



Fire Incident at Chevron Refinery

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Incident Learning: What happened? (cont.)

- 10 Feb 2017 the refinery proceeds with a major turnaround.
- 6 Mar 2017 Operations prepare to startup process units in Zone 1 while TA work (hot work) continues on process units in Zone 2. Z1 and 2 are in close proximity with no distinct boundaries.
- At approximately 02:50 on the 7 Mar 2017, a pool fire occurred in Z2 while workers were conducting hot work in the vicinity. A safety watcher sounded the alarm and immediately started to contain the fire using a fire water hose allowing workers in the area to evacuate safely.
- Chevron Fire Department and the Shift Emergency Response Team responded to the incident and the fire was extinguished by 03:20.
- There were no injuries related to the fire. The fire caused damage to instrument cables and electrical motors.

Incident Learning: What happened?

- There were insufficient communication between operations personnel on Z1 and Z2 regarding the simultaneous operations (SIMOPS) in the common area.
- Whilst starting up, vapour lock problems were experienced in Z1 and the system had to be bled/drained at various points.
- Hot work in Z2 was not stopped at any point during the draining on Z1.
- A $\frac{3}{4}$ " drip ring drain valve in Z1 was discovered in open position. Drain line discharges into the oily water sewer drain in Z2 (the origin of the fire).
- Slag from overhead hot work in Z2 caused ignition. Hot work spark containment standard required "layer of water" to be maintained below work area.



What are the learnings for implementation?

- **Work Direction>Preparation>Lock Out Tag Out (LOTO) NI** – The drain valve was opened, left unattended and not tagged in Z1. It was forgotten and not closed during the trouble shooting activities.
 1. Review the LOTO practices and variability between turnaround and routine operations. At a minimum, bleeds that are left open as part of draining down the unit should be tagged as open bleeders to prevent missing them and to aid in closing them during a PSSR.
 2. Implement procedure to bar/bull plug all drains when not in use.
- **Communications>No Communication or Not Timely>Communication system NI** - Hot work on Z2 should have been stopped when Z1 operators began draining. Permits are issued per operational zone as opposed to geographical areas. The permits for hot work in Z2 was issued by Z2 and affected Z1. There were no communication between Z1 and Z2 to stop hot work when draining activities started.
 1. Review permitting process and communication protocol across zones during turnaround in order to ensure that simultaneous operations are adequately communicated so that the hazards can be managed.

What are the learnings for implementation? (cont.)

- **Management System>Standard, Policy, Administrative Control (SPAC)>SPAC not used>No way to implement** – There have been previous incidents during 2017 TA related to inadequate spark containment due to fire blanket and cocoon quality of material, design and installation. This has been addressed by coaching on site and adding more safety watchers maintaining a layer of water in the work area with multiple ready connected hose reels. Due to the configuration of this work area, the continuous flow of water resulted in pooling. Pooling of water created an additional hazard and acted as a carrier for hydrocarbon liquid.
 1. Stop the practice of “keeping the fire blanket wet” and maintaining a “layer of water” when performing hot work.
 2. Develop a detailed specification for spark containment during hot work. This includes specifications for the type and material of fire blankets as well as specific requirements for the cocooning requirements.