OIL INDUSTRY SAFETY DIRECTORATE  
NOIDA  
SAFETY ALERT

E&P (Offshore)  
No. 05/18

Title:  
Oil and Gas leakage from flow arm

Location:  
Unmanned offshore well head platform

Activity Type:  
Oil and Gas leakage

Result/outcome:  
Production loss/ Risk of fire and explosion

What Happened?

An incident of gas leakage happened at an offshore unmanned well head platform. The well could not be closed by remote control from mother platform. The leakage was brought under control after four days as access to the platform was not possible due to bad weather. The production personnel from process platform had to be winched down from a helicopter to the unmanned platform. The production team pulled the ESD and FSD knobs enroute to well head area but the leakage did not stop. Finally the wellhead team closed the group header valve and wing valve of X-mas tree to arrest leakage of gas from the flowing well.

What Caused It?

Welding joint failure in the flow arm caused leakage of gas from the well. The casing guard ring at spider level deck was missing and the 30" conductor casing was not secured resulting in vigorous shaking/vibration at well head causing crack in the weld neck flange at flow line arm. Only one weld neck flange was used in the fabrication of flow arm so vibration due to sea conditions got transmitted to weld joint causing the crack. The well could not be closed by SSV and also by SSSV as control for both these system were not functional. There was uncontrolled flow of gas from the flow arm. Continuous water blanketing was done using OSV to avoid any fire.

Corrective Actions:

1. The remote process monitoring & control system should be always functional.
2. Safety critical equipment's/Control barriers such as GDS, SSSV, SSV, PSHL, PSV shall be inspected/tested as per OEM/company schedule and maintained on priority.
3. Bypass policy in respect of Safety critical equipment shall be strictly adhered to.
4. During monsoon, proper arrangements should be in place to stop shaking/movement of wellhead by suitable arrangement such as placing wedges around the conductor or by securing the conductor by other means.

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.