

National Energy
Board



Office national
de l'énergie

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To: All Companies under National Energy Board Jurisdiction
Canadian Energy Pipeline Association
Canadian Association of Petroleum Producers, and
Provincial and Territorial Pipeline Regulators

National Energy Board Safety Advisory
NEB SA 2016-03
Safety Advisory related to Canadian Standards Association (CSA)
Z662-15 (Standard) Non-Mandatory Annex Clause K.5.3.4.3.1 Errata

Please find attached Safety Advisory SA 2016-03.

The National Energy Board (NEB or Board) expects regulated companies to demonstrate a proactive commitment to continual improvement in safety, security and environmental protection, and to promote a positive safety culture as part of their management systems.

Safety Advisories are issued periodically in order to improve the oil and gas industry's awareness of an identified safety or environmental concern with the goal of preventing incidents from occurring in the first place. A Safety Advisory also serves to further highlight NEB requirements, and conveys the Board's expectation that regulated companies take appropriate action to mitigate any potential impacts to people or the environment.

If you have any questions regarding this advisory please contact Integrity Management personnel at the Board through our toll free number at 1-800-899-1265.

Yours truly,

Original signed by

Sheri Young
Secretary of the Board

Attachment

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Safety Advisory related to Canadian Standards Association (CSA) Z662-15 (Standard) non-mandatory Annex Clause K.5.3.4.3.1 Errata

Background

In March 2016, the Canadian Standards Association (CSA) issued an errata related to CSA Z662-15 non-mandatory Annex K¹ Clause K.5.3.4.3.1 (Errata). The Errata identified that an equation used in an alternate methodology that was introduced in the 2015 version, had an incorrect mathematical sign in the equation. The following illustrates the original equation and the corrected equation:

Equation:

INCORRECT:

$$m_2 = -0.00416 - 2.18\eta - 0.155\eta^2$$

CORRECT:

$$m_2 = -0.00416 - 2.18\eta + 0.155\eta^2$$

There is a small possibility that the Errata may not have been received or reviewed by all users of the Standard. Therefore, on 19 July 2016, CSA issued a letter to purchasers of the Standard that states:

“The equation as originally published has the potential to direct users to calculate allowable critical imperfection sizes larger than if calculated using the correct equation, leading to an over estimation of acceptable imperfection sizes which may adversely impact safety.”

In addition the letter goes on to recommend the following:

“... if any projects under your control may have used Annex K of the Standard, and the equation in its original form. If your review has determined that the original equation was used then we strongly advise that calculations be

¹ From CSA Z662-15 “Annex K provides the analytical methods that are used to derive standards of acceptability for weld imperfections, as an alternative to the standards of Clauses 7.11 and 7.15.10. The standards of acceptability that are derived are based upon engineering critical assessment and include consideration of the measured weld properties and the intended service conditions.”



undertaken with the revised equation and an assessment be conducted to determine if further action must be taken.”

The Board is aware that the non-mandatory Annex K to CSA Z662-15 may have been used on a small number of projects by a limited number of companies that specialize in the area of fracture mechanics. In addition, the introduction of the alternate methodology means the incorrect equation was likely used by an even smaller subset of the users of Annex K. Although the use of the incorrect equation is thought to be limited, the Board is of the view that it is important to advise companies of the recent letter issued by CSA with respect to the Errata and of the potential non-conservative values that may have been calculated if the uncorrected equation is used by NEB-regulated companies, or one of their contractors.

The Board directs companies to take the following preventative actions, as appropriate.

Preventive Actions

Companies holding an authorization to construct and operate a pipeline regulated by the Board shall determine, within 10 business days of receiving this Safety Advisory, if they, or their contractors, used Annex K and the referenced equation before the Errata was issued, for any projects under their control that are regulated by the Board. If companies determine this to be the case, then they shall immediately undertake the following:

- Perform calculations with the revised equation.
- Review the NDE results to determine if actual flaws that exceed the corrected equation values are currently in the pipeline system(s).
- If there are flaws that exceed the corrected equation values, then take immediate steps, such as reducing the pressure, to ensure the pipeline is safe.
- Notify the Board in writing of any flaws that are in the pipeline based on the un-corrected equation and provide a corrective action plan to the Board that outlines the mitigative measures to address any non-conservative flaws.

For further information regarding this advisory please contact the National Energy Board toll free at 1-800-899-1265.