AltaGas Utilities Inc.

Response to AUC Safety and Loss Management Systems Review

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Response to Section 6 - Review Findings of the AUC Safety and Loss Management Systems (SLMS) Review Report

This document contains the response of AltaGas Utilities Inc. (AUI) to the AUC SLMS Review Report dated December 21, 2018 prepared by BHTSerge Consulting Limited for the Alberta Utilities Commission (AUC).

1. Process to determine legal requirements

AUC SLMS 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.

AUI Response: AUI acknowledges it does not maintain a single up-to-date registry for legal requirements specific to the protection of people, property, and environment. Although it is not a mandatory requirement of CSA Z662-15, AUI will construct such a registry to satisfy this review recommendation by August 2019.

2. Process to determine hazards

AUC SLMS Review 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.

AUI Response: AUI maintains an organized set of hazards within its Job Task Analysis (JTA) inventory, however there is no consolidated list of hazards in any single location. Although it is not a mandatory requirement of CSA Z662-15, AUI will create and maintain a consolidated hazard inventory to satisfy this review recommendation by December 2019.

3. Process for risk management

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

AUI Response: AUI is already in compliance with the requirements underlying this recommendation. Although CSA Z662-15 Annex B is a non-mandatory standard, AUI is compliant with its risk management requirements. Evidence of AUI's compliance can be found in the Integrity Manual Program Manual Sections 4.0, 5.0, and 8.0 through 15.0; EOH&S Management System Manual Elements 2, 3, and 10; and EOH&S MSP-002: Risk Management (Environmental Aspects and Safety Hazards) and MSP-007: Identification and Assessment of Critical Tasks.

4. Process to mitigate risks

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

AUI Response: AUI is already in compliance with the requirements underlying this recommendation. AUI's risk mitigation processes are a component under the broader umbrella of risk management. Details on AUI's risk management processes can be found in the Integrity Manual Program Manual Sections 4.0, 5.0, and 8.0 through 15.0; EOH&S Management System Manual Elements 2, 3, and 10; and EOH&S MSP-002: Risk Management (Environmental Aspects and Safety Hazards) and MSP-007: Identification and Assessment of Critical Tasks.

5. Process to set goals and objectives

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

AUI Response: AUI is already in compliance with the requirements underlying this recommendation. The mandatory requirements of CSA Z662-15 specifically require a process to set goals and objectives (clause 3.1.2 h). These mandatory requirements are satisfied by AUI's EOH&S Management System Manual and Practices, and by AUI's Integrity Management Program Manual. Specifically, refer to MSP-011: Planning – Objectives, Targets, and Programs.

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

AUC SLMS Review Recommendation: Development and implementation of processes for resource management, specifically for the protection or people, property and the environment.

AUI Response: AUI is already in compliance with the requirements underlying this recommendation. Details on AUI's resource management processes is found in EOH&S Management System Manual Elements 5, 7, and clause 10.2.7; EOH&S Management System Manual Practices MSP-008: Training and Awareness, MSP-006: Work Practices and Operational Controls and MSP-015: Contractor Safety Management; Integrity Manual Program Manual Sections 6.0 and 11.1; Tasks-Activities and Skills-based Competencies List; and Competency Assessment Plan.

7. Process to ensure training, competence and evaluation

AUC SLMS Review Recommendation: Development and implementation of processes for training, competence, and evaluation, specifically for the protection or people, property, and the environment.

AUI Response: AUI is already in compliance with the requirements underlying this recommendation. AUI's training, competence, and evaluation process is outlined in EOH&S Management System Manual Elements 5, 7, and clause 10.2.7; EOH&S Management System Manual Practices MSP-008: Training and Awareness and MSP-015: Contractor Safety Management; Integrity Manual Program Manual Sections

6.0 and 11.1; SP-008: Training and Orientation; Tasks-Activities and Skills-based Competencies List; and Competency Assessment Plan.

8. Process to determine required operational controls

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

AUI Response: Under the specific definition of operational controls defined in this review, AUI has existing processes for all 13 SLMS elements defined by the CSA. These processes are detailed through the Integrity Management Program Manual and EOH&S Management System Manual. Specific references to operational controls are made in MSP-006: Work Practices and Operational Controls and MSP-011: Planning – Objectives, Targets, and Programs.

AUI acknowledges there is no single document that correlates the 13 SLMS elements across integrity management and EOH&S, and therefore will develop an overarching SLMS guide by the end of 2019.

9. Process to ensure effective internal and external communication

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

AUI Response: AUI is already in compliance with the requirements underlying this recommendation. AUI has existing processes for effective internal and external communication in place to be compliant with the mandatory elements of CSA Z662-15. These processes are described in MSP-009: Communication and Consultation (Internal and External).

10. Process to ensure document and records management

AUC SLMS Review Recommendation: Development and implementation of processes for documents and records management, specifically for the protection or people, property and the environment.

AUI Response: AUI is already in compliance with the requirements underlying this recommendation. Document and records management processes are detailed in MSP-012: Documents, Data, and Records Management; Integrity management Program Manual Sections 4.0 and 5.0; and AUI ADM-057: Records Retention and Disposition Schedule.

11. Process to control documents and records

AUC SLMS Review Recommendation: Development and implementation of processes for control of documents and records, specifically for the protection or people, property and the environment.

AUI Response: AUI is already in compliance with the requirements underlying this recommendation. The mandatory elements of CSA Z662 specific to processes to control documents and records are outlined in MSP-006: Work Practices and Operational Controls and MSP-012: Documents, Data, and Records Management; Integrity management Program Manual Sections 4.0 and 5.0; and AUI ADM-057: Records Retention and Disposition Schedule.

12. Process to ensure Management of Change

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

AUI Response: AUI is conforming to the above recommendation for EOH&S MOC processes, evidenced in MSP-003: Management of Change, Projects, Modifications, and Workplace Design. However, AUI acknowledges the need to further develop the existing integrity specific MOC processes outlined in the Integrity Management Program Manual – Section 7.0. AUI will work towards these improvements with a target completion of mid-2020.

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

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

AUI Response: AUI is already in compliance with the requirements underlying this recommendation. AUI's continual improvement, performance monitoring, conformance monitoring, control of non-conformance and management review processes are explained in MSP-010: Performance Monitoring and Measurement, MSP-013: Injuries, Incidents, Non-Conformities, and Corrective/Preventative Actions, and MSP-016: Management Review; and Integrity Management Program Manual Sections 8.0, 11.2, 12.0, 13.0, 14.0, and 15.0.

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	SLMS Review Findings and Comments	AUI Response
1. Introduction			N/A	
2. Scope			N/A	
3 General				
3.1	**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.	OH&S Management System Manual (MSM): Message from the President, Sections 1.0, 2.0, 8.0, PDF pages 2, 5, 6, 12 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	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." 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	N/A
3.2	**Life Cycle Approach** The safety and loss management system shall cover the life cycle of the pipeline system.		IMP Program Manual identifies lifecycle approach. OH&S MSM does not identify "life cycle approach"	"Life cycle approach" concepts and instructions will be added to the AUI EOH&S Management System Manual by the end of 2019.
3.3	**Process Approach** The development, implementation, and maintenance of the safety and loss management system requires that the operating company (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.	OH&S Management System Manual Section 7 Management System Elements	Compliant	N/A
4	**Management responsibility**			
4.1 1	**Policy** The Safety and loss management system shall include a clearly articulated policy that (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	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	Compliant	N/A

	(d) is communicated and understood within the organization; and (e) is periodically reviewed for continuing suitability.			
4.2 1	**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 (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			N/A
4.3	**Organization.**			
4.3.1	**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.	EOH&S Management System Manual Section 5, 10 SP-036 EOH&S Responsibilities and Accountabilities	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. Senior leadership responsible for the Management System is identified specific roles aligned to AltaGas organizational chart not provided for this review. The following documents are referenced but not provided for this review: • MSP-001 Resources, Roles, Responsibility, Accountability and Authority • MSP-015 Contractor Safety Management	AUI provided MSP-001: Resources, Roles, Responsibility, Accountability and Authority and MSP-015: Contractor Safety Management within the submitted document "AUI EOHS MSP Manual Nov 2018.pdf"
4.3.2	**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.	EOH&S Management System Manual Section 6 Management Representative	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.	AUI Management System Practices clearly define the Manager, EOH&S as the management representative responsible for EOH&S-related processes, reporting, promoting awareness and liaising with external stakeholders. Responsibilities and Authorities are outlined in MSP-001 and SP-036, which were provided to the AUC in AUI's December 2018 submission.
5	**Management of resources 6**			
5.1	**Provision of resources** The operating company shall determine and provide the resources needed to implement and maintain the safety	EOH&S Management System Manual Section 8.3, PDF page 13	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	N/A

	and loss management system and continually improve its effectiveness.		direction to related practices."	
5.2	**Human resources**			
5.2.1 6 7	**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.	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	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." Tasks-Activities and Skills-based Competencies List – high level summary of skills and competency Documented procedures, Tier 3 and Tier 4 documents, not provided for this review. The following documents are referenced but not provided for this review: • *MSP-008 Training and Awareness*	High level requirements for training and competency are outlined in MSP-008 Training and Awareness, as well as SP-042 Training and Orientation. A more detailed view of training and competency is contained in the AUI Competency Assessment Plan (CAP). All documents were provided to the AUC in AUI's December submission. As further evidence of the application of AUI's CAP, find attached a sample competency assessment form (CA Sample 1).
5.2.2 6	**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.			
5.3 6	**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.			
5.4	**Work environment**			

6	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.			
6

9 | **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. | 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 | 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, not provided for this review.

The following documents are referenced but not provided for this review:
  • *MSP-009 Communication and Consultation (internal and external* | AUI has a variety of communication processes for internal and external communication as part of the safety and loss management system. An overview of these processes is contained in MSP-009 Communication and Consultation (Internal and External) which was included in the submission to the AUC in December 2018. |
| 7 | **Documents and records** | | | |
| 7.1

10
11 | **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. | 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 | 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 ADM-057, documented procedures, Tier 3 and Tier 4 documents, for control of documents and records were not provided for this review.

The following documents are referenced but not provided for this review:
  • *MMSP-012 Documents, Data and Record management* | EOH&S management system practices outline basic rules for documents and records related to the EOH&S MSM. This includes MSP-012 Documents, Data and Records Management. This document was provided to the AUC in AUI's December 2018 submission. |
| 7.2

10 | **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 | | | |
| 7.3

11 | **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; (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 8		**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. Each core process shall include the following elements: (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." Documented procedures, Tier 3 and Tier 4 documents, for control of documents and records were not provided for this review. The following documents are referenced but not provided for this review: • *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*	MSP-006: Work Practices and Operational Controls, MSP-007: Identification and Risk Assessment of Critical Tasks, and MSP-012: Documents, Data and Record Management were provided to the AUC in AUI's December submission. The references to AUI's EOH&S Safety Practices and EOH&S Environmental Practices are a global reference to the sum total of all internal Safety Practices and Environmental Practices. All of the documents submitted help to form these practices.
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.		Documented policies, processes and procedures, for project management were not provided for this review.	Although these requirements are non-mandatory, AUI is compliant with many of the core elements. Attached to this submission is a general overview of AUI's Project Management Practices (Project Management Standard Practices and Procedures v1.00).
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 2 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 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	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 pages 16-18 EOH&S Management System Manual Element #2, PDF pages 14-18 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 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 AUI SPM AUI ENV and OHS Hazard Identification Matrix	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." Correlation between AUI ENV and OHS Hazard Identification Matrix specific mitigation is not established. Documented procedures, Tier 3 and Tier 4 documents, for risk management 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*	MSP-002: Risk Management (Environmental Aspects & Safety Hazards), MSP-007: Identification and Risk Assessment of Critical Tasks, MSP-010: Performance Monitoring and Measurement, MSP-011, MSP-014: Auditing (Management System and Compliance) were provided in AUI's December submission. MSP-002 and MSP-013 outline AUI's risk management processes related to managing EOH&S-related risks. AUI's Environment and OHS Hazard Identification Matrix is an assessment of high level risks only. AUI will have a completed hazard registry constructed by the end of 2019.

	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		Programs • MSP-010 Performance Monitoring and Measurement	
8.4	**Design** Note: For the purposes of this Annex, design includes material selection.			
8.4.1	**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.		Documented policies, processes and procedures, for Planning & Design Control were not provided for this review.	These elements are non-mandatory and have not yet been adopted by AUI. AUI is evaluating the viability of these elements and will determine with aspects make sense to adopt in 2020.
8.4.2	**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.			
8.5	**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.			Detailed AUI Procurement procedures are under development. AUI will complete these procedures in 2019.
8.6	**Construction**			
8.6.1	**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;		Documented policies, processes and procedures, for Control of Construction were not provided for this review.	Although these requirements are non-mandatory, AUI has adopted the elements of the standard. For specific reference, refer to AUI SPM Section 6.0.

	(d) the availability and use of monitoring and measurement devices; and (e) the implementation of commissioning and, where applicable, post-commissioning activities.			
8.6.2	**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 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.			AUI construction practices can be verified by inspection, audit, or subsequent monitoring or measurement, therefore Annex A clause A.8.6.2 does not apply.
8.6.3	**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.			Material Traceability is not a requirement of CSA Z662, however AUI is currently developing material traceability technology and processes.
8.7	**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.	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	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	MSP-002: Risk Management (Environmental Aspects & Safety Hazards), MSP-007: Identification and Risk Assessment of Critical Tasks, MSP-010: Performance Monitoring and Measurement, MSP-011: Planning - Objectives, Targets and Programs, MSP-014: Auditing (Management System and Compliance) were provided in AUI's December 2018 submission. EOH&S Management System practices outline high level objectives for emergency preparedness and response, while the AUI Emergency Management Guide and Plan provide the structure and tactical approaches for emergency management at AUI.
8.8	**Engineering assessments**			
8.8.1	**General** Engineering assessments shall be used to support		Documented policies, processes and procedures, for Engineering Assessments were not provided for this	AUI does not have a documented engineering assessment procedure. AUI will develop such a procedure in 2019.

	decisions under an operating company's safety and loss management system, as might be required or allowed by this Standard.		review.	
8.8.2	**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.			
8.8.3	**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.			
8.8.4	**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.			
9	**Management of change**			
9.1 12	**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 (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.	Integrity Management Program Manual Section 7.0, PDF pages 13-15 EOH&S Management System Manual Element #6, PDF pages 25-27	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. The following documents are referenced but not provided for this review: • MSP-003 Management of Change - Projects, Modifications and Workplace Design • MSP-008 Training and Awareness	MSP-003: Management of Change - Projects, Modifications and Workplace Design and MSP-008: Training and Awareness were provided in AUI's December 2018 submission.
9.2 12	**Management of change process** The management of change process shall include (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	**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.	Integrity Management Program Manual Sections 8.0, 11.2, 13.0, 14.0, 15.0, PDF pages 16, 23-24, 29-31, 32 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	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. The following documents are referenced but not provided for this review: • 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	MSP-005: Incident Reporting and Investigation, MSP-010: Performance Monitoring and Measurement, MSP-013: Injuries, Incidents, Non-conformities and Corrective and Preventive Actions, MSP-014: Auditing (Management System and Compliance), and MSP-016: Management Review were provided in AUI's December 2018 submission. The Plan, Do, Check, Act cycle of continuous improvement is integrated into all aspects of AUI's EOH&S management system. Incident reporting, investigation, corrective actions and learning are built into the above management system practices.	
10.2	**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.			
10.3	**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 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. Lessons learned shall be communicated internally			
10.4	**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.			
10.5	**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.			
10.6	**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, 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.		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. The following documents are referenced but not provided for this review: • *MSP-016 Management Review*	MSP-016: Management Review was provided in AUI's December submission. The intent of this practice is to drive an annual system review to ensure suitability, adequacy and effectiveness of the system itself. Examples of this were the annual review of the OH&S Code of Conduct and Policy, as well as the Environmental Code of Conduct and Policy. All four documents were reviewed, revised and approved by AUI's President on January 8, 2019.
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	SMLS Review Findings and Comments	AUI Response
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	Manufacturing imperfections will be added in revision of AUI IMPM in 2019.
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.	Attached with this submission is a signed copy of the IMPM (AUI Integrity Management Program Manual – Rev 3.01.pdf)
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	Organizational chart will be updated in the 2019 revision of AUI IMPM.
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	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 requirement is to consider whether these details are appropriate for inclusion in the pipeline system component descriptions, not to include all of them without consideration. Thus, Capacity and Estimates of Condition are considered by AUI as unnecessary attributes for GIS description of the pipeline system

	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.
			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.
				within the scope of the AUI IMPM. However, Purpose, Location/Function of Ancillary Equipment, and Physical Surroundings along Pipeline Route are all applicable attributes and will be added in revision of AUI IMPM in 2019.
				
				With the exception of the above, the documentation previously submitted by AUI satisfies the intent of Clause N.4.

N.5.1 Integrity management program records 10 11	Operating companies shall prepare and manage records related to pipeline system a) design b) construction c) operation 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.	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." Documented procedures, Tier 3 and Tier 4 documents, for Integrity Management Program Records were not provided for this review.	The documentation previously submitted by AUI satisfies the intent of Clause N.5.1. As reference, refer to AUI's SPM Volume 1: 6.23 clause 2.3 5.18 clause 3.0 9.3 clause 10.0 9.9 clause 7.0 9.24 clause 6.0 6.1 clause 6.0 6.4 clause 3.4 6.12 clause 8.0 6.19 clause 4.0 8.3, 9.1 clause 3.0 9.2 clause 5.0 9.11 clause 6.0 9.14 clause 3.0 9.16 clause 5.0 9.17 clause 4.0

N.6 Change management 12				
N.6.1	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).	Integrity Management Program Manual Section 7.0, PDF pages 13 to 15	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.	To satisfy Clause N.6, AUI will complete a revision of Section 7.0 of AUI IMPM by the end of 2019.
N.6.2	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).			
N.7 Competency and training 7				
N.7.1	The operating company shall develop and implement competency and training requirements for company personnel,	Integrity Management Program Manual Section 6.0, PDF page 13	The IMP PM document is a Tier 2 described as "Documents that describes the core elements and interrelationships of a process and that provides	The documentation previously submitted by AUI satisfies the intent of Clause N.7. Specifically AUI's CAP and Tasks-Activities and Skills-based Competencies List and Competency Assessment Plan.

	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		direction to related practices." Documented procedures, Tier 3 and Tier 4 documents, for Competency and Training were not provided for this review.	
N.7.2	The operating company shall consider documenting the methods used to evaluate the knowledge and skills of personnel, contractors, and consultants			
N.7.3	When evaluation of knowledge and skills indicates that development is required, training shall be arranged. Such training can include participation in 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.			
N.8 Hazard identification and control 2				
N.8.1	The operating company shall identify hazards that might lead to a failure or damage incident 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	Integrity Management Program Manual Section 9.0, PDF pages 16 to 18 AUI SPM AUI ENV and OHS Hazard Identification Matrix	Compliant	N/A
N.8.2	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. Note: Clause H.2.6 provides guidance when identifying primary causes and sub-causes.	Correlation between AUI ENV and OHS Hazard Identification Matrix specific mitigation is not established		Exact nature of apparent deficiency is unclear as stated. AUI ENV and OHS Hazard Identification Matrix is unrelated to Integrity program hazard identification. As noted above, AUI is in the process of developing a comprehensive hazard inventory.
N.8.3	Where hazards that might lead to a failure or damage incidents are identified, the operating company shall (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.			
N.9 Risk assessment 3				
N.9.1 General	**Annex B** provides risk analysis and risk evaluation guidelines for (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.	Integrity Management Program Manual Section 10.0, PDF pages 18 to 21	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 10 repeats the requirements of Annex N.9.	The documentation previously submitted by AUI satisfies the intent of Clause N.9. Refer to AUI's IMPM.
N.9.2 Risk analysis approach	When selecting an appropriate approach for performing risk analysis (see Clause B.5.2), operating companies shall consider (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.		Definition of acceptable or unacceptable risk not provided. Documented procedures, Tier 3 and Tier 4 documents, for Risk Assessment were not provided for this review.	
N.9.3 Risk evaluation	When it is determined that the estimated risk level is significant (see Clause B.5.3.2), the following response shall be required: (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. Note: The options to be considered for refinement of the risk analysis include the following 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 i) the size, characteristic, and location of potential releases ii) the location, characteristics, and			

	susceptibility of people, property and the environment to adverse effects		
N.9.4 Risk reduction evaluation	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.		
N.10 Options for reducing frequency and consequences of failure or damage incidents 4			
N.10.1 Operating errors	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.	Integrity Management Program Manual Section 11.0 ,PDF pages 22 to 28	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 11 repeats the requirements of Annex N.10. 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.	The documentation previously submitted by AUI satisfies the intent of Clause N.10. Detailed process and procedures for reducing the frequency and consequences of failures or damage incidents are documented in AUI's SPM.
N.10.2 External interference	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.		
N.10.3 Imperfections	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.		
N.10.4 Natural hazards	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.		
N.10.5 Consequence reduction	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 programs; and (g) improved pipeline system design.		
N.11 Integrity management program planning			
N.11.1	Operating companies shall establish and	Integrity Management Program Manual Section	The IMP PM document is a Tier 2 described as	The documentation previously submitted by AUI satisfies the intent

	document plans and schedules for activities related to pipeline system integrity management.	12.0, PDF pages 28 to 29	"Documents that describes the core elements and interrelationships of a process and that provides direction to related practices."	of Clause N.11. Refer to AUI's IMPM.
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.		Section 12 repeats the requirements of Annex N.11. *Documented procedures, Tier 3 and Tier 4 documents, for Options for Integrity Management Program Planning were not provided for this review.*	
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." *Documented procedures, Tier 3 and Tier 4 documents, for Inspections, testing, patrols and monitoring were not provided for this review.*	The documentation previously submitted by AUI satisfies the intent of Clause N.12. Refer to AUI's IMPM.
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." *Documented procedures, Tier 3 and Tier 4 documents, for Evaluation of inspection, testing, patrols and monitoring were not provided for this review.*	To satisfy Clause N.13, AUI will make a revision of Section 13.0 of AUI IMPM to include Engineering Assessment and detailed inspection as options in response to indications of imperfection. This will be completed by the end of 2019.
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." *Documented procedures, Tier 3 and Tier 4 documents, for Mitigation and repair were not provided for this review.* *AUI Standard Practice Manual referenced but not provided for this review.*	The documentation previously submitted by AUI satisfies the intent of Clause N.14. Refer to AUI's SPM.
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." *Documented procedures, Tier 3 and Tier 4 documents, for Continual Improvement were not provided for this review.*	To satisfy Clause N.15, AUI will complete a revision of Section 15.0 of AUI IMPM to include integrity performance indicators, documented procedures to monitor and measure the performance of the integrity management program, and documented procedures for control of non-conformance. This will be completed by the end of 2019.
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." *Documented procedures, Tier 3 and Tier 4 documents, for Incident Investigations were not provided for this review.*	The documentation previously submitted by AUI satisfies the intent of Clause N.16. Refer to AUI's SPM. As a sample of further documented procedures, attached to this submission is a procedure for Incident Reporting for Damages and Leaks.

AltaGas Utilities Emergency Preparedness and Response Program - Table 3

CSA-Z246.2-14 Review

CSA-Z246.2-14		AltaGas Utilities Review Evidence	SLMS Review Comments	AUI Response
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.	The version of the Emergency Management Plan submitted is under revision. A signed copy will be on file by the end of February 2019.
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. **CSAZ662-15 Section 3 Safety and Loss Management not referenced.**	
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		
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	N/A
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	N/A
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	N/A

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. *Documented procedures, Tier 3 and Tier 4 documents, for Documentation and Document Control were not provided for this review.*	Documented procedures for documentation and document control are outlined in ADM-057 Records Retention and Disposition Schedule and MSP-012: Documents, Data and Records Management.
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; b) roles and responsibilities; c) policies, processes, and procedures; d) emergency response plans; e) exercise plan; and f) training plan.			
4.8	**Records management 11**			
4.8.1	The operator shall 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.	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." AUI Document and Records Management Procedure, referenced but not provided for this review. *Documented procedures, Tier 3 and Tier 4 documents, for Records Management were not provided for this review.*	Documented procedures for records management are outlined in ADM-057 Records Retention and Disposition Schedule and MSP-012: Documents, Data and Records Management.
4.8.2	Records should include 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.			
4.9	**Training and competence 7**			
4.9.1	**Training** The operator shall establish training to create awareness and enhance the knowledge, skills, and abilities required to develop, implement, support, and maintain the EPRP. The operator should a) provide employees who have a role in an emergency with appropriate training prior to	Emergency Management Guide Section 2.3, Page 18 Emergency Management Guide Section 6.4, Page 44	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 Training and Competence were not provided for this review.*	High level requirements for training and competency are outlined in MSP-008 Training and Awareness, as well SP-042 Training and Orientation. A more detailed view of training and competency is contained in the AUI Competency Assessment Plan (CAP). All documents were provided to the AUC in AUI's December 2018 submission. As further evidence of the application of AUI's CAP, find attached a sample competency assessment form (CA Sample 1).

	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.			
4.9.2	**Incident management system training** 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.			
4.9.3	**Competence** The operator shall ensure that employees are competent to perform their roles in the EPRP on the basis of education, training, and experience.			
4.10	**Exercises** The operator shall develop and implement an exercise plan. Exercises should be 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). Notes: 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.			
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." *Documented procedures, Tier 3 and Tier 4 documents, for Program Evaluation and Continual Improvement were not provided for this review.*	The process for emergency program evaluation and continual improvement is outlined in AUI's Emergency Management Plan.
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	Date 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." *Documented procedures, Tier 3 and Tier 4 documents, for Management of Change were not provided for this review.*	For management of change processes in relation to the protection of people, the environment, or property, refer to MSP-003: Management of Change - Projects, Modifications and Workplace Design.
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; 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.	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." *Documented procedures, Tier 3 and Tier 4 documents, for Management Review were not provided for this review.*	Process for management review outlined in Emergency Management Guide, section 1.7 and MSP-016: Management Review.
7.2	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).			
7.3	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.			
8 2 3 4	**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.	Emergency Management Guide Section 6.8, Page 47	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.*	Hazard monitoring and control outlined in Emergency Management Plan – Section 3.0 and SP013 OH&S Hazard and Environmental Aspect Assessment and Control.
9	**Emergency planning zones (EPZs)** The operator shall have a process to determine EPZs. Note: Further information is provided in Annex A.	Emergency Management Guide Sections 5.1-5.6, Pages 23-39	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.*	The AER does not require the use of EPZs for sweet natural gas pipelines; therefore AUI does not have a process for their determination. Also note, Annex A is non-mandatory.
10	**Incident management system**			
10.1	**Incident management** The operator shall have an incident-management system to direct, control, and coordinate response operations.	Emergency Management Guide Section 2.0, Pages 18-19	Compliant	N/A
10.2	**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.		Compliant	N/A
11	**Emergency response plan (ERP)**			
11.1	The operator shall have a single ERP or multiple coordinated plans which consider hazard identification, consequence analysis, and regulatory requirements.	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."	N/A
11.2	**Components of an ERP** The ERP shall contain a) a statement of purpose, scope, and objectives;	a) Emergency Management Guide Section 1.1, Pages 7-8 Emergency Management Plan Section 1.1, Page 81	a) Purpose & Objectives – Compliant a) Scope – specific geographical areas,	a) AUI recognizes the need to define a scope for its emergency management documents. The scope will be detailed, alongside a map, in the new version of the emergency management

		pipelines and facilities not provided for this review.	documents. This will be complete by end of February 2019.
b) a description of assets and operational activities covered by the ERP;	b) Emergency Management Plan Section 3.0, Pages 29-107 Emergency Management Guide Section 4.1, Page 21	b) Documented evidence, Tier 3 and Tier 4 documents, of specific descriptions of assets and activities were not provided for this review.	b) AUI recognizes the need to further define the assets covered by the emergency management documents. A description of assets will be included in latest revision due at end of February 2019.
c) mapping, with an appropriate level of detail to allow for effective planning and response;	c) Emergency Management Guide Section 21, Page 21	c) Documented evidence of Mapping was not provided for this review.	c) Detailed mapping is available in AUI's GIS (ESRI). Evidence provided by attached files (AUI GIS Sample 1, AUI GIS Sample 2, and AUI GIS Sample 3).
d) roles and responsibilities for each internal and external position in accordance with the incident management system; 6	d) Emergency Management Plan Section 3.0, Pages 29-107	d) ICS roles and internal departments identified, documented evidence detailing specific internal and external positions and responsibilities were not provided for this review.	d) Although the roles and responsibilities are outlined in each section, there is not a single section that links responsibilities to position. AUI has noted this deficiency and will work to address it in the 2020 revision of its emergency management documents.
e) emergency contact information for an individual, group, or organization that has a role in the management of an emergency; 9	e) Emergency Reporting Chain Card – 2018	e) Documented evidence of emergency contact information for impacted public was not provided for this review.	e) Public contact information is maintained within AUI GIS (sample provided in AUI GIS Sample 4).
f) emergency contact process for directly impacted public;	f) Emergency Response Manual Section 5.0, Pages 6-8	f) Documented process and procedures, Tier 3 and Tier 4 documents, for directly impacted public was not provided for this review.	f) Process for directly contacting public outlined in Emergency Management Guide and Emergency Management Plan.
g) response procedures and guidelines to manage specific emergencies;	g) Emergency Management Plan Section 3.0, Pages 29-107 Emergency Response Manual Sections 6.0-15.0, Pages 6-32	g) Compliant	g) N/A
h) command and coordination centres, and other facilities as appropriate;	h) Emergency Management Plan Section 2.0, Pages 19-27	h) Compliant EMP Section 2.3 & 2.4	h) N/A
i) procedures for communication with stakeholders within the operation; 9	i) Emergency Management Plan Section 2.2, Page 20	i) Documented process and procedures, Tier 3 and Tier 4 documents, for communication with stakeholders were not provided for this review.	i) Communication protocols for stakeholders within the operation are detailed throughout the Emergency Management Plan and Emergency Management Guide, with the specific process set in the Emergency Management Guide, Section 8.1. Further detailed procedures are set out in MSP-009: Communication and Consultation (Internal and External).
j) procedures for communication with external stakeholders; 9	j) Crisis Communication Matrix	j) Documented process and procedures, Tier 3 and Tier 4 documents, for communication with external stakeholders were not provided for this review.	j) Communication protocols for external stakeholders are detailed throughout the Emergency Management Plan, Crisis Communication Matrix and Emergency Management Guide. Further detailed procedures are set out in MSP-009: Communication and Consultation (Internal and External).
k) critical resources and a means of activation; 6	k) Emergency Management Plan Section 6.0, Pages 119-125	k) Documented process and procedures, Tier 3 and Tier 4 documents, for activation of critical resources were not provided for this review.	k) Activation procedures are outlined in both Emergency Management Guide and Emergency Management Plan.
l) references to copies of mutual aid agreements;	l) Emergency Management Guide Section 6.7, Page 46	l) Compliant	l) N/A
m) detailed hazardous product information;	m) MSDS Binders (agutl.msdsbinders.com)	m) Documented process and procedures, Tier 3 and Tier 4 documents, for detailed hazardous products information were not provided for this review.	m) Detailed hazardous product information is available through online MSDS tool (MSDS Sample 1).
n) internal and external reporting requirements; 9	n) Emergency Management Guide Section 8.0, Page 51		n) Reporting requirements, including internal and external are detailed in the Emergency Management Plan (Appendices B, C, and F) and Emergency Management Guide.
o) documentation processes;	o) Emergency Response Manual Section 16.0,		o) AUI recognizes the current references to documentation processes in the emergency management documents are

	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.	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	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.	insufficient. AUI will remedy this in the 2020 iteration of the emergency management documents. p) Activation procedures are outlined in both Emergency Management Guide and Emergency Management Plan. q) N/A r) AUI does not have documentation outlining emergency debrief procedures. Compliance with this non-mandatory requirement will be met in the future with a timeline to be determined.
11.3 6	**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.		Documented process and procedures, Tier 3 and Tier 4 documents, Equipment were not provided for this review.	AUI's emergency equipment assessment process and equipment list are outlined in Emergency Management Plan – Section 6.0.
11.4 6	**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).	Emergency Response Plan Section 3 Hazard – Specific Roles and Procedures	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.*	Hazard monitoring and control procedures are outlined in the Emergency Management Plan – Section 3.0 and SP013 OH&S Hazard and Environmental Aspect Assessment and Control
12	**Mutual aid** The operator shall assess the need for mutual aid and, where considered necessary, ensure that agreements are established. Notes:	Emergency Management Guide Section 6.7, Page 46	Compliant	N/A

	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.			
13	**Communication** 9			
13.1	**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.	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	*Documented processes and procedures, Tier 3 and Tier 4 documents, for Communication were not provided for this review.*	The AER does not require the use of EPZs for sweet natural gas pipelines; therefore AUI does not have an EPZ stakeholder engagement process. However, AUI recognizes the need to keep necessary stakeholders informed during emergency incidents and is actively working to develop a Public Education Program.
13.2	**Internal communications** The operator shall have a process for communicating internally during an emergency. The process should include 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; b) message approval; c) means to ensure equipment and system			

	interoperability; and d) periodic testing.			
13.3	**External communications 9**			
13.3.1	**Responders** The operator shall have a process for communicating with external responders during an emergency. The process should ensure 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	**Media** The operator shall have a process for communicating with the media during an emergency.			
13.3.3	**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.			
14	**Emergency response**			
14.1	The operator shall respond to emergencies to prevent or minimize consequences that could affect people, the environment, and property in accordance with the EPRP.	Emergency Management Guide Section 4.0, Page 21 Emergency Management Manual – All	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." *Documented procedures, Tier 3 and Tier 4 documents, for Emergency Response were not provided for this review.*	Detailed processes for emergency response are provided in the Emergency Response Manual.
14.2	**Response management** The operator shall implement a coordinated response based on the emergency.			
14.3	**Emergency assessment** The operator shall continually assess conditions associated with the emergency and the effectiveness of the response throughout the emergency.			
14.4	**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.			
14.5	**Incident action plan** The operator shall create an incident action plan specific to the emergency.			
14.6	**Safety**			

14.6.1	The operator shall have a process for the safety of response personnel and the public involved in, and affected by, the emergency.			
14.6.2	**Site safety** The operator shall establish site safety to protect responders.			
14.6.3	**Public safety** The operator shall coordinate public safety actions with local authorities.			
14.7	**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.			
14.8	**Notifications and reporting** The operator shall a) notify applicable stakeholders; and b) report to authorities having jurisdiction.			
14.9	**Internal and external communications** The operator shall communicate with stakeholders, both internally and externally, who are affected by the emergency.			
14.10	**Deactivation and debriefing of the response** The operator shall deactivate the response and debrief in accordance with the ERP.			