

ATCO Pipelines
Pipeline Integrity Program Review

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Prepared For
The Alberta Utilities Commission

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STATEMENT OF WORK

The consultant is to review and provide a written report respecting ATCO Pipelines and AltaGas Utilities manuals that address gas utility pipeline integrity management and emergency response plans. The report should address the degree to which the manuals comply with legislation and standards including, but not limited to Sections 7 and 8 of the Pipeline Regulation, CSA Z662-11: Oil and Gas Pipeline Systems including Annex N, CSA Z731 Emergency Preparedness and Response and CSA Z1600 Emergency Management and Business Continuity. Recommendations to alleviate any deficiencies identified with the procedural manuals are to be provided. The consultant will also provide high level perspectives respecting recommended procedures or exercises for use in the AUC development of a gas utility pipeline procedural audit plan for integrity management and emergency response.

SCOPE

The following report addresses the legislative compliance of ATCO Pipelines' Pipeline Integrity Program to the requirements of CSAZ662-11 Annex N¹, Oil and Gas Pipeline Systems. The reports focus is on gas utility pipelines operated in excess of 700 kilopascals operating within the province of Alberta. The construction and operation of gas utility pipelines, operated in excess of 700 kilopascals, is regulated by the Alberta Utilities Commission.

The document used in the review was ATCO Pipelines Pipeline Integrity Program - PI001 Rev. December 13, 2012.

METHODOLOGY

ATCO Pipelines' Pipeline Integrity Program was reviewed to the 16 elements of CSAZ662-11 Annex N. Policies and procedures, both externally referenced and contained within the Pipeline Integrity Program, were categorized and evaluated for compliance to Annex N.

The review's focus is to verify that documented policies, methods and procedures are in place to manage the pipeline integrity management requirements of Annex N.

REVIEW SUMMARY

Note: Documents referenced in ATCO Pipelines Pipeline Integrity Program were not reviewed, and may address deficiencies outlined in this report.

The following Sections of CSA Z662-11 Annex N are not evident in ATCO Pipelines, Pipeline Integrity Program:

N.4 Descriptions of pipeline systems

No evidence was found in documented policies, methods or procedures to indicate that ATCO Pipelines' Pipeline Integrity Management Program includes descriptions of pipeline systems that are included in the Integrity Management Program, and reasons for the exclusion of any pipeline systems.

The remaining sections of the Pipeline Integrity Program contain documented policies, methods and procedures to manage pipeline integrity requirements of CSAZ662-11 Annex N. (see Table 1)

¹ Part 1 Section 1.2(1) of the Pipeline Regulation states "a licensee shall comply with the requirements of Directive 077." Directive 077 – Pipeline Requirements and Reference Tools, Section 5.2 states "A pipeline licensee must develop, implement, and document for all its pipelines a pipeline integrity management program that complies with the latest edition of CSA Z662, Annex N."

N.8 Hazard identification and control
N.9 Risk Assessment
N.11 Integrity management program planning
N.15 Continual improvement

The sections listed above are addressed at the policy level of the Pipeline Integrity Program, however there is no indication or reference of methods or procedures to manage the requirements of each section.

REVIEW RECOMMENDATIONS

Annex N.4 Description of pipeline systems.

The addition of pipeline descriptions as defined in *CSA Z662-11 Annex N.4* which will provide both the Regulator and the licensee a high level summary of the licensee's pipeline systems. The development of pipeline descriptions, along with pipeline licence summaries, and pipeline maps (see *CSA Z662-11 Section 10.5.1.1b*) will provide pipeline inventories to ensure all pipelines are properly licenced and compliant to pipeline integrity programs.

Annex N.8 Hazard identification and control
Annex N.9 Risk Assessment
Annex N.11 Integrity management program planning
Annex N.15 Continual improvement

The addition of methods and procedures to manage the requirements related to the policy statements.

PROCEDURAL AUDIT PLAN FOR INTEGRITY MANAGEMENT PROGRAM

The Pipeline Integrity Program Review focused on ATCO Pipeline's Pipeline Integrity Program and how it meets the requirements of *CSAZ662-11 Annex N*. The Pipeline Integrity Program utilizes a combination of policies and methods, as well as procedures referenced in other manuals.

Audits and reviews will measure ATCO Pipelines' compliance to the policies, methods and procedures of the Pipeline Integrity Program.

Audits and reviews can also be used to measure compliance to the applicable requirements of:

- *Alberta Pipeline Regulation*
- *ERCB Directive 66 Requirements and Procedures for Pipelines*
- *ERCB Directive 077 Pipelines- Requirements and Reference Tools*
- *CSA-Z662-11*

RECOMMENDATIONS

1. A review of the compliance with ATCO Pipelines Pipeline Integrity Program's referenced procedures to the legislative requirements of the *Alberta Pipeline Regulation, ERCB Directive 066, ERCB Directive 077 and CSA Z662-11*.

Example: A review of procedure WI139 Pipeline Warning Signs to the legislative requirements of the *Alberta Pipeline Regulations, ERCB Directive 066, ERCB Directive 077 and CSA Z662-11*.

2. An audit of pipeline integrity policies, methods and procedures contained within or referenced by the Pipeline Integrity Program. This audit can be conducted through a review of integrity records, and/or by field verification of program requirements.

Example A: An audit of the application of procedure WI139 Pipeline Warning Signs, including inspections, deficiencies and mitigation records.

Example B: An audit of field compliance to procedure WI139 Pipeline Warning Signs.

Example C: An Audit of the periodic reviews referenced in ATCO Pipelines Pipeline Integrity Program, Section 202.6 Quality Control Plan, "Periodic reviews will be done to ensure that the integrity plans are being carried out in accordance with documented procedures for processes, inspections, mitigation activities, and prevention activities."

In order to develop audits that are manageable in scope:

- a) Audits can be developed to utilize the ERCB's Risk Assessment Matrix, and focus on the applicable high risks, outlined in *ERCB Directive 66: Requirements for Pipelines, Appendix 1 Operational Deficiencies* that are associated with gas utility pipelines.
- b) Field audits can be focused on specific pipeline licences.

Pipeline Integrity Program - Table 1

Annex N CSA Z662-11	ATCO Pipelines Policies, Methods and Procedures	Comments
<p>N.1 Introduction</p> <p>N.2 Integrity management program scope</p>	<p>N/A</p> <p>Pipeline Integrity Program Construction - PI300 302.3 Field Operations - PI300 302.4 Pressure Testing - PI300 304.5 Detection Program, Class Location - PI300 303.1 Section 2B Detection Program, Pipeline failures and leak repairs - PI300 301.3 Section 3D</p> <p>ATCO Referenced Policies and Procedures WI 343 - Evaluation and Repair of Pipeline Leaks SP 1005 - Pipeline Repair -Leaking Defects SP1006 -Pipeline Repair - Non Leaking Defects SP1011 - Leak Classification WI172 Job Procedures EM000 Emergency Management WI272 Day Lighting Procedures WI227 Ground Disturbance WI241 Performing Hot Taps and Welding On In-service Piping WI254 Incident Review Analysis</p>	<p>Pipeline Integrity Program includes policies, methods and procedures to address the requirements of Annex N.2</p>
<p>N.3 Corporate policies, objectives and organization</p>	<p>ATCO Referenced Policies and Procedures CC000 Corrosion Control Manual EM000 Emergency Management PE 000 Pressure Equipment Integrity Management PJ211 APEGGA - Professional Practice Management Plan (PPIP) SP 1013 Inspection Services Qualifications SP1005 Pipeline Repair - Leaking Defects SP1006 Pipeline Repair - Non Leaking Defects SP1011 Leak Classification SP1028 GPS Coordinate Specification WI119 Flame Ionization Inspection WI123 Pipeline Bridge Crossing Inspection WI124 Pipeline Watercourse Crossing Visual Inspection WI139 Pipeline Warning Signs WI145 Station Signage WI146 Compressor Station Signage WI172 Job Procedures WI188 Non-destructive Examination WI208 Reporting Corrective and Preventative Action WI209 Near Miss and Hazard Reporting WI213 Station Leak Detection WI217 Specification of Material and Services WI218 Procurement of Material WI219 Procurement of Services WI220 Verification of Purchased Material WI221 Disposal of Surplus Material WI226 Locating Buried Facilities WI227 Ground Disturbance</p>	<p>Pipeline Integrity Program includes policies, methods and procedures to address the requirements of Annex N.3</p>

	<p>WI228 Isolation of Pressure Relief Devices WI241 Performing Hot Taps and Welding On In-service Piping WI254 Incident Review Analysis WI265 Pipeline Integrity Reporting WI271 Inspection of a Third Party Crossing or Ground Disturbance WI272 Day Lighting Procedures WI292 Processing Locates WI293 Issuing Third Party Crossing Agreements WI300 Material Reservation Process WI 301 Third Party Crossings WI303 Preferred Supplier WI303 Approved Contractors WI343 Evaluation and Repair of Pipeline Leaks WI347 External Committee Representative</p>	
<p>N.4 Description of pipeline systems</p>		<p>No evidence of policies, methods or procedures related to requirements of Annex N.4.</p>
<p>N.5 Integrity management program records</p>	<p>Pipeline Integrity Program Subdivision Approvals - PI300 Section 3C Class Location Assessment - PI300 Section 2C Detection Program, Class Location - PI300 303.1 Section 2B Information Management - PI300 302.5 Detection Program, Information Management - PI300 303.1 Section 1G Detection Program, Information Management - PI300 303.1 Section 4 Facilities Inventory - PI200 202.1 Group Leader Graphics and Records - PI100 102.10 Records review - PI300 Section 4A</p> <p>ATCO Referenced Policies and Procedures WI265 Pipeline Integrity Reporting</p>	<p>Pipeline Integrity Program includes policies, methods and procedures to address the requirements of Annex N.5</p>
<p>N.6 Change management</p>	<p>Pipeline Integrity Program Management of Change Plan - PI200 202.5 Change in operating pressure - PI300 Section 3G Detection Programs, Regulatory & Industry Warnings - PI300 301.3 Section 3F Detection Program, Review of codes and regulations - PI300 301.3 Section 4C Detection Program, Industry Practices - PI300 301.3Section 4C Class Location Assessment - PI300 Section 2C Subdivision Approvals - PI300 Section 3C Communications Plan - PI200 202.4</p> <p>ATCO Referenced Policies and Procedures WI347 External Committee Representative - PI400 402</p>	<p>Pipeline Integrity Program includes policies, methods and procedures to address the requirements of Annex N.6</p>

<p>N.7 Competency and training</p>	<p>Pipeline Integrity Program Qualifications - PI100 Section 104 Environment, Standards and Quality Assurance - PI100 Section 104.2 Detection Program, Integrity Competency - PI300 301.3 Section E Detection Program, Technological training/advances - PI300 301.3 Section 4D</p> <p>ATCO Referenced Policies and Procedures PJ211 APEGGA - Professional Practice Management Plan (PPIP) WI303 Approved Contractors - PI300 302.23 Section B SP 1013 Inspection Services Qualifications</p>	<p>Pipeline Integrity Program includes policies, methods and procedures to address the requirements of Annex N.7</p>
<p>N.8 Hazard identification and control</p>	<p>Pipeline Integrity Program Risk Assessment - PI300 Section 301 In-line inspection - PI300 302.1 Section C Preventative Programs - PI300 302</p>	<p>Pipeline Integrity Program includes policies and methods to address the requirements of Annex N.8</p> <p>Specific documentation of hazard identification and control procedures are not evident in the PIP.</p>
<p>N.9 Risk assessment</p>	<p>Pipeline Integrity Program Risk Assessment - PI300 301 Pipeline Integrity Database - PI 200 203.2 Planning Tools - PI 200 203 Stoner SynerGEE Simulation Program - PI 200 203.1 Graphics System - PI 203.3</p>	<p>Pipeline Integrity Program includes policies and methods to address the requirements of Annex N.9</p> <p>Specific documentation of procedures used for conducting risk assessments are not evident in the PIP.</p>
<p>N.10 Options for reducing frequency and consequences of failure or damage incidents</p>	<p>Pipeline Integrity Program Prevention Programs - PI 300 302 Incorrect Operations - PI300 302.1 Section 8 Contracts - PI300 302.2.3 Locates PI300 Section 3A Crossing Approvals - PI300 Section 3B Section 3B Manufacturing Related Defects - PI300 302.1 Section 4 External Corrosion - PI300 302.1 Section 1 Material/Equipment Specifications - PI300 302.2.3 Quality Assurance - PI300 302.2.5 Detection Program, Weather related emergencies - PI300 303.1 Section 3D</p> <p>ATCO Referenced Policies and Procedures WI 226 Locating Buried Facilities - PI300 Section 3A WI 292 Processing Locates - PI300 Section 3A WI 293 Issuing Third Party Crossing Agreements - PI300 Section 3B WI 271 Inspection of a Third Party Crossing or Ground Disturbance - PI300 WI 301 Third Party Crossings - PI300 Section 3B WI272 Day Lighting Procedures WI227 Ground Disturbance</p>	<p>Pipeline Integrity Program includes policies, methods and procedures to address the requirements of Annex N.10</p>

<p>N.11 Integrity management program planning</p>	<p>Pipeline Integrity Program Inspection and Scheduling Records - PI300 303.2 Monitoring and Measurement, Quarterly and Annual Reviews - PL403 403.1 Monitoring and Measurement, Document Review - PL403 403.2</p>	<p>Pipeline Integrity Program includes policies and methods to address the requirements of Annex N.11</p> <p>Specific documentation of procedures used for planning and scheduling of activities (i.e. Inspections, Testing, Patrols and Monitoring) are not evident in the PIP.</p>
<p>N.12 Inspections, testing, patrols and monitoring</p>	<p>Pipeline Integrity Program Management Programs (CP Survey) - PI 200 202.2 Detection Program, Cathodic Protection Levels - PI300 303.1 Section 1D Detection Program, External Assessments - PI300 303.1 Section 2D Detection Program, In-Line Inspection Assessments - PI300 303.1 Section 2E Detection Program, SCC Assessments - PI300 303.1 Section 2F Records review - PI300 Section 4A In-line Inspections - PI300 304.3 Management Programs (Inline Inspection) & ECDA - PI200 202.2 Leak Surveys Assessments - PI300 Section 2A Pipeline Leak Evaluation Process - PI 300 304.2 Detection Program, Leak Surveys - PI300 303.1 Section 2A Detection Program, Pipeline System Control and SCADA - PI300 303.1 Section 1F Detection Program, Equipment Testing - PI300 303.1 Section 2G Detection Programs, Change in operating pressure - PI300 303.1 Section 3G Facilities Inventory - PI200 202.1 Section 4 Detection Program, Watercourse Crossings Assessments - PI300 303.1 Section 2C Management Programs (water course inspection and scoping survey programs) - PI200 202.2 Detection Program, Right of Way Surveillance - PI300 303.1 Section 1 Direct Assessment Inspections - PI300 304.4 Detection Program, Crossing Approvals - PI300 303.1 Section 3B Weather Related Emergencies - PI300 Section 3B</p> <p>ATCO Referenced Policies and Procedures CC000 Corrosion Control Manual - PI300 Section 1D SP1028 GPS Coordinate Specification WI119 Flame Ionization Inspection WI213 Station Leak Detection PE000 Pressure Equipment Integrity Management WI 228 Isolation of Pressure Relief Devices WI123 Pipeline Bridge Crossing Inspection WI124 Pipeline Watercourse Crossing Visual Inspection WI139 Pipeline Warning Signs WI145 Station Signage WI146 Compressor Station Signage</p>	<p>Pipeline Integrity Program includes policies, methods and procedures to address the requirements of Annex N.12</p>
<p>N.13 Evaluation of inspection, testing, patrol and monitoring results</p>	<p>See Section 12 ATCO Referenced Policies and Procedures WI188 Non-destructive Examination</p>	<p>Pipeline Integrity Program includes policies, methods and procedures to address the requirements of Annex N.13</p>

<p>N.14 Mitigation and repair</p>	<p>Pipeline Integrity Program Mitigation Programs, Pipeline Upgrades and Replacements -PI304 304.1 Mitigation Programs, Pipeline leak Evaluation Process - PI304 304.2 Corrosion Protection Upgrades - PI300 304.6</p> <p>ATCO Referenced Policies and Procedures WI217 Specification of Material and Services WI218 Procurement of Material WI219 Procurement of Services WI220 Verification of Purchased Material WI221 Disposal of Surplus Material WI300 Material Reservation Process</p>	<p>Pipeline Integrity Program includes policies, methods and procedures to address the requirements of Annex N.14</p>
<p>N.15 Continual improvement</p>	<p>Pipeline Integrity Program Quality Control Plan - PI200 202.6 Performance Metrics and Integrity Statistics - PI 404</p>	<p>Pipeline Integrity Program includes policies and methods to address the requirements of Annex N.15</p> <p>Specific documentation of procedures used for continual improvement are not evident in the PIP.</p>
<p>N.16 Incident investigations</p>	<p>Pipeline Integrity Program Field Operations – PI302.4</p> <p>ATCO Referenced Policies and Procedures WI254 Incident Review analysis WI208 Reporting Corrective and Preventative Action WI209 Near Miss and Hazard Reporting</p>	<p>Pipeline Integrity Program includes a policy, methods and procedures to address the requirements of Annex N.16</p>