

AltaGas Utilities Inc.
Safety and Loss Management Systems Review

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Prepared For

The Alberta Utilities Commission

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1. STATEMENT OF WORK

The consultant is to review submissions and provide a written report respecting AltaGas Utilities' safety and loss management systems, specifically the application of the safety and loss management systems (SLMS) in managing emergency response and pipeline integrity associated with high-pressure gas utility pipelines.

2. SCOPE

The following report addresses the compliance of AltaGas Utilities' Safety and Loss Management System, Pipeline Integrity Management Program, and Emergency Response Program to the requirements of:

- Sections 7, 8 and 9(3) of the Pipeline Rules;
- CSA Z662-15: Oil and gas pipeline systems including Section 3 Safety and Loss Management Systems, Annex A: Safety and loss management system and Annex N: Guidelines for pipeline integrity management systems; and
- CSA Z246.2-14 Emergency preparedness and response for petroleum and natural gas industry systems.

The report's focus is on gas distribution pipelines operated in excess of 700 kilopascals operating within the province of Alberta, regulated by the Alberta Utilities Commission.

3. DEFINITIONS

Policy - A documented statement of a company's commitment to safety, security and environmental protection. Goals reflect the direction and desired outcomes of the policies.

Program - A documented set of processes and procedures designed to regularly accomplish a result. A program outlines how plans, processes and procedures are linked, and how each one contributes toward the result. Program planning and evaluation are conducted regularly to check that the program is achieving intended results.

Process - A documented series of actions taking place in an established order, with identified roles and responsibilities, and directed toward a result. A process includes the roles, responsibilities and authorities for the actions. A process may contain a set of procedures, if required.

Procedure - A procedure indicates how a process will be implemented. It provides a documented series of steps followed in an established order. A procedure includes the identification of roles, responsibilities and authorities required for completing each step.

Management System (NEB OPR Guidance Notes) - A systematic approach designed to effectively manage and reduce risk and promote continual improvement. It includes the necessary organizational structures, resources, accountabilities, policies, processes and procedures required for an organization to fulfill all tasks related to safety, security and environmental protection.

Safety and Loss Management System - A systematic, comprehensive, and proactive process for the management of safety and loss control associated with design, construction, operation, and maintenance activities.

4. METHODOLOGY

The Alberta Pipeline Rules Section 9 stipulates CSA Z662 as the minimum requirement for the design, construction, testing, operation, maintenance, repair and leak detection of pipelines.

AER Directive 77 Section 5, identifies CSAZ662 Section 3 Safety and Loss Management and CSAZ662 Annex N, Guidelines for pipeline integrity management programs, as mandatory requirements.

CSAZ662-15 Section 3 f) identifies the core processes and documented policies, processes and procedures required to manage the effective implementation of the Safety and Loss Management System including:

- *Risk Management*
- *Design, Material Selection and Procurement*
- *Construction*
- *Operations and Maintenance*
- *Pipeline System Integrity Management*
- *Engineering Assessments*
- *Emergency Preparedness, Response and Recovery*
- *Security Management*
- *Deactivation and Abandonment*

This review is limited to the documented evidence, programs, policies, processes and procedures provided by AltaGas Utilities to the Alberta Utilities Commission.

The review criteria includes:

- *CSAZ662-15 Section 3 and Annex A*
- *CSAZ662-15 Annex N*
- *CSA Z246.2-14*

This review will evaluate the adequacy of the documented methods AltaGas Utilities has selected within its management system to meet the requirements as listed above. Requirements that are not supported by documented evidence or that are non-compliant to the review criteria will be identified in red font within the "Review Findings and Comments" column of Tables 1, 2 and 3. Documents that were referenced, but not provided for this review, are identified in blue font.

AltaGas Utilities Inc. is solely responsible for the development, implementation and continual approval of its management systems.

5. SLMS OVERVIEW

CSAZ662-15 Section 3, and Annex A details the system requirements to ensure a systematic, comprehensive, and proactive process for the management of safety and loss control associated with design, construction, operation, and maintenance activities.

SLMS is focused on ensuring no harm is done to people, the environment or property. SLMS processes ensure a quality management program, Plan-Do-Check -Act. In simplified terms the inputs into a SLMS are legal requirements and risks, the outputs are mitigation in the form of documented programs, polices, processes and procedures.

SLMS processes include:

1. Process to determine legal requirements
2. Process to determine hazards
3. Process for risk management
4. Process to mitigate risks
5. Process to set goals and objectives
6. Process to identify and ensure adequate resources, human resources, contractors, infrastructure and work environment to meet objectives
7. Process to ensure training, competence and evaluation
8. Process to determine required operational controls
9. Process to ensure effective internal and external communication
10. Process to ensure document and records management
11. Process to control of documents and records
12. Process to ensure management of change
13. Process to ensure continual improvement including performance monitoring, conformance monitoring, control of nonconformance and management review.

SLMS operational activities include:

- maintenance of facilities and critical equipment
- right-of-way inspection and maintenance
- **pipeline system integrity management for the pipeline life cycle**
- **emergency preparedness, response and recovery**
- security management
- incident investigation
- operation and control system
- deactivation and abandonment

6. REVIEW FINDINGS

Note: AltaGas' OH&S System Manual provides the following document tiers which will be referenced throughout this review:

- Tier 1 – Policy
- Tier 2 – Program and Processes (SLMS Standard)
- Tier 3 – Management System Practices (SLMS Procedures)
- Tier 4 – General Procedures
- Tier 5 - Forms

1. Process to determine legal requirements

CSAZ662-15 Annex A.4.2 requires the SLMS to include a leadership commitment which communicates the importance of meeting statutory and regulatory commitments. Annex B identifies regulatory authorities as inputs into the risk management process.

AltaGas' EOH&S Management System Manual includes; a Message from the President, OH&S Code of Conduct and OH&S Policy that commits to "meeting our legal obligations" "comply with government health and safety acts, regulations and codes" and "required to act in compliance with government health and safety acts, regulations and codes".

The submitted documented evidence supports a commitment to meet applicable legal requirements. CSAZ662-15 is identified, but the specific requirements of Section 3, Safety and Loss Management are not. Documented evidence of a comprehensive legal registry was not provided for this review.

Recommendation: Development and implementation of processes and procedures to identify specific legal requirements for the protection of people, property and the environment (legal registry) These Regulations should be identified at the "shall, must or will" statement. The legal registry will serve as one of the inputs into the SLMS risk management process.

2. Process to determine hazards

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) to identify and capture comprehensive hazards specific to the protection of people, property and the environment.

Numerous documents, dealing with risk management, were referenced but not provided for this review including:

- MSP-002 Risk Management (Environmental Aspects & Safety Hazards)
- SP-013 OH&S Hazard and Environmental Aspect Assessment and Control
- MSP-007 Identification and Risk Assessment of Critical Tasks
- MSP-014 Auditing (Management System and Compliance)
- MSP-011 Planning - Objectives, Targets and Programs
- MSP-010 Performance Monitoring and Measurement

Recommendation: Development and implementation of a hazard inventory, specifically for the protection of people, property and the environment. The hazard inventory, along with the legal registry will serve as the inputs into the SLMS risk management process.

3. Process for risk management

SLMS risk management is focused on compliance to legal requirements and the assessment of hazards to determine the level of significance and to ensure mitigation is developed for significant, applicable risks. Ideally SLMS risk management starts with alignment of risk tolerances to the clearly articulated management statement. Refined risk management processes and procedures can further be developed to manage specific risks.

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) for risk management.

Numerous documents, dealing with risk management, were referenced but not provided for this review including:

- MSP-002 Risk Management (Environmental Aspects & Safety Hazards)
- SP-013 OH&S Hazard and Environmental Aspect Assessment and Control
- MSP-007 Identification and Risk Assessment of Critical Tasks
- MSP-014 Auditing (Management System and Compliance)
- MSP-011 Planning - Objectives, Targets and Programs
- MSP-010 Performance Monitoring and Measurement

Recommendation: Development and implementation of a risk management process aligned to CSAZ662-15 Annex B, specifically for the protection of people, property and the environment.

4. Process to mitigate risks

Once hazards are identified (legal registry and hazard inventory) and risk assessed, significant applicable hazards must be mitigated to an acceptable level. Generally acceptable risk mitigation techniques include; eliminating the risk, engineering controls, procedures, personal protective equipment (PPE) or any combination thereof. Procedures mitigating risks to people, property and the environment are managed through the development and implementation of comprehensive SLMS.

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) for processes to mitigate risks.

Numerous documents, dealing with risk management, were referenced but not provided for this review.

Recommendation: Development and implementation of processes to mitigate risks, specifically for the protection of people, property and the environment.

5. Process to set goals and objectives

Goals and objectives should be set out at three levels. Overall management system, individual programs and individual procedures.

The submitted documented evidence supports the setting of goals and objectives for the overall management system, Integrity Management Program and Emergency Preparedness and Response Program.

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) for processes to set goals and objectives for individual procedures.

Recommendation: *Development and implementation of processes to set goals and objectives, for procedures specifically for the protection of people, property and the environment.*

6. Process to identify and ensure adequate resources, human resources, contractors, infrastructure and work environment to meet objectives

Once goals and objectives are established for the overall management system, individual programs and procedures, a resource assessment should be completed to ensure the capability to meet the objectives and goals. Cross functionality between SLMS operational activities should be considered to ensure that gaps are identified and mitigated.

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) for resource management.

Recommendation: *Development and implementation of processes for resource management, specifically for the protection of people, property and the environment.*

7. Process to ensure training, competence and evaluation

Identified personnel responsible to either trigger or complete tasks contained within SLMS procedures need to be trained and verified as competent prior to being assigned SLMS responsibilities. Ongoing training and competency assessments are also required.

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) for processes to ensure training, competence and evaluation.

Recommendation: *Development and implementation of processes for training, competence and evaluation, specifically for the protection of people, property and the environment.*

8. Process to determine required operational controls

SLMS procedures to mitigate significant hazards to people, property and the environment require the following elements for the management system to be effectively managed:

- (a) defined policies and objectives, as appropriate;*
- (b) identification of functional area with responsibility and accountability for the implementation of each core process;*
- (c) procedures for the effective implementation of each core process;*
- (d) procedures for the identification and documentation of required interaction between processes;*
- (e) procedures for ensuring conformance to the requirements of this Standard and the safety and loss management system;*

(f) procedures for the maintenance of and access to documents and records necessary for each process to be administered properly;

(g) periodic evaluation for continuing suitability, adequacy, and effectiveness;

(h) performance measures and targets, as appropriate; and

(i) continual improvement.

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) for operational control.

Correlation between AUI ENV and OHS Hazard Identification Matrix specific procedure mitigation is not established.

Numerous documents, dealing with operational control, were referenced but not provided for this review.

Recommendation: *Development and implementation of all 13 SLMS processes, specifically for the protection of people, property and the environment.*

9. Process to ensure effective internal and external communication

Internal and external communication includes communicating changes, instructions, performance, risks, and reports. Internal stakeholders include management, employees, contractors and suppliers. External stakeholders include regulators, first responders, effected public, stakeholders within an EPZ, media, government agencies.

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) for processes to ensure effective internal and external communication.

Recommendation: *Development and implementation of processes to ensure effective internal and external communication, specifically for the protection of people, property and the environment.*

10. Process to ensure document and records management

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) to ensure document and records management.

Recommendation: *Development and implementation of processes for documents and records management, specifically for the protection of people, property and the environment.*

11. Process to control documents and records

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) to control documents and records.

Recommendation: *Development and implementation of processes for control of documents and records, specifically for the protection of people, property and the environment.*

12. Process to ensure Management of Change

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) to ensure management of change.

Recommendation: *Development and implementation of processes to ensure management of change, specifically for the protection of people, property and the environment.*

13. Process to ensure continual improvement including performance monitoring, conformance monitoring, control of non-conformance and management review.

The submitted documented evidence did not include evidence of processes and procedures (Tier 3 and Tier 4 documents) to ensure continual improvement including performance monitoring, conformance monitoring, control of non-conformance and management review.

Numerous documents dealing with continual improvement were referenced, but not provided for this review.

Recommendation: *Development and implementation of processes to ensure continual improvement, specifically for the protection of people, property and the environment.*

**AltaGas Utilities Inc. Safety and Loss Management System - Table 1
CSA-Z662-15 Annex A Review**

CSA-Z662-15 Annex A		AltaGas Utilities Review Evidence	Review Findings and Comments
1. Introduction			N/A
2. Scope			N/A
3 General			
3.1	<p>Safety and Loss Management System The operating company shall develop, implement, and maintain a safety and loss management system and continually improve its effectiveness in accordance with this Annex.</p>	<p>OH&S Management System Manual (MSM): Message from the President, Sections 1.0, 2.0, 8.0, PDF pages 2, 5, 6, 12</p> <p>Emergency Management Guide Section 1.4, PDF page 13 Emergency Management Plan Section 1.7, PDF page 13 Integrity Management Program Manual Sections 1.0, 2.0, PDF pages 5-8</p>	<p>AltaGas' OH&S System Manual is based on ISO 14001 and OHSAS 18001. No reference to CSAZ662-15 Section 3 or Annex A. The document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices."</p> <p>Section the OH&S System Manual provides the document tiers: For the purpose of this review: Tier 1 – Policy Tier 2 – Program and Processes (SLMS Standard) Tier 3 – Management System Practices (SLMS Procedures) Tier 4 – General Procedures Tier 5 - Forms</p>
3.2	<p>Life Cycle Approach The safety and loss management system shall cover the life cycle of the pipeline system.</p>		<p>IMP Program Manual identifies lifecycle approach. OH&S MSM does not identify "life cycle approach"</p>
3.3	<p>Process Approach The development, implementation, and maintenance of the safety and loss management system requires that the operating company</p> <ul style="list-style-type: none"> (a) identify the processes that need to be managed; (b) determine the interaction and cross-functional nature of such processes; (c) determine the criteria, organization, and methods required for the effective control and operation of such processes; (d) determine the resources necessary to support the operation and monitoring of such processes and ensure the availability of such resources; (e) measure, monitor, and analyze such processes; and (f) implement the necessary action to achieve planned results and continual improvement. 	<p>OH&S Management System Manual Section 7 Management System Elements</p>	<p>Compliant</p>
4 Management responsibility			
4.1	<p>Policy The Safety and loss management system shall include a clearly articulated policy that</p> <ul style="list-style-type: none"> (a) is appropriate to the purpose of the organization; (b) includes a commitment to comply with requirements and continually improve the effectiveness of the safety and loss management system; (c) provides a framework for establishing and reviewing objectives; 5 (d) is communicated and understood within the organization; and (e) is periodically reviewed for continuing suitability. 	<p>EOH&S Management System Manual Element #4, PDF pages 21-22 Message from the President OH&S Code of Conduct OH&S Policy Environmental Code of Conduct Environmental Policy IMP Presidents Endorsement</p>	<p>Compliant</p>
4.2	<p>Leadership commitment The safety and loss management system shall include a commitment to the development and implementation of the safety and loss management system and to continually improving its effectiveness by</p> <ul style="list-style-type: none"> (a) establishing the safety and loss management system policy; (b) ensuring that objectives are established; 5 (c) communicating to the organization the importance of meeting organization requirements, as well as statutory and regulatory requirements; (d) ensuring the availability of resources; and (e) conducting management reviews 		

4.3	Organization		
4.3.1	<p>Responsibilities and authorities Management shall put in place an organizational structure that supports the effective implementation of the safety and loss management system and shall ensure that responsibilities and authorities are defined and communicated within the organization.</p>	<p>EOH&S Management System Manual Section 5, 10 SP-036 EOH&S Responsibilities and Accountabilities</p>	<p>The EOH&S MS document is a Tier 2 described as “Documents that describes the core elements and interrelationships of a process and that provides direction to related practices.” Tier 3 and Tier 4 documents not provided for this review.</p> <p>Senior leadership responsible for the Management System is identified specific roles aligned to AltaGas organizational chart not provided for this review.</p> <p>The following documents are referenced but not provided for this review:</p> <ul style="list-style-type: none"> • MSP-001 Resources, Roles, Responsibility, Accountability and Authority • MSP-015 Contractor Safety Management
4.3.2	<p>Management representative Management should appoint a member of management who, irrespective of other responsibilities, has responsibility and authority for (a) ensuring that processes needed for the safety and loss management system are established, implemented, and maintained; (b) reporting to executive management on the performance of the safety and loss management system and any need for improvement; (c) ensuring the promotion of awareness of the requirements of the safety and loss management system throughout the organization; and (d) liaising with external stakeholders on matters related to the safety and loss management systems.</p>	<p>EOH&S Management System Manual Section 6 Management Representative</p>	<p>Management Representative identified as the Manager OH&S. Documented evidence of specific duties not provided for this review. Tier 3 and Tier 4 documents not provided for this review.</p>
5	Management of resources 6		
5.1	<p>Provision of resources The operating company shall determine and provide the resources needed to implement and maintain the safety and loss management system and continually improve its effectiveness.</p>	<p>EOH&S Management System Manual Section 8.3, PDF page 13</p>	<p>The EOH&S MS document is a Tier 2 described as “Documents that describes the core elements and interrelationships of a process and that provides direction to related practices.”</p>
5.2	Human resources		
5.2.1	<p>Training and competency The operating company shall develop and implement a program that trains personnel to work safely and in an environmentally sound manner, in accordance with their duties and responsibilities, and in conformance to the requirements of this Standard and the safety and loss management system. As part of the training program, the operating company shall (a) establish competency needs for critical job functions; (b) provide initial, ongoing, and periodic refresher training to satisfy competency needs; (c) provide orientation for new employees, those newly transferred, and those whose job functions change, as appropriate; (d) evaluate the effectiveness of the training provided; and (e) maintain appropriate records of education, experience, training, qualifications, and competency assessment, especially for critical positions.</p>	<p>Tasks-Activities and Skills-based Competencies List: All Competency Assessment Plan: All Integrity Management Program Manual Sections 6.0, 11.1, PDF pages 13, 22 EOH&S Management System Manual Element #7, PDF pages 27-29 SP-042 Training and Orientation</p>	<p>The Competency Assessment Plan document is a Tier 2 described as “Documents that describes the core elements and interrelationships of a process and that provides direction to related practices.”</p> <p>Tasks-Activities and Skills-based Competencies List – high level summary of skills and competency</p> <p>Documented procedures, Tier 3 and Tier 4 documents, not provided for this review.</p> <p>The following documents are referenced but not provided for this review:</p> <ul style="list-style-type: none"> • MSP-008 Training and Awareness
5.2.2	<p>Contractor services The operating company shall develop and implement a process such that contractor services are performed in a manner that conforms to the requirements of the safety and loss management system. Contractor services shall be evaluated and selected on the basis of the contractor's ability and qualifications to perform the specified duties in a safe and environmentally sound manner, and in conformance to the requirements of the safety and loss management system. As part of the evaluation, the operating company should obtain and evaluate information regarding a contractor's safety and environmental policies, procedures, and performance, and should verify contractor employee abilities and qualifications through audits, work-site inspections, or observation of employee performance, as appropriate. Performance requirements and expectations shall be defined and communicated to the contractor. A system shall be in place to monitor and assess contractor performance, provide feedback, and ensure that deficiencies are corrected.</p>		

<p>5.3 6</p>	<p>Infrastructure The operating company shall identify, provide, and maintain the infrastructure necessary for the effective implementation of the safety and loss management system, including (a) workspace and associated facilities; (b) equipment and technology; and (c) supporting services.</p>		
<p>5.4 6</p>	<p>Work environment The operating company shall identify and manage the human and physical factors of the work environment that could affect the ability of employees to meet the requirements of the safety and loss management system.</p>		
<p>6 9</p>	<p>Communication The operating company shall develop and implement an internal and external communications process that effectively supports the effective implementation of the safety and loss management system.</p>	<p>Business Continuity Plan: Guidelines, PDF pages 2-12 Emergency Management Guide Section 1.0, PDF pages 9-19 Emergency Management Plan Section 1.0, PDF pages 9-19 EOH&S Management System Manual Element #8, PDF pages 29-30</p>	<p>The EOH&S MS document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, not provided for this review.</i></p> <p>The following documents are referenced but not provided for this review:</p> <ul style="list-style-type: none"> MSP-009 Communication and Consultation (internal and external)
<p>7</p>	<p>Documents and records</p>		
<p>7.1 10 11</p>	<p>General The operating company shall document the safety and loss management system, and the documentation and records shall include (a) policy and objectives; (b) processes and procedures required by this Annex; (c) documents needed by the operating company to ensure the effective planning, operation, and control of the safety and loss management system; and (d) records required by this Annex.</p>	<p>Integrity Management Program Manual Sections 4.0, 5.0, PDF pages 9-12 ADM-057 Records Retention and Disposition Schedule: All EOH&S Management System Manual Element #9, PDF pages 30-32</p>	<p>The EOH&S MS document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Excluding ADM-057, documented procedures, Tier 3 and Tier 4 documents, for control of documents and records were not provided for this review.</i></p> <p>The following documents are referenced but not provided for this review:</p> <ul style="list-style-type: none"> MMSP-012 Documents, Data and Record management
<p>7.2 10</p>	<p>Control of documents The operating company shall establish a process for the control and distribution of documents, including procedures for (a) Identifying those documents that are required for the effective implementation of the safety and loss management system; (b) Identifying those documents that need to be controlled; (c) reviewing of controlled documents for technical adequacy; (d) approving and maintaining documents; (e) ensuring that documents are legible, identifiable, and retrievable; (f) identifying the current revision of each document; (g) readily accessing current revisions of relevant documents at all locations where they might be required; (h) preventing the unintended use of invalid or obsolete documents; and (i) applying suitable marking to invalid or obsolete documents that are retained for legal, historical, or other purposes. 1</p>		
<p>7.3 11</p>	<p>Control of records The operating company shall establish procedures for the control of records, including procedures for the proper capture, classification, indexing, storage, search, retrieval, backup, retention, and disposition of records that are required for the effective implementation of the safety and loss management system. Records shall be retained as objective evidence that demonstrates conformance to and effective implementation of the safety and loss management system. Record retention periods shall be established in accordance with operational, legal, and regulatory requirements. Applicable records shall include (a) management review; (b) contract review; (c) design review; (d) design verification;</p>		

	(e) design validation; (f) design changes; (g) approved suppliers and contractors; (h) traceability records; (i) qualified processes, equipment, and personnel; (j) operation and maintenance records; (k) test records; (l) inspection records; (m) nonconformance reports; (n) internal and external audit reports; (o) training records; and (p) records for monitoring and measurement activities.		
8	Operational Control		
8.1	General Clauses A.8.2 to A.10 identify core processes for a pipeline system that need to be managed in order for the safety and loss management system to be effectively implemented. <i>Each core process shall include the following elements:</i> (a) defined policies and objectives, as appropriate; (b) identification of functional area with responsibility and accountability for the implementation of each core process; (c) procedures for the effective implementation of each core process; (d) procedures for the identification and documentation of required interaction between processes; (e) procedures for ensuring conformance to the requirements of this Standard and the safety and loss management system; (f) procedures for the maintenance of and access to documents and records necessary for each process to be administered properly; (g) periodic evaluation for continuing suitability, adequacy, and effectiveness; (h) performance measures and targets, as appropriate; and (i) continual improvement.	Integrity Management Program Manual Section 15.0, PDF page 32 EOH&S Management System Manual Element #10, PDF pages 32-34, Document Classification Section 3	The EOH&S MS document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, for control of documents and records were not provided for this review.</i> The following documents are referenced but not provided for this review: <ul style="list-style-type: none"> • MSP-006 Work Practices and Operational Controls • MSP-007 Identification and Risk Assessment of Critical Tasks • EOH&S Safety Practices • EOH&S Environmental Practices • MMSP-012 Documents, Data and Record management
8.2	Project management		
8.2.1	General A project consists of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including the constraints of time, cost, and resources. The operating company shall ensure that all projects are managed in order for the project to achieve the stated objectives through appropriate planning, organization, control, reporting, and review of all aspects of the project.		<i>Documented policies, processes and procedures, for project management were not provided for this review.</i>
8.2.2	Planning The operating company shall document a plan that specifies the resources, responsibilities, schedules, and procedures necessary to meet the project objectives.		
8.2.3	Project change control Project changes shall be reviewed, verified, and validated, as appropriate, and approved before implementation. The review of the project changes shall include an evaluation of the effect of such changes on the project output. Records of the results of the review of changes and any necessary actions shall be maintained in the project file.		
8.2.4	Project review At suitable stages, systematic project reviews shall be performed in accordance with planned arrangements to evaluate the ability of the project output to meet requirements and to identify any problems and propose necessary corrective actions. Records of the results of the project reviews and any necessary actions shall be maintained in the project file.		
8.3	Risk management A hazard is defined as a condition or event that might cause a failure or damage incident or anything that has the potential to cause harm to people, property, or the environment. The operating company shall implement a risk management process that identifies, assesses, and	EOH&S Management System Manual Sections 9.5.2, 9.5.3, 9.5.4, PDF page 20 Integrity Management Program Manual Section 9.0, PDF	The EOH&S MS document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices."

<p>3</p>	<p>manages the hazards and associated risks for the life cycle of the pipeline system under its control. The risk management process shall include the following: (a) risk assessment criteria; (b) risk assessment, including hazard identification, risk analysis and risk evaluation; (c) risk controls that reduce or eliminate the probability or consequence of an incident, or both, to an acceptable level; (d) risk monitoring to ensure that controls are effective; (e) regular reviews of the risk management cycle to ensure that corrective and preventative actions are employed and that improvements to the risk management process are implemented, as required; (f) communication; and (g) documentation</p> <p>Notes: 1) CAN/CSA-ISO 31000 sets out the principles and guidelines for risk management 2)Annex B provides guidelines on performing pipeline system risk assessments</p>	<p>pages 16-18 EOH&S Management System Manual Element #2, PDF pages 14-18</p> <p>Integrity Management Program Manual Sections 4.0, 5.0, 8.0 to 15.0, PDF pages 9-12, 16-32 EOH&S Management System Manual Elements #2, #3, #10, PDF pages 14 to 18, 18 to 20, 32 to 34</p> <p>Integrity Management Program Manual Sections 11.0, 14.0, PDF pages 22-28, 31 EOH&S Management System Manual Elements #2, #3 , PDF pages 14 to 18, 18 to 20</p> <p>AUI SPM AUI ENV and OHS Hazard Identification Matrix</p>	<p>Correlation between AUI ENV and OHS Hazard Identification Matrix specific mitigation is not established.</p> <p>Documented procedures, Tier 3 and Tier 4 documents, for risk management were not provided for this review.</p> <p>The following documents are referenced but not provided for this review:</p> <ul style="list-style-type: none"> • MSP-002 Risk Management (Environmental Aspects & Safety Hazards) • SP-013 OH&S Hazard and Environmental Aspect Assessment and Control • MSP-007 Identification and Risk Assessment of Critical Tasks • MSP-014 Auditing (Management System and Compliance) • MSP-011 Planning - Objectives, Targets and Programs • MSP-010 Performance Monitoring and Measurement
<p>8.4</p>	<p>Design Note: For the purposes of this Annex, design includes material selection.</p>		
<p>8.4.1</p>	<p>Planning During the design and planning of pipeline projects, the operating company shall determine (a) the design stages; (b) the review, verification, and validation that are appropriate to each design stage; and (c) the responsibilities and authorities for design.</p>		<p>Documented policies, processes and procedures, for Planning & Design Control were not provided for this review.</p>
<p>8.4.2</p>	<p>Design control The operating company shall establish documented design control procedures for major pipeline projects in order to achieve conformity to applicable standards and project and regulatory requirements. The procedures shall include (a) Identification of design input requirements; (b) identification of design outputs in a form that enables verification against the design inputs; (c) design review for the evaluation of the ability of design results to meet the project requirements, and identify any problems and propose necessary actions; (d) design verification to ensure the design outputs have met the design input requirements; (e) design validation to ensure that the resulting design is capable of meeting project requirements; (f) control of design changes; (g) records of design reviews, design verification, design validation, and design changes; and (h) documentation, including the methods, assumptions, formulas, and calculations used in design.</p>		
<p>8.5</p>	<p>Procurement The operating company shall develop and implement procedures for the evaluation of suppliers and contractors and the verification of purchased product. The procedures shall identify the necessary purchasing documents and records.</p>		
<p>8.6</p>	<p>Construction</p>		
<p>8.6.1</p>	<p>Control of construction The operating company shall plan and carry out the construction of pipeline systems under controlled conditions, including, as applicable, (a) the availability of drawings, documents, and specifications; (b) the use of suitable materials and service providers; (c) the implementation of an effective quality control procedures; (d) the availability and use of monitoring and measurement devices; and (e) the implementation of commissioning and, where applicable, post-commissioning activities.</p>		<p>Documented policies, processes and procedures, for Control of Construction were not provided for this review.</p>
<p>8.6.2</p>	<p>Qualification of processes for construction and installation The operating company shall qualify any processes for construction and installation where the resulting output cannot be verified by inspection, audit, or subsequent monitoring or measurement. This includes any processes in which deficiencies become apparent only after the</p>		

	<p>system is in use or the service has been delivered. Qualification shall demonstrate the ability of these processes to achieve planned results. The operating company shall establish arrangements for these processes including, as applicable, (a) defined criteria for review and approval of the processes; (b) approval of equipment and qualification of personnel; (c) use of specific measures and equipment; (d) requirements for records; and (e) requirements for requalification.</p>		
8.6.3	<p>Identification and traceability Where traceability is a requirement, the operating company shall control and record the unique identification of the product or the system components.</p>		
8.7	<p>Operations and maintenance The operating company shall identify the activities that could affect safety, system integrity, and environmental protection during operation and maintenance of the pipeline system. The operating company shall plan those activities so that they are conducted under specified conditions by establishing and maintaining documented procedures and schedules for activities, and setting operating criteria in the procedures, as appropriate. Such operational activities include (a) maintenance of facilities and critical equipment; (b) right-of-way inspection and maintenance; (c) pipeline system integrity management for the pipeline life cycle; (d) emergency preparedness, response and recovery; (e) security management (f) incident investigation; (g) operation and control systems; and (h) deactivation and abandonment.</p>	<p>EOH&S Management System Manual Elements #2, #3 , PDF pages 14 to 18, 18 to 20 AUI SPM AUI ENV and OHS Hazard Identification Matrix</p>	<p>The EOH&S MS document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." Excluding Emergency Preparedness and Response, documented procedures, Tier 3 and Tier 4 documents, for Operations and Maintenance were not provided for this review. The following documents are referenced but not provided for this review: • MSP-002 Risk Management (Environmental Aspects & Safety Hazards) • SP-013 OH&S Hazard and Environmental Aspect Assessment and Control • MSP-007 Identification and Risk Assessment of Critical Tasks • MSP-014 Auditing (Management System and Compliance) • MSP-011 Planning - Objectives, Targets and Programs • MSP-010 Performance Monitoring and Measurement</p>
8.8	<p>Engineering assessments</p>		
8.8.1	<p>General Engineering assessments shall be used to support decisions under an operating company's safety and loss management system, as might be required or allowed by this Standard.</p>		<p>Documented policies, processes and procedures, for Engineering Assessments were not provided for this review.</p>
8.8.2	<p>Engineering assessment process Prior to performing and engineering assessment, operating companies shall develop a documented process for conducting engineering assessments that includes: a) the responsibilities of those individuals conducting and approving the engineering assessments; b) the competency requirements for those conducting and approving the engineering assessments; and c) the engineering assessment methodology, including acceptance criteria.</p>		
8.8.3	<p>Methodology The level and detail and complexity of the methodology shall commensurate with the degree to which the assessment techniques are established within the operating company, the degree of certainty of the inputs, and the uniqueness of the situations being addressed.</p>		
8.8.4	<p>Documentation The documentation for an engineering assessment shall be retained for the life of the pipeline and shall include a) the purpose and scope of the engineering assessment; b) the analysis conducted for the engineering assessment; c) supporting documentation; d) conclusions, and e) recommendations.</p>		

9	Management of change		
9.1	<p>General The operating company shall establish a process for the management of changes that could have a significant impact on safety or the effectiveness of the safety and loss management system, including</p> <ul style="list-style-type: none"> (a) organizational changes, such as changes to organizational structure and key personnel; (b) changes to facilities, equipment, and technology; (c) changes to procedures or practices for design, construction, operations, and maintenance-related activities; (d) changes to technical requirements, such as industry standards, industry recommended practices, and regulations; and (e) physical environment changes, such as adjacent land development. 	<p>Integrity Management Program Manual Section 7.0, PDF pages 13-15 EOH&S Management System Manual Element #6, PDF pages 25-27</p>	<p>The EOH&S MS document is a Tier 2 described as “Documents that describes the core elements and interrelationships of a process and that provides direction to related practices.” Documented procedures, Tier 3 and Tier 4 documents, for Management of Change were not provided for this review.</p> <p>The following documents are referenced but not provided for this review:</p> <ul style="list-style-type: none"> • MSP-003 Management of Change - Projects, Modifications and Workplace Design • MSP-008 Training and Awareness
9.2	<p>Management of change process The management of change process shall include</p> <ul style="list-style-type: none"> (a) the identification of changes that could affect the safety and loss management system; (b) setting responsibilities and authorities for the review, approval, and implementation of changes; (c) documentation of reasons for the changes; (d) analysis of implications and effects of the changes; (e) documentation and communication of the changes to affected parties; and (f) the timing of changes. 		
10	Continual improvement 13		
10.1	<p>Objectives The operating company shall establish objectives and targets at relevant functions and levels within the organization. Objectives and targets shall be measurable and consistent with the safety and loss management system policy.</p>	<p>Integrity Management Program Manual Sections 8.0, 11.2, 13.0, 14.0, 15.0, PDF pages 16, 23-24, 29-31, 32</p>	<p>The EOH&S MS document is a Tier 2 described as “Documents that describes the core elements and interrelationships of a process and that provides direction to related practices.” Documented procedures, Tier 3 and Tier 4 documents, for Continual Improvement were not provided for this review.</p>
10.2	<p>Reporting The operating company shall establish a process for the reporting, collection, evaluation, and trending of data related to hazards, incidents, and near misses, including the communication of any findings and actions.</p>	<p>EOH&S Management System Manual Elements #12, #13, #14, PDF pages 36-40 SP-009 EOH&S Incident Reporting SP-025 Inspections - AUI Practices, System Surveillance and Regulatory</p>	<p>The following documents are referenced but not provided for this review:</p> <ul style="list-style-type: none"> • MSP-010 Performance Monitoring and Measurement • MSP-005 Incident Reporting and Investigation • MSP-013 Injuries, Incidents, Non-conformities and Corrective and Preventive Actions • MSP-014 Auditing (Management System and Compliance) • MSP-016 Management Review
10.3	<p>Learning from events The operating company shall identify and review lessons from past events in order to inform decision making related to hazard identification, risk management, and operational control. Lessons shall be drawn from various sources including</p> <ul style="list-style-type: none"> a) internal investigation reports; b) internal hazard, near miss and incident trending; c) incidents, which have occurred in other operating companies; d) industry-wide safety advisories; e) investigation reports and advisories from other high hazard industries, as these reports may provide important lessons related to technical matters, management systems, human factors, and organizational culture. <p>Lessons learned shall be communicated internally</p>		
10.4	<p>Performance monitoring The operating company shall establish and maintain documented procedures to monitor and measure, on a regular basis, the performance of the safety and loss management system against established objectives and targets.</p>		
10.5	<p>Conformance monitoring The operating company shall establish and maintain documented procedures to monitor and measure, on a regular basis, including periodic audits, conformance with the requirements of this Standard and the safety and loss management system.</p>		
10.6	<p>Control of non-conformance The operating company shall establish and maintain procedures for defining responsibility and authority for handling and investigating nonconformance, taking action to mitigate any impacts,</p>		

	and for initiating and completing corrective and preventive action and for evaluating the effectiveness of any actions taken.		
10.7	Management review 13		
10.7.1	General Management shall review the safety and loss management system at planned intervals to ensure its continuing suitability, adequacy, and effectiveness. The management review shall include an assessment of opportunities for improvement and the need for changes to the safety and loss management system, its policy and objectives.		<p>The EOH&S MS document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, for Continual Improvement were not provided for this review.</i></p> <p>The following documents are referenced but not provided for this review:</p> <ul style="list-style-type: none"> • MSP-016 Management Review
10.7.2	Review input The input to management review shall include information on (a) results of audits; (b) organization and external stakeholder feedback; (c) process performance and conformance to the requirements of the safety and loss management system; (d) status of preventive and corrective actions; (e) follow-up actions from previous management reviews; (f) changes that could affect the safety and loss management system; and (g) recommendations for improvement.		
10.7.3	Review output The output from the management review shall include any decisions and actions related to (a) improvement of the effectiveness of the safety and loss management system and its processes; including changes to policies and objectives, as appropriate; and (b) resource needs.		

**AltaGas Utilities Inc. Integrity Management Program - Table 2
CSA-Z662-15 Annex N Review**

CSA-Z662-15 Annex N		AltaGas Utilities Review Evidence	Review Findings and Comments
1. Introduction			
N.2 Integrity management program scope	Documented integrity management program including methods for collecting, integrating, and analyzing information related to the following, as appropriate for the type of pipeline system: a) Design and construction b) Condition monitoring c) Maintenance and repair d) Operating conditions e) Failure incidents f) Damage incidents g) Damage and deterioration (e.g., corrosion) h) Manufacturing imperfections i) Environmental protection j) Safety.	Integrity Management Program Manual Section 1.1, PDF page 5	The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." Section 4 4.1 Design 4.2 Construction 4.3 Maintenance and Repair 4.4 Operating Conditions 4.5 Failure Incidents 4.6 Construction Damage and Deterioration 4.7 Environmental protection 4.8 Safety h) Manufacturing imperfections not identified
N.3 Corporate policies, objectives and organization			
N.3.1 1,5	The operating company shall document integrity-related corporate policies, values, objectives, and performance indicators.	Integrity Management Program Manual Sections 1.2, 2.1, 2.2, 3.0, Appendix A, PDF pages 6 to 9, 33	Compliant
N.3.2	The operating company shall document the types of consequences they consider to be significant and the rationale for determining the significance of those consequences	2.0 Corporate Endorsement 2.1 Presidents Endorsement 2.2 Policy	Compliant Note: Presidents Endorsement not signed or dated.
N.3.3 6	The operating company shall identify and document the organization of personnel that are responsible for the various elements of the integrity management program, as identified in CSAZ662-15 Annex N, including the following, as appropriate for the type of pipeline system a) Integrity management program development and improvement b) Records management c) Integrity management program planning and reporting d) Implementation of plans e) Integrity performance indicators f) Integrity management program audits, reviews, and evaluations	3.0 Organization and Responsibilities Appendix A	Compliant Note: Director Information Technology and Manager System Integrity and Asset Management both vacant
N.4 Description of pipeline systems	Operating companies shall develop descriptions of pipeline systems included in the integrity management program. When parts of the pipeline system are not included in the integrity management program, reasons for such exclusions shall be stated. Consideration shall be given to including the following in the description, as appropriate for the type of and included portions of the pipeline system: a) Purpose, capacity, and location b) The dimensions and material characteristics of the pipeline system, the types of coating, and the location and function of any ancillary equipment c) An estimate of the condition of the pipeline system, its coatings, and any ancillary equipment d) The operating conditions of the pipeline system, including service fluids, operating pressure, and temperature range e) The physical surroundings along the pipeline route f) The physical boundaries of the pipeline system.	Integrity Management Program Manual Section 4.0, PDF pages 9 to 11	The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." The following are not identified: a) Purpose, capacity b) Auxiliary equipment c) Estimate of condition of pipe and auxiliary equipment e) Physical surroundings (Class Location) Documented procedures, Tier 3 and Tier 4 documents, for AUI's GIS were not provided for this review.
N.5.1 Integrity management program records	Operating companies shall prepare and manage records related to pipeline system a) design b) construction c) operation	Integrity Management Program Manual Section 5.0, PDF pages 11 to 12	The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices."

<p>10 11</p>	<p>d) maintenance that are needed for performing the activities included in the integrity management program. Items to be considered for inclusion in such records shall include the following, as appropriate for the type of pipeline system: e) the location of the pipeline system with respect to crossings and land use and structures f) Class location(s) g) The design of the pipeline system or segments of the pipeline system, including limits on pressure, temperature, loading, and other operating conditions h) The standards and specifications for the pipe, components, bolting, and coating materials i) Material test reports j) Joining and inspection records k) Coating and inspection records l) Terrain, soil type, backfill material, and depth of cover m) Pressure testing n) Cathodic protection system design and performance o) The methods used and the results obtained for the activities included in the integrity management program.</p>		<p>Documented procedures, Tier 3 and Tier 4 documents, for Integrity Management Program Records were not provided for this review.</p>
<p>N.6 Change management 12</p>			
<p>N.6.1</p>	<p>The operating company shall develop, document, and implement a change management process for changes that might affect the integrity of the pipeline system or the ability to manage the integrity of that system. This shall include the following types of change, as appropriate for the type of pipeline system: (a) those that are initiated and controlled by the operating company, such as changes to (i) ownership of the pipeline system; (ii) organization and personnel of the operating company; (iii) piping and control systems; (iv) system operating status; (v) operating conditions; (vi) service fluid characteristics; (vii) methods, practices, and procedures related to pipeline system integrity management; (viii) records related to pipeline system integrity management; and (b) those that are not initiated and not controlled by the operating company, such as changes in (i) technical requirements (e.g., industry standards, industry recommended practices, and regulations); and 1 (ii) physical environment changes (e.g., new rights-of-way, land development, or new structures).</p>	<p>Integrity Management Program Manual Section 7.0, PDF pages 13 to 15</p>	<p>The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." Documented procedures, Tier 3 and Tier 4 documents, for Change Management were not provided for this review.</p>
<p>N.6.2</p>	<p>The change management process shall have procedures in place to address and document the following, as appropriate for the type of pipeline system: a) Method of monitoring to identify anticipated and actual changes that could affect the integrity of the pipeline system b) Identification of responsibilities for approving and implementing changes c) Reasons for the changes d) Analysis of implications and effects of the changes e) Method of communication of changes to affected parties 9 f) Timing of changes (e.g., dates of approvals and completions).</p>		
<p>N.7 Competency and training 7</p>			
<p>N.7.1</p>	<p>The operating company shall develop and implement competency and training requirements for company personnel, contractors, and consultants to give them the appropriate knowledge and skills for performing the elements of the integrity management program for which they are responsible. Personnel shall have appropriate knowledge and skills to perform the task associated with the development and implementation of the integrity management program</p>	<p>Integrity Management Program Manual Section 6.0, PDF page 13</p>	<p>The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." Documented procedures, Tier 3 and Tier 4 documents, for Competency and Training were not provided for this review.</p>
<p>N.7.2</p>	<p>The operating company shall consider documenting the methods used to evaluate the knowledge and skills of personnel, contractors, and consultants</p>		

<p>N. 7.3</p>	<p>When evaluation of knowledge and skills indicates that development is required, training shall be arranged. Such training can include participation in</p> <ul style="list-style-type: none"> a) Formal training courses provided by educational institutions or industry organizations b) Workshops and conferences related to pipeline system integrity c) The work of technical committees of industry and standards development organizations d) Research and development projects related to pipeline system integrity e) Supervised work experience. 		
<p>N.8 Hazard identification and control 2</p>			
<p>N.8.1</p>	<p>The operating company shall identify hazards that might lead to a failure or damage incident</p> <p>Note: Clause B.5.2.3 can be used to provide guidance on hazard identification Guidance concerning hazard identification is contained in API 750 Annex H provides a classification of the causes of pipeline failure incidents that can lead to hazards</p>	<p>Integrity Management Program Manual Section 9.0, PDF pages 16 to 18</p> <p>AUI SPM AUI ENV and OHS Hazard Identification Matrix</p>	<p>Compliant</p>
<p>N.8.2</p>	<p>The methods and data used for hazard identification shall be documented and take into consideration the primary causes and any additional failure or damage incident causes that are relevant.</p> <p>Note: Clause H.2.6 provides guidance when identifying primary causes and sub-causes.</p>		<p>Correlation between AUI ENV and OHS Hazard Identification Matrix specific mitigation is not established</p>
<p>N.8.3</p>	<p>Where hazards that might lead to a failure or damage incidents are identified, the operating company shall</p> <ul style="list-style-type: none"> (a) assess and document the risks associated with such hazards in accordance with Clause N.9; or (b) implement and document measures for monitoring conditions that could lead to an incident with significant consequences and eliminate or mitigate such conditions, taking into consideration the options specified in Clause N.10. 		
<p>N.9 Risk assessment 3</p>			
<p>N.9.1 General</p>	<p>Annex B provides risk analysis and risk evaluation guidelines for</p> <ul style="list-style-type: none"> (a) estimating the frequency and consequences of incidents (b) evaluating the significance of the estimated risk (c) identifying, evaluating, and implementing options for risk reduction. 	<p>Integrity Management Program Manual Section 10.0, PDF pages 18 to 21</p>	<p>The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices."</p>
<p>N.9.2 Risk analysis approach</p>	<p>When selecting an appropriate approach for performing risk analysis (see Clause B.5.2), operating companies shall consider</p> <ul style="list-style-type: none"> (a) the features that are unique to the design, construction, and operation of the pipeline system (b) the availability of procedures, models, and information needed to perform the analysis; and (c) how the results of the risk assessment will be used. 		<p>Section 10 repeats the requirements of Annex N.9.</p> <p>Definition of acceptable or unacceptable risk not provided.</p>
<p>N.9.3 Risk evaluation</p>	<p>When it is determined that the estimated risk level is significant (see Clause B.5.3.2), the following response shall be required:</p> <ul style="list-style-type: none"> (a) the undertaking of a more refined level of risk analysis in an effort to reduce the uncertainty or errors that might have led to an overestimate of the risk level; or (b) a consideration of options (see Clause N.9.5) that might be available to reduce the estimated risk level. <p>Note: The options to be considered for refinement of the risk analysis include the following</p> <ul style="list-style-type: none"> a) Selection of a more rigorous approach for the analysis and estimates b) additional observations and analysis of the operating conditions c) inspections to provide more accurate and detailed information about the presence, location, and severity of identified hazards or imperfections d) an analysis using more detailed information about <ul style="list-style-type: none"> i) the size, characteristic, and location of potential releases ii) the location, characteristics, and susceptibility of people, property and the environment to adverse effects 		<p>Documented procedures, Tier 3 and Tier 4 documents, for Risk Assessment were not provided for this review.</p>

<p>N. 9.4 Risk reduction evaluation</p>	<p>The risk analysis and risk evaluation shall be repeated to establish that the options selected reduce the estimated risk to a level that is considered to be not significant. The options considered shall include the items specified in Clause N.10.</p>		
<p>N. 10 Options for reducing frequency and consequences of failure or damage incidents 4</p>			
<p>N. 10.1 Operating errors</p>	<p>The options that may be used to reduce the frequency of failure and damage incidents associated with improper operation or control system malfunction include the following, as applicable: (a) enhanced personnel training, employee evaluation, and worksite assessments; (b) improved pipeline system control and monitoring methods; (c) modified operating and maintenance practices; and (d) improvements or modifications to piping and equipment.</p>	<p>Integrity Management Program Manual Section 11.0 ,PDF pages 22 to 28</p>	<p>The IMP PM document is a Tier 2 described as “Documents that describes the core elements and interrelationships of a process and that provides direction to related practices.”</p> <p>Section 11 repeats the requirements of Annex N.10.</p> <p><i>Documented procedures, Tier 3 and Tier 4 documents, for Options for reducing frequency and consequences of failure damage incidents were not provided for this review.</i></p>
<p>N. 10.2 External interference</p>	<p>The options that may be used to reduce the frequency of failure and damage incidents associated with external interference include the following, as applicable: (a) participation in one-call utility location organizations; (b) measures to improve public awareness of and education about the pipeline system; (c) vegetation control to improve right-of-way visibility; (d) supplemental markers and signs to identify the presence of pipeline systems; (e) increased frequency of right-of-way inspections and patrols; (f) enhancement of procedures for pipeline system location and excavation; (g) installation of structures or materials (e.g., concrete slabs, steel plates, or casings); (h) increased depth of cover; and (i) increased pipe wall thickness.</p>		
<p>N. 10.3 Imperfections</p>	<p>The options that may be used to reduce the frequency of failure and damage incidents associated with imperfections (e.g., metal loss, cracking, and material, manufacturing, and construction defects) include the following, as applicable: (a) temporary or permanent reductions in the established operating pressure; (b) close-interval surveys; (c) coating assessment surveys; (d) improved performance of cathodic protection systems; (e) repair or rehabilitation of external coatings; (f) improved internal corrosion mitigation and monitoring methods (see Clauses 9.10.2 and 9.10.3); (g) installation of liners; (h) in-line inspection programs; (i) pressure testing as specified in Clause 10.3.8; (j) improved quality measures for manufacturing, design, construction, and operation; and (k) assessment, repair, rehabilitation, and replacement programs.</p>		
<p>N. 10.4 Natural hazards</p>	<p>The options that may be used to reduce the frequency of failure and damage incidents associated with natural hazards include the following, as applicable: (a) alternative design, materials, and location; (b) inspection and evaluation of areas subject to washout erosion, freeze-thaw, settlement due to construction or undermining, earthquake, or slope movement; (c) increased frequency of right-of-way inspections and patrols; (d) programs to monitor the pipeline system or soil movement (e.g., inspections using in-line geometry tools, survey techniques, and slope inclinometers); (e) excavation and reburial to relieve loads; (f) relocation; and (g) installation of structures or materials to protect the system from external loads.</p>		
<p>N. 10.5 Consequence reduction</p>	<p>The options that may be used to reduce the consequences associated with failure and damage incidents include the following, as applicable: (a) improved methods for early detection of a service fluid release; (b) improved methods for control and shutdown of the supply sources; (c) improved methods to limit the size of a service fluid release (e.g., reduced spacing of block valves or isolating valves, and the use of remotely operated valves); (d) improved methods for recovery and cleanup of liquid releases; (e) improved emergency response procedures; (f) improved public awareness and education</p>		

	programs; and (g) improved pipeline system design.		
N.11 Integrity management program planning			
N.11.1	Operating companies shall establish and document plans and schedules for activities related to pipeline system integrity management.	Integrity Management Program Manual Section 12.0, PDF pages 28 to 29	The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." Section 12 repeats the requirements of Annex N.11. <i>Documented procedures, Tier 3 and Tier 4 documents, for Options for Integrity Management Program Planning were not provided for this review.</i>
N.11.2	Pipeline system integrity management program planning shall take the following into consideration, as appropriate for the type of pipeline system: (a) known conditions, damage, or imperfections (e.g., corrosion or manufacturing imperfections) that might lead to failure incidents; (b) the potential growth of any damage or imperfections; (c) the options selected to control identified hazards (see Clause N.8); (d) method of inspections and analyses to refine the estimates of risk (see Clause N.9.4); (e) the options selected to reduce the estimated risk level (see Clauses N.9.5 and N.10 and Annex B); (f) inspections, testing, patrols, and monitoring (see Clause N.12); (g) recommendations from previous integrity reviews and activities; (h) the failure and damage incident history of the operating company; (i) the failure and damage incident experience of the industry; and (j) the use of either direct or indirect inspection activities or a combination of both.		
N.11.3	The methods used to prioritize and schedule activities related to pipeline system integrity management shall be documented		
N.11.4	Pipeline system integrity management program plans should include steps for reviewing completed integrity activities in order to (a) verify that the relevant methods and procedures for such activities were properly performed; (b) verify that changes in planned activities were reviewed and approved; (c) determine whether the intended objectives were achieved; (d) identify incomplete work and unresolved issues; (e) develop recommendations and plans for future work; and (f) verify that the relevant records were created or revised.		
N.11.5	Pipeline system integrity management program plans shall include steps for consulting with and informing appropriate personnel about integrity issues and programs		
N.12 Inspections, testing, patrols and monitoring			
N.12.1	Operating companies shall document and implement the methods and procedures used to conduct inspections, testing, patrols, and monitoring in accordance with Clauses 9 and 10 and, as appropriate, Clause 12. Consideration shall be given to (a) cathodic protection systems; (b) corrosion monitoring systems and devices; (c) leak detection methods and devices; (d) shutdown devices and systems; (e) pressure-control, pressure-limiting, and pressure-relieving systems; (f) size, location and operational position of pipeline system valves; (g) pipeline system patrolling; and (h) inspection of exposed piping for corrosion and other types of imperfections.	Integrity Management Program Manual Section 13.0, PDF pages 29 to 31	The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, for Inspections, testing, patrols and monitoring were not provided for this review.</i>
N.12.2	When the timing or frequency of inspection, testing, patrols, or monitoring is not specified in this Standard, the rationale and methods used to determine the timing or frequency shall be documented. Consideration shall be given to (a) the types of conditions or imperfections that are intended to be detected by each inspection, test, patrol, or monitoring activity; (b) experience related to the rate or timing of changes in the imperfections or conditions; and (c) the effect of such changes on the estimated risk of failure incidents.		
N.12.3	When an inspection is performed using indirect methods (e.g., in-line inspection or close-interval surveys) operating companies shall consider whether supplemental inspections using more direct methods are needed.		
N.12.4	Consideration shall be given to using in-line inspection equipment to detect		

	(a) internal and external corrosion imperfections (see Annex D); (b) dents; (c) cracks; and (d) excessive pipe movement		
N. 12.5	Operating companies shall document the methods used to detect corrosive agents in the service fluids transported and, where applicable, the methods used to detect and evaluate imperfections caused by internal corrosion (see Clause 9.10)		
N. 12.6	Close-interval and coating-assessment surveys should be considered to assist in investigating the performance of the cathodic protection system and to provide additional information to address corrosion concerns.		
N. 12.7	Records of inspections, testing, patrols, and monitoring shall include (a) the dates when performed; (b) the methods and equipment used; (c) the results and observations; and (d) an evaluation of the acceptability of the results and observations		
N. 13 Evaluation of inspection, testing, patrol and monitoring results			
N. 13.1	When inspection, testing, patrol, and monitoring results indicate the presence of conditions or imperfections that might lead to failure or damage incidents with significant consequences, operating companies shall perform an engineering assessment as specified in Clause 10.3.2.1, or take corrective action as specified in Clause 10.3.2.3.	Integrity Management Program Manual Section 13.0, PDF pages 29 to 31	The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, for Evaluation of inspection, testing, patrols and monitoring were not provided for this review.</i>
N. 13.2 Evaluation of indications of imperfections			
N. 13.2.1	Except as allowed by Clause N. 13.2.2, pipeline systems with indications of imperfections shall be subject to detailed visual inspection, mechanical measurement, non-destructive inspection, as appropriate, for the type of pipeline system and evaluation as specified in Clause 10.10		
N. 13.2.2	An engineering assessment in accordance with Clause 3.3 may be performed to establish that indications of imperfections are not associated with defects and shall take the following additional items into consideration: (a) knowledge and experience of the performance capabilities and limitations of the inspection method (b) the types of imperfection that might correspond to the reported indications; (c) the accuracy of reported dimensions and characteristics needed for evaluating such imperfections; (d) the likelihood of unreported defects (e.g., cracking) being associated with an imperfection indication; (e) the piping design and material properties; and (f) service conditions. Notes: (1) The principles described in Clauses D.6 to D.10 for assessing indications of corrosion imperfections detected by in-line inspection should be considered for evaluating other types of imperfection indications detected by in-line inspection. (2) DNV-RP-F101 describes evaluation methods that include uncertainties in the values of reported depth and length measurements for corroded pipe.		
N. 13.3 . 13.3 Natural hazard evaluations	When inspections and patrols indicate soil settlement, slope movement, or washout that could cause excessive longitudinal stress or deflection of the pipe (see Clause 4.6), operating companies shall consider implementing a monitoring and evaluation program that includes criteria for corrective action to prevent failure incidents. The use of increased line patrols, in-line geometry tools, and slope inclinometers, as appropriate for the type of pipeline system, should be considered for such programs		
N. 13.4 Records of recommendations	The operating company shall maintain records of recommendations and dispositions of recommendations.		

N. 14 Mitigation and repair			
N. 14.1	Operating companies should document the types of corrective actions that will be considered for conditions or imperfections that could cause a failure or damage incident with significant consequences	Integrity Management Program Manual Section 14.0, PDF page 31	The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, for Mitigation and repair were not provided for this review.</i> AUI Standard Practice Manual referenced but not provided for this review.
N. 14.2	Operating companies shall document procedures for mitigation and repair		
N. 15 Continual improvement 13			
N. 15.1 General	The operating company shall plan and implement the monitoring, measurement, analysis, and improvement process needed to (a) demonstrate conformity to the requirements of the integrity management program; and (b) continually improve the effectiveness of the integrity management program	Integrity Management Program Manual Section 15.0, PDF page 32	The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, for Continual Improvement were not provided for this review.</i>
N. 15.2 Integrity management program review and evaluation	Integrity management programs shall be reviewed and evaluated periodically to determine whether they are in accordance with the provisions of this Standard and shall be revised as necessary. The methods for and responsibilities related to review and evaluation and the results of reviews and evaluations shall be documented. The items to be considered in such reviews and evaluations shall include the (a) timing of such reviews and evaluations; (b) effects of changes in the operating company, the pipeline, or external factors; (c) findings, status, and trends of corrective actions identified during internal and external audits; (d) status and trends of integrity performance indicators related to the frequency and consequences of failure and damage incidents and the completion of integrity-related work; (e) status and trends of integrity-related issues and recommendations identified during previous reviews and evaluations, operation, maintenance, or integrity-related work; (f) root cause or causes of recent failure incidents; and (g) successes and problems experienced in detecting and preventing potential failure incidents		
N. 15.3 Monitoring and measurement	The operating company shall establish and maintain documented procedures to monitor and measure, on a regular basis, the performance of the integrity management program. Performance measures shall include (a) conformance to the established requirements and acceptance criteria; and (b) effectiveness in achieving stated objectives and targets		
N. 15.4 Audits	Operating companies shall periodically audit the integrity management program. The items addressed in performing such audits should include (a) audit scope and objectives; (b) audit frequency and timing; (c) responsibilities for managing and performing the audit; (d) auditor independence; (e) auditor competency; and (f) audit procedures.		
N. 15.5 Control of non-conformance	The operating company shall establish and maintain procedures for defining responsibility and authority for handling and investigating nonconformance's, taking action to mitigate any impacts, and for initiating and completing corrective and preventive action.		
N. 16 Incident investigations 13			
N. 16 Incident investigations	The operating company shall develop procedures for investigating and reporting failure and damage incidents. Failure incidents shall be addressed in accordance with the requirements specified in Clause 10.3.6 The procedures shall, as appropriate for the type of pipeline system, include the recording of incident information as specified in Clause H.2	Integrity Management Program Manual Section 8.0, PDF page 16	The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, for Incident Investigations were not provided for this review.</i>

**AltaGas Utilities Emergency Preparedness and Response Program - Table 3
CSA-Z246.2-14 Review**

CSA-Z246.2-14		AltaGas Utilities Review Evidence	Comments
1. Scope			N/A
2. Reference publications			N/A
3. Definitions			N/A
4 Emergency preparedness and response program			
4.1	The operator shall develop, implement, and maintain an emergency preparedness and response program (EPRP) that provides for the protection of people, the environment, and property		
4.2	Management Commitment		
4.2.1	Accountability and authority The operator's senior management shall have overall accountability and authority for the EPRP	Emergency Management Guide Section 1.7, Page 17 Emergency Management Plan, Page 12	Emergency Management Plan, Section 1.4 Emergency Management Commitment Page 12 not signed or dated.
4.2.2	Policy The operator's senior management shall have approved policies intended to ensure the EPRP activities are conducted in a manner that protects people, the environment, and property.		Emergency Management Plan, Section 1.1 Methodology Page 09 CSAZ1600-08, CSA Z731-03 and AER Directive 71.
4.3 1	Laws and authorities The operator shall ensure the EPRP complies with applicable legislation, regulatory requirements, orders, directives, and policies.	Emergency Management Guide Section 1.4, Page 11 Emergency Management Guide Section 4.1, Page 21 Emergency Management Guide Section 6.2, Page 43 Emergency Management Guide Section 14.5, Page 66 Emergency Reporting Chain Card – 2018	CSAZ662-15 Section 3 Safety and Loss Management not referenced.
4.4 5	Goals and objectives The operator shall establish goals and objectives to support Clause 4.2.2.	Emergency Management Guide Section 1.1, Pages 7-8	Compliant
4.5 6	Organizational structure The operator shall have an organizational structure that defines and communicates roles and responsibilities for the development, approval, implementation, evaluation, and improvements of the EPRP.	Emergency Management Plan, Page 7 Emergency Management Guide, Page 6	Compliant
4.6	Program coordinator The operator shall appoint a coordinator to develop, implement, evaluate, revise, and maintain the EPRP.	Emergency Management Guide Section 5.3, Page 26	Compliant VP Operations and Engineering
4.7	Documentation and document control 10		
4.7.1	The operator shall have a) documents to support the EPRP; and b) a process for reviewing, revising, approving, controlling, and reissuing the documents; and c) schedules for reviews and revisions of the documents	Emergency Management Guide Section 1.7, Page 17 Emergency Management Guide Section 11.0, Page 57	The Emergency Management Guide document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." AUI Document and Records Management Procedure, referenced but not provided for this review.
4.7.2	Documentation should be reviewed and revised at regular intervals and immediately where changes are required as a result of legal requirements or where failure to make immediate changes could result in negative consequences. Documentation should include a) organizational structure;		Documented procedures, Tier 3 and Tier 4 documents, for Documentation and Document Control were not provided for this review.

	<p>b) roles and responsibilities; c) policies, processes, and procedures; d) emergency response plans; e) exercise plan; and f) training plan.</p>		
4.8	Records management 11		
4.8.1	<p>The operator shall</p> <p>a) maintain records of activities and decisions related to the EPRP; and b) have a records management process for the identification, storage, protection, retrieval, retention and disposition of records.</p>	Emergency Management Guide Section 1.8, Page 17	The Emergency Management Guide document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices."
4.8.2	<p>Records should include</p> <p>a) actions taken to prepare for emergencies; b) actions taken to respond to emergencies; c) debrief reports; d) training records; e) response equipment records; f) changes or improvements made to the EPRP; and g) reports of exercises conducted by the operator.</p>		<p>AUI Document and Records Management Procedure, referenced but not provided for this review.</p> <p>Documented procedures, Tier 3 and Tier 4 documents, for Records Management were not provided for this review.</p>
4.9	Training and competence 7		
4.9.1	<p>Training</p> <p>The operator shall establish training to create awareness and enhance the knowledge, skills, and abilities required to develop, implement, support, and maintain the EPRP.</p> <p>The operator should</p> <p>a) provide employees who have a role in an emergency with appropriate training prior to assigning emergency response roles; b) conduct an analysis of training needs, based on the results of the hazard identification; c) identify competency requirements for emergency response and program roles; d) develop training plans for individual employees with a role in the EPRP; e) establish training schedules; f) have training records to support Clause 4.8.2; and g) review and update the training content and delivery.</p>	<p>Emergency Management Guide Section 2.3, Page 18 Emergency Management Guide Section 6.4, Page 44</p>	<p>The Emergency Management Guide document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices."</p> <p>Documented procedures, Tier 3 and Tier 4 documents, for Training and Competence were not provided for this review.</p>
4.9.2	<p>Incident management system training</p> <p>Employees with a role in the emergency response plan shall be trained in the operator's incident- management system to the level of their involvement.</p>		
4.9.3	<p>Competence</p> <p>The operator shall ensure that employees are competent to perform their roles in the EPRP on the basis of education, training, and experience.</p>		
4.10	<p>Exercises</p> <p>The operator shall develop and implement an exercise plan.</p> <p>Exercises should be</p> <p>a) conducted at all levels of the organization, including senior management; b) held with sufficient frequency to evaluate emergency response capability; and c) varied to test potential emergencies identified in the hazard identification process in Clause 8 (e.g., exercises conducted under a wide range of weather conditions).</p> <p>Notes:</p> <p>1) It is recommended that at least one simulated emergency response exercise be held annually and that a full-scale emergency response exercise involving the agencies identified in the operator's emergency response plan be held at least every 3 years. 2) Further information is provided in Annex A.</p>		

5	Program evaluation and continual improvement 13		
5.1	The operator shall have a process for program evaluation and continual improvement.	Emergency Management Guide Section 2.3, Page 18	The Emergency Management Guide document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, for Program Evaluation and Continual Improvement were not provided for this review.</i>
5.2	Performance measurement The operator shall gather information at appropriate intervals to monitor the performance of the EPRP. Note: This information may include incident statistics and performance indicators related to the EPRP goals and objectives.		
5.3	Program evaluation		
5.3.1	The operator shall have a process to evaluate the EPRP that includes a) a defined scope; and b) a methodology to monitor and measure program performance at planned intervals. The data and results of monitoring and measurement shall be sufficient to facilitate corrective and preventive action analysis and be documented.		
5.3.2	Data sources should include a) policies, goals, and objectives; b) hazard identification and consequence analysis results; c) legislation requirements and best practices; d) training records; e) post-emergency analyses and reports; f) lessons learned as a result of post-exercise debriefs; and g) previous program reviews. Note: Checklists can be used to assist in performing systematic inspections and/or spot checks.		
5.4	Audit The operator shall conduct audits to determine whether the EPRP meets the requirements of this standard and to other requirements established by the organization. Note: CAN/CSA-ISO 19011 provides guidance on conducting audits.		
5.5	Corrective action The operator shall correct deficiencies, gaps, and limitations identified during the EPRP evaluation, audit, and management review within specified time frames.		
6	Management of change 12		
6.1	The operator shall have a management of change process to identify and manage changes that could affect a) people, the environment, or property; b) hazard identification or consequence-analysis results; c) a design, specification, standard, or procedure; d) the operator's organizational structure; or e) the legal requirements applicable to the operator.	Emergency Management Guide Section 1.7, Page 17 Emergency Management Guide Section 1.8, Page 17	The Emergency Management Guide document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, for Management of Change were not provided for this review.</i>
6.2	The management of change process should include a) accountability; b) identification and analysis of changes that could impact the EPRP; c) documentation of the changes; d) approval of changes; e) implementation, including communication, of changes; and f) a review of the effectiveness of the changes made.		
7	Management review 13		
7.1	The operator's senior management shall have a process to review the EPRP at planned intervals to ensure its suitability, adequacy, and effectiveness. The review should confirm a) that the EPRP is fully implemented;	Emergency Management Guide Section 3.0, Page 20	The Emergency Management Guide document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." <i>Documented procedures, Tier 3 and Tier 4 documents, for Management Review</i>

	<p>b) that the EPRP meets the operator's policy and objectives; c) whether the EPRP is adequate for its intended purpose; and d) where improvements are required.</p>		were not provided for this review.
7.2	<p>The review should address the following subjects: a) suitability of the current policy, goals, and objectives; b) setting objectives in the forthcoming period; c) adequacy of the hazard identification and consequence-analysis processes; d) adequacy of resources (e.g. Financial, personnel, material, mutual aid); e) effectiveness of the EPRP evaluation process; f) results of audits; g) the state of preparedness for emergencies (e.g., emergency response plan, training, and exercise reports); h) the output of any investigations into accidents, incidents, or emergencies; i) the assessment of the effects of foreseeable changes to legislation or technology; j) emergency response arrangements and information sharing with municipal emergency service providers; and k) emergency communication plans (internal and external for surrounding communities).</p>		
7.3	<p>Data sources to review should include a) results of audits; b) corrective and preventive actions carried out since the previous year; c) reports of emergencies and incidents (whether actual or staged for exercises); d) reports from individual line managers on the effectiveness of the EPRP locally; and e) reports on hazard identification, risk assessment, and consequence analysis.</p>		
8	<p>Hazard identification and consequence analysis The operator shall a) have a process for identifying and analyzing all hazards; b) establish and maintain an inventory of the identified hazards ; c) establish and implement a process for evaluating and managing the consequences associated with the identified hazards; d) establish and implement a process to manage the identified hazards and mitigate the consequences; and e) have a person or company, knowledgeable in the industry and discipline, conduct the hazard identification and consequence analysis. Note: Further information is provided in Annex A.</p>	Emergency Management Guide Section 6.8, Page 47	<p>The Emergency Management Guide document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." Documented procedures, Tier 3 and Tier 4 documents, for Hazard Identification and Consequence Analysis were not provided for this review.</p>
9	<p>Emergency planning zones (EPZs) The operator shall have a process to determine EPZs. Note: Further information is provided in Annex A.</p>	Emergency Management Guide Sections 5.1-5.6, Pages 23-39	<p>The Emergency Management Guide document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices." Documented procedures, Tier 3 and Tier 4 documents, for Emergency Planning Zones were not provided for this review.</p>
10	Incident management system		
10.1	<p>Incident management The operator shall have an incident-management system to direct, control, and coordinate response operations.</p>	Emergency Management Guide Section 2.0, Pages 18-19	Compliant
10.2	<p>Command and coordination centres The operator shall have pre-designated primary and alternate command and coordination centres capable of supporting response operations as defined by the operator's incident-management system. Note: Further information is provided in Annex A.</p>		Compliant
11	Emergency response plan (ERP)		
11.1	<p>The operator shall have a single ERP or multiple coordinated plans which consider hazard identification, consequence analysis, and regulatory requirements.</p>	Emergency Management Plan Emergency Management Guide Emergency Response Manual	The Emergency Management Guide, Emergency Management Plan and Emergency Response Manual documents are Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices."

<p>11.2</p>	<p>Components of an ERP The ERP shall contain a) a statement of purpose, scope, and objectives; b) a description of assets and operational activities covered by the ERP; c) mapping, with an appropriate level of detail to allow for effective planning and response; d) roles and responsibilities for each internal and external position in accordance with the incident management system; 6 e) emergency contact information for an individual, group, or organization that has a role in the management of an emergency; 9 f) emergency contact process for directly impacted public; g) response procedures and guidelines to manage specific emergencies; h) command and coordination centres, and other facilities as appropriate; i) procedures for communication with stakeholders within the operation; 9 j) procedures for communication with external stakeholders; 9 k) critical resources and a means of activation; 6 l) references to copies of mutual aid agreements; m) detailed hazardous product information; n) internal and external reporting requirements; 9 o) documentation processes; p) processes and criteria for the activation and deactivation of the ERP; q) processes for the preservation of evidence; and r) debrief procedures. Note: Further information is provided in Annex A.</p>	<p>a) Emergency Management Guide Section 1.1, Pages 7-8 Emergency Management Plan Section 1.1, Page 81 b) Emergency Management Plan Section 3.0, Pages 29-107 Emergency Management Guide Section 4.1, Page 21 c) Emergency Management Guide Section 21, Page 21 d) Emergency Management Plan Section 3.0, Pages 29-107 e) Emergency Reporting Chain Card – 2018 f) Emergency Response Manual Section 5.0, Pages 6-8 g) Emergency Management Plan Section 3.0, Pages 29-107 Emergency Response Manual Sections 6.0-15.0, Pages 6-32 h) Emergency Management Plan Section 2.0, Pages 19-27 i) Emergency Management Plan Section 2.2, Page 20 j) Crisis Communication Matrix k) Emergency Management Plan Section 6.0, Pages 119-125 l) Emergency Management Guide Section 6.7, Page 46 m) MSDS Binders (agutl.msdsbinders.com) n) Emergency Management Guide Section 8.0, Page 51 o) Emergency Response Manual Section 16.0, Pages 32-33 Emergency Management Guide Section 11.0, Page 57 p) Emergency Management Guide Section 7.0, Page 49 Emergency Management Plan Section 1.4, Page 11 q) Emergency Management Guide Section 15.2, Page 69 r) Emergency Management Guide Section 15.6, Page 70</p>	<p>a) Purpose & Objectives – Compliant a) Scope – specific geographical areas, pipelines and facilities not provided for this review. b) Documented evidence, Tier 3 and Tier 4 documents, of specific descriptions of assets and activities were not provided for this review. c) Documented evidence of Mapping was not provided for this review. d) ICS roles and internal departments identified, documented evidence detailing specific internal and external positions and responsibilities were not provided for this review. e) Documented evidence of emergency contact information for impacted public was not provided for this review. f) Documented process and procedures, Tier 3 and Tier 4 documents, for directly impacted public was not provided for this review. g) Compliant h) Compliant EMP Section 2.3 & 2.4 i) Documented process and procedures, Tier 3 and Tier 4 documents, for communication with stakeholders were not provided for this review. j) Documented process and procedures, Tier 3 and Tier 4 documents, for communication with external stakeholders were not provided for this review. k) Documented process and procedures, Tier 3 and Tier 4 documents, for activation of critical resources were not provided for this review. l) Compliant m) Documented process and procedures, Tier 3 and Tier 4 documents, for detailed hazardous products information were not provided for this review. n) Documented process and procedures, Tier 3 and Tier 4 documents, for internal and external reporting requirements not provided for this review. o) Documented process and procedures, Tier 3 and Tier 4 documents, for documentation processes not provided for this review. p) Documented process and procedures, Tier 3 and Tier 4 documents, for the activation and deactivation of the ERP was not provided for this review. q) Compliant r) Documented process and procedures, Tier 3 and Tier 4 documents, for debrief procedures were not provided for this review.</p>
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<p>11.3 6</p>	<p>Equipment The operator shall a) assess the need for response equipment and, where considered necessary, ensure that it is available; and Note: Mutual aid agreements may include equipment availability. b) maintain their own response equipment.</p>		<p>Documented process and procedures, Tier 3 and Tier 4 documents, Equipment were not provided for this review.</p>
<p>11.4 6</p>	<p>Hazard monitoring The operator shall have procedures for continual monitoring of hazards throughout the emergency. The type and number of monitoring devices specified in the ERP should be appropriate for addressing site-specific considerations, including a) hazard type; b) access and egress points; c) population density (distance to urban centres and/or rural subdivisions); d) local weather conditions; e) topographical features; f) traffic patterns; and g) additional hazards (wildfire, flooding, and other natural occurrences).</p>	<p>Emergency Response Plan Section 3 Hazard – Specific Roles and Procedures</p>	<p>The Emergency Management Plan document is a Tier 2 described as “Documents that describes the core elements and interrelationships of a process and that provides direction to related practices.” Documented procedures, Tier 3 and Tier 4 documents, for Hazard Monitoring were not provided for this review.</p>
<p>12</p>	<p>Mutual aid The operator shall assess the need for mutual aid and, where considered necessary, ensure that agreements are established. Notes: 1) Mutual aid/mutual assistance, reciprocal, or service-level agreements should be entered into between organizations when necessary. 2) Mutual aid/mutual assistance, reciprocal, or service-level agreements should a) be in writing; b) be reviewed by legal counsel; c) define liability; d) detail funding and cost arrangements; and e) be signed by individuals with requisite authorities. 3) Further information is provided in Annex A.</p>	<p>Emergency Management Guide Section 6.7, Page 46</p>	<p>Compliant</p>
<p>13</p>	<p>Communication 9</p>		
<p>13.1</p>	<p>Stakeholders within an EPZ The operator shall have a process to engage stakeholders within an EPZ that includes a) providing stakeholders with a description of i) specific hazards and consequences associated with the operations; ii) what actions they should take during an emergency, including sheltering and evacuation instructions; iii) how they could be notified; 9 iv) how they can contact the operator; and 9 v) how the operator will respond; and 9 b) defining how and what information will be collected for the purpose of emergency notification. Notes: 1) The operator may consider conducting this process in conjunction with other operators or mutual aid groups. 2) For gas distribution systems not requiring an EPZ, stakeholder engagement is by awareness programs offered by the operator, which inform the public of potential emergency situations and the safety procedures to be followed in the case of an emergency. The operator should consult with local authorities on public safety measures to confirm roles and responsibilities.</p>	<p>Emergency Management Plan Section 2.2, Page 20 Emergency Management Guide Section 13, Page 61 Crisis Communications Matrix Business Continuity Plan: Guidelines, PDF pages 2-12</p>	<p>Documented processes and procedures, Tier 3 and Tier 4 documents, for Communication were not provided for this review.</p>

13.2	<p>Internal communications The operator shall have a process for communicating internally during an emergency. The process should include</p> <ul style="list-style-type: none"> a) procedures outlining i) who will receive communications; ii) what will be communicated; iii) when will it be communicated; and iv) how will the communications be delivered; <ul style="list-style-type: none"> b) message approval; c) means to ensure equipment and system interoperability; and d) periodic testing. 		
13.3	<p>External communications 9</p>		
13.3.1	<p>Responders The operator shall have a process for communicating with external responders during an emergency.</p> <p>The process should ensure</p> <ul style="list-style-type: none"> a) working lines of communication; b) notification of specific hazards and consequences associated with the emergency; and c) notification of resources and response actions. 		
13.3.2	<p>Media The operator shall have a process for communicating with the media during an emergency.</p>		
13.3.3	<p>Emergency communication and notification capability The operator shall have a process of emergency communication with stakeholders within an emergency response area during an emergency. Note: Further information is provided in Annex A.</p>		
14	<p>Emergency response</p>		
14.1	<p>The operator shall respond to emergencies to prevent or minimize consequences that could affect people, the environment, and property in accordance with the EPRP.</p>	<p>Emergency Management Guide Section 4.0, Page 21</p>	<p>The Emergency Management Manual document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides direction to related practices."</p>
14.2	<p>Response management The operator shall implement a coordinated response based on the emergency.</p>	<p>Emergency Management Manual – All</p>	
14.3	<p>Emergency assessment The operator shall continually assess conditions associated with the emergency and the effectiveness of the response throughout the emergency.</p>		<p>Documented procedures, Tier 3 and Tier 4 documents, for Emergency Response were not provided for this review.</p>
14.4	<p>Command and coordination centre activation The operator shall activate command and coordination centres and appropriate staff based on the specific emergency. Communications and coordination shall be established between the centres.</p>		
14.5	<p>Incident action plan The operator shall create an incident action plan specific to the emergency.</p>		
14.6	<p>Safety</p>		
14.6.1	<p>The operator shall have a process for the safety of response personnel and the public involved in, and affected by, the emergency.</p>		
14.6.2	<p>Site safety The operator shall establish site safety to protect responders.</p>		
14.6.3	<p>Public safety The operator shall coordinate public safety actions with local authorities.</p>		
14.7	<p>Response mobilization The operator shall alert designated personnel and initiate an assessment of the need for mobilizing additional resources, which the operator shall deploy as required by the emergency.</p>		
14.8	<p>Notifications and reporting</p>		

	<p>The operator shall</p> <ul style="list-style-type: none"> a) notify applicable stakeholders; and b) report to authorities having jurisdiction. 		
14.9	<p>Internal and external communications The operator shall communicate with stakeholders, both internally and externally, who are affected by the emergency.</p>		
14.10	<p>Deactivation and debriefing of the response The operator shall deactivate the response and debrief in accordance with the ERP.</p>		

**AltaGas Utilities SLMS - Table 4
Review Evidence Summary**

Document Name	Document Date	Approver
<i>ADM-057 Records Retention and Disposition Schedule</i>	2014-06-04	<i>Not Approved</i>
<i>Business Continuance Plan</i>	2016-04-21	<i>Not Approved</i>
<i>Competency Assessment Plan (CAP)</i>	2015-02-13	<i>President</i>
<i>Emergency Management Guide</i>	2015-04-21	<i>Not Approved</i>
<i>Emergency Management Plan</i>	2015-04-21	<i>Not Approved</i>
<i>Emergency Reporting Chain procedures</i>	2018-09-05	<i>Not Approved</i>
<i>Emergency Response Manual</i>	2015-04-01	<i>Not Approved</i>
<i>Environmental, Occupational Health & Safety (EOH&S) Management System Manual</i>	2018-03	<i>Not Approved</i>
<i>3rd Edition AltaGas Utilities Inc. Integrity Management Program</i>	2017-06	<i>Not Approved</i>
<i>EOH&S Incident Reporting</i>	2018-12-05	<i>President</i>
<i>OH&S Hazard and Environmental Aspect Assessment and Control</i>	2018-12-05	<i>President</i>
<i>Inspections – AUI Practices, System Surveillance, and Regulatory</i>	2018-12-05	<i>President</i>
<i>EOH&S Responsibilities and Accountabilities</i>	2018-12-05	<i>President</i>
<i>Training and Orientation</i>	2018-12-05	<i>President</i>
<i>EOH&S Management System Manual</i>	2018-01-25	<i>Not Approved</i>
<i>AUI ENV Aspects and OHS Hazard Identification Matrix</i>	2018-11-22	<i>Not Approved</i>
<i>Standard Practice Manual</i>	2018-10-15	<i>Not Approved</i>