

Incident description: Gas leak 2014

The incident took place during preparation of a preventive maintenance (PM) operation on the Pressure safety valve (PSV) to the compressor. In connection with setting of the valve and blind list for preparation of the work, a simplified plan was developed and approved in accordance with internal governing documentation. The preparation was done by two operators. Prior to this, the operators discussed the job and the risk related to it. They knew that one of the valves were installed towards a high pressurised system.

During the preparation the upstream valve of the DBB (double block and bleed) towards the compressor was leaking. Gas continued to leak from the hose that was connected to the bleed point. An attempt was made to adjust the valve to get it closed, but this was not successful. The preparation was stopped.

It was known that there had been difficulties getting the valve closed during certain circumstances. Previously it had been experienced that it had an effect to establish differential pressure between the two sides of the valve to set the seat/ball. It was therefore decided to try to chock the valve before other measures were considered.

The risk due to the operation was further discussed. Two risks were identified;

- Risk related to the bleed hose due to potential high pressure
- Risk of gas detection in the area while bleeding

Compensating measures were established by securing the hose with straps, as well as blocking automatic actions related to gas detection in the area. Personnel was stationed in the area during bleeding, alarms were monitored in CCR (Central Control Room).

During preparation, gas between the shut off valves was bled off via hose to open air. The gas blew away and was led to the air intake on the 6th stage turbine where it was detected. This initiated ESD¹ 2.0 and general alarm with consecutive mustering.

The gas leak was calculated to 0,2-0,3 kg/s, in total 5 kg.

CausesDirect cause:

Insufficient account of the weather conditions was taken when gas was bled to secure area.

Root causes:

- Lack of risk assessment prior to the activities
- Double block and bleed upstream the PSV to the compressor was not working in accordance with intentions.

Learning points and recommendations:

- Review the incident and work operation in the HSE meeting for all shifts with focus on release to secure area during bleeding. Ensure experience transfer.
- Develop work order for repair of DBB (double block and bleed) upstream the PSV.
- Review work process for developing isolation plans to ensure sufficient precision for all shifts.
- Check the effect on gas detectors at the inlet and outlet of the compressor by use of test gas.

¹ ESD = Emergency shutdown