

OIL INDUSTRY SAFETY DIRECTORATE
NOIDA

S A F E T Y A L E R T

E&P (Onland)

No. 14/07

Title: **Fatality during change over (mud to water) during production testing**

Location: **Cellar Pit Area**

Activity Type
(Result/outcome): **Fatality**

What happened?

1.50 gm/cc drilling fluid was being displaced with water in an exploratory high pressure well by pumping through annulus with rig mud pumps. The pumping pressure increased to 2550 psi after displacement of 2/3rd annulus volume. Pumping was stopped and main valves adjacent to the X-mas tree were closed. Pressure gage on the annulus was showing 2550 psi pressure.

High pressure fracturing unit was then lined up for further displacement. Return line was flushed with water.

While opening the main valve adjacent to the X-mas tree (Having 2550 psi differential pressure), suddenly loud sound was heard and one person was found lying on the ground near the cellar pit with bleeding from his forehead. The injured person was taken to the hospital immediately where he was declared brought dead.

What caused it?

The root cause of the incident was non adherence to the 'Standard Operating Procedures'

- The line network was not anchored and secured.
- The isolation valve adjacent to the X-mas tree was opened without equalizing pressure on both sides.
- Personnel were standing near the fabricated testing line at the time of high pressure pumping operation.

The isolation valve was having 2550 psi pressure on X-mas tree side and zero pressure on pumping unit side. As the isolation valve was opened, a sudden high pressure pulse caused severe jerk in the unanchored and unsecured line network.

The small free portion of return line having swivel and hammer union in open condition may have lifted up dangerously due to severe jerk developed in the pipe line network.

The victim standing near this line may have been hit by the nut of the free hammer union on his forehead.

Corrective actions:

1. Lines should be anchored and secured firmly prior to operation.
2. The line network should be pressure tested at maximum anticipated pressure + 10 % prior to operation.
3. It shall be ensured prior to operation that no personnel is standing near the high pressure lines.
4. Before opening a valve having high pressure, it shall be ensured that pressure is equalized on both the sides.

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.