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Board



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National Energy Board Onshore Pipeline Regulations (OPR)
**Final Audit Report of the Trans Mountain Pipeline ULC Emergency Management
Program**

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Executive Summary

In accordance with section 49(3) of the *National Energy Board Act* (NEB Act), the National Energy Board (NEB or the Board) conducted a compliance audit of Trans Mountain Pipeline ULC (TMPU) during the period from 8 May 2015 and 7 February 2017. This report reflects the Board's findings as of 7 February 2017.

The objective of the audit was to assess and verify that TMPU is in compliance with the NEB's regulatory requirements. This report documents the Board's comprehensive audit of TMPU's Management System and Emergency Management program applicable to its facilities that are regulated by the NEB. The Board's findings therefore are not an evaluation of TMPU's other section 55 programs nor are they an evaluation of the Integrated Safety and Loss Management System (ISLMS) application to other lifecycle activities such as construction or abandonment. The audit was conducted using the *National Energy Board Onshore Pipeline Regulations* (OPR) as amended on 21 April 2013. This amendment clarified the Board's expectations for establishing and implementing documented Management Systems and Emergency Management programs as key operational components.

The Board's audit plan also contained specific activities to assess TMPU's response preparation for fires at its Westridge, Burnaby and Edmonton Terminals. This portion of the Board's audit continues; a subsequent report will be issued relative to the fire protection at terminals, once the Board has completed this work.

The Board conducted the audit following its published audit protocol, which identifies five Management System elements. These five elements are broken into 17 sub-elements. Each sub-element reflects several regulatory requirements. Companies must comply with 100 per cent of the regulatory requirements of each sub-element being assessed. If a company's program is found to be deficient with respect to any regulatory requirement, the entire sub-element will be found Non-Compliant.

Out of a possible 17 findings, the Board made 10 Non-Compliant findings. The Board notes, however, that the majority of the Non-Compliant findings relate to the stage of the company's Management System development. Appendix 1 of this report contains a summary table and the details regarding all of the Board's findings.

The Board found that TMPU demonstrated it is committed to the establishment and implementation of its Management System called the ISLMS. However, the Board found that a number of process documents remained in draft form, or had not been fully established or implemented at the time of the audit. Review of the ISLMS indicated that, once fully established, implemented and modified by any Corrective Action Plan (CAP) associated with this audit, it should meet the OPR requirements.



The Board also found TMPU's Emergency Management program and the procedures and practices being used, identified and controlled the majority and most significant of the company's emergency management related hazards and associated risk. In analyzing the results of the audit, the Board found that TMPU had operational practices in place that aligned with all of the OPR management process requirements. TMPU demonstrated that it is committed to its Emergency Management program, and according to records reviewed, has been for many years. TMPU demonstrated that it has developed site-specific plans and procedures, acquired and positioned a significant amount of equipment along its pipeline route and provides training and exercising opportunities for all of its responders. Further, it maintains contracts with expert responders to ensure effective responses and training.

The Board expects TMPU to finalize its process documents and address the deficiencies in Management System processes it identified in this Audit. While no immediate enforcement actions are required to address the Non-Compliant findings, the Board requires TMPU to develop and submit a CAP to address the Board's findings. The CAP must describe its proposed methods to resolve the deficiencies identified and the timeline in which corrective and preventive actions will be completed. TMPU is required to submit its CAP for approval within 40 days of this final Audit Report being issued by the Board.

The Board will assess the implementation of all of TMPU's CAPs to confirm they are completed in a timely manner and on a system wide basis until they are fully implemented. The Board will also continue to monitor the overall implementation and effectiveness of TMPU's Emergency Management program and Management System through targeted compliance verification activities as a part of its ongoing regulatory mandate.

The Board will make its final Audit Report and TMPU's approved CAP public on the Board's website.



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1 Introduction

In accordance with section 49(3) of the *National Energy Board Act* (NEB Act), the National Energy Board (NEB or the Board) conducted a compliance audit of Trans Mountain Pipeline ULC (TMPU) Management System and Emergency Management program during the period from 8 May 2015 and 7 February 2017. TMPU is an affiliate of Kinder Morgan Canada Inc. (KMC). An overview of the audit process and an explanation of definitions and abbreviations can be found in Appendices II – IV of this report. This report reflects the Board's findings as of 7 February 2017.

1.1 Audit Objective

The objective of this audit was to verify that TMPU is complying with the OPR. Specifically the Board audited TMPU's Management System and its Emergency Management Program (EM Program) as they related to its operational activities.

1.2 Audit Scope

The regulatory scope of the audit included relevant sections of:

- The NEB Act;
- The *National Energy Board Onshore Pipeline Regulations*; and
- The *National Energy Board Pipeline Crossing Regulations Part I and the National Energy Board Pipeline Crossing Regulations Part II*.

The scope also included KMC's Integrated Safety and Loss Management System (ISLMS) and its corresponding Emergency Management program as applied across its TMPU facilities regulated by the NEB. As the Board's assessment only included a review of the Management System's application to the EM program within the context of TMPU's operations activities, the Board's findings therefore are not an evaluation of TMPU's other section 55 programs nor are they an evaluation of the ISLMS application to other lifecycle activities such as construction or abandonment.

The Board's audit plan also contained specific activities to assess TMPU's response preparation for fires at its Westridge, Burnaby and Edmonton Terminals. This portion of the Board's audit continues; a subsequent report will be issued relative to the fire protection at terminals, once the Board has completed this work.



1.3 TMPU Overview

Trans Mountain Pipeline ULC, an affiliate of KMC, operates the Trans Mountain Pipeline that is approximately 1150 kilometers long. It starts in Edmonton, Alberta and terminates on the west coast of British Columbia in Burnaby. There are twenty-three active pump stations located along the pipeline route. The line capacity is approximately 300,000 barrel per day (bpd) and the line flow is eight kilometers per hour. In addition to the pump stations, four terminals in Edmonton, Kamloops, Abbotsford and Burnaby house storage tanks for incoming feeder pipelines and tanker loading facilities. Presently, the terminals have the following number of storage tanks - Edmonton Terminal 35, Kamloops 2, Sumas (Abbotsford) 6 and Burnaby 13. Additionally, the Board regulates TMPU's Westridge Marine Terminal near Burnaby, British Columbia.

While not included in this audit, the Board has approved additional facilities to be constructed in the near term by TMPU. The approved facilities include: construction of approximately 980 km of new pipeline and the reactivation of 193 km of existing pipeline; twelve new pump stations; and nineteen new petroleum storage tanks (14 in Burnaby, 1 in Sumas and 4 in Edmonton). In addition, the Westridge Marine Terminal in Burnaby will be expanded with three new tanker loading berths. (*Source: NEB and Trans Mountain Pipeline ULC*)



2 Assessment of Compliance of the Audited Processes and Activities

2.1 General

This section of the audit report documents the Board's assessment of compliance of the processes and activities reviewed as part of the audit. To determine compliance, the Board evaluated TMPU's documents and records and conducted interviews with the company personnel on issues relevant to the audit scope and criteria. The Board applied the working definitions listed in [Appendix III – Terminology and Definitions](#), attached to this report.

There are two possible audit findings assigned to each sub-element by the Board in this audit:

- Compliant (see attached list of definitions); and,
- Non-Compliant (see attached list of definitions).



The Board conducted the audit following its published audit protocol, which identifies five Management System elements. These five elements are broken into 17 sub-elements. Each sub-element reflects several regulatory requirements. Companies must comply with 100 per cent of the regulatory requirements of each sub-element being assessed. If a company's program is found to be deficient with respect to any regulatory requirement, the entire sub-element will be found Non-Compliant.

2.2 Assessment – TMPU Management System

OPR, section 6.1 outlines the Board's Management System requirements as follows:

A company shall establish, implement and maintain a Management System that

- (a) is systematic, explicit, comprehensive and proactive;
- (b) integrates the company's operational activities and technical systems with its management of human and financial resources to enable the company to meet its obligations under section 6;
- (c) applies to all the company's activities involving the design, construction, operation or abandonment of a pipeline and to the programs referred to in section 55;
- (d) ensures coordination between the programs referred to in section 55; and
- (e) corresponds to the size of the company, to the scope, nature and complexity of its activities and to the hazards and risks associated with those activities.

In determining TMPU's compliance with respect to establishing and implementing a Management System, the Board evaluated documents and records that described the company's establishment and implementation of its ISLMS in the context of its application to its Emergency Management program. This aided the Board in evaluating TMPU's systematic practices and deficiencies. The Board's findings therefore are not an evaluation of TMPU's other OPR section 55 programs nor are they an evaluation of the ISLMS' application to other lifecycle activities such as construction or abandonment.

The Board's audit results indicated that TMPU is committed to the ISLMS and has exerted a considerable amount of effort and resources in the development of its Management System. TMPU's ISLMS standard indicates that it is intended to apply to all company activities involving the design, construction, operation or abandonment of a pipeline. TMPU is integrating and managing the system requirements as they are being developed. Review of the ISLMS information provided, indicated that, once fully established, implemented and modified by any CAPs associated with this audit, it will meet all requirements.



However, the Board also found that a number of the required processes that we expected to be documented under ISLMS were in draft form or were not established and implemented when audited. The examples of this include deficiencies in processes related to the identification of legal requirements, monitoring compliance, risk evaluation and the undertaking of its own compliance and program audits. Of particular note is TMPU's deficiencies regarding OPR 6.5 (1) (g) relating to thorough processes and procedures for the proactive identification and monitoring of compliance with legal requirements. It is the Board's opinion that addressing this deficiency earlier in the development of its ISLMS, and the application of ISLMS, would have allowed TMPU to proactively identify other gaps and deficiencies in its system that were identified during this audit.

The assessment of the Management System processes is documented in Appendix I, attached to this report.

The Board notes that it is important to understand that the Board's findings noted in this section reflect the company's level of progress in developing and applying its Management System. It does not necessarily reflect the lack of technical management activities being undertaken to ensure the protection of the environment and safety of people.

2.3 Assessment – TMPU Emergency Management Program

The Board's audit identified that TMPU's Emergency Management program and the processes and practices being used, identified and controlled the majority and most significant of the company's emergency management related hazards and associated risk. TMPU demonstrated that it is committed to its Emergency Management program, and according to records reviewed, has been for many years. TMPU demonstrated that it has developed site-specific plans and procedures, acquired and positioned a significant amount of equipment along its pipeline route and provides training and exercising opportunities for all of its responders. Further, it maintains contracts with expert responders to ensure effective responses and training.

During the audit, TMPU demonstrated that it is complying with the OPR requirements identified in OPR sections 33 through 35. These sections relate to maintaining liaison with the agencies that may be involved in an emergency response, implementing awareness and continuing education programs for first responders and the public. Through the review of company records, interviews with company and agency staff and attendance at emergency response exercises by NEB staff, the Board was able to determine that TMPU has conducted a large number of engagements while meeting these regulatory requirements.



While the Board found that TMPU had operational practices in place that aligned with all of the formal management requirements; the Board notes that the establishment and implementation of Management Systems allows companies to better proactively ensure that they are identifying and managing the hazards associated with emergencies and their programs in general. TMPU has relied on its historical operational experiences to identify hazards and risk evaluation requirements to date, but the company must improve its practices for the proactive and systemic identification of hazards and risks with well-developed and fully implemented Management System processes.

3 Conclusion

The Board found that TMPU demonstrated it is committed to the establishment and implementation of its Management System called the ISLMS. However, the Board found that a number of process documents remained in draft form, or had not been fully established or implemented at the time of the audit. Review of the ISLMS indicated that, once fully established, implemented and modified by any CAP associated with this audit, it should meet the OPR requirements.

The Board also found that TMPU's Emergency Management program and the processes and practices being used, identified and controlled the majority of the company's emergency management related hazards and associated risk. TMPU demonstrated that it was committed to its Emergency Management program, and according to records reviewed, has been for many years. TMPU demonstrated that it has developed site-specific plans and procedures, acquired and positioned a significant amount of equipment along its pipeline route and provides training and exercising opportunities for all of its responders. Further, it maintains contracts with expert responders to ensure effective responses and training.

The Board expects TMPU to finalize its process documents and address the deficiencies in Management System processes it identified in this Audit. While no enforcement actions are immediately required to address these non-compliant findings, the Board requires TMPU to develop and submit a CAP to address the Board's findings. The CAP must describe its proposed methods to resolve the deficiencies identified and the timeline in which corrective and preventive actions will be completed. TMPU is required to submit its CAP for approval within 30 days of the final Audit Report being issued by the Board.



The Board will assess the implementation of all TMPU's CAP to confirm they are completed in a timely manner and on a system wide basis until fully implemented. The Board will also continue to monitor the overall implementation and effectiveness of TMPU's Emergency Management program and Management System as a whole through targeted compliance verification activities as a part of its ongoing regulatory mandate

The Board will make its final Audit Report and TMPU's approved corrective action plan public on the Board's website.



APPENDIX I: Emergency Management Program Findings Summary Table

(Note: This summary table is provided in aid of companies'¹ internal review of their assessed programs. Any Corrective Action Plans that may be required must address the entirety of the Audit Reports and Regulatory Requirements)

<u>Management System Element</u>	<u>Management System Sub-element</u>	<u>Meets all Requirements (Yes/No)</u>	<u>Summary of Deficiencies to be addressed</u>
1. Policy and Commitment	1.1. Leadership Accountability (ref. p. 15)	Yes	N/A
	1.2. Policy & Commitment Statements (ref. p. 16)	Yes	N/A
2. Planning	2.1. Hazard Identification, Risk Assessment and Control (ref. p. 17)	No	Hazard Identification and Analysis – ensure process includes identification and analysis of all hazards and potential hazards, finalize draft process and establish and implement process EM Program Hazards Inventory – finish developing inventory as per Hazard identification process above Risk Assessment Process – establish and implement a process for evaluating and managing the risks associated with the identified hazards
	2.2. Legal Requirements (ref. p. 21)	No	Identifying & Monitoring Compliance with Legal Requirements – finalize draft process and establish and implement process List of Legal Requirements – finish developing list as per process above

¹ The “References” in this table contain specific examples of the legal requirements applicable to each element but are not exhaustive and do not represent a complete list of all applicable legal requirements audited to, which are found within the NEB Act and its associated regulations, as well as other applicable legislation, technical and other standards including CSA Z662, and any conditions contained within applicable certificates or orders enforced by the Board.



	2.3. Goals, Objectives and Targets (ref. p. 23)	Yes	N/A
	2.4. Organizational Structure, Roles and Responsibilities (ref. p. 25)	Yes	N/A
3.Implementation	3.1. Operational Control – Normal Operations (ref. p. 27)	Not Applicable to this Audit	N/A
	3.2. Operational Control – Upset or Abnormal Operating Conditions (ref. p. 28)	No	<p>Process for Developing, Implementing and Communication of Controls to Prevent Manage and Mitigate the Identified Hazards and the Risks– finalize draft processes and establish and implement process</p> <p>Process for Developing Contingency Plans – establish and implement a process that meets OPR requirements</p>
	3.3. Management of Change (MOC) (ref. p. 31)	No	Address deficiencies in existing MOC process related to changes in organizational structure and legal requirements
	3.4. Training, Competence and Evaluation (ref. p. 32)	No	<p>Process for Developing Competency Requirements and Training Programs that Provide Employees and Other Persons Working with or on Behalf of the Company with Training-Ensure process addresses “other persons” in addition to employees</p> <p>Process Verifying that Employees and other Persons Working With or on Behalf of the Company are Trained and Competent- Ensure process addresses “other persons” in addition to employees</p> <p>Training Program for any Employee of the Company- Improve processes for tracking training programs and activities for employees to meet OPR requirements</p> <p>Process for Supervising Workers - establish and implement a process to meet OPR requirements</p>



	3.5. Communication (ref. p. 36)	No	Communications Process- finalize draft process for external communications and establish and implement process
	3.6. Documentation and Document Control (ref. p. 38)	Yes	N/A
4. Checking and Corrective Action	4.1. Inspection, Measurement and Monitoring (ref. p. 40)	No	Process for Inspecting and Monitoring Activities and Facilities- establish and implement a process to meet OPR requirements
	4.2. Investigating and Reporting Incidents and Near Misses (ref. p. 42)	Yes	N/A
	4.3. Internal Audits (ref. p. 43)	No	Quality Assurance Program- establish and implement a program to meet OPR requirements Process for Conducting OPR section 53 Audits- finalize draft process that meets OPR requirements and establish and implement process Conduct all OPR sections 53 and 55 audits required
	4.4. Records Management (ref. p. 45)	Yes	N/A
5. Management Review	5.1. Management Review (ref. p. 46)	No	Process for Conducting an Annual Management Review of the Management System and each Protection Program and for Ensuring Continual Improvement in Meeting the Company's Obligations Demonstrate that draft process meets OPR requirements and establish and implement process Process for evaluating the adequacy and effectiveness of the company's Management System and for monitoring, measuring and documenting the company's performance in meeting its



			<p>obligations under section 6- Demonstrate that draft process meets OPR requirements and establish and implement process</p> <p>Annual Report- Demonstrate that Annual Reviews are being conducted that meet the OPR requirements, demonstrate that management is implementing corrective and preventive actions that address the any deficiencies identified in the annual report developed under OPR section 6.6 (1), the management review conducted under OPR section 6.5 (1) (x) and any Non-Compliant findings identified in this report are being managed to successful conclusion or compliance</p>
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APPENDIX I:

EMERGENCY MANAGEMENT PROGRAM AUDIT EVALUATION TABLE

1.0 POLICY AND COMMITMENT
<p>1.1 Leadership Accountability</p> <p>Expectations: The company shall have an accountable officer appointed who has the appropriate authority over the company’s human and financial resources required to establish, implement and maintain its Management System and Protection Programs, and to ensure that the company meets its obligations for safety, security and protection of the environment. The company shall have notified the Board of the identity of the accountable officer within 30 days of the appointment and ensure that the accountable officer submits a signed statement to the Board accepting the responsibilities of their position.</p>
<p>References:</p> <p>OPR section 6.2</p>
<p>Assessment:</p> <p><u>Accountable Officer</u></p> <p>The company demonstrated through documentation that it had met the above requirements as required. TMPU had filed the necessary notifications and acceptance with the Board as required.</p> <p><u>Summary</u></p> <p>Based on the information provided by the company and review of records on file with the Board, no non-compliance issues were noted. Therefore, this issues is being assigned a status of Compliant.</p>
<p>Compliance Status: Compliant</p>



1.2 Policy and Commitment Statements

Expectations: The company shall have documented policies and goals intended to ensure activities are conducted in a manner that ensures the safety and security of the public, workers, the pipeline, and protection of property and the environment. The company shall base its Management System and protection programs on those policies and goals. The company shall include goals for the prevention of ruptures, liquids and gas releases, fatalities and injuries and for the response to incidents and emergency situations.

The company shall have a policy for the internal reporting of hazards, potential hazards, incidents and near-misses that includes the conditions under which a person who makes a report will be granted immunity from disciplinary action.

The company's accountable officer shall prepare a policy statement that sets out the company's commitment to these policies and goals and shall communicate that statement to the company's employees.

References:

OPR section 6.3

Assessment:

The requirements reviewed in this section are found in OPR sections 6.3 (1), (2) and (3).

TMPU provided its policies for meeting OPR section 6.3 (1). Based on the review of the documentation provided, no issues were identified. It is noted that this audit only reviewed the policies from the perspective of the company's Emergency Management responsibilities and therefore does not constitute a compliant finding for all of TMPU's section 55 programs.

OPR section 6.3 (2) requires that a company must base its Management System and Protection Programs on its policies as established in OPR section 6.3 (1). TMPU's demonstrated that it has developed its Emergency Management Program (EM Program) and its ISLMS taking into consideration its EHS policies as provided.

OPR section 6.3 (3) requires that the company's accountable officer shall prepare a policy statement that sets out the company's commitment to its policies and shall communicate that statement to the company's employees. TMPU provided documentation (EHS and ISLMS policies) that demonstrated that it was meeting the OPR section 6.3 (3) requirements. It is noted that this audit only reviewed the policies from the perspective of the company's Emergency Management responsibilities and therefore does not constitute a compliant finding for all of TMPU's section 55 programs.



The review of the OPR section 6.3 requirements relating to “goals” have been documented in section 2.3 Goals, Objectives and Targets, below.

Summary

Based on the information provided by the company and review of records, no non-compliance issues were noted. Therefore, this sub-element is being assigned a status of Compliant.

Compliance Status: Compliant



2.0 PLANNING

2.1 Hazard Identification, Risk Assessment and Control²

Expectations: The company shall have an established, implemented and effective process for identifying and analyzing all hazards and potential hazards. The company shall establish and maintain an inventory of hazards and potential hazards. The company shall have an established, implemented and effective process for evaluating the risks associated with these hazards, including the risks related to normal and abnormal operating conditions. As part of its formal risk assessment, a company shall keep records to demonstrate the implementation of the hazard identification and risk assessment processes.

The company shall have an established, implemented and effective process for the internal reporting of hazards, potential hazards, incidents and near-misses, and for taking corrective and preventive actions, including the steps to manage imminent hazards. The company shall have and maintain a data Management System for monitoring and analyzing the trends in hazards, incidents, and near-misses.

The company shall have an established, implemented and effective process for developing and implementing controls to prevent, manage and mitigate the identified hazards and risks. The company shall communicate those controls to anyone exposed to the risks.

References:

OPR section 6.5(1)(c),(d),(e),(f),(r),(s)

Assessment:

For this report, the Board evaluated TMPU's Hazard Identification, Risk Assessment and Control processes within the context of its pipeline facilities excluding its fire response practices for its Edmonton, Burnaby and Westridge facilities. These facilities and practices are the subject of additional, specific reviews conducted in conjunction with this audit but reported as a separate NEB activity. As well, the evaluation of TMPU's process for developing and implementing controls to prevent, manage and mitigate the identified hazards and risks, has been documented in section 3.2 Operational Control-Upset or Abnormal Operating Conditions below. The process for communicating the controls to anyone exposed to the risks has been documented in section 3.5 Communication below.

The Board made an initial evaluation of these processes during the fall and winter of 2015 – 2016; however, due to delays caused by additional auditing requirements of TMPU's fire response activities, the Board revisited non-compliant issues in February of 2017 to confirm or update its information. The Board's evaluation of this section reflects updated information.

² Hazard: Source or situation with a potential for harm in terms of injury, ill health, damage to property, damage to workplace and environment, or a combination of these. Risk: Combination of the likelihood and consequence(s) of a specified hazardous event occurring.



Hazard Identification and Analysis Process

In its initial evaluation of these requirements indicated that TMPU had not developed a Management System process for identifying and analyzing all hazards and potential hazards consistent with the requirement of OPR 6.5 (1) (c). In its subsequent activities in February 2017, TMPU provided documentation that demonstrated that it had developed a Management System process (ISLMS Standard) to meet the OPR requirement. Due to the timing of its availability, this process was not reviewed for compliance and was therefore not demonstrated to be established and implemented during the Board's audit review time period.

Regardless of the Management System process deficiencies noted above, the Board's audit identified that TMPU had identified the majority and most significant hazards on its pipeline system based on its operating history and practices.

Documentation provided indicated that, at the program level, the company had completed analysis of each hazard including hazard causation, existing preventive measures, existing consequence reduction measures and linked them to hazard conditions to identify if existing emergency management or other technical programs' plans or practices were addressing the hazards. Review of the documentation provided, however, indicated that the information provided reflected hazards that were identified and/or addressed historically and did not reflect the Board's process requirements i.e. a reactive versus proactive process as required.

Additionally, as emergency response activities are operational in nature, the Board also specifically reviewed the site-specific hazard identification practices utilized during Reponses. An example of this would be the frontline or task specific hazard analyses completed prior to activities such as boom deployments or other specific activities. The review of these processes indicated they were well designed and comprehensive in nature.

EM Program Hazards Inventory

During the Board's initial and subsequent evaluation of this requirement, TMPU provided records for review demonstrating that it has established and maintained a program level hazard inventory. It was noted that this inventory did not include potential hazards as required by OPR section 6.5 (1) (d). In its follow-up audit activities TMPU demonstrated that, while it had started to populate its ISLMS based inventory, it has not yet developed an inventory fully reflective of its ISLMS hazard identification standard and the OPR. It was noted, however, in the records provided that the existing operational inventory does significantly align with the draft requirements of its Management System standards. TMPU will need to clearly demonstrate how its ISLMS standard addresses the OPR requirements relating to "potential" hazard in its CAP.

Risk Assessment Process

The initial assessment of the risk requirements indicated that TMPU had not developed a Management System process for evaluating and managing the risks associated with the identified hazards consistent with the requirements of OPR 6.5 (1) (e). At that time TMPU indicated that a need to develop an ISLMS Standard had been identified but not addressed. During interviews, TMPU staff indicated that risk assessment activities were expected to be completed at the program level. Evaluation of the program level activities by the Board indicated that, similar to hazard identification practices, activities were occurring; however, they appeared to be limited to work or task level assessments completed at the time of activity. Additionally, review of the practices being utilized indicated that they were more focused on hazard control versus risk management. Regardless of the practices observed, review of documentation and records indicated that wherever a hazard



had been identified there were corresponding controls. It is important to note that one of the key issues regarding a lack of risk evaluation processes is the impact it has on the communication of potential consequences, the development of controls and the prioritization of activities. As an example, understanding the risk, especially the consequence components, is critical in the development and communication of site-specific plans or EM response procedures. In its subsequent activities in February 2017, TMPU provided documentation that demonstrated that it had developed a Management System process (ISLMS Standard) to meet the OPR requirement. Due to the timing of its availability, this process was not reviewed for compliance and was therefore not demonstrated to be established and implemented during the Board's audit review time period.

Process for the Internal Reporting of Hazards, Potential Hazards, Incidents and Near-misses, and for Taking Corrective and Preventive Actions, Including the Steps to Manage Imminent Hazards.

Initial evaluation of these requirements indicated that TMPU had not developed a Management System process for meeting the requirements of OPR 6.5 (1) (r). At that time TMPU indicated that a need to develop an ISLMS standard had been identified but not addressed. TMPU staff indicated that the requirements were intended to be included in the intended Hazard and Risk Management Process. During interviews and through documents and records provided, TMPU staff demonstrated that the company had a number of EHS practices being utilized that, taken as a whole, would account for the requirements of this section; however it was not being implemented in the structured, systematic manner required by the OPR that ensures thoroughness and proactivity, by design.

In its subsequent activities in February 2017, TMPU provided documentation that demonstrated that it had developed a Management System process (ISLMS Standard) to meet the OPR requirement as initially communicated. TMPU provided its Incident Reporting and Investigation Standard for review. TMPU was able to demonstrate that it was utilizing the standard in its operational activities. Based on staff interviews and documentation reviewed no further issues were identified; therefore, this particular process is being assigned a status of Compliant.

Data Management System for Monitoring and Analyzing the Trends in Hazards, Incidents, and Near-misses

The initial evaluation of these requirements indicated that TMPU had developed data management tools and practices that met the requirements of OPR 6.5 (1) (s). Interviews with TMPU staff and the review of documents and records indicated that the company's IMPACT system was the primary tool used to manage the required practices.

Based on staff interviews and documentation reviewed no issues were identified; therefore, this particular requirement is being assigned a status of Compliant.



Summary

Based on the information provided by the company and review of documents and records, two of the OPR processes or systems associated with this sub-element were found to have no issues. These related to the Process for the Internal Reporting of Hazards, Potential Hazards, Incidents and Near-misses, and for Taking Corrective and Preventive Actions, Including the Steps to Manage Imminent Hazards (6.5 (1) (r)) and the Data Management System for Monitoring and Analyzing the Trends in Hazards, Incidents, and Near-misses (6.5 (1) (s)).

Based on the information provided by the company and review of documents and records, three of the OPR processes associated with this sub-element were found to be deficient. These related to TMPU's Hazard Identification and Analysis Process (6.5 (1) (c)), EM Program Hazards Inventory (6.5 (1) (d)) and Risk Assessment Process (6.5 (1) (e)). The Board's audit identified that the issues primarily related to the establishment and implementation of compliant Management System processes. In each case, however, the Board also identified that TMPU had program level practices in place that accounted for a significant amount of the activities required in the OPR, albeit not as part of a compliant Management System.

This sub-element is being assigned a status of Non-Compliant. TMPU will have to develop corrective actions to address the described deficiencies.

Compliance Status: Non-Compliant



2.2 Legal Requirements

Expectations: The company shall have an established, implemented and effective process for identifying and monitoring compliance with all legal requirements that are applicable to the company in matters of safety, security and protection of the environment. The company shall have and maintain a list of those legal requirements. The company shall have a documented process to identify and resolve non-compliances as they relate to legal requirements, which includes updating the management and protection programs as required.

References:

OPR section 6.5(1)(g),(h),(i)

Assessment:

Process for Identifying and Monitoring Compliance with All Legal Requirements that are Applicable to the Company in Matters of Safety, Security and Protection of the Environment.

The initial evaluation of these requirements indicated that TMPU had not developed a Management System process for identifying and monitoring compliance with all legal requirements that are applicable to the company in matters of safety, security and protection of the environment, as required by OPR 6.5 (1) (g). At that time TMPU indicated that a draft ISLMS standard had been developed; however, at the time of the audit it had not been established or implemented as required. TMPU staff indicated that compliance monitoring was being undertaken at the various program levels. As it was reported to be in draft stage, a full evaluation of the process for compliance was not undertaken.

At the EM program level the procedures that were provided and reviewed reflected an in-depth knowledge of legal requirements and responsibilities. Documents reviewed included EM Plans and Manuals, Continuing Education program records and documentation, etc. The program level practices observed, however, did not demonstrate that a specific compliance identification and monitoring process or procedure was in place or how compliance monitoring was occurring.

In the subsequent activities in February 2017, TMPU provided documentation that it was continuing to work towards implementing its draft Management System process, however, it had not fully established or implemented it. TMPU staff indicated that the company was still reviewing software options and that the ISLMS process would need to be modified to reflect the chosen software requirements.

Based on staff interviews and documentation reviewed issues were identified; therefore, this particular requirement is being assigned a status of Non-Compliant.



List of Legal Requirements

The initial evaluation of these requirements indicated that TMPU had not established a list of Legal requirements as required by OPR 6.5 (1) (h).

In the subsequent activities in February 2017, TMPU staff indicated that, while the company was moving forward with its identification of the legal requirements as required by the OPR, it had not yet completed the list. TMPU staff indicated that it was projecting that its list would be partially completed by mid-February 2017.

Based on staff interviews and documentation reviewed issues were identified; therefore, this particular requirement is being assigned a status of Non-Compliant.

Summary

Based on the information provided by the company, both the legal identification and compliance monitoring process and the legal list requirements were identified as not meeting the OPR Management System requirements. Therefore, this sub-element is being assigned a status of Non-Compliant.

Compliance Status: Non-Compliant



2.3 Goals, Objectives and Targets

Expectations: The company shall have an established, implemented and effective process for developing and setting goals, objectives and specific targets relevant to the risks and hazards associated with the company's facilities and activities (i.e., construction, operation and maintenance). The company's process for setting objectives and specific targets shall ensure that the objectives and targets are those required to achieve its goals, and shall ensure that the objectives and targets are reviewed annually.

The company shall include goals for the prevention of ruptures, liquid and gas releases, fatalities and injuries, and for the response to incidents and emergency situations. The company's goals shall be communicated to employees.

The company shall develop performance measures for assessing the company's success in achieving its goals, objectives, and targets. The company shall annually review its performance in achieving its goals, objectives and targets and the performance of its Management System. The company shall document the annual review of its performance, including the actions taken during the year to correct any deficiencies identified in its quality assurance program, in an annual report, signed by the accountable officer.

References:

OPR sections 6.3, 6.5(1)(a),(b), 6.6

Assessment:

For this report, the Board evaluated TMPU's Goals, Objectives and Target requirements within the context of its pipeline facilities excluding its fire response practices for its Edmonton, Burnaby and Westridge facilities. These facilities and practices are the subject of additional, specific reviews conducted in conjunction with this audit but reported as a separate NEB activity.

Establishment of Goals

The requirements reviewed in this section are found in OPR sections 6.3 (1).

TMPU provided its goals for meeting its obligations under OPR section 6 as required by section 6.3 (1). Based on the review of the documentation provided, no issues were identified. It is noted that this audit only reviewed the policies from the perspective of the company's Emergency Management responsibilities and therefore does not constitute a compliant finding for all of TMPU's section 55 programs.



TMPU also demonstrated through documentation that it had established goals for the response to incidents and emergency situations and communicated them to employees as required by OPR section 6.3 (1) (b) and 6.3 (3). TMPU provided documents and records of the development and integration of appropriate goals applicable to the Management System and the EM program. TMPU has established EM specific goals for guiding corporate and field level EM activities. For example, TMPU provided goals for response times that were being used for resourcing and placement of its incident response trailers, equipment caches across its pipeline system. TMPU demonstrated that it had based its Management System and EM program on the established goals as required by OPR section 6.3 (2).

Based on staff interviews and documentation reviewed no issues were identified; therefore, these particular requirements are being assigned a status of Compliant.

Process for Setting the Objectives and Specific Targets that are Required to Achieve the Goals Established under OPR 6.3(1) and for Ensuring their Annual Review

The requirements reviewed in this section are found in OPR sections 6.5 (1) (a).

TMPU demonstrated through documentation provided that it had established a Management System process within its ISLMS that meets the OPR requirements. TMPU provided records of the development and integration of appropriate Management System and EM program level objectives and targets within its management regime. Additionally, TMPU provided records demonstrating the on-going monitoring and management of the goals, objectives and targets by program and corporate management.

Based on staff interviews and documentation reviewed no issues were identified; therefore, these particular requirements are being assigned a status of Compliant.

Process for Developing Performance Measures for assessing Success in Achieving Goals, Objectives, and Targets

The requirements reviewed in this section are found in OPR sections 6.5 (1) (b).

TMPU demonstrated through documentation provided that it had established a Management System process within its ISLMS that meets the OPR requirements. TMPU provided records of the development and integration of appropriate Management System and EM program level performance measures for measuring its success in meeting its established goals, objectives and targets. Additionally, TMPU provided records demonstrating the on-going monitoring and management of the performance measures by program and corporate management.

Based on staff interviews and documentation reviewed no issues were identified; therefore, these particular requirements are being assigned a status of Compliant.



The review of the OPR section 6.6 (1) (a) requirements relating to the annual report and measurement of the company's goals, objectives, targets and performance measures have been documented in section 5.1 Management Review, below.

Summary

Based on the information provided by the company and review of records on file with the Board, no non-compliance issues were noted relating to TPU goals, objectives, targets and performance measure. Therefore, this sub-element is being assigned a status of Compliant.

Compliance Status: Compliant



2.4 Organizational Structure, Roles and Responsibilities

Expectations: The company shall have a documented organizational structure that enables it to meet the requirements of its Management System and its obligations to carry out activities in a manner that ensures the safety and security of the public, company employees and the pipeline, and protection of property and the environment. The documented structure shall enable the company to determine and communicate the roles, responsibilities and authority of the officers and employees at all levels. The company shall document contractors' responsibilities in its construction and maintenance safety manuals.

The documented organizational structure shall also enable the company to demonstrate that the human resources allocated to establishing, implementing and maintaining the Management System are sufficient to meet the requirements of the Management System and to meet the company's obligations to design, construct, operate or abandon its facilities to ensure the safety and security of the public and the company's employees, and the protection of property and the environment. The company shall complete an annual documented evaluation in order to demonstrate adequate human resourcing to meet these obligations.

References:

OPR sections 6.4, 20, 31

Assessment:

The requirements reviewed in this section are found in OPR sections 6.4 (a), (b) and (c).

Documented Organizational Structure that Enables it to Meet the Requirements of its Management System and its Obligations under OPR Section 6.

TMPU provided documents and records indicating that it has a documented organizational structure that enables it to meet the requirements of its Management System and its obligations under OPR section 6 as required by section 6.4 (a). Based on the review of the documentation provided, no issues were identified. It is noted that this audit only reviewed the organizational structure from the perspective of the company's Emergency Management responsibilities and Management System therefore does not constitute a compliant finding for all of TMPU's section 55 programs.

Documented Organizational Structure that Enables the Company to Determine and Communicate the Roles, Responsibilities and Authority of the Officers and Employees at all Levels of the Company.

TMPU provided documents and records indicating that it has a documented organizational structure that enables the company to determine and communicate the roles, responsibilities and authority of the officers and employees at all levels as required by section 6.4 (b). Review of the documents and records provided by TMPU in its demonstration of compliance indicated that the company had developed roles and responsibility statements for staff involved in the development and



implementation of the Management System and the Emergency Management program including staff involved in the program management and for response to emergency situations. Based on the review of the documentation provided, no issues were identified. It is noted that this audit only reviewed the organizational structure from the perspective of the company's Emergency Management responsibilities and Management System therefore does not constitute a compliant finding for all of TMPU's section 55 programs.

Documented Organizational Structure that Enables the Company to Demonstrate, based on an Annual Documented Evaluation of Need, that the Human Resources Allocated to Establishing, Implementing and Maintaining the Management System are Sufficient to Meet the Requirements of the Management System and to Meet the Company's Obligations under Section 6.

The Board made an initial evaluation of these processes during the fall and winter of 2015 – 2016; however, due to delays caused by additional auditing requirements of TMPU's fire response activities, the Board revisited non-compliant issues in February of 2017 to confirm or update its information. The Board's evaluation of this section reflects updated information.

During its initial evaluation of the OPR section 6.4 (c) requirements described above, review of the documentation and records provided by TMPU it was identified that the company had not been consistently completing the evaluation of need in an empirical manner that demonstrated that that human resources were being allocated sufficiently to meet the requirements of the Management System and meet the company's obligations under OPR section 6 on an on-going basis for the period reviewed in the audit.

In its subsequent activities in February 2017, TMPU provided documentation that demonstrated that it had developed and implemented better practices for ensuring that the evaluations of need would be undertaken in a manner that would consistently meet the OPR requirements. TMPU provided records of recent annual management reviews that followed the described practices.

Summary

Based on the information provided by the company, no non-compliance issues were noted during the initial and subsequent re-evaluation. Therefore, this sub-element is being assigned a status of Compliant.

Compliance Status: Compliant



3.0 IMPLEMENTATION

3.1 Operational Control-Normal Operations

Expectations: The company shall have an established, implemented and effective process for developing and implementing corrective, mitigative, preventive and protective controls associated with the hazards and risks identified in elements 2.0 and 3.0, and for communicating these controls to anyone who is exposed to the risks.

The company shall have an established, implemented and effective process for coordinating, controlling and managing the operational activities of employees and other people working with or on behalf of the company.

References:

OPR section 6.5(1)(e),(f),(q)

Assessment:

AS THE CONTROLS ASSOCIATED WITH EMERGENCY MANAGEMENT PROGRAMS NORMALLY RELATE TO UPSET OR ABNORMAL OPERATING CONDITIONS, THE EVALUATION OF CONTROLS AND CONTROL PROCESSES ARE DOCUMENTED IN THE SECTION BELOW

Compliance Status: N/A



3.2 Operational Control-Upset or Abnormal Operating Conditions

Expectations: The company shall establish and maintain plans and procedures to identify the potential for upset or abnormal operating conditions, accidental releases, incidents and emergency situations. The company shall also define proposed responses to these events and prevent and mitigate the likely consequence and/or impacts of these events. The procedures must be periodically tested and reviewed, and revised where appropriate (for example, after upset or abnormal events). The company shall have an established, implemented and effective process for developing contingency plans for abnormal events that may occur during construction, operation, maintenance, abandonment or emergency situations.

References:

OPR section 6.5(1)(c),(d),(e),(f),(t)

Assessment:

For this report, the Board evaluated TMPU's processes for developing, implementing and communicating controls to prevent, manage and mitigate the identified hazards and the risks and the development of contingency plans within the context of its pipeline facilities excluding its fire response practices for its Edmonton, Burnaby and Westridge facilities. These facilities and practices are the subject of additional, specific reviews conducted in conjunction with this audit but reported as a separate NEB activity. The process for communicating the controls to anyone exposed to the risks has been documented in section 3.5 Communication below.

The Board made an initial evaluation of these processes during the fall and winter of 2015 – 2016; however, due to delays caused by additional auditing requirements of TMPU's fire response activities, the Board revisited non-compliant issues in February of 2017 to confirm or update its information. The Board's evaluation of this section reflects updated information.

Process for Developing, Implementing and Communicating Controls to Prevent, Manage and Mitigate the Identified Hazards and the Risks

Initial evaluation of these requirements indicated that TMPU had not developed a Management System process consistent with the requirement of OPR 6.5 (1) (f). TMPU staff indicated that these requirements were intended to be included in other ISLMS standards that were under development or intended to be developed at that time. These standards included the Hazard Identification Standard, Communications Standard, among others. In its subsequent activities in February 2017, TMPU provided documentation that demonstrated that it had developed the ISLMS standards for Hazard Identification and Communications. However, at that time, the processes were still in a draft, unestablished state. Therefore TMPU could not demonstrate how it was meeting the control development requirements. Regardless of the development of the Management System processes, the Board reviewed TMPU's existing practices, procedures, activities and equipment to determine how it was controlling and managing its hazards and risks at an operational and EM program level. This review indicated that, due to TMPU's operating experience, it had identified the majority of its hazards and associated risk and had developed and implemented controls to address them.



TMPU's controls included, but were not limited to:

- development of its EM manuals, plans and procedures;
- development and implementation of its Continuing Education Program;
- development and implementation of its Public Awareness Program and liaison activities;
- development and implementation of its EM exercise program and plans;
- development and implementation of its training and competency (T&C) program;
- establishment and maintenance of contracts with EM response providers and subject matter expertise;
- full adoption and integration of the Incident Command System (ICS) within its EM program and activities; and,
- acquisition and pre-positioning of EM response equipment (including boats, mobile response trailers and associated equipment) along the pipeline at strategically identified locations.

Of particular note is TMPU's acquisition and pre-positioning of its EM response equipment and its T&C and exercise programs. The company demonstrated that it has pre-positioned a significant amount of equipment along its rights of ways based on logistical and geographic modeling and considerations. At the time of the audit activities, TMPU provided records that indicated it had 19 response trailers along its route. During staff interviews and through document and record reviews, TMPU demonstrated that its staff, contractors and other third party responders are appropriately knowledgeable, trained, and/or exercised with respect to the use of response equipment and procedures, implementation of plans and, where applicable, integration with other EM plans and organizations.

Process for Developing Contingency Plans

Evaluation of these requirements indicated that TMPU had not developed a management system process consistent with the requirement of OPR 6.5 (1) (t) regarding developing contingency plans for abnormal events that may occur during construction, operation, maintenance, abandonment or emergency situations. TMPU's ISLMS documentation references the need to develop contingency plans but no process was available for review.



Regardless of the development of the Management System processes, TMPU demonstrated that it had developed and implemented a number of practices that related to contingency plans and that contingency plans were routinely being developed. Examples of the practices and documentation demonstrating operational activities included:

- development of site-specific plans;
- development of tactical EM plans for specific locations such as water crossings;
- integration of planning requirements within contracts; and,
- adoption of ICS requirements.

Emergency Procedures Manual

The NEB has developed a separate, specific process for reviewing all companies' emergency procedures manuals on a regular basis. TMPU's manuals were reviewed using this process, no significant deficiencies were noted. Records of the review are kept on file by the NEB.

Summary

The Board identified that TMPU had developed and implemented a significant number of controls to address the hazards and risk associated with abnormal events at its facilities within its EM program. Additionally, TMPU demonstrated that it had developed practices to address many contingency planning requirements. However, based on staff interviews and documentation reviewed deficiencies were identified with respect to the establishment of the OPR required Management System processes related to the development of controls relating to hazards and risks and the development of contingency plans. The Board found that TMPU had developed its controls and contingency plans based on their operating experience versus the structured, systematic manner required by the OPR that ensures thoroughness and proactivity, by design. Therefore, this sub-element is being assigned a status of Non-Compliant.

Compliance Status: Non-Compliant



3.3 Management of Change (MOC)

Expectations: The company shall have an established, implemented and effective process for identifying and managing any change that could affect safety, security or protection of the environment, including any new hazard or risk, any change in a design, specification, standard or procedure and any change in the company's organizational structure or the legal requirements applicable to the company.

References:

OPR section 6.5(1)(i)

Assessment:

The requirements reviewed in this section are found in OPR sections 6.5 (1) (i).

During the audit, TMPU provided an established and implemented MOC process and records for review. Review of the process indicated that it accounted for all of the OPR management requirements except for changes "in the company's organizational structure or the legal requirements applicable to the company".

TMPU indicated that changes to legal requirements were anticipated to be managed within its new ISLMS standard for identifying and monitoring compliance with legal requirements (see sub-element 2.2 Legal Requirements, above). It is noted that the MOC process requirement is specific in its requirements; therefore, in developing its CAP for this sub-element, TMPU should specifically include how it will manage the requirements within its proposed MOC and Legal Requirements processes to maintain compliance.

Review of the supplied records indicated that the presented process was being implemented at the EM program level as designed and required by the company.

Summary

Based on staff interviews and documentation reviewed deficiencies were identified in the MOC process related to the management of changes in the company's organizational structure and the legal requirements applicable to the company; therefore, this sub-element is being assigned a status of Non-Compliant.

Compliance Status: Non-Compliant



3.4 Training, Competence and Evaluation

Expectations: The company shall have an established, implemented and effective process for developing competency requirements and training programs that provide employees and other persons working with or on behalf of the company with the training that will enable them to perform their duties in a manner that is safe, ensures the security of the pipeline and protects the environment.

The company shall have an established, implemented and effective process for verifying that employees and other persons working with or on behalf of the company are trained and competent, and for supervising them to ensure that they perform their duties in a manner that is safe, ensures the security of the pipeline and protects the environment. The company shall have an established, implemented and effective process for making employees and other persons working with or on behalf of the company aware of their responsibilities in relation to the processes and procedures required by the Management System or the company's protection programs.

The company shall have an established, implemented and effective process for generating and managing training documents and records.

References:

OPR section 6.5(1) (j),(k),(l),(p)

Assessment:

Process for Developing Competency Requirements and Training Programs that Provide Employees and Other Persons Working with or on Behalf of the Company with Training

The requirements reviewed in this section are found in OPR section 6.5 (1) (j).

During the audit, TMPU provided information regarding its "KEEP" program as meeting the OPR requirements. KEEP was identified as a training and qualification program that ensures workers have core and discipline-specific competencies. It requires workers to complete on-line courses that provide required training and evaluation for competency. Review of the information indicated that KEEP was focused on managing training requirements from the perspective of employees but did not meet the requirements for "other persons working with or on behalf of the company". TMPU also provided other plans and practices as meeting the requirements. This included a *Contractor Competency Assurance Plan* and its *Contractor Qualification and Specification Procedure*. It also indicated that the training requirements are also established within its ISNetWorld™ third party contractor management program. Review of the various practices and tools indicated that, while it was accounting for many of the OPR requirements and that KEEP was well developed and implemented for employees, the activities did not yet constitute the process required by the OPR. To be compliant, TMPU will have to demonstrate that it has established and implemented the all-inclusive Management System process applicable to other workers required by the OPR versus the collected procedures and plans it was utilizing.



Training Program for any Employee of the Company who is Directly Involved in the Operation of the Pipeline

The requirements reviewed in this section are found in OPR sections 46 (1), 2 (c) and 2 (d).

As noted above, TMPU demonstrated that it had developed and implemented its KEEP program for employee training. For employees this program was noted to be robust if any training requirements were included in it. TMPU provided its requirements for and records of staff participation in its EM training including exercises and drills. TMPU's requirements are robust for all staff who have any involvement in EM responses.

Section 46 (2) (d) indicates that the training program shall instruct the employee on the emergency procedures set out in the manual developed under section 32 and the procedures for the operation of all emergency equipment that the employee could reasonably be expected to use.

With respect to the EM procedures, TMPU EM staff indicated that all staff are required to review the EM procedures manuals as part of their new staff on-boarding activities. Interviews with field staff indicated that they had reviewed the procedures as per this description; however, formal records of completion of this expectation is not required or kept. EM staff also indicated that part of all exercises and drills is to include a review of applicable procedures being tested/trained on prior to the field activities starting. TMPU provided records indicating that this practice was being implemented on a routine basis; however, procedures outlining this specific requirement was not observed.

In reviewing the information provided by TMPU, it was noted that EM equipment training was accounted for at general level in KEEP but the program did not clearly outline what equipment required training, what the procedures were to be trained on and what employees required the training as per the OPR section 46 requirements. Furthermore it could not be ascertained if individuals were receiving the training on the specific equipment they could be expected to use. Regardless of the KEEP program's management limitations, TMPU could clearly provide records of attendance at EM related training, exercises and drills for all staff and others who required it as records are kept at the "event" level but not the "equipment" level. TMPU could provide equipment level training records for certain safety critical pieces of equipment such as boom deployment boats or atmosphere monitoring.

Because of the deficiencies related to the specific OPR requirements for the training program, this particular requirement is being assigned a status of Non-Compliant.

Process Verifying that Employees and other Persons Working With or on Behalf of the Company are Trained and Competent

The requirements reviewed in this section are found in OPR section 6.5 (1) (k).

TMPU's process for verifying training and competency are directly linked to and in its process for developing competency and training programs as required by OPR 6,5 (1) (j). The evaluation of which is documented above in this section. As per that evaluation, review of the documentation provided during the Board's initial review period indicated TMPU's existing practices for verification of training and competency are accounting for the majority of the requirements for employees but lack for "other persons" included in the regulatory requirements. TMPU did provide additional documentation demonstrating changes initiated between the Board's initial and follow-up reviews; the changes, while acknowledged, will be evaluated within the Board's CAP implementation reviews.



At the EM program level, TMPU provided documents and records that had a number of practices in place to ensure that staff and others were trained and competent to undertake their emergency management responsibilities. TMPU staff provided records demonstrating the mandatory requirements for staff and contractors to participate in exercises or drills either as part of internal or specific contract requirements. Further, TMPU EM and operational staff confirmed during interviews that training and learning objectives relating to procedures, activities or equipment are communicated and learning and abilities are confirmed as part of the various activities.

Because of the deficiencies related to the specific OPR requirements for the training program, this particular requirement is being assigned a status of Non-Compliant.

Process for Supervising Workers to Ensure that they Perform their Duties in a Manner that is Safe, Ensures the Security of the Pipeline and Protects the Environment

The requirements reviewed in this section are found in OPR section 6.5 (1) (k). The Board notes that OPR section 6.5 (1) (k) requires two fairly distinct process requirements. One being a process for verifying that employees and other persons working with or on behalf of the company are trained and competent and the other being a process for supervising them while working. For better evaluation of compliance and to allow companies to arrange their management processes most efficiently, the Board has broken this process into specific evaluation and reporting criteria under one OPR reference.

During its audit, TMPU did not provide a compliant Management System process or processes for supervising workers either in draft format or otherwise.

At the EM program level numerous activity level practices and procedures were noted for supervising staff during operational activities. Examples included the on-scene command procedures, ICS requirements, safety watch practices, etc.

Because of the deficiencies related to the specific OPR requirements for supervising workers, this particular requirement is being assigned a status of Non-Compliant.

Process for Making Employees and Other Persons Working with or on Behalf of the Company Aware of their Responsibilities in Relation to the Required Management System Processes and Procedures

The requirements reviewed in this section are found in OPR section 6.5 (1) (l).

The initial evaluation of these requirements indicated that TMPU had not developed a Management System process consistent with the requirement of the OPR. However, during the follow-up activities, TMPU demonstrated that it had undertaken corrective actions (established a new process) in the interim that addressed the deficiency as it relates to the EM program activities. Based on the information provided, this item is now considered compliant; however, the re-review did not examine the practices in relation to other programs and was limited to operational activities (not construction, abandonment, etc.).

Summary

The Board identified that TPU had developed and implemented a significant number of processes, procedures and practices to identify and manage its training and competency identification and management requirements. Additionally, TPU demonstrated that it had developed some processes and practices to address its supervisory and communications required by the OPR sections addressed in this sub-element. However, based on staff interviews and documentation reviewed, deficiencies were identified with respect to the establishment of some of OPR required Management System processes (Training & Competency identification and verification), the lack of inclusion of other, non-employees and some of the specific requirements related to the development of the required employee training program). Therefore this sub-element is being assigned a status of Non-Compliant.

Compliance Status: Non-Compliant



3.5 Communication

Expectations: The company shall have an established, implemented and effective process for the internal and external communication of information relating to safety, security and environmental protection. The process should include procedures for communication with the public, company employees, contractors, regulatory agencies and emergency responders.

References:

OPR section 6.5(1)(m)

Assessment:

The initial evaluation of these requirements indicated that TMPU had split the Management System process requirement into two separate processes Internal and External Communication Processes. TMPU indicated that both were in draft form with the internal process available for review and consideration and the external not being provided due to its developmental stage. Review of the Internal Communication process and associated records indicated that, while it had not been implemented, it appeared to meet the requirements. During the follow-up activities, TMPU demonstrated that it had established and implemented the internal process as required. It also provided its external process for review. While it had been approved for implementation, TMPU staff indicated it had not been implemented yet. Because of its lack of implementation and time constraints the adequacy of this document was not reviewed.

Because communications practices are key practices within EM programs, the Board focused on TMPU's communications activities during the audit. The Board examined documents and records associated with TMPU's:

- Public Awareness Program (as it relates to EM);
- Continuing Education Program;
- Liaison activities;
- EM communication procedures and requirements; and,
- MOU's and Mutual Aid Documentation (where available), among others.

Through this documentation review and staff interviews, TMPU is undertaking a considerable volume of activities with all of the groups expected by the Board. Based on the review, no issues were noted from the perspectives of volume, schedules, procedure or practices, communication content and audiences.



It is noted that the Board reviewed the communications activities from the perspective of TMPU's pipeline facilities, not including terminal fire response requirements and in the context of its existing, operations and activities (not TMEX facilities or construction thereof).

Summary

Based on the information provided, The Board identified that TMPU is undertaking a considerable amount work in order to meet the communications requirements associated with its EM program, facilities and activities. No issues were noted regarding its practices related to its program level communications practices. However, based on staff interviews and documentation reviewed deficiencies were identified with respect to the establishment of some the OPR required Management System process (es). TMPU provided external and internal processes and associated documentation for review; however, TMPU did not demonstrate compliance with respect to its external communication process due to the interim development of the process. Therefore, this sub-element is being assigned a status of Non-Compliant.

Compliance Status: Non-Compliant



3.6 Documentation and Document Control

Expectations: The company shall have an established, implemented and effective process for identifying the documents required for the company to meet its obligations to conduct activities in a manner that ensures the safety and security of the public, company employees and the pipeline, and protection of property and the environment. The documents shall include all of the processes and procedures required as part of the company's Management System.

The company shall have an established, implemented and effective process for preparing, reviewing, revising and controlling documents, including a process for obtaining approval of the documents by the appropriate authority. The documentation should be reviewed and revised at regular and planned intervals.

Documents shall be revised where changes are required as a result of legal requirements. Documents should be revised immediately where changes may result in significant negative consequences.

References:

OPR sections 6.5(1)(i),(n),(o), 6.5(3)

Assessment:

The requirements reviewed in this section are found in OPR sections 6.5 (1) (n) and (o).

The Board made an initial evaluation of these processes during the fall and winter of 2015 – 2016; however, due to delays caused by additional auditing requirements of TMPU's fire response activities, the Board revisited non-compliant issues in February of 2017 to confirm or update its information. The Board's evaluation of this section reflects updated information.

Process for Identifying the Documents Required for the Company to Meet its Obligations under OPR Section 6.

During the Board's initial evaluation TMPU was unable to provide a documented process that met the OPR section 6.5 (1) (n) requirements; however, during the follow-up review TMPU provided documentation that met the Board's requirements.

Process for Preparing, Reviewing, Revising and Controlling Documents, Including a Process for Obtaining Approval of the Documents by the Appropriate Authority.

During the Board's initial evaluation TMPU provided a Management System process (ISLMS Standard). Review of the standard indicated that it accounted for the OPR section 6.5 (1) (o) process requirements with the exception that it did not include defined review periods to ensure documents were being kept current and up to date using a managed process. While TMPU staff were able to demonstrate that, at the EM program level, many of the EM documents were being reviewed and revised on a regular basis, the OPR process requirements were not being reflected in the ILMS standard. During the Board's re-evaluation, TMPU demonstrated



that it had implemented changes to its document control process (ILMS standard) that addressed the identified deficiencies.

Summary

Based on the information provided by the company no non-compliance issues were noted during the re-evaluation. Therefore, this sub-element is being assigned a status of Compliant.

Compliance Status: Compliant



4.0 CHECKING AND CORRECTIVE ACTION

4.1 Inspection, Measurement and Monitoring

Expectations: The company shall have an established, implemented and effective process for inspecting and monitoring the company's activities and facilities to evaluate the adequacy and effectiveness of the protection programs and for taking corrective and preventive actions if deficiencies are identified. The evaluation shall include compliance with legal requirements.

The company shall have an established, implemented and effective process for evaluating the adequacy and effectiveness of the company's Management System, and for monitoring, measuring and documenting the company's performance in meeting its obligations to perform its activities in a manner that ensures the safety and security of the public, company employees and the pipeline, and protection of property and the environment.

The company shall have an established, maintained and effective data Management System for monitoring and analyzing the trends in hazards, incidents and near-misses. The company shall have documentation and records resulting from the inspection and monitoring activities for its programs.

The company Management System shall ensure coordination between its protection programs, and the company should integrate the results of its inspection and monitoring activities with other data in its hazard identification and analysis, risk assessments, performance measures and annual management reviews, to ensure continual improvement in meeting the company's obligations for safety, security and protection of the environment.

References:

OPR sections 6.1(d), 6.5(1) (g),(s),(u),(v), 56

Assessment:

During the Board's audit activities, TMPU did not demonstrate that it had established and implemented a Management System process that meets the OPR requirements. Additionally, due to the lack of a compliant compliance identification and monitoring process, TMPU could not demonstrate that it was undertaking the compliance inspections as required by OPR section 53.

At the program level, TMPU provided records that it was undertaking inspections of its equipment and facilities and that identified deficiencies were being addressed. TMPU demonstrated that its inspection practices were being managed within its IVARA system.



Summary

Based on the information provided, TMPU demonstrated that it was conducting inspections and implementing corrective actions, where required by its internal practices. However, TMPU did not demonstrate that it had established a Management System process that meets the requirements of the OPR including section 53 compliance inspections. Therefore, this sub-element is being assigned a status of Non-Compliant.

Compliance Status: Non-Compliant



4.2 Investigating and Reporting Incidents and Near-misses

Expectations: The company shall have an established, implemented and effective process for reporting on hazards, potential hazards, incidents and near-misses, and for taking corrective and preventive actions. This should include conducting investigations where required or where hazards, potential hazards, incidents and near-misses have or could have resulted in the safety and security of the public, company employees and the pipeline, and protection of property and the environment, being significantly compromised.

The company shall have an established, maintained and effective data Management System for monitoring and analyzing the trends in hazards, incidents and near-misses.

The company should integrate the results of its reporting on hazards, potential hazards, incidents and near-misses with other data in hazard identification and analysis, risk assessments, performance measures and annual management reviews, to ensure continual improvement in meeting the company's obligations for safety, security and protection of the environment.

References:

OPR sections 6.5(1)(r),(s),(u),(w),(x), 52

Assessment:

The requirements identified in this sub-element have been included in the evaluation of sub-element 2.1 Hazard Identification, Risk Assessment and Control, above.

Compliance Status: N/A



4.3 Internal Audits

Expectations: The company shall have an established, implemented and effective quality assurance program for its Management System and for each protection program, including a process for conducting regular inspections and audits and for taking corrective and preventive actions if deficiencies are identified. The audit process should identify and manage the training and competency requirements for staff carrying out the audits.

The company should integrate the results of its audits with other data in hazard identification and analysis, risk assessment, performance measures and annual management review, to ensure continual improvement in meeting the company's obligations for safety, security and protection of the environment.

References:

OPR section 6.5(1)(w),(x)

Assessment:

The requirements reviewed in this section are found in OPR sections 6.5 (1) (w), 53 and 55.

The Board made an initial evaluation of these processes during the fall and winter of 2015 – 2016; however, due to delays caused by additional auditing requirements of TMPU's fire response activities, the Board revisited non-compliant issues in February of 2017 to confirm or update its information. The Board's evaluation of this section reflects updated information.

Quality Assurance Program

During the Board's initial evaluation, TMPU directed the Board's auditors to its Quality Assurance (QA) Plan requirements within its ISLMS as meeting the OPR section 6.5 (1) (w), Quality Assurance Program requirements. Review of the documentation and records provided indicated that it contained most of the requirements normally required to be compliant. Many of the QA program activities such as inspections, measuring and monitoring, incident investigation, management review, etc. were demonstrated as being completed on an on-going basis. Evaluation of the various activities are documented elsewhere within this report.

The QA Plan provided, however, did not include a process for conducting audits in accordance with section 53, as specifically required within the OPR. TMPU staff indicated that the company was in the process of developing an ISLMS standard to meet the requirements. TMPU provided copies of the draft standards in demonstration of its activities to meet compliance. Review of the documentation indicated that it was substantially complete at that time.



During the Board's follow-up audit activities, TMPU provided copies of its finalized ISLMS audit standard applicable to its compliance audits. While a full review of the standard was not completed at the time due to time constraints, the initial review indicated that the standard did include a basic auditing process that was similar to the ISO 19011 Guidelines for Auditing Management Systems. While the standard was not reported by TMPU staff to be fully established or implemented across the full breadth of the company and its section 55 programs, TMPU staff provided records that it had conducted some audits using the standard regardless of the full adoption of the standard. TMPU provided records of a recently completed audit of its Security Management Program that reportedly followed the ISLMS standard.

OPR Section 53 and 55 Audits

Section 53 indicates that companies must conduct audits, with a maximum interval of three years, to ensure that its pipeline is designed, constructed, operated and abandoned in compliance with certain described compliance requirements. Companies have been required to conduct these compliance audits since 1999. TMPU was unable to demonstrate that it had undertaken the audits required. TMPU provided records of several audits being conducted by its internal KMC corporate auditing group and third party external groups as potentially meeting the requirements. TMPU also provided records of CEPA self-audits of its EM program as potentially meeting the requirements. Review of the records provided determined that the audits did not account for the section 53 requirements; therefore, no evidence of compliant audits was provided.

Section 55 indicates that that companies must conduct audits, with a maximum interval of three years, of its operations programs. Emergency Management is included as one of the six programs that must be audited. It is noted that prior to April 2013, Emergency Management was defined as a specific program within the OPR. Therefore, TMPU would not have had to demonstrate that it had conducted a section 55 compliant audit at the time of the initial review as three years had not elapsed. Compliance to this requirement was therefore not assessed; however, TMPU should be prepared to demonstrate during future NEB compliance verification activities.

Summary

Based on the information provided by the company, TMPU did not demonstrate that it had established and implemented a compliant QA Program. While it provided records demonstrating the development of its ISLMS QA Plan, its audit process was not established and implemented at the time of the audit and it could not demonstrate that it had been conducting section 53 compliance audits as required. Therefore, this sub-element is being assigned a status of Non-Compliant.

Compliance Status: Non-Compliant



4.4 Records Management

Expectations: The company shall have an established, implemented and effective process for generating, retaining, and maintaining records that document the implementation of the Management System and its protection programs, and for providing access to those who require them in the course of their duties.

References:

OPR section 6.5(1)(p)

Assessment:

The requirements reviewed in this section are found in OPR sections 6.5 (1) (p).

The Board made an initial evaluation of these processes during the fall and winter of 2015 – 2016; however, due to delays caused by additional auditing requirements of TMPU's fire response activities, the Board revisited non-compliant issues in February of 2017 to confirm or update its information. The Board's evaluation of this section reflects updated information.

During the Board's initial evaluation, TMPU provided a draft Management System process (ISLMS standard) that it was intending to implement; however, it had not yet been established and implemented as required. At that time TMPU was utilizing an existing records management policy to guide its records management practices. Interviews with staff and review of documents and records indicated that the company was managing its Management System and EM program records consistently according to the policy.

During the subsequent follow-up review, TMPU demonstrated that it had established and implemented the draft process. TMPU provided information indicating that it had established a records management committee and had developed a records requirements matrix for its ISLMS.

Summary

Based on the information provided by the company no non-compliance issues were noted during the evaluation. Therefore, this sub-element is being assigned a status of Compliant.

Compliance Status: Compliant



5.0 MANAGEMENT REVIEW

5.1 Management Review

Expectations: The company shall have an established, implemented and effective process for conducting an annual management review of the Management System and each protection program and for ensuring continual improvement in meeting the company's obligations to perform its activities in a manner that ensures the safety and security of the public, company employees and the pipeline, and protection of property and the environment. The management review should include a review of any decisions, actions and commitments which relate to the improvement of the Management System and protection programs, and the company's overall performance.

The company shall complete an annual report for the previous calendar year, signed by the accountable officer, that describes the performance of the company's Management System in meeting its obligations for safety, security and protection of the environment and the company's achievement of its goals, objectives and targets during that year, as measured by the performance measures developed under the Management System and any actions taken during that year to correct deficiencies identified by the quality assurance program. The company shall submit to the Board a statement, signed by the accountable officer, no later than April 30 of each year, indicating that it has completed its annual report.

References:

OPR sections 6.5(1)(w),(x),6.6

Assessment:

Process for Conducting an Annual Management Review of the Management System and each Protection Program and for Ensuring Continual Improvement in Meeting the Company's Obligations

The requirements reviewed in this section are found in OPR sections 6.5 (1) (x).

During the Board's initial evaluation, TMPU was unable to demonstrate that it had a process that met the OPR requirements. At that time TMPU was relying on its ISLMS Quality Assurance Plan to address the OPR requirements. Review of the QA Plan requirements indicated that, while the majority of the OPR review requirements were being addressed, not all were. During the Board's follow-up activities, TMPU provided its new Management System process to address the Board's requirements. TMPU provided records to demonstrate that it had been approved in October 2016 and that it had been utilized in its mid-year management reviews in November 2016.



While TMPU could demonstrate that it had developed process and had used it for its mid-year meetings, TMPU could not demonstrate use of this process to address the deficiencies in the annual management review. The Board will assess on-going compliance of the updated process and its implementation by including a review item in the Board's implementation assessment for this audit.

Process for evaluating the adequacy and effectiveness of the company's Management System and for monitoring, measuring and documenting the company's performance in meeting its obligations under section 6

The requirements reviewed in this section are found in OPR sections 6.5 (1) (v).

The Board's evaluation for this process identified identical issues for this requirement as for OPR section 6.5 (1) (x) above; therefore the assessment for that item is being applied in this section.

Annual Report

The requirements reviewed in this section are found in OPR sections 6.6 (1).

During the Board's audit, TMPU provided documentation to demonstrate that management review practices were being implemented and an annual report was being completed. As noted elsewhere in this report, the QA plan used to generate the report had deficiencies with respect to the reviews undertaken to the date of the Board's initial audit activities. Also as noted, TMPU has developed a new review process for undertaking its annual reviews prior to the Board's follow-up audit activities. TMPU demonstrated through records that the process had been applied in its on-going internal quarterly reviews at the time; however, it had not yet been used to develop the required annual review and report required. TMPU will need to demonstrate the compliance of the new review process and its application on an ongoing basis within its corrective action plan for this sub-element.

Additionally, in this sub-element the Board also assesses the results of all of the management, review and compliance processes that it considers the responsibility of a company's management. The Board identified that, while TMPU has addressed many of the Management System requirements in its ISLMS, many of the Management System processes and requirements have not been fully established and implemented resulting in TMPU's overall Management System being evaluated as not established and implemented. The Board notes that TMPU is deficient in the establishment of its compliance monitoring processes as well as the completion of its compliance and program audits while the requirements have been in force since 1999.



Summary

In the Board's initial evaluation, TMPU was able to demonstrate that it has conducted management reviews and developed the associated reports as required utilizing its ISLMS Quality Assurance Plan requirements. The Board's review of the QA plan and associated records identified deficiencies in the process and reviews completed to date. The deficiencies were regarding the content of the reviews completed in relation to the specific OPR requirements. The Board's follow-up activities, however, identified that TMPU has updated its processes to address the Board's initial concerns and requirements and that the company will be using them on a go forward basis. The Board notes that TMPU will have to demonstrate in its corrective actions associated with this sub-element how it will mitigate any of its past management reviews' deficiencies, i.e. complete all required audits and Management System reviews, etc.

The Board also noted that some of the non-compliances noted in this audit should have been identified and addressed by the management review processes. The Board considers assurance of the establishment of the Management System, assurance of compliance and implementation of internal audits to be the responsibility of companies' senior management. Therefore, this sub-element is being assigned a status of Non-Compliant. TMPU will have to develop corrective actions to address the described deficiencies

Compliance Status: Non-Compliant



Appendix II – Audit Process Overview

1.0 NEB Purpose and Audit Framework (General)

The NEB's purpose is to promote safety and security, environmental protection, and efficient energy infrastructure and markets in the Canadian public interest within the mandate set by Parliament in the regulation of pipelines, energy development and trade. In order to assure that pipelines are designed, constructed, operated and abandoned in a manner that ensures: the safety and security of the public and the company's employees; safety of the pipeline and property; and protection of the environment, the Board has developed regulations requiring companies to establish and implement documented Management Systems applicable to specified technical management and protection programs. These Management Systems and programs must take into consideration all applicable requirements of the NEB Act and its associated regulations. The applicable Legislation and Regulations which come under the NEB's mandate, responsibilities and powers include:

- *National Energy Board Act* and associated regulations;
- *Canada Oil and Gas Operations Act* and associated regulations;
- *Canada Petroleum Resources Act* (sections 28 and 35) and associated regulations;
- *Oil and Gas Operations Act* and associated regulations; and,
- *Petroleum Resources Act* and associated regulations.

Additional regulatory requirements are contained within:

- Any conditions contained within applicable certificates or orders issued by the Board.

To evaluate compliance with its regulations, the Board audits the Management System and programs of regulated companies. The Board requires each regulated company to demonstrate that they have established and implemented, adequate and effective methods for proactively identifying and managing hazards and risks. The Board's Management System requirements are described within the OPR sections 6.1 through 6.6.



2.0 Background (General)

The NEB expects pipeline companies to operate in a systematic, comprehensive and proactive manner that manages risks. The Board expects companies to have effective, fully developed and implemented Management Systems and protection programs to anticipate, prevent, mitigate and manage conditions that may adversely affect the safety and security of the company's pipelines, employees, the general public, as well as the protection of property and the environment. Compliant Management Systems must also provide for continual improvement.

During the audit, the Board reviews documentation and samples records provided by the company in its demonstration of compliance and interviews corporate and regionally based staff. The Board may also conduct separate but linked technical inspections of a representative sample of company facilities. This enables the Board to evaluate the adequacy, effectiveness and implementation of the Management System and programs. The Board bases the scope and location of the inspections on the needs of the audit. The inspections follow the Board's standard inspection processes and practices. Although they inform the audit, inspections are considered independent of the audit. If unsafe or non-compliant activities are identified during an inspection, they are actioned as set out by the Board's standard inspection and enforcement practices.

After completing its field activities, the Board develops and issues a Final Audit Report. The Final Audit Report outlines the Board's audit activities and provides evaluations of the company's compliance with the applicable regulatory requirements. Once the Board issues the Final Audit Report, the company must submit and implement a Corrective Action Plan (CAP) to address all non-compliances identified. CAPs must include both corrective and preventive actions, where appropriate and schedules for implementation. Final Audit Reports are published on the Board's website. The audit results are integrated into NEB's risk-informed lifecycle approach to compliance assurance.

3.0 Audit Objectives and Scope

This audit evaluated the company against the legal requirements and scope outlined in Sections 1.1 and 1.2 of the main body of the audit report.

4.0 Audit Activities

By letter dated 8 May 2015, the Board informed Trans Mountain Pipeline ULC (TMPU) of its intent to audit TMPU to verify that it is complying with the OPR. Specifically the Board audited TMPU's Management System and its Emergency Management Program (EM Program) as they related to its operational activities.



Subsequently, Board audit staff provided TMPU with an overview of the NEB audit process, the audit criteria, a request for documentation relevant to the objectives and scope of the audit. The NEB conducted its assessment based on the documents and records made available by the company and from interviews of company staff during the audit.

Throughout the audit period Board staff was in contact with company staff to arrange and coordinate this audit. TMPU established a digital access portal for Board audit staff to review documentation and records.

Board staff conducted an opening meeting with company representatives in Calgary to initiate the audit and confirm the Board's audit objectives, scope and process. Subsequent to the opening meeting, Board staff undertook interviews and field activities during the initial audit period 29 May 2015 to 18 March 2016. Interviews were held at the company's office in Calgary and at selected field locations across TMPU's system. Additionally, NEB staff attended company emergency response exercises to observe the implementation of TMPU's exercise program.

On 18 March 2016, the Board auditors held an audit close-out meeting with company representatives. At this meeting, Board audit staff presented the findings that would be recommended to the Board for its consideration and approval.

During the audit, the Board determined that a specific, technical assessment of TMPU's Fire Response preparations at its terminal was required. This determination was based on the hazards and risk associated with fire related incidents at Tank Terminals. The assessment was initiated; however, due to the specific knowledge requirements and the complexity of evaluating the equipment and practices, the process has taken longer than expected. Consequently, the Board has decided to split out that assessment into a separate compliance verification activity and will make its assessment public when completed. The results of this report, therefore, should not be considered as applying to those response activities unless specified.

Due to the length of time added to the Board's normal audit process by the Fire Response assessment, the Board followed up on its initial Management System and EM program assessments to confirm the accuracy of its assessments. This was completed on 7 February 2017. This report documents the assessments confirmed at that time.



Appendix III – Terminology and Definitions

(The Board has applied the following definitions and explanations in measuring the various requirements included in this audit. They follow or incorporate legislated definitions or guidance and practices established by the Board, where available.)

Adequate: The Management System, programs or processes complies with the scope, documentation requirements and, where applicable, the stated goals and outcomes of the NEB Act, its associated regulations and referenced standards. Within the Board's regulatory requirements, this is demonstrated through documentation.

Audit: A systematic, documented verification process of objectively obtaining and evaluating evidence to determine whether specified activities, events, conditions Management Systems or information about these matters conform to audit criteria and legal requirements and communicating the results of the process to the company.

Compliant: The company has demonstrated that it has developed and implemented programs, processes and procedures that meet legal requirements.

Corrective Action Plan: A plan that addresses the non-compliances identified in the audit report and explains the methods and actions that will be used to correct them.

Developed: A process or other requirement has been created in the format required and meets the described regulatory requirements.

Effective: A process or other requirement meets its stated goals, objectives, targets and regulated outcomes. Continual improvement is being demonstrated. Within the Board's regulatory requirements, this is primarily demonstrated by records of inspection, measurement, monitoring, investigation, quality assurance, audit and management review processes as outlined in the OPR.

Established: A process or other requirement has been developed in the format required. It has been approved and endorsed for use by the appropriate management authority and communicated throughout the organization. All staff and persons working on behalf of the company or others that may require knowledge of the requirement are aware of the process requirements and its application. Staff has been trained on how to use the process or other requirement. The company has demonstrated that the process or other requirement has been implemented on a permanent basis. As a measure of "permanent basis", the Board requires the requirement to be implemented, meeting all of the prescribed requirements, for three months.

Finding: The evaluation or determination of the compliance of programs or elements in meeting the requirements of the *National Energy Board Act* and its associated regulations.



Implemented: A process or other requirement has been approved and endorsed for use by the appropriate management authority. It has been communicated throughout the organization. All staff and persons working on behalf of the company or others that may require knowledge of the requirement are aware of the process requirements and its application. Staff has been trained on how to use the process or other requirement. Staff and others working on behalf of the company have demonstrated use of the process or other requirement. Records and interviews have provided evidence of full implementation of the requirement, as prescribed (i. e. the process or procedures are not partially utilized).

Inventory: A documented compilation of required items. It must be kept in a manner that allows it to be integrated into the Management System and Management System processes without further definition or analysis.

List: A documented compilation of required items. It must be kept in a manner that allows it to be integrated into the Management System and Management System processes without further definition or analysis.

Maintained: A process or other requirement has been kept current in the format required and continues to meet regulatory requirements. With documents, the company must demonstrate that it meets the document management requirements in OPR, section 6.5(1)(o). With records, the company must demonstrate that it meets the records management requirements in OPR, section 6.5 (1)(p).

Management System: The system set out in OPR sections 6.1 to 6.6. It is a systematic approach designed to effectively manage hazards and reduce risk, and promote continual improvement. The system includes the organizational structures, resources, accountabilities, policies, processes and procedures required for the organization to meet its obligations related to safety, security and environmental protection.

(The Board has applied the following interpretation of the OPR for evaluating compliance of Management Systems applicable to its regulated facilities.)

As noted above, the NEB Management System requirements are set out in OPR sections 6.1 to 6.6. Therefore, in evaluating a company's Management System, the Board considers more than the specific requirements of section 6.1. It considers how well the company has developed, incorporated and implemented the policies and goals on which it must base its Management System as described in section 6.3; its organizational structure as described in section 6.4; and considers the establishment, implementation, development and/or maintenance of the processes, inventory and list described in section 6.5(1). As stated in sections 6.1(c) and (d), the company's Management System and processes must apply and be applied to the programs described in section 55.

Non-Compliant: The company has not demonstrated that it has developed and implemented programs, processes and procedures that meet the legal requirements. A corrective action plan must be developed and implemented.



Procedure: A documented series of steps followed in a regular and defined order thereby allowing individual activities to be completed in an effective and safe manner. A procedure also outlines the roles, responsibilities and authorities required for completing each step.

Process: A documented series of actions that take place in an established order and are directed toward a specific result. A process also outlines the roles, responsibilities and authorities involved in the actions. A process may contain a set of procedures, if required.

(The Board has applied the following interpretation of the OPR for evaluating compliance of Management System processes applicable to its regulated facilities.)

OPR section 6.5(1) describes the Board's required Management System processes. In evaluating a company's Management System processes, the Board considers whether each process or requirement: has been established, implemented, developed or maintained as described within each section; whether the process is documented; and whether the process is designed to address the requirements of the process, for example a process for identifying and analyzing all hazards and potential hazards. Processes must contain explicit required actions including roles, responsibilities and authorities for staff establishing, managing and implementing the processes. The Board considers this to constitute a common 5 w's and h approach (who, what, where, when, why and how). The Board recognizes that the OPR processes have multiple requirements; companies may therefore establish and implement multiple processes, as long as they are designed to meet the legal requirements and integrate any processes linkages contemplated by the OPR section. Processes must incorporate or contain linkage to procedures, where required to meet the process requirements.

As the processes constitute part of the Management System, the required processes must be developed in a manner that allows them to function as part of the system. The required Management System is described in OPR section 6.1. The processes must be designed in a manner that contributes to the company following its policies and goals established and required by section 6.3.

Further, OPR section 6.5(1) indicates that each process must be part of the Management System and the programs referred to in OPR section 55. Therefore, to be compliant, the process must also be designed in a manner which considers the specific technical requirements associated with each program and is applied to and meets the process requirements within each program. The Board recognizes that single process may not meet all of the programs; in these cases it is acceptable to establish governance processes as long as they meet the process requirements (as described above) and direct the program processes to be established and implemented in a consistent manner that allows for the Management System to function as described in 6.1.

Program: A documented set of processes and procedures designed to regularly accomplish a result. A program outlines how plans, processes and procedures are linked; in other words, how each one contributes to the result. A company regularly plans and evaluates its program to check that the program is achieving the intended results.



(The Board has applied the following interpretation of the OPR for evaluating compliance of programs required by the NEB regulations.)

The program must include details on the activities to be completed including what, by whom, when, and how. The program must also include the resources required to complete the activities.



Appendix IV – Standard Abbreviations List

AO: Accountable officer

AP: Audit Protocol

CAP: Corrective Action Plan

CAPA: Corrective Action / Preventive Action

CLC: *Canada Labour Code, Part II*

COHSR: *Canada Occupational Health and Safety Regulations*

CSA Z662-15: CSA Standard Z662 entitled *Oil and Gas Pipeline Systems*, 2015 version

EHS: Environment, health and safety

EM: Emergency Management

EPP: Environmental Protection Plan

ERP: Emergency Response Plan

HSMP: Health and Safety Management Plan

ISLMS: Integrated Safety Loss Management System

KMC: Kinder Morgan Canada Inc.

MOC: Management of change

NEB: National Energy Board

OPR: *National Energy Board Onshore Pipeline Regulations*

Ops: Operations

QA: Quality Assurance

QMP: Quality Management Plan

SME: Subject Matter Expert

TMEP: Trans Mountain Expansion Project

TMPU: Trans Mountain Pipeline ULC



Appendix V: Documents and Records Reviewed

Records of Documentation Reviewed during this audit are kept on file at the National Energy Board.

Appendix VI: Trans Mountain Pipeline ULC. - Company Representatives Interviewed

Records of company representatives interviewed during this audit are kept on file at the National Energy Board.

Corrective and Preventive Action Plan

Company Name: *Trans Mountain Pipeline ULC*

Audit Topic: **Management System and Emergency Management Program**

Audit CVA Number: **1516 - 424**

<u>Finding #¹</u> <u>(A)</u>	<u>Related regulatory requirement(s)</u> <u>(B)</u>	<u>Audit finding as written</u> <u>(C)</u>
TMPU-1516 – 2.1a	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (c) establish and implement a process for identifying and analyzing all hazards and potential hazards</p>	<p><u>Hazard Identification and Analysis Process</u></p> <p>Initial evaluation of these requirements indicated that TMPU had not developed a management system process for identifying and analyzing all hazards and potential hazards consistent with the requirement of OPR 6.5 (1) (c). In its subsequent activities in February 2017, TMPU provided documentation that demonstrated that it had developed a management system process (ISLMS Standard) to meet the OPR requirement. The Board’s review of this process indicated that it should be considered draft and not fully implemented and compliant.</p> <p>Regardless of the management system process deficiencies noted above, the Board’s audit identified that TMPU had identified the majority and most significant hazards on its pipeline system based on its operating history and practices.</p> <p>Documentation provided indicated that, at the program level, the company had completed analysis of each hazard including hazard causation, existing preventive measures, existing consequence reduction measures and linked them to hazard conditions to identify if existing emergency management or other technical programs’ plans or practices were addressing the hazards. Review of the documentation provided, however, indicated that the information provided reflected hazards that were identified and/or addressed historically and did not reflect the Board’s process requirements i.e. a reactive versus proactive process as required.</p> <p>Additionally, as emergency response activities are operational in nature, the Board also specifically reviewed the site-specific hazard identification practices utilized during Reponses. An example of this would be the frontline or task specific hazard analyses completed prior to activities such as boom deployments or other specific activities. The review of these processes indicated they were well designed and comprehensive in nature.</p>
TMPU-1516 - 2.1b	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (d) establish and maintain an inventory of the identified hazards and potential hazards</p>	<p><u>EM Program Hazards Inventory</u></p> <p>During the Board’s initial and subsequent evaluation of this requirement, TMPU provided records for review demonstrating that it has established and maintained a program level hazard inventory. It was noted that this inventory did not include potential hazards as required by OPR section 6.5 (1) (d). In its follow-up audit activities TMPU demonstrated that, while it had started to populate its ISLMS based inventory, it has not yet developed an inventory fully reflective of its ISLMS hazard identification standard and the OPR. It was noted, however, in the records provided that the existing operational inventory does significantly align with the draft requirements of its management system standards. TMPU will need to clearly demonstrate how its ISLMS standard addresses the OPR requirements relating to “potential” hazard in its CAP.</p>
TMPU-1516 – 2.1c	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (e) establish and implement a process for evaluating and managing the risks associated with the identified hazards, including the risks related to normal and abnormal operating conditions</p>	<p><u>Risk Assessment Process</u></p> <p>The initial assessment of the risk requirements indicated that TMPU had not developed a management system process for evaluating and managing the risks associated with the identified hazards consistent with the requirements of OPR 6.5 (1) (e). At that time TMPU indicated that a need to develop an ISLMS standard had been identified but not addressed. During interviews, TMPU staff indicated that risk assessment activities were expected to be completed at the program level. Evaluation of the program level</p>

¹ This Work Sheet is to be filled out by Board and sent to company

Corrective and Preventive Action Plan

Company Name: *Trans Mountain Pipeline ULC*

Audit Topic: **Management System and Emergency Management Program**

Audit CVA Number: **1516 - 424**

		<p>activities by the Board indicated that, similar to hazard identification practices, activities were occurring; however, they appeared to be limited to work or task level assessments completed at the time of activity. Additionally, review of the practices being utilized indicated that they were more focused on hazard control versus risk management. Regardless of the practices observed, review of documentation and records indicated that wherever a hazard had been identified there were corresponding controls. It is important to note that one of the key issues regarding a lack of risk evaluation processes is the impact it has on the communication of potential consequences, the development of controls and the prioritization of activities. As an example, understanding the risk, especially the consequence components, is critical in the development and communication of site-specific plans or EM response procedures. In its subsequent activities in February 2017, TMPU provided documentation that demonstrated that it had developed a management system process (ISLMS Standard) to meet the OPR requirement. Due to the timing of its availability, this process was not reviewed for compliance and was therefore not demonstrated to be established and implemented during the Board's audit review time period.</p>
TMPU-1516 – 2.2a	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (g) establish and implement a process for identifying, and monitoring compliance with, all legal requirements that are applicable to the company in matters of safety, security and protection of the environment</p>	<p><u>Process for Identifying and Monitoring Compliance with All Legal Requirements that are Applicable to the Company in Matters of Safety, Security and Protection of the Environment</u></p> <p>The initial evaluation of these requirements indicated that TMPU had not developed a management system process for identifying and monitoring compliance with all legal requirements that are applicable to the company in matters of safety, security and protection of the environment, as required by OPR 6.5 (1) (g). At that time TMPU indicated that a draft ISLMS standard had been developed; however, at the time of the audit it had not been established or implemented as required. TMPU staff indicated that compliance monitoring was being undertaken at the various program levels. As it was reported to be in draft stage, a full evaluation of the process for compliance was not undertaken.</p> <p>At the EM program level the procedures that were provided and reviewed reflected an in-depth knowledge of legal requirements and responsibilities. Documents reviewed included EM Plans and Manuals, Continuing Education program records and documentation, etc. The program level practices observed, however, did not demonstrate that a specific compliance identification and monitoring process or procedure was in place or how compliance monitoring was occurring.</p> <p>In the subsequent activities in February 2017, TMPU provided documentation that it was continuing to work towards implementing its draft management system process, however, it had not fully established or implemented it. TMPU staff indicated that the company was still reviewing software options and that the ISLMS process would need to be modified to reflect the chosen software requirements.</p> <p>Based on staff interviews and documentation reviewed issues were identified; therefore, this particular requirement is being assigned a status of Non-Compliant.</p>
TMPU-1516 – 2.2b	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (h) establish and maintain a list of those legal requirements</p>	<p><u>List of Legal Requirements</u></p> <p>The initial evaluation of these requirements indicated that TMPU had not established a list of Legal requirements as required by OPR 6.5 (1) (h).</p> <p>In the subsequent activities in February 2017, TMPU staff indicated that, while the company was moving forward with its identification of the legal requirements as required by the OPR, it had not yet completed the list. TMPU staff indicated that it was projecting that its list would be partially completed by mid-February 2017.</p> <p>Based on staff interviews and documentation reviewed issues were identified; therefore, this particular requirement is being assigned a status of Non-Compliant.</p>
TMPU-1516 - 3.2a	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (f) establish and implement a process for developing and implementing controls to prevent, manage and mitigate the identified hazards and the risks and for communicating those controls to anyone who is exposed to the risks</p>	<p><u>Process for Developing, Implementing and Communicating Controls to Prevent, Manage and Mitigate the Identified Hazards and the Risks</u></p> <p>Initial evaluation of these requirements indicated that TMPU had not developed a management system process consistent with the requirement of OPR 6.5 (1) (f). TMPU staff indicated that these requirements were intended to be included in other ISLMS standards that were under development or intended to be developed at that time. These standards included the Hazard Identification</p>

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		<p>Standard, Communications Standard, among others. In its subsequent activities in February 2017, TMPU provided documentation that demonstrated that it had developed the ISLMS standards for Hazard Identification and Communications. However, at that time, the processes were still in a draft, unestablished state. Therefore TMPU could not demonstrate how it was meeting the control development requirements. Regardless of the development of the management system processes, the Board reviewed TMPU's existing practices, procedures, activities and equipment to determine how it was controlling and managing its hazards and risks at an operational and EM program level. This review indicated that, due to TMPU's operating experience, it had identified the majority of its hazards and associated risk and had developed and implemented controls to address them.</p> <p>TMPU's controls included, but were not limited to:</p> <ul style="list-style-type: none"> • development of its EM manuals, plans and procedures; • development and implementation of its Continuing Education Program; • development and implementation of its Public Awareness Program and liaison activities; • development and implementation of its EM exercise program and plans; • development and implementation of its training and competency (T&C) program; • establishment and maintenance of contracts with EM response providers and subject matter expertise; • full adoption and integration of the Incident Command System (ICS) within its EM program and activities; and, • acquisition and pre-positioning of EM response equipment (including boats, mobile response trailers and associated equipment) along the pipeline at strategically identified locations. <p>Of particular note is TMPU's acquisition and pre-positioning of its EM response equipment and its T&C and exercise programs. The company demonstrated that it has pre-positioned a significant amount of equipment along its rights of ways based on logistical and geographic modeling and considerations. At the time of the audit activities, TMPU provided records that indicated it had 19 response trailers along its route. During staff interviews and through document and record reviews, TMPU demonstrated that its staff, contractors and other third party responders are appropriately knowledgeable, trained, and/or exercised with respect to the use of response equipment and procedures, implementation of plans and, where applicable, integration with other EM plans and organizations.</p>
<p>TMPU-1516 – 3.2b</p>	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (t) establish and implement a process for developing contingency plans for abnormal events that may occur during construction, operation, maintenance, abandonment or emergency situations</p>	<p><u>Process for Developing Contingency Plans</u></p> <p>Evaluation of these requirements indicated that TMPU had not developed a management system process consistent with the requirement of OPR 6.5 (1) (t) regarding developing contingency plans for abnormal events that may occur during construction, operation, maintenance, abandonment or emergency situations. TMPU's ISLMS documentation references the need to develop contingency plans but no process was available for review.</p> <p>Regardless of the development of the management system processes, TMPU demonstrated that it had developed and implemented a number of practices that related to contingency plans and that contingency plans were routinely being developed. Examples of the practices and documentation demonstrating operational activities included:</p> <ul style="list-style-type: none"> • development of site-specific plans; • development of tactical EM plans for specific locations such as water crossings; • integration of planning requirements within contracts; and, • adoption of ICS requirements.
<p>TMPU-1516 – 3.3</p>	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (i) establish and implement a process for identifying and managing any change that could affect safety, security or the protection of the environment, including any new hazard or risk, any change in a design, specification, standard or procedure and any change in the</p>	<p>The requirements reviewed in this section are found in OPR sections 6.5 (1) (i). During the audit, TMPU provided an established and implemented MOC process and records for review. Review of the process indicated that it accounted for all of the OPR management requirements except for changes "in the company's organizational structure or the legal requirements applicable to the company".</p>

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	<p>company's organizational structure or the legal requirements applicable to the company</p>	<p>TMPU indicated that changes to legal requirements were anticipated to be managed within its new ISLMS standard for identifying and monitoring compliance with legal requirements (see sub-element <u>2.2 Legal Requirements</u>, above). It is noted that the MOC process requirement is specific in its requirements; therefore, in developing its CAP for this sub-element, TMPU should specifically include how it will manage the requirements within its proposed MOC and Legal Requirements processes to maintain compliance. Review of the supplied records indicated that the presented process was being implemented at the EM program level as designed and required by the company</p>
<p>TMPU-1516 – 3.4a</p>	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (j) establish and implement a process for developing competency requirements and training programs that provide employees and other persons working with or on behalf of the company with the training that will enable them to perform their duties in a manner that is safe, ensures the security of the pipeline and protects the environment</p>	<p><u>Process for Developing Competency Requirements and Training Programs that Provide Employees and Other Persons Working with or on Behalf of the Company with Training</u></p> <p>The requirements reviewed in this section are found in OPR section 6.5 (1) (j). During the audit, TMPU provided information regarding its "KEEP" program as meeting the OPR requirements. KEEP was identified as a training and qualification program that ensures workers have core and discipline-specific competencies. It requires workers to complete on-line courses that provide required training and evaluation for competency. Review of the information indicated that KEEP was focused on managing training requirements from the perspective of employees but did not meet the requirements for "other persons working with or on behalf of the company". TMPU also provided other plans and practices as meeting the requirements. This included a <i>Contractor Competency Assurance Plan</i> and its <i>Contractor Qualification and Specification Procedure</i>. It also indicated that the training requirements are also established within its ISNetWorld™ third party contractor management program. Review of the various practices and tools indicated that, while it was accounting for many of the OPR requirements and that KEEP was well developed and implemented for employees, the activities did not yet constitute the management system process required by the OPR. To be compliant, TMPU will have to demonstrate that it has established and implemented the all-inclusive management system process applicable to other workers required by the OPR versus the collected procedures and plans it was utilizing.</p>
<p>TMPU-1516 – 3.4b</p>	<p>46 (1) A company shall develop and implement a training program for any employee of the company who is directly involved in the operation of the pipeline. (2) The training program shall instruct the employee on (c) the procedures for the proper operation of the equipment that the employee could reasonably be expected to use; and (d) the emergency procedures set out in the manual developed under section 32 and the procedures for the operation of all emergency equipment that the employee could reasonably be expected to use.</p>	<p><u>Training Program for any Employee of the Company who is Directly Involved in the Operation of the Pipeline</u></p> <p>The requirements reviewed in this section are found in OPR sections 46 (1), 2 (c) and 2 (d). As noted above, TMPU demonstrated that it had developed and implemented its KEEP program for employee training. For employees this program was noted to be robust if any training requirements were included in it. TMPU provided its requirements for and records of staff participation in its EM training including exercises and drills. TMPU's requirements are robust for all staff who have any involvement in EM responses.</p> <p>Section 46 (2) (d) indicates that the training program shall instruct the employee on the emergency procedures set out in the manual developed under section 32 and the procedures for the operation of all emergency equipment that the employee could reasonably be expected to use.</p> <p>With respect to the EM procedures, TMPU EM staff indicated that all staff are required to review the EM procedures manuals as part of their new staff on-boarding activities. Interviews with field staff indicated that they had reviewed the procedures as per this description; however, formal records of completion of this expectation is not required or kept. EM staff also indicated that part of all exercises and drills is to include a review of applicable procedures being tested/trained on prior to the field activities starting. TMPU provided records indicating that this practice was being implemented on a routine basis; however, procedures outlining this specific requirement was not observed.</p> <p>In reviewing the information provided by TMPU, it was noted that EM equipment training was accounted for at general level in KEEP but the program did not clearly outline what equipment required training, what the procedures were to be trained on and what employees required the training as per the OPR section 46 requirements. Furthermore it could not be ascertained if individuals were receiving the training on the specific equipment they could be expected to use. Regardless of the KEEP program's management limitations, TMPU could clearly provide records of attendance at EM related training, exercises and drills for all staff</p>

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		and others who required it as records are kept at the “event” level but not the “equipment” level. TMPU could provide equipment level training records for certain safety critical pieces of equipment such as boom deployment boats or atmosphere monitoring. Because of the deficiencies related to the specific OPR requirements for the training program, this particular requirement is being assigned a status of Non-Compliant.
TMPU-1516 – 3.4c	6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (k) establish and implement a process for verifying that employees and other persons working with or on behalf of the company are trained and competent and for supervising them to ensure that they perform their duties in a manner that is safe, ensures the security of the pipeline and protects the environment	<p><u>Process Verifying that Employees and other Persons Working With or on Behalf of the Company are Trained and Competent</u></p> <p>The requirements reviewed in this section are found in OPR section 6.5 (1) (k). TMPU’s process for verifying training and competency are directly linked to and in its process for developing competency and training programs as required by OPR 6,5 (1) (j). The evaluation of which is documented above in this section. As per that evaluation, review of the documentation provided during the Board’s initial review period indicated TMPU’s existing practices for verification of training and competency are accounting for the majority of the requirements for employees but lack for “other persons” included in the regulatory requirements. TMPU did provide additional documentation demonstrating changes initiated between the Board’s initial and follow-up reviews; the changes, while acknowledged, will be evaluated within the Board’s CAP implementation reviews.</p> <p>At the EM program level, TMPU provided documents and records that had a number of practices in place to ensure that staff and others were trained and competent to undertake their emergency management responsibilities. TMPU staff provided records demonstrating the mandatory requirements for staff and contractors to participate in exercises or drills either as part of internal or specific contract requirements. Further, TMPU EM and operational staff confirmed during interviews that training and learning objectives relating to procedures, activities or equipment are communicated and learning and abilities are confirmed as part of the various activities.</p> <p>Because of the deficiencies related to the specific OPR requirements for the training program, this particular requirement is being assigned a status of Non-Compliant.</p>
TMPU-1516 – 3.4d	6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (k) establish and implement a process for verifying that employees and other persons working with or on behalf of the company are trained and competent and for supervising them to ensure that they perform their duties in a manner that is safe, ensures the security of the pipeline and protects the environment	<p><u>Process for Supervising Workers to Ensure that they Perform their Duties in a Manner that is Safe, Ensures the Security of the Pipeline and Protects the Environment</u></p> <p>The requirements reviewed in this section are found in OPR section 6.5 (1) (k). The Board notes that OPR section 6.5 (1) (k) requires two fairly distinct process requirements. One being a process for verifying that employees and other persons working with or on behalf of the company are trained and competent and the other being a process for supervising them while working. For better evaluation of compliance and to allow companies to arrange their management processes most efficiently, the Board has broken this process into specific evaluation and reporting criteria under one OPR reference.</p> <p>During its audit, TMPU did not provide a compliant management system process or processes for supervising workers either in draft format or otherwise.</p> <p>At the EM program level numerous activity level practices and procedures were noted for supervising staff during operational activities. Examples included the on-scene command procedures, ICS requirements, safety watch practices, etc. Because of the deficiencies related to the specific OPR requirements for supervising workers, this particular requirement is being assigned a status of Non-Compliant.</p>
TMPU-1516-3.5	6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (m) establish and implement a process for the internal and external communication of information relating to safety, security and protection of the environment	<p><u>Process for the Internal and External Communication of Information</u></p> <p>During the follow-up activities, TMPU demonstrated that it had established and implemented the internal process as required. It also provided its external process for review. While it had been approved for implementation, TMPU staff indicated it had not been implemented yet. Because of its lack of implementation and time constraints the adequacy of this document was not reviewed.</p>

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<p>TMPU-1516 – 4.1a</p>	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (u) establish and implement a process for inspecting and monitoring the company’s activities and facilities to evaluate the adequacy and effectiveness of the programs referred to in section 55 and for taking corrective and preventive actions if deficiencies are identified</p>	<p>During the Board’s audit activities, TMPU did not demonstrate that it had established and implemented a management system process that meets the OPR requirements. Additionally, due to the lack of a compliant compliance identification and monitoring process, TMPU could not demonstrate that it was undertaking the compliance inspections as required by OPR section 53. At the program level, TMPU provided records that it was undertaking inspections of its equipment and facilities and that identified deficiencies were being addressed. TMPU demonstrated that its inspection practices were being managed within its IVARA system.</p>
<p>TMPU-1516 – 4.1b</p>	<p>53 (1) A company shall conduct inspections on a regular basis and audits, with a maximum interval of three years, to ensure that its pipeline is designed, constructed, operated and abandoned in compliance with (a) Part III of the Act; (b) Part V of the Act, as it relates to the protection of property and the environment and the safety and security of the public and of the company’s employees; (c) these Regulations; and (d) the terms and conditions of any certificate or order issued by the Board, as they relate to the protection of property and the environment and the safety of the public and of the company’s employees.</p>	<p>During the Board’s audit activities, TMPU did not demonstrate that it had established and implemented a management system process that meets the OPR requirements. Additionally, due to the lack of a compliant compliance identification and monitoring process, TMPU could not demonstrate that it was undertaking the compliance inspections as required by OPR section 53. At the program level, TMPU provided records that it was undertaking inspections of its equipment and facilities and that identified deficiencies were being addressed. TMPU demonstrated that its inspection practices were being managed within its IVARA system.</p>
<p>TMPU-1516 – 4.3a</p>	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (w) establish and implement a quality assurance program for the management system and for each program referred to in section 55, including a process for conducting audits in accordance with section 53 and for taking corrective and preventive actions if deficiencies are identified</p> <p>53 (1) A company shall conduct inspections on a regular basis and audits, with a maximum interval of three years, to ensure that its pipeline is designed, constructed, operated and abandoned in compliance with (a) Part III of the Act; (b) Part V of the Act, as it relates to the protection of property and the environment and the safety and security of the public and of the company’s employees; (c) these Regulations; and (d) the terms and conditions of any certificate or order issued by the Board, as they relate to the protection of property and the environment and the safety of the public and of the company’s employees.</p> <p>(2) The audit shall document (a) all non-compliance noted; and (b) any corrective action taken or planned to be taken.</p>	<p><u>Quality Assurance Program</u></p> <p>During the Board’s initial evaluation, TMPU directed the Board’s auditors to its Quality Assurance Plan requirements within its ISLMS as meeting the OPR section 6.5 (1) (w), Quality Assurance Program requirements. Review of the documentation and records provided indicated that it contained most of the requirements normally required to be compliant. Many of the QA program activities such as inspections, measuring and monitoring, incident investigation, management review, etc. were demonstrated as being completed on an on-going basis. Evaluation of the various activities are documented elsewhere within this report.</p> <p>The QA Plan provided, however, did not include a process for conducting audits in accordance with section 53, as specifically required within the OPR. TMPU staff indicated that the company was in the process of developing an ISLMS standard to meet the requirements. TMPU provided copies of the draft standards in demonstration of its activities to meet compliance. Review of the documentation indicated that it was substantially complete at that time.</p> <p>During the Board’s follow-up audit activities, TMPU provided copies of its finalized ISLMS audit standard applicable to its compliance audits. While a full review of the standard was not completed at the time due to time constraints, the initial review indicated that the standard did include a basic auditing process that was similar to the ISO 19011 <u>Guidelines for Auditing Management Systems</u>. While the standard was not reported by TMPU staff to be fully established or implemented across the full breadth of the company and its section 55 programs, TMPU staff provided records that it had conducted some audits using the standard regardless of the full adoption of the standard. TMPU provided records of a recently completed audit of its Security Management Program that reportedly followed the ISLMS standard.</p>
<p>TMPU-1516 – 4.3b</p>	<p>53 (1) A company shall conduct inspections on a regular basis and audits, with a maximum interval of three years, to ensure that its</p>	<p><u>Quality Assurance Program</u></p>

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	<p>pipeline is designed, constructed, operated and abandoned in compliance with</p> <p>(a) Part III of the Act;</p> <p>(b) Part V of the Act, as it relates to the protection of property and the environment and the safety and security of the public and of the company's employees;</p> <p>(c) these Regulations; and</p> <p>(d) the terms and conditions of any certificate or order issued by the Board, as they relate to the protection of property and the environment and the safety of the public and of the company's employees.</p> <p>(2) The audit shall document</p> <p>(a) all non-compliance noted; and</p> <p>(b) any corrective action taken or planned to be taken.</p>	<p>During the Board's initial evaluation, TMPU directed the Board's auditors to its Quality Assurance Plan requirements within its ISLMS as meeting the OPR section 6.5 (1) (w), Quality Assurance Program requirements. Review of the documentation and records provided indicated that it contained most of the requirements normally required to be compliant. Many of the QA program activities such as inspections, measuring and monitoring, incident investigation, management review, etc. were demonstrated as being completed on an on-going basis. Evaluation of the various activities are documented elsewhere within this report.</p> <p>The QA Plan provided, however, did not include a process for conducting audits in accordance with section 53, as specifically required within the OPR. TMPU staff indicated that the company was in the process of developing an ISLMS standard to meet the requirements. TMPU provided copies of the draft standards in demonstration of its activities to meet compliance. Review of the documentation indicated that it was substantially complete at that time.</p> <p>During the Board's follow-up audit activities, TMPU provided copies of its finalized ISLMS audit standard applicable to its compliance audits. While a full review of the standard was not completed at the time due to time constraints, the initial review indicated that the standard did include a basic auditing process that was similar to the ISO 19011 <u>Guidelines for Auditing Management Systems</u>. While the standard was not reported by TMPU staff to be fully established or implemented across the full breadth of the company and its section 55 programs, TMPU staff provided records that it had conducted some audits using the standard regardless of the full adoption of the standard. TMPU provided records of a recently completed audit of its Security Management Program that reportedly followed the ISLMS standard.</p>
<p>TMPU-1516 – 4.3c</p>	<p>55 (1) A company shall conduct audits, with a maximum interval of three years, of the following programs:</p> <p>(a) the emergency management program referred to in section 32;</p> <p>(b) the integrity management program referred to in section 40, including the pipeline control system referred to in section 37;</p> <p>(c) the safety management program referred to in section 47;</p> <p>(d) the security management program referred to in section 47.1;</p> <p>(e) the environmental protection program referred to in section 48; and</p> <p>(f) the damage prevention program referred to in section 47.2.</p> <p>(2) The documents prepared following the audit shall include</p> <p>(a) any deficiencies noted; and</p> <p>(b) any corrective action taken or planned to be taken.</p>	<p><u>Quality Assurance Program</u></p> <p>During the Board's initial evaluation, TMPU directed the Board's auditors to its Quality Assurance Plan requirements within its ISLMS as meeting the OPR section 6.5 (1) (w), Quality Assurance Program requirements. Review of the documentation and records provided indicated that it contained most of the requirements normally required to be compliant. Many of the QA program activities such as inspections, measuring and monitoring, incident investigation, management review, etc. were demonstrated as being completed on an on-going basis. Evaluation of the various activities are documented elsewhere within this report.</p> <p>The QA Plan provided, however, did not include a process for conducting audits in accordance with section 53, as specifically required within the OPR. TMPU staff indicated that the company was in the process of developing an ISLMS standard to meet the requirements. TMPU provided copies of the draft standards in demonstration of its activities to meet compliance. Review of the documentation indicated that it was substantially complete at that time.</p> <p>During the Board's follow-up audit activities, TMPU provided copies of its finalized ISLMS audit standard applicable to its compliance audits. While a full review of the standard was not completed at the time due to time constraints, the initial review indicated that the standard did include a basic auditing process that was similar to the ISO 19011 <u>Guidelines for Auditing Management Systems</u>. While the standard was not reported by TMPU staff to be fully established or implemented across the full breadth of the company and its section 55 programs, TMPU staff provided records that it had conducted some audits using the standard regardless of the full adoption of the standard. TMPU provided records of a recently completed audit of its Security Management Program that reportedly followed the ISLMS standard.</p>
<p>TMPU-1516 – 5.1a</p>	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55,</p>	<p><u>Process for Conducting an Annual Management Review of the Management System and each Protection Program and for Ensuring Continual Improvement in Meeting the Company's Obligations</u></p> <p>The requirements reviewed in this section are found in OPR sections 6.5 (1) (x).</p> <p>During the Board's initial evaluation, TMPU was unable to demonstrate that it had a process that met the OPR requirements. At that time TMPU was relying on its ISLMS Quality Assurance Plan to address the OPR requirements. Review of the QA Plan requirements indicated that, while the majority of the OPR review requirements were being addressed, not all were. During the Board's follow-up activities, TMPU provided its new management system process to address the Board's requirements. TMPU provided records to</p>

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		<p>demonstrate that it had been approved in October 2016 and that it had been utilized in its mid-year management reviews in November 2016.</p> <p>While TMPU could demonstrate that it had developed a process and had used it for its mid-year meetings, TMPU could not demonstrate use of this process to address the deficiencies in the annual management review. The Board will assess on-going compliance of the updated process and its implementation by including a review item in the Board's implementation assessment for this audit.</p>
TMPU-1516 – 5.1b	<p>6.5 (1) A company shall, as part of its management system and the programs referred to in section 55, (v) establish and implement a process for evaluating the adequacy and effectiveness of the company's management system and for monitoring, measuring and documenting the company's performance in meeting its obligations under section 6</p>	<p><u>Process for evaluating the adequacy and effectiveness of the company's management system and for monitoring, measuring and documenting the company's performance in meeting its obligations under section 6</u></p> <p>The requirements reviewed in this section are found in OPR sections 6.5 (1) (v).</p> <p>The Board's evaluation for this process identified identical issues for this requirement as for OPR section 6.5 (1) (x) above; therefore the assessment for that item is being applied in this section.</p>
TMPU-1516 – 5.1c	<p>6.6 (1) A company shall complete an annual report for the previous calendar year, signed by the accountable officer, that describes (a) the performance of the company's management system in meeting its obligations under section 6 and the company's achievement of its goals, objectives and targets during that year, as measured by the performance measures developed under paragraphs 6.5(1)(b) and (v); and (b) the actions taken during that year to correct any deficiencies identified by the quality assurance program established under paragraph 6.5(1)(w).</p>	<p><u>Annual Report</u></p> <p>The requirements reviewed in this section are found in OPR sections 6.6 (1).</p> <p>During the Board's audit, TMPU provided documentation to demonstrate that management review practices were being implemented and an annual report was being completed. As noted elsewhere in this report, the QA plan used to generate the report had deficiencies with respect to the reviews undertaken to the date of the Board's initial audit activities. Also as noted, TMPU has developed a new review process for undertaking its annual reviews prior to the Board's follow-up audit activities. TMPU demonstrated through records that the process had been applied in its on-going internal quarterly reviews at the time; however, it had not yet been used to develop the required annual review and report required. TMPU will need to demonstrate the compliance of the new review process and its application on an ongoing basis within its corrective action plan for this sub-element.</p> <p>Additionally, in this sub-element the Board also assesses the results of all of the management, review and compliance processes that it considers the responsibility of a company's management. The Board identified that, while TMPU has addressed many of the management system requirements in its ISLMS, many of the management system processes and requirements have not been fully established and implemented resulting in TMPU's overall management system being evaluated as not established and implemented. The Board notes that TMPU is deficient in the establishment of its compliance monitoring processes as well as the completion of its compliance and program audits while the requirements have been in force since 1999.</p>
TMPU-1516 - MS	<p>6.1 A company shall establish, implement and maintain a management system that (a) is systematic, explicit, comprehensive and proactive; (b) integrates the company's operational activities and technical systems with its management of human and financial resources to enable the company to meet its obligations under section 6; (c) applies to all the company's activities involving the design, construction, operation or abandonment of a pipeline and to the programs referred to in section 55; (d) ensures coordination between the programs referred to in section 55; and (e) corresponds to the size of the company, to the scope, nature and complexity of its activities and to the hazards and risks associated with those activities.</p>	<p><u>Assessment – TMPU Management System</u></p> <p>In determining TMPU's compliance with respect to establishing and implementing a management system, the Board evaluated documents and records that described the company's establishment and implementation of its ISLMS in the context of its application to its Emergency Management program. This aided the Board in evaluating TMPU's systematic practices and deficiencies. The Board's findings therefore are not an evaluation of TMPU's other OPR section 55 programs nor are they an evaluation of the ISLMS' application to other lifecycle activities such as construction or abandonment.</p> <p>The Board's audit results indicated that TMPU is committed to the ISLMS and has exerted a considerable amount of effort and resources in the development of its management system. TMPU's ISLMS standard indicates that it is intended to apply to all company activities involving the design, construction, operation or abandonment of a pipeline. TMPU is integrating and managing the system requirements as they are being developed. Review of the ISLMS information provided, indicated that, once fully established, implemented and modified by any CAPs associated with this audit, it will meet all requirements.</p> <p>However, the Board also found that a number of the required processes that we expected to be documented under ISLMS were in draft form or were not established and implemented when audited. The examples of this include deficiencies in processes related to</p>

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		<p>the identification of legal requirements, monitoring compliance, risk evaluation and the undertaking of its own compliance and program audits. Of particular note is TMPU's deficiencies regarding OPR 6.5 (1) (g) relating to thorough processes and procedures for the proactive identification and monitoring of compliance with legal requirements. It is the Board's opinion that addressing this deficiency earlier in the development of its ISLMS, and the application of ISLMS, would have allowed TMPU to proactively identify other gaps and deficiencies in its system that were identified during this audit.</p> <p>The assessment of the management system processes is documented in Appendix I, attached to this report.</p> <p>The Board notes that it is important to understand that the Board's findings noted in this section reflect the company's level of progress in developing and applying its management system. It does not necessarily reflect the lack of technical management activities being undertaken to ensure the protection of the environment and safety of people.</p>
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CAPA Template Guidance Notes

NEB Staff complete columns A – C

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Companies should note that once the CAPA Plans are approved they represent undertakings to the Board.

If companies anticipate the need to make changes to their committed to Corrective or Preventive Actions or their schedules for completion, they must contact Board staff for advice regarding the need to apply for a formal variance.

Finding #² (D)	Analysis of Finding (E)

CAPA Template Guidance Notes

Company Completes columns D - E

Guidance/Explanation of Information Required in each Column

D. Finding Number from (A) above, each finding must have its own row.

E. The NEB's Non-Compliant findings identified in its audit reports generally reflect deficiencies that affect companies' management systems, operational programs or facilities and activities at systematic level. The NEB therefore expects that companies will analyze the Board's non-compliant findings within the context of the design, establishment and implementation of their management systems and processes, operations programs as they apply to the lifecycle of regulated facilities (design, construction, operation and abandonment). This should be done to fully understand the deficiencies and to aid in determining the corrective and preventive actions required to mitigate the non-compliances. The Board is of the view that there is usually more than one deficiency or cause associated with each Non-Compliant finding. Further, each individual cause or deficiency will usually cascade to more than one corrective or preventive action requirement.

The NEB expects that all companies will examine each of its findings to identify:

- The nature, extent and causes of the deficiency (ies) including those related to the management system and the various programs;*
- The actions required to correct the deficiencies at the specified locations as well as other similar locations to ensure immediate compliance and protection of people and the environment; and*
- The actions required to prevent occurrence or reoccurrence of deficiencies or hazardous occurrences at a facility or during an activity or to prevent occurrence of identical deficiencies or hazardous occurrences at similar facilities or activities.*

The Board expects that companies will use structured and defensible processes for analyzing their findings. Companies must document the methods used as part of this section's information including their rationale for using whatever process applied. Further, companies must identify how each cause identified is related to a Board's finding.

² This Work Sheet is to be filled out by Company for submission and approval by NEB

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Finding # ³ (F)	Proposed Corrective Actions and Rationale (G)	Milestones (H)	Schedule for development and Implementation of Corrective Actions and Milestones (I)	Rationale for Schedule (J)

CAPA Template Guidance Notes

Company Completes columns F - J

Guidance/Explanation of Information Required in each Column

F. Finding Number from (A) above, each finding must have its own row.

G. The Board recognizes that variance exists in definitions of corrective and actions. The Board subscribes to the following definition:

Corrective Actions: actions taken to remove or control the cause of a nonconformity, eliminate the hazard, or minimize the associated risk (e.g., fix an existing problem).

As noted, the Board is of the view that, based on the analysis of the Non-Compliant findings, more than one corrective action will usually be required to address each deficiency. Likewise, each corrective action will usually cascade to more than one milestone being identified as part of the implementation requirements and project management commitments.

The Board recognizes that, while most of its audit findings will result in the need to develop and implement both corrective and preventive actions, sometime only one type of action may be required after the analysis of the identified deficiency has been completed. In those cases, the Board still requires companies to provide a clear rationale as to why it has been determined that both corrective and preventive actions are not required.

In aid of NEB's evaluation and approval of companies' CAPA plans, companies must demonstrate direct concordance between the NEB's Non-Compliant findings, the results of the companies' analysis of the findings and the proposed corrective actions and their associated milestones and schedules. Companies that do not provide adequate rationales risk the Board imposing additional requirements. Companies are required to utilize numbered, cascading lists to demonstrate the concordance.

H. In aid of the Board's evaluation of and on-going monitoring of implementation of the corrective actions, companies must provide descriptions of significant project milestones and outputs. The milestones must reflect the specific plan requirements. Milestones may include completion of specific evaluations, documentation, training and competency activities, inspections, audits, etc. Companies must include completion of the proposed corrective action in its entirety as a milestone and include the measures and/or specific outcomes used to justify closure by the Board.

Companies that do not provide adequate milestone or specific outcomes and/or measures for closure for review risk the Board imposing additional milestones and outcomes that reflect other considerations or rejection of the CAPA plans.

I. In order to evaluate companies' CAPA plans, the NEB requires companies to provide implementation schedules and specific completion dates for key milestone and full implementation. The NEB requires companies to consider the safety, security, environmental and compliance risk of the identified non-compliances when developing the plan schedules. The NEB considers that corrective actions for non-compliances with low risk should take no more than one (1) year from the date of the release of the Final Audit Report to implement. The NEB recognizes that some corrective actions may take more than one year to implement. In those cases, companies must provide clear justification for the NEB to consider when approving the CAPA plans (as per (J), below).

J. Companies must provide rationale for CAPA plan schedules in aid of the Board's evaluation of the submission. In their rationales, companies must clearly the risk (probability and consequences) associated with the deficiency and identify how the proposed schedules correspond to it, i.e. deficiencies with higher risk should be addressed accordingly. Companies that do not provide adequate rationale risk the Board imposing additional dates that may reflect other timing considerations.

³ This Work Sheet is to be filled out by Company for submission and approval by NEB

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<u>Finding #</u> <u>(K)</u>	<u>Proposed Preventive Actions and Rationale</u> <u>(L)</u>	<u>Milestones</u> <u>(M)</u>	<u>Schedule for development and Implementation of Preventive Actions and Milestones</u> <u>(N)</u>	<u>Rationale for Schedule</u> <u>(O)</u>

CAPA Template Guidance Notes

Company Completes columns L - P

Guidance/Explanation of Information Required in each Column

K. Finding Number from **(A)** above, each finding must have its own row.

L. The Board recognizes that variance exists in definitions of corrective and preventative actions. The Board subscribes to the following definitions:

Preventative Actions: actions taken to remove or reduce the likelihood of a nonconformity or eliminate a hazard or minimize the associated risk that could occur (e.g., take steps to address a potential problem.⁴ Actions are preventative if they involve examination of similar/identical situations across the worksite, system, or organization in order to identify and proactively address analogous/comparable deficiencies or potential deficiencies.

As noted, the Board is of the opinion that, based on the analysis of the Non-Compliant findings, more than one Preventive Action will usually be required to address each deficiency. Likewise, each Preventive Action will usually cascade to more than one milestone being identified as part of the implementation requirements and project management commitments. Companies that do not provide adequate rationales risk the Board imposing arbitrary requirements. In aid of NEB's evaluation and approval of companies' CAPA plans, companies must demonstrate clear concordance between the NEB's Non-Compliant findings, the results of the companies' analysis of the findings and the proposed Preventive Actions and their associated milestones and schedules. Companies are required to utilize numbered, cascading lists to demonstrate the concordance.

The Board recognizes that, while most of its audit findings will result in the need to develop and implement both corrective and preventive actions, sometime only one type of action may be required after the analysis of the identified deficiency has been completed. In those cases, the Board still requires companies to provide a clear rationale as to why it has been determined that both corrective and preventive actions are not required.

M. In aid of the Board's evaluation of, and on-going monitoring of implementation of the preventive actions, companies must provide descriptions of significant project out puts. The milestones must reflect the specific plan requirements. Milestones may include completion of specific evaluations, documentation, training and competency activities, inspections, audits, etc. Companies must include completion of the proposed corrective action in its entirety as a milestone and include the measures and/or specific outcomes used to justify closure by the Board.

Companies that do not provide adequate milestone or specific outcomes and/or measures for closure for review risk the Board imposing additional milestones and outcomes that reflect other considerations or rejection of the CAPA plans.

N. In order to evaluate companies' CAPA plans, the NEB requires companies to provide implementation schedules and specific completion dates for key milestone and full implementation. The NEB requires companies to consider the safety, security, environmental and compliance risk of the identified non-compliances when developing the plan schedules. The NEB considers that corrective actions for non-compliances with low risk should take no more than one (1) year from the date of the release of the Final Audit Report to implement. The NEB recognizes that some corrective actions may take more than one year to implement. In those cases, companies must provide clear justification for the NEB to consider when approving the CAPA plans (as per (O), below).

O. Companies must provide rationale for preventive action plan schedules in aid of the Board's evaluation of the submission. In their rationales companies must identify the risk (probability and consequences) associated with the deficiency and identify how the proposed schedules correspond to it, i.e. deficiencies with higher risk should be addressed accordingly. Companies that do not provide adequate rationale risk the Board imposing additional dates that may reflect other timing considerations.