto the containment barrier. Two other individuals were asked to help with the task. While welder prepared his welding equipment and truck for the task, the other two workers started to gather parts and tools for the job.

One worker was tasked to be the fire watch, was asked to help install the hammer union onto the pipe. He sat the fire bottle and LEL monitor on the ground upwind of the load line and helped the welder prepare the load line for the weld. The Welder then began enlarging the hole in the containment wall with a hand grinder so the collar of the load line would fit through it. Once the load line was able to be inserted through the hole, the welder was then ready to weld it to the containment barrier. The welder stated he struck the weld on the containment barrier and heard a sucking sound, and then the tank battery exploded.

Findings:

- The General Contractor had a permit authorizing individual (PAI) on site that has been designated by management and is trained and competent to complete hot work permits and is directed daily by the General Contractor to oversee service providers on location.
- A pre-job safety analysis was conducted, but it did not address welding the load line onto the containment wall.
- A hot work permit was issued for welding the sales line together for the dehydration unit, but it did not address welding the load line onto the containment wall.
- The PAI, signed the hot work permit and verified the LEL readings at 07:48 a.m.
- The sub-contractor signed the hot work permit.
- The LEL reading was taken on the south side of the site away from the containment area and tank battery.
- 5 of the 6 tanks on site were used tanks that contained residual condensate oil and produced water.
- The tanks were not cleaned prior to the hot work beginning.
- The tanks were not checked for a combustible/explosive atmosphere on the day of the accident.
- A LEL reading was not taken at the pipe collar before hot work was allowed.
- The LEL monitor used for continuous monitoring was up wind of the welding area; therefore rendering it ineffective for continuous monitoring of load line weld.
- The LEL monitor was calibrated on 10/24/2013.
- The LEL monitor was not bump checked prior to use.
- The General Contractor's hot work procedure were not followed by not identifying the object on which the hot work is to be performed, when the task changed the hot work and

JSA was not reevaluated, combustible and explosive atmosphere's were not eliminated, and atmospheric testing was not accomplished in the presence of the working group.

- There were employees on site who were not aware that the tanks contained residual condensate oil and produced water.
- Hand grinders were found on site with safety devices disabled.

Analysis & Conclusions:

It was discovered that all combustible and explosive atmospheres were not eliminated prior to allowing hot work to begin. This resulted in the explosion of the tank battery injuring 5 employees on site.

Recommendations:

- Brief all employees/subcontractors on the facts and circumstances of this accident.
- Ensure management/employees/subcontractors are trained on OSHA rules applicable to work being performed.
- Train/retrain all employees/subcontractors on hazard recognition methods to avoid unsafe working conditions.
- Clean or fill tanks with water and test all tanks prior to allowing hot work to begin on tanks and the associated piping.
- Ensure all equipment being used to perform work is appropriate for the task, and is in safe working condition.