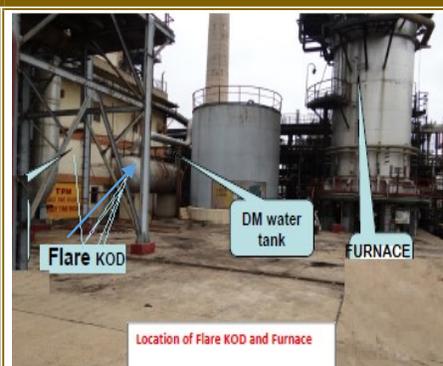


SAFETY ALERT

(June, 2019)

INCIDENT: Draining of Flare KOD of a process unit to open channel led to a major fire incident in a Refinery. In the beginning of night shift, the shift operator went for field round. One operator started draining flare Knock Out Drum (KOD). After 10 to 15-minutes time, suddenly fire erupted around the draining location, which immediately engulfed the entire area. The unit was shut down and fire was extinguished within 15 minutes. One employee received severe burn injury and succumbed to injury after 9 days.



OBSERVATIONS: (1) The unit start-up was in progress since a day prior to the incident date and the unit was under stabilization. (2) Unit flare KOD vessel was drained at the start of morning & evening shifts. (3) After the incident, flare KOD drain line root valve & 2nd isolating valve were found in open condition which suggested that draining was under progress at the time of eruption of fire. (4) The liquid drained from KOD comprising of low boiling lean gas condensate, LPG, un-stabilised Naphtha component etc. started evaporating and formed vapour cloud around the area. (5) As per the design provision, KOD drain is to be routed to Closed Blow Down (CBD); But since the line to CBD was defunct, liquid was being drained to Oily Water Sewer (OWS). (6) The distance between the unit furnace and location of the flare KOD / drain nozzle was less than OISD norm of 15 meter.

ROOT CAUSE: Draining of low boiling liquid containing LPG and Naphtha component in the OWS was the main cause of fire. The vapour cloud which formed from the drained liquid migrated towards the nearby furnace and caused fire.

RECOMMENDATIONS: (1) Immediate restoration of CBD system should be ensured. (2) Liquids from KOD should be routed to the CBD as per OISD-STD-106 and never to open drain / OWS. (3) The field operator must ensure that the drain valve is fully closed after any manual draining operation. (4) The present OWS manholes near the furnace should be immediately sealed.

WORTH MENTION: January 2012: Similar Incident: Due to explosion at OWS collecting sump at SRU of one Refinery, one contract employee succumbed to his injury and five others sustained minor injuries. **Root Cause:** Non-suspension of hot job around the area where presence of hydro carbon vapour was expected due to draining of water containing hydrocarbon from the process vessel for operational requirement. (Disregard to SOP)

Recommendations: (1) Whenever any job is required to be carried out in an area having OWS manhole, proper sealing and monitoring of presence of any hydrocarbon vapours should be ensured. (2) Continuous supervision should be ensured during the job.

Don't regularise the deviation?

Closed Blow Down (CBD) system **was defunct since last six months** and liquid was drained to Oily Water Sewer(OWS) .

Ask yourself:

Why do we regularize such deviation?

If really not possible to correct,

What measures do we have to take to mitigate the risk?

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