



Petroleum Safety Significant Incident Report No. 01/2010

Vibration-induced fracture of small bore pipework results in gas leak

Incident

A gas leak occurred at a compressor station when small bore pipework fractured. The incident resulted in a small natural gas release that was successfully resolved without harm, although the licensee identified the potential for the situation to have escalated if it was not for the careful inspection prior to works being undertaken.

The small bore pipe that failed was a low point in the drain system located in a pit that was not readily accessible.

Contributory factors

- The root cause was identified as the small bore pipe that failed had not been designed to handle vibration resulting from high gas flows and decreased suction pressures.
- The small bore pipe's limited accessibility resulted in it being missed on previous site reviews specifically undertaken to identify potential points of failure due to vibration.

Comments and preventative actions

- Preventing vibration starts with considering the full range of potential operating conditions during design. In addition, making a conscious effort to avoid placing small bore pipework in difficult-to-access places is important for ongoing maintenance and the ability to review a given facility.
- For existing facilities, it is important to consider if and where vibration can occur when operating conditions change. In order to do this, the licensee needs to know where all unsupported pipework is located, including small bore that may be in access pits.
- Given it may not be practicable to predict every potential failure during design, it is important to remain vigilant during pre-work inspections. In this incident, it was the inspection required by the Permit to Work that prevented a more significant incident.

Alan Gooch

DIRECTOR, PETROLEUM SAFETY BRANCH

2 August 2010