



Overpressure Results in Pipeline Failure

The BC Oil and Gas Commission (Commission) is reminding permit holders to ensure personnel follow safe operating procedures. Pipeline permit holders in British Columbia are required to operate pipelines in accordance with CSA Z662. Clause 4.18.1.1 states that “Pressure-control systems shall be installed where supply from any source makes it possible to pressurize the piping above its maximum operating pressure. Such pressure-control systems shall be set to operate at or below the maximum operating pressure.”

This advisory follows an incident on Dec. 1, 2012 that resulted in the release of a small quantity of natural gas, produced water and methanol. The released liquids were recovered and disposed and all impacted soils were removed. The pipeline is situated in a remote area and there were no injuries or complaints of odours.

A 97-millimetre outside diameter, reinforced thermoplastic pipe transporting sour natural gas containing 1.5 per cent hydrogen sulphide (H_2S) failed as a result of being overpressured. At the time of failure, the pipeline was transporting approximately 7,000 m^3/day of wet natural gas at a pressure of approximately 1,400 kilopascals (kPa). The pipeline is permitted to operate at a maximum of 1,896 kPa (maximum operating pressure). Methanol was being injected into the gas stream to prevent hydrate formation. Despite the methanol injection, a hydrate formed blocking the pipe flow.

An operator was dispatched to the upstream end of the pipeline in order to supervise operations to remove the hydrate. Approximately 40 litres of methanol was injected into the pipeline and the pipeline was pressured up to 7,000 kPa, and possibly as high as 8,900 kPa, when the hydrate appeared to let go. The pipeline was placed back on production, and approximately two hours later a grader operator working in the area discovered the pipeline was leaking.

Examination of the failed portion of the pipe indicated it had separated and there was expansion (bulging) in the vicinity of the failure location, which is consistent with excessive pressure. An emergency shutdown valve (ESDV) was installed on the pipeline; however, the methanol was injected downstream of the ESDV. The root cause of the incident was determined to be a failure of on-site personnel to follow established safe operating procedures.

If you have any questions regarding this Safety and Environmental Advisory, please contact:

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