OIL INDUSTRY SAFETY DIRECTORATE
NOIDA
SAFETYALERT

E&P (Onshore)

Title: Explosion inside the wash tank in the ETP.
location: Roof top of newly constructed wash tank.
Activity Type: Welding job on the roof of the tank.
Result/outcome: One person died and two injured.

What Happened?
Certain left out jobs were being carried out on the roof of a newly constructed wash tank in the effluent treatment plant (ETP). After doing welding job for 15 min workers noticed some gas coming out from the vent line along with few patches of liquid. Ignoring these warnings signs, workers continued their job. After some time an explosion occurred inside the tank. Out of the three contractor workers working on the roof top, one person died and two others were injured and the tank suffered heavy damage.

What Caused It?
During the welding operations on the roof top of the tank, the source of ignition (welding spark) got communicated to the vent line (as gas was coming out of the vent line) and travelled inside the tank (where flammable gas had accumulated possibly due to hot weather and oil content in the untreated effluent. The 1000KL tank was reportedly filled with more than half of its capacity with effluent water. The effluent water could have been left inside the tank after hydro testing or may be due to inadvertent flow of effluent from the manifold to the tank. This resulted in the explosion inside the tank. One person standing near the hand rail of the tank was thrown away and fell on the hard floor from a height of about 7 m and succumbed to injuries and two other persons sustained fracture in their legs.

Corrective Actions:
1. Work permit system should be strictly adhered to and gas monitoring should be carried out during the hot job and no work should start unless the working area is cleared of all hazards.
2. Job safety analysis and tool box meeting should be carried out prior to starting the job.
3. Qualification and competency level of the contractor should be evaluated.

It is provided for information purpose. This information should be evaluated to determine if it is applicable in your operations, to avoid reoccurrence of such incidents.