SAFETY ALERT

Combustion Occurs While Draining In-Service Storage Tanks

Safety Alert: #23 - 2010	**Release Date:** August 26, 2010
Incident Type: Storage Tank Fire	**Country of Origin:** Western Canada

Description of Incident:

- On June 11, 2010 an unplanned combustion event occurred at a produced water transfer facility. This event did not result in any personnel injury, however could have resulted in a serious injury or fatality.
- An operations team was draining an out of service tank that was connected to an in service tank. An instrumentation company had bypassed the low level shutdown on the pump between the tanks. The operations team believed this bypass was required to continue draining out of the still in-service tank over the next couple of days.
- As the out-of-service tank was drained of approximately 350 barrels of produced water, air was drawn in through a vent line to atmosphere. No gas blanket facilities exist at this location and inerting was not considered.
- Shortly after restart, produced water flowed into the out-of-service storage tank an unplanned combustion event occurred and ensuing fire in both tanks.

What Caused it:

Examination of the scene revealed several factors, which contributed to this incident:

- An incomplete isolation procedure between the in-service tank and the out-of-service tank allowed liberated gas, which had been entrained within the produced water flowing into the in-service tank to migrate via overflow and vent lines to the out-of-service tank.
- This gas mixed with the oxygen that had been drawn into the out-of-service tank during the draining process.
- The ignition source is believed to have originated at the tank heater, which had been left activated as the tank heater shutdown was inadvertently bypassed, when the low level shutdown was bypassed, allowing activation at 70^{o} F.

Recommendations:

- Utilization of hazard assessments for the identification of all hazards associated with bypassing of critical safety controls and the introduction of air to hydrocarbon systems.
- Complete isolation of equipment to ensure production fluids from adjacent equipment cannot be inadvertently re-introduced.
- inerting and / or purging to ensure the creation of a fire triangle is avoided.

Contact:

For more information of event, please contact safety@enform.ca