

Bulletin 2016-22

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Operational Advisory: Leak Detection

This bulletin highlights the importance of developing and maintaining an effective leak detection program for multiphase (oil well effluent) and produced water pipelines. The focus is on these two types of pipelines since

- multiphase pipelines present a monitoring challenge due to constantly fluctuating pressures and flow, as well as the line-fill characteristics; and
- produced water pipelines can have a significant impact on the environment if there is a release due to the high pressures and volumes common to these systems, making early leak detection critical.

Background

The Alberta Energy Regulator (AER) has investigated a total of 23 pipeline releases since its inception on June 17, 2013. For eight of these releases, improper leak detection was identified as a significant contributing factor. The pipelines that failed in these cases were mainly transporting oil well effluent or produced water. The investigations concluded that company personnel responsible for leak detection were not sufficiently trained or simply failed to recognize that a leak was occurring until several days after the leak had started. On average, it took 48 days to respond to and isolate the pipelines for these eight releases.

Preventive Measures

To reduce the potential for pipeline releases and mitigate release volumes, the AER is recommending that operators increase their focus on pipeline systems monitoring and operator training.

Pipeline Systems Monitoring

Operating companies are required to implement and periodically evaluate the procedures for pipeline operation and leak detection contained in their manuals. The AER recommends an integrated approach to leak detection and ongoing pipeline monitoring, including direct assessment (e.g., visual monitoring, liquid and vapour sensing), mass balance, instrumentation, and measurement (e.g., flow and pressure trends, and in-service pressure testing).

Operator Training

The AER requires operating companies to ensure that all personnel responsible for leak detection are properly trained in leak detection. Training and competency testing of employees (both new and experienced) are vital, along with retesting and ongoing evaluation.

Further Information

Pipeline leak detection, training, and monitoring requirements are set out in the *Pipeline Rules*, Canadian Standards Association *CSA Z662-15: Oil and Gas Pipeline Systems*, and *AER Directive 077: Pipelines—Requirements and Reference Tools*. *AER Manual 005: Pipeline Inspections* is a resource used by AER field operations staff in determining compliance with the requirements.

For any questions about this bulletin, contact AER Industry Relations at industryrelations@aer.ca.

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