K2.4

Z662-07
Oil and gas pipeline systems

and

Special Publication
Z662.1-07

Commentary on CSA Z662-07, *Oil and gas pipeline systems*

CANADIAN STANDARDS ASSOCIATION

(c) Upgraded polyethylene piping shall be subject to the requirements specified in Clause 12.4.3.1.
(d) A post-upgrading leak survey shall be conducted as soon as practical after completion of the upgrading and as specified in Clause 12.10.2.2.

Note: *For polyethylene piping in which liquid hydrocarbons have been present, a permanent reduction in the strength of the material can have occurred.*

12.10.12 Operating and maintenance procedures for cast iron piping

The operating pressure in cast iron piping shall not be increased above the maximum pressure reached in the preceding annual operating cycle.

12.10.13 Integrity of pipeline systems

Note: *It is intended that the requirements of Clause 12.10.13 supersede the requirements of Clauses 10.14.1, 10.14.2.1, and 10.14.2.2.*

12.10.13.1

Operating companies shall develop and implement an integrity management program that includes effective procedures (see Clause 10.3) for managing the integrity of distribution systems so that they are suitable for continued service, including procedures to monitor for conditions that may lead to failures, to eliminate or mitigate such conditions, and to manage integrity data.

Notes:

(1) *Guidelines for gas distribution integrity management programs are contained in Annex M.*
(2) *Such management programs may include a description of operating company commitment and responsibilities, objectives, and methods for*
(a) assessing current and potential risks;
(b) identifying risk reduction approaches and corrective actions;
(c) implementing the integrity management program; and
(d) monitoring results.

12.10.13.2

Where the operating company becomes aware of conditions that can lead to failures in its pipeline system that can create a hazard, it shall conduct an engineering assessment to determine which portions are susceptible to failure, and whether such portions are suitable for continued service.

12.10.13.3

Where the operating company intends to operate the pipeline system at a pressure that is significantly higher than the established operating pressure and that can therefore lead to failures in its pipeline system that can create a hazard, it shall conduct an engineering assessment to determine which portions are susceptible to failure, and whether such portions are suitable for the intended operating pressure.

Note: *For example, when the operating company intends to increase the operating pressure of a pipeline system that has historically operated well below its maximum operating pressure, such an engineering assessment is required.*

12.10.14 Pipeline emergencies

Operating companies shall inform the public and consult with the agencies to be contacted during an emergency (e.g., police and fire departments), as appropriate, about the hazards associated with their pipelines.

Notes:

(1) *If community emergency response plans exist, appropriate methods to inform the public may be determined in conjunction with the community agencies.*
(2) *It is intended that the requirements of Clause 12.10.14 supersede the requirements of Clause 10.3.2.2.*

12.10.15 Ground disturbances

Operating companies shall communicate company specific safe work practices to those who propose ground disturbances.

Note: *It is intended that the requirements of Clause 12.10.15 supersede the requirements of Clause 10.3.11.*

Annex B (informative)
Guidelines for risk assessment of pipelines

Note: *This Annex is an informative (non-mandatory) part of this Standard.*

B.1 Introduction

This Annex provides guidelines on the application of risk assessment to pipelines. These guidelines are intended to

(a) identify the role of risk assessment within the context of an overall risk management process;
(b) set out standard terminology that is consistent with existing Canadian standards in the field of risk management;
(c) identify in general terms the components of the risk assessment process, the associated data requirements, and the requirements for documentation and records; and
(d) where applicable, provide reference to methodological guidelines for risk assessment.

B.2 Applicability

B.2.1 General

This Annex applies to the risk assessment of all pipelines within the scope of this Standard.

B.2.2 Risk assessment process

B.2.2.1

Risk assessment forms a component of the broader process of risk management and includes the steps of risk analysis (hazard identification, frequency analysis, consequence analysis, risk estimation) and risk evaluation (risk significance and options). The function of risk assessment within the risk management process is shown schematically in Figure B.1.

B.2.2.2

Risk assessment is applicable to hazards affecting public and occupational safety and the environment and to hazards having economic consequences.

B.2.2.3

Risk assessment is applicable to the decision-making process in the design, construction, operation, inspection, monitoring, testing, maintenance, repair, modification, rehabilitation, and abandonment of pipelines.

B.3 Specific definitions

The following definitions apply in this Annex:

Hazard — a condition with the potential for causing an undesired consequence.

Hazard identification — the recognition that a hazard exists and the definition of its characteristics.

Risk — a compound measure, either qualitative or quantitative, of the frequency and severity of an adverse effect.

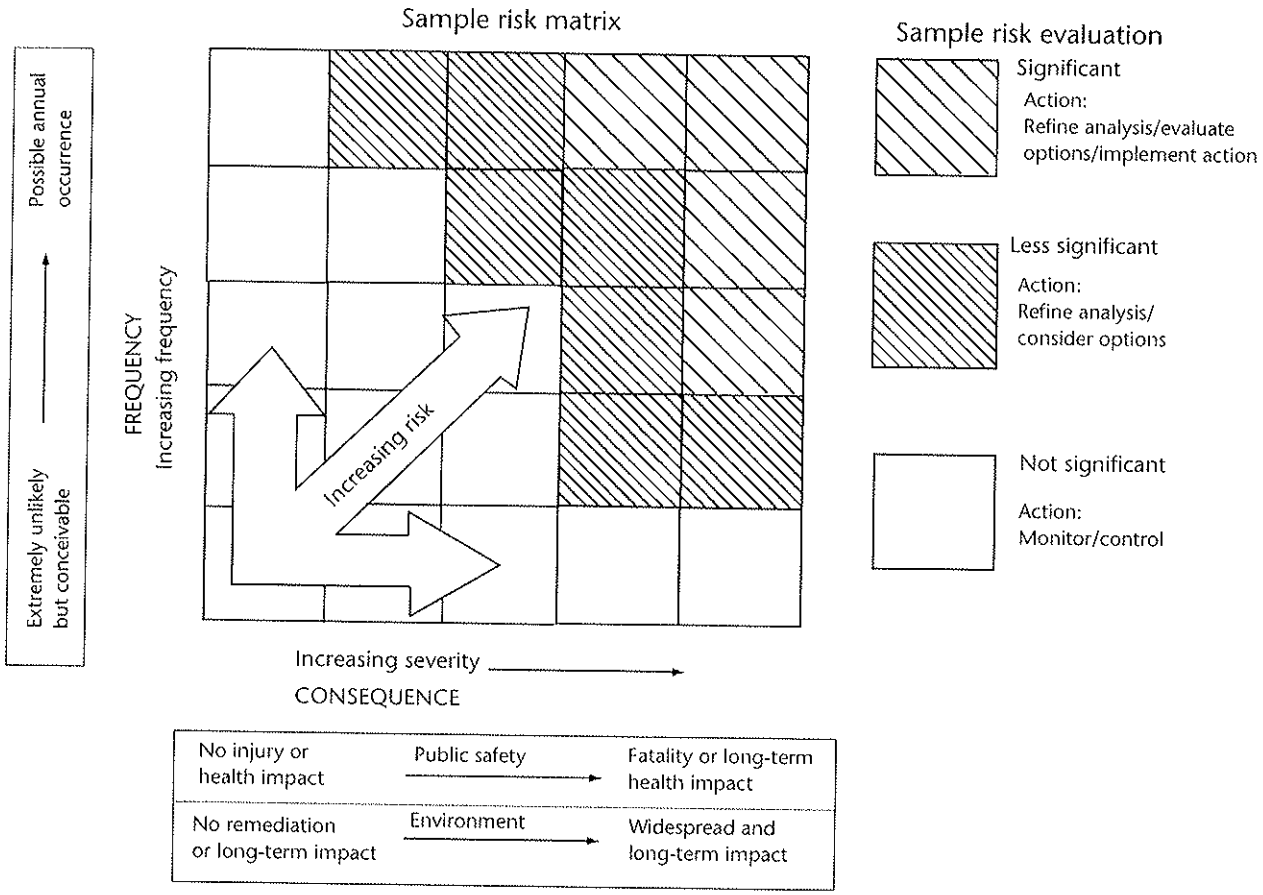

Figure B.2
Examples of risk matrix application to risk estimation and evaluation
(See Clauses B.5.2.6 and B.5.3.2.3.)