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Pipeline Integrity Management Programs Must Consider Slope Movement

A number of factors can increase the instability of slopes, including precipitation. The AER has noted a slight increase in the number of pipeline failures this year resulting from earth movement of unstable slopes.

Licensees must consider natural hazards as part of their integrity management programs. The *Pipeline Act* and *Pipeline Rules* require licensees to follow the requirements contained in *Canadian Standards Association (CSA) Z662-19: Oil and Gas Pipeline Systems*. In particular, clauses 3.1.2, 3.2, and 3.3 require licensees to have a safety and loss management system, manage risks, have integrity management programs that monitor for conditions that can lead to pipeline failure (including slope movement), and act to eliminate or mitigate such conditions. As well, Annex N outlines in more detail activities that must be conducted by all licensees to identify and control hazards through proper risk management of their entire pipeline inventory. Failure to comply with these requirements may be a contravention under the *Pipeline Act* and *Pipeline Rules*.

We encourage operators to do the following:

- Assess your integrity management programs and how they address the risk to pipelines as it relates to natural hazards, including slope movement. Suitable management may require the involvement of specialized skilled expertise in this area. Areas of high concern should be identified and suitable mitigation measures implemented. Suitable measures could include increased surveillance of rights-of-way, patrols, and inspections of areas subject to slope movement.
- Adopt emerging best practices for real-time monitoring of precipitation levels, slope movement, and pipe strains of the locations that are most susceptible to failure from slope movement.
- Monitor events of heavy precipitation and proactively shut-in or purge pipelines if potential risk is high.
- Improve leak detection strategies and operational monitoring in potentially affected areas to enable rapid detection and response to a leak, should one occur.

- Conduct engineering assessments of pipelines where slope movement has occurred, which may require specialized inspection techniques, to determine if pipelines have suffered damage.
- Relocate existing lines or install structures or cover material to protect the system from external loads.

Data on relative landslide susceptibility across Alberta can be had from the Alberta Geological Survey's *Map 605* and related data files: www.ags.aer.ca > Data, Maps & Models > Maps > [Map 605](#).

If you have any questions, please contact our Customer Contact Centre by phone at 403-297-8311 (1-855-297-8311 toll free) or by email at inquiries@er.ca.