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du Canada

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File OF-Surv-OpAud-T260-2019-2020-01
30 June 2020

Mr. Ian Anderson
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and Trans Mountain Pipeline ULC
Accountable Officer
Trans Mountain Pipeline ULC
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Calgary, AB T2P 5J2
Email [REDACTED]

Dear Mr. Anderson:

**Canada Energy Regulator (CER) Final Audit Report
Trans Mountain Pipeline ULC (TMPU) – Contractor Oversight**

Please find attached a copy of the final audit report for the audit of TMPU's contractor oversight conducted during the period from 27 September 2019 to 16 April 2020. This audit was conducted under section 103 of the *Canadian Energy Regulator Act*.

On 30 June 2020, the CER sent TMPU the Draft Audit Report documenting the evaluation of TMPU's contractor oversight for review and comment. TMPU was also advised that the CER intends to post the Final Audit Report on the CER's website. To that end, TMPU was advised that if it had any objections to the release of the audit report, or to specific parts of the report, to provide a list of those objections along with a detailed rationale and specific reference to applicable sections of the *Access to Information Act and Privacy Act*. TMPU was advised that the CER redacts the personal information of TMPU employees with the exception of the personal information of TMPU executive staff, which the CER considers publicly known figures of the company.

On 21 July 2020, TMPU responded with its proposed edits and comments to the findings in the report. TMPU also advised the CER of its redaction requests. The CER has now finalized its Final Audit Report and appendices, attached to this letter, which it will now post on the CER's website.

The CER would like to highlight the importance of a company's management system, and the integration of construction and maintenance work. The Trans Mountain Expansion Project (TMEP or Project) is now under construction, and an adequate and fully implemented management system, that appropriately enables Trans Mountain to oversee the work of its contractors working on its behalf, is critical to the success of the Project. Through the application phase of the TMEP, and subsequently by way of the conditions imposed on the Project authorizations, TMPU formally agreed to adhere to its commitments, and treat them as legal requirements. The CER expects these commitments to be communicated to its contractors accordingly, and that oversight of these commitments and conditions will form part of Trans Mountain's overall contractor oversight.

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TMPU is ordered to file, with the CER, a Corrective and Preventive Action (CAPA) Plan for approval within 30 calendar days of receipt of this Final Audit Report describing the methods, timing and rationale for addressing the Non-Compliant findings identified in the audit report. TMPU is directed to use the CER standard CAPA Plan template in the development of its CAPA Plan for approval.

The CER will monitor and assess TMPU's corrective and preventive actions until they are fully implemented. Additionally, it is ordered that, where applicable, the approved CAPA Plan requirements will be implemented on a system-wide basis to address similar deficiencies. In addition, the CER will continue to monitor the implementation and effectiveness of TMPU's management system and programs through targeted compliance verification activities as a part of its on-going regulatory approaches.

If you require any further information or clarification, please contact Darryl Pederson, Lead Auditor, Systems Operations Business Unit at 403-461-9953 or at 1-800-899-1265 toll free.

Yours sincerely,

Original signed by

Darryl Pederson
Lead Auditor
Inspection Officer Number: 2541

Attachment

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Canada Energy
Regulator

Régie de l'énergie
du Canada

**Suite 210, 517 Tenth Avenue SW
Calgary, AB T2R 0A8**

**Final Audit Report
Audit of Contractor Oversight**

**Compliance Verification Activity: CV1920 - 421
File OF-Surv-OpAud-T260-2019-2020-01**

**Trans Mountain Pipeline ULC
Suite 2700, 300 – 5th Avenue SW
Calgary, AB T2P 5J2**

Date: 30 June 2020



Executive Summary

In accordance with subsection 103(3) of the *Canadian Energy Regulator Act* (CER Act), the Canada Energy Regulator (CER) began a compliance audit of Trans Mountain Pipeline ULC (TMPU) contractor oversight (the audit) on 27 September 2019. The audit was completed on 16 April 2020.

The objectives of the audit were to verify that TMPU had developed and implemented adequate oversight of people, or contractors, working on their behalf in accordance with the requirements of the *Canadian Energy Regulator Onshore Pipeline Regulations* (SOR/99-294) (OPR). As part of this evaluation, the company's management system was evaluated for the integration of construction and pipeline maintenance work into its associated processes, programs, registries, and inventories which make up a functional management system.

The scope of the audit included the personnel, processes, and activities used by the company to formally oversee its contractors and people hired to conduct work on its behalf. In addition, the audit included a review of select aspects of the safety and environmental protection programs listed in OPR section 55 to verify that TMPU is ensuring adequate oversight during construction of the Trans Mountain Expansion Project.

Of the 20 regulatory requirements listed in the audit protocol (AP), the CER found no issues of concern with 18, and found TMPU to be non-compliant with two of them. When comparing the results of this focused audit against the results of TMPU's last two compliance audits, TMEP pre-construction and an audit of its emergency management program, TMPU demonstrated marked improvement in its management system. The two non-compliant findings were related to the existing processes and other requirements not meeting the requirements set by the CER.

The CER is of the view that, at the time of this audit, the non-compliant findings do not present immediate safety or environmental protection issues. Findings from the current audit are summarized in Table 1 and explained in detail in Appendix 1 of this report.

TMPU is required to develop a Corrective and Preventive Action (CAPA) Plan to address the non-compliant findings and submit it to the CER for approval within 30 days of receipt of the final audit report. The CER will monitor the implementation of the CAPA Plan to confirm that it is completed in a timely manner.

The final audit report will be made public on the CER website.



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1.0 Introduction

In accordance with subsection 103(3) of the CER Act, the CER began a compliance audit of TMPU contractor oversight on 27 September 2019. The audit was completed on 16 April 2020.

CER Inspection Officers applied the AP listed in Appendix 1 of this report. Abbreviations and terminology used in the report can be found in Appendix 3.

1.1 Audit Objectives

The objectives of the audit were:

- to verify that TMPU had developed and implemented adequate oversight of people, or contractors, working on its behalf in accordance with the requirements of the OPR; and
- to verify that TMPU had integrated the Trans Mountain Expansion Project (TMEP) construction and pipeline maintenance work into its established management system processes, programs, and inventories as required.

1.2 Audit Scope and Methodology

The audit focused on the personnel, processes and activities TMPU put in place to formally oversee the people hired to conduct work on its behalf during the construction of the TMEP and related operational maintenance work. In addition to contractor oversight, the audit scope included a review of aspects of the safety and environmental protection programs related to the construction activities.

In a letter dated 27 September 2019, the CER notified TMPU of its plan to conduct a compliance audit of its contractor oversight. The CER Inspection Officer (IO) leading the audit provided the AP and initial information request (IR) to TMPU on 30 September 2019. A meeting was held on 18 October 2019 at TMPU's office in Calgary to discuss the plans and schedule for the audit. Document review began on 28 October 2019 and interviews were conducted on 19 – 22 November 2019, 20 – 21 January 2020 and finished on 31 January 2020. In addition to the review of documents and records, CER IOs participated in a field inspection of the TMEP from 25 – 28 November 2019. Over the course of the audit, CER IOs also conducted interviews with company personnel and several general contractors working on the TMEP.

In accordance with established audit process, CER IO's shared a pre-closeout summary of the results of the audit with TMPU on 21 February 2020. At that time, TMPU was given five business days to provide additional documents or records to help resolve the identified gaps in information or compliance. Subsequent to the pre-closeout meeting, TMPU provided additional information to assist IOs in completing their final assessment of compliance. A closeout meeting with TMPU took place on 16 April 2020.

2.0 Facility and Process Description

TMPU is a Canadian corporation with its head office located in Calgary, Alberta. TMPU is the holder of the CER certificates for the existing pipeline and the currently under construction TMEP. The existing pipeline commenced operations in 1953 and is approximately 1,150 km in length. The current system transports a range of crude oil and refined / semi-refined petroleum products from Western Canada to locations in central and southwestern British Columbia, Washington State and offshore locations. The existing system has an operating capacity of 47,690 m³/day (300,000 bbl/day) using 23 active pump stations and approximately 40 storage tanks.

The TMEP will complete the twinning of the existing pipeline with approximately 987 km of new buried pipeline and the reactivation of approximately 193 km of existing pipeline. Along with the



installation of new pipeline, changes will be made to existing facilities including additional pump stations, terminal upgrades and the construction of new facility infrastructure. The expansion will increase the system capacity to 141,500 m³/day (890,000bbl/day). The TMPU system regulated by the CER is shown in Appendix 2.

TMPU has developed and implemented an Integrated Safety Loss Management System (ISLMS) that applies to all activities involved in the design, construction, operation and abandonment of TMPU's pipeline systems. During the audit, CER IOs did not evaluate the entirety of the ISLMS as it was beyond the scope for this focused audit. Instead, CER IOs evaluated whether TMPU met the requirements of the OPR section 6.1(c), which states:

*A company shall establish, implement and maintain a management system that (c) applies to all the company's activities involving the design, **construction, operation**, {emphasis added} or abandonment of a pipeline and to the programs referred to in section 55.*

3.0 Assessment of Compliance

3.1 General

Carefully designed and well-implemented management systems are a reflection of companies' commitments to continual improvement in safety and environmental protection throughout the full life-cycle of facilities. Management systems also support strong cultures of safety and are fundamental to keeping people safe and protecting the environment.

The CER requires companies to apply their management system processes to include the provision of contractor oversight for both construction and pipeline / facility maintenance work. The level and extent of contractor oversight must reflect the level of complexity of the pipeline, the pipeline operation, and the type of construction or maintenance work involved.

For the purposes of this audit, the CER's expectations included, but were not limited to, TMPU having established and implemented:

- an effective management system that is systematic, comprehensive, proactive and is applied across the entire lifecycle of its system; to ensure construction and maintenance activities are conducted safely, efficiently, and in a manner that protects people and the environment;
- effective processes for identifying and analyzing hazards and potential hazards, evaluating and managing the risks, and establishing and communicating the necessary controls;
- an effective organizational structure, along with competency and training requirements, and training programs and processes to identify and communicate roles, responsibilities, and authorities, and to verify the competency of TMPU's staff and those that complete work on its behalf;
- a process for the internal reporting, analysis, and investigation of hazards, potential hazards, incidents, and near-misses as a result of construction or maintenance activities, and for taking corrective and preventive measures, including measures to manage imminent threats; and
- quality assurance measures, such as audits and inspections, of construction and maintenance activities are being carried out to ensure that worker safety and environmental protection is being effectively carried out in a competent and safe manner.

Each company and their management systems are required to comply with all applicable requirements of the CER Act, its applicable regulations, standards referenced in the regulations, such as the CSA Z662, and any company-specific Orders and Certificates.



Section 6.1 of the OPR requires a company regulated by the CER to establish and implement a management system that:

- is, explicit, comprehensive and proactive;
- 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 the OPR section 6;
- applies to all of the company's activities involving the design, construction, operation, or abandonment of a pipeline, and to the programs referred to in the OPR section 55,
- ensures coordination between the programs referred to in the OPR section 55, and
- 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.

3.2 Assessment of TMPU Regulated Facilities

The audit team's assessment of TMPU's compliance with the regulatory requirements are summarized in Table 1 of this report and explained in detail in Appendix 1 attached to this report. The CER IOs identified no issues of concern for 18 out of 20 protocol items. The two non-compliances were related to TMPU's ongoing operational activities on its existing system and not the TMEP construction project.

The two non-compliant findings are not the result of a lack of or missing processes or procedures but were due to the existing processes and other requirements not meeting the requirements set by the CER. By both process and through demonstrated activity, TMPU demonstrated it was taking steps to provide oversight of contractors.

3.3 List of Audit Findings

The CER assigned one of two possible types of findings to each AP item evaluated:

1. No Issues Noted – *No non-compliances were identified during the audit based on the information provided and reviewed within the context of the scope of the audit; or*
2. Non-compliant – *An evaluated regulatory requirement does not meet legal requirements. The company has not demonstrated that it has developed and implemented programs, processes and procedures that meet the legal requirements. A corrective and preventative action plan must be developed and implemented.*

Below is a table that provides a generalized description of the CER's audit findings. Appendix I provides more information regarding the review and substance of each finding.



Table 1: Summary of Findings

AP Item	Regulatory Reference	Protocol Topic	Status	Summary of Finding
AP-01	OPR s. 6.1	Policy and Commitment Statements	No Issues Noted	TMPU demonstrated that it had a management system which is systematic, explicit and proactive and is being applied across the lifecycle of a pipeline.
AP-02	OPR s. 6.4	Organizational Structure, Roles and Responsibilities	No Issues Noted	TMPU demonstrated that it had an adequate organizational structure to provide oversight of its contractors.
AP-03	OPR s. 6.5(1)(c)	Identifying and Analyzing all hazards	No Issues Noted	TMPU demonstrated that it was identifying hazards.
AP-04	OPR s. 6.5(1)(d)	Hazard Identification	No Issues Noted	TMPU demonstrated that it had an inventory of hazards and potential hazards related to construction activities.
AP-05	OPR s. 6.5(1)(e)	Risk Assessment	No Issues Noted	TMPU demonstrated that it assessed the risks associated with the identified hazards.
AP-06	OPR s. 6.5(1)(f)	Controls	No Issues Noted	TMPU demonstrated that it had developed suitable controls to manage the risks with the identified hazards.
AP-07	OPR s. 6.5(1)(g)	Legal Requirements	No Issues Noted	TMPU demonstrated that it had a process to identify and monitor all legal requirements related to contractor oversight.
AP-08	OPR s. 6.5(1)(i)	Management of Change	No Issues Noted	TMPU demonstrated that it had a management of change process in place.
AP-09	OPR s. 6.5(1)(j)	Training, Competence and Evaluation	No Issues Noted	TMPU demonstrated that it had established competency criteria and training programs for both staff and those working on its behalf.
AP-10	OPR s. 6.5(1)(k)	Training, Competence and Evaluation	No Issues Noted	TMPU demonstrated that it had established and implemented a process for verifying staff and those working on its behalf are trained and competent and for supervising them to ensure they perform their duties in a manner that is safe, ensures the security of the pipeline and protects the



AP Item	Regulatory Reference	Protocol Topic	Status	Summary of Finding
				environment.
AP-11	OPR s. 6.5(1)(l)	Awareness of Responsibilities	No Issues Noted	TMPU demonstrated that it had a process in place to ensure both workers and those working on its behalf are aware of their responsibilities as it relates to contractor oversight.
AP-12	OPR s. 6.5(1)(m)	Communication	No Issues Noted	TMPU demonstrated both an internal and external communication process for use in contractor oversight.
AP-13	OPR s. 6.5(1)(q)	Operational Control	No Issues Noted	TMPU demonstrated that it had established and implemented a process for coordinating and controlling the operational activities of its staff and those who are working on its behalf.
AP-14	OPR s. 6.5(1)(r)	Internal Reporting of Hazards, Potential Hazards, Incidents and Near-misses	No Issues Noted	TMPU demonstrated that, within the scope and objectives of this audit, it had established and implemented a process for the internal reporting of hazards, potential hazards, incidents, and near-misses related to contractor oversight.
AP-15	OPR s. 6.5(1)(t)	Contingency Plans for Abnormal Events	No Issues Noted	TMPU demonstrated that, within the scope and objectives of this audit, it had established and implemented a process to ensure adequate contingency plans are in place for contractor oversight.
AP-16	OPR s. 6.5(1)(u)	Inspection and Monitoring	No Issues Noted	TMPU demonstrated that it had an adequate inspection and monitoring process in place for its contractor oversight activities.
AP-17	OPR s. 6.5(1)(w)	Quality Assurance	Non-compliant	The ISLMS Compliance Audit Standard lacked controls to demonstrate the adequacy of the completed audits.
AP-18	OPR s. 18(1)(a),(b), (b.1),(d), (2)	Construction Safety	Non-compliant	The TMEP was found to be compliant. For TMPU, the documentation provided did not demonstrate the designated representative is to ensure the construction activities are being



AP Item	Regulatory Reference	Protocol Topic	Status	Summary of Finding
				completed in accordance to the manual developed according to OPR s. 20.
AP-19	OPR s. 19	Construction Safety	No Issues Noted	TMPU demonstrated that, within the scope and objectives of this audit, it ensured construction practices were not negatively impacting the environment and visitors were being protected.
AP-20	OPR s. 20(1)(1.1)	Construction Manual	No Issues Noted	TMPU demonstrated that it had the appropriate documentation in place.

4.0 Conclusion

The CER conducted this audit to verify that TMPU has implemented the essential management system processes to ensure the adequate supervision and management of its contractors. Over the course of this audit, the CER found that TMPU had processes in place including communication and reporting that are essential for the ongoing oversight of its contractors. Through interviews and document review, the CER IOs confirmed that the TMPU ISLMS has incorporated contractor oversight for the lifecycle of its pipeline to ensure safety and environmental outcomes are met.

TMPU was able to demonstrate that, within the scope of the audit, it had established and implemented:

- an effective management system that is systematic, comprehensive, proactive and is applied across the entire lifecycle of a pipeline.
- an effective process for identifying and analyzing hazards and potential hazards, evaluating and managing the risks, establishing the necessary controls.
- an effective organizational structure, competency and training requirements, training programs and processes to identify and communicate roles, responsibilities, and authorities, and to verify the competency of workers and those that complete work on its behalf.
- a process for the internal reporting, analysis, and investigation of hazards, potential hazards, incidents, and near-misses as a result of construction or maintenance activities, and for taking corrective and preventive measures, including measures to manage imminent threats.
- quality assurance measures, such as audits and inspections of construction and maintenance activities were being carried out to ensure that worker safety and environmental protection measures are being upheld.

However, CER IOs noted that TMPU could not demonstrate adequate audit records as related to its OPR sections 53 and 55 audit requirements.

With respect to the non-compliances identified, the CER is of the view these findings do not constitute an imminent hazard to the safety of people or environmental protection. Furthermore, the CER notes that resolving these non-compliances can be achieved without interrupting daily operations. TMPU is required to develop a CAPA Plan to analyze, address, and manage these deficiencies and submit it to the CER within 30 days of receipt of the final audit report for approval.



The CER will monitor and assess the implementation of TMPU's CAPA Plan to confirm that it is fully implemented on a timely basis and in a manner that protects the safety of employees, those working on behalf of the company, and the public, as well as the environment.

The CER will make its final audit report public on the CER website.



Appendix 1.0 - Audit Assessment Tables

AP-01: Management System

Regulatory Requirement:

OPR s. 6.1 A company shall establish, implement and maintain a management system that

(a) is systematic, explicit, comprehensive and proactive; and

(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.

Expected Outcome:

The company is able to demonstrate that:

- The company's management system is purposely designed to include the construction / maintenance phase of a pipelines life cycle.
- The company integrates construction or maintenance activities of a pipelines life cycle through a systematically designed, established and implemented management system.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Project Execution Process Standard
- TMEP Quality Assurance Program Manual
- Integrated Safety and Loss Management System (Revision 5)
- Capital Projects Management Plan
- Environmental Planning Procedure for Project Managers
- Contractor Competency Assurance Plan
- Health and Safety Program Management Plan
- Project Environmental Requirements Standard



Assessment:

In the scope of TMPU's Integrated Safety and Loss Management System (ISLMS) documentation it states that the ISLMS applies to all phases and activities of a pipeline's life cycle. The 16 programs that are managed within the ISLMS include the OPR section 55 protection programs along with Capital Projects, Major Projects and Operations and Maintenance work. TMPU considers any project with a budget over \$30 million dollars to be a major project, which would include the TMEP.

The ISLMS sets 19 requirements that each management program must meet. For example the programs must demonstrate:

- development of an organizational structure that includes the roles and responsibilities of key individuals or groups to ensure effective management of the program;
- application of the ISLMS process for identifying, developing, and implementing operational controls associated with hazards and risks;
- application of the ISLMS process for conducting regular inspection, measurement, and monitoring activities; and
- application of the ISLMS process for identifying and managing qualifications, competencies, and training requirements for all employees or other persons working with or on behalf of the program.

The TMEP is integrated directly into the ISLMS organizational structure. According to the ISLMS, the Executive Vice President TMEP is accountable for ensuring the effective implementation and continual improvement of TMEP sub-programs as part of the overall ISLMS. TMPU staff indicated the TMEP uses the ISLMS and its associated processes, procedures and work instructions as their base documents, however they are capable of developing their own comparable documents for the project with all information reporting back to the ISLMS.

In consideration of the narrow audit scope and the noted expected audit outcomes for this AP question, the CER IOs have made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER IOs are of the view that TMPU met the expectations of this AP item as it relates to section 6.1 of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No Issues Noted.

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-02: Organizational Structure, Roles and Responsibilities

Regulatory Requirement:

OPR s. 6.4 The company must have a documented organizational structure that enables it to (a) meet the requirements of the management system and meet its obligations under section 6; (b) determine and communicate the roles, responsibilities and authority of the officers and employees at all levels of the company; and (c) 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.

Expected Outcome: The company is able to demonstrate that:

- it has a documented organizational structure;
- it has determined and communicated the roles, responsibilities and authorities; and
- it conducts an annual documented evaluation of need of the human resources.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- 2018 Human Resources Evaluation Plan
- Human Resources Evaluation Procedure
- 2019 ISN Weekly Update Report
- Contractor Qualification Specification and Records
- SA Energy Spread 1 P6 Schedule – Resources Loaded Schedule
- Project Indicative Summary Schedule (9 Nov 2018)
- KLTP Management Org Chart

Assessment:

In order to review TMPU's structure, the CER reviewed various organizational charts. TMPU pointed to its Human Resources Evaluation Procedure which directly links with the requirements set out in OPR s. 6.4. This procedure requires all TMPU Management programs to meet its expectations and organizational needs. To meet this requirement, each management program must develop a documented Annual Work Plan which details what activities or tasks it will perform for the year. The plan must also include a list of responsible roles that are anticipated to be involved.

As a demonstration of its process for evaluating resource needs, TMPU provided its 2018 Human Resources Evaluation Plan. This document showed how TMPU's Capital Projects group conducted an analysis of full time equivalents (FTE's) needed to meet its anticipated project requirements for the year for the Management program.

For the TMEP, TMPU staff indicated that it applied the 2017 project resource estimates as a baseline and then required all contractors to re-estimate



Regulatory Requirement:

OPR s. 6.4 The company must have a documented organizational structure that enables it to (a) meet the requirements of the management system and meet its obligations under section 6; (b) determine and communicate the roles, responsibilities and authority of the officers and employees at all levels of the company; and (c) 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.

their resource requirements for construction starting in 2019. With these two sets of data, TMPU staff then reviewed the contractor estimates to verify the reasonableness and any significant deviations between the two data sets. As part of CER Condition 88, and the projects readiness review, TMEP was required to submit a project structure identifying key roles.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.4 of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No Issues Noted.

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-03: Hazard Identification

Regulatory Requirement:

OPR s. 6.5(1)(c) establish and implement a process for identifying and analyzing all hazards and potential hazards.

Expected Outcomes:

- The company has a compliant process that is established and implemented.
- The methods for identification of hazards and potential hazards are appropriate for the nature, scope, scale, and complexity of the company's operations, activities and s. 55 programs.
- The identification of hazards and potential hazards must include the full life cycle of the pipeline.
- The company has comprehensively identified and analyzed all relevant hazards and potential hazards.
- The hazards and potential hazards have been identified for the company's scope of operations through the lifecycle of the pipelines.
- The identified hazards and potential hazards have been analyzed for the type and severity of their consequences.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Hazard Identification and Reporting Awareness Training Record
- Hazard and Risk Management Standard
- Hazard Identification and Reporting Procedure
- Hazard and Risk Guidelines
- Operational Risk Management Procedure
- Operational Management of Change Procedure
- UHRR and Risk Workshop KLTP Aug 8 2019

Assessment:

There are various hazard identification processes and procedures taking place at the job site, district, regional and headquarter levels for TMPU. TMPU's Hazard Identification and Risk Management Standard, which applies to all of TMPU's Management programs, establishes the hazard and risk management process for the identification of hazards, managing the associated risks as well as developing and implementing control measures. This Standard contains specific sections relating to construction contractors and to the Major Projects Program. For construction contractors the Standard is intended to identify and establish the expectations for identifying and reporting hazards by contractors conducting work on behalf of TMPU. Prior to the start of construction, a contractor is required to document a process that will be used to identify, document, and report hazards and potential hazards to the project that are expected to occur while conducting construction activities.

At the pre-job phase of a project, the Job Hazard Assessment (JHA) is developed and reviewed line by line by TMPU and the contractor. The JHA is used as a source to begin filling out the tailgate forms. New hazards identified when the tailgate forms are in development are moved back up to the



Regulatory Requirement:

OPR s. 6.5(1)(c) establish and implement a process for identifying and analyzing all hazards and potential hazards.

JHA.

As part of hazard and risk identification for a major project, such as TMEP, each contractor is provided with a draft version of the project specific hazard and risk register. Each contractor is required to review the document and to identify any additional hazards and risks applicable to their scope of work. As an example of hazard identification and analysis for TMEP, TMPU provided records of workshops held between TMEP and general contractors. The workshops were held to identify potential hazards and risks related to the work for the construction spread. Along with identifying the potential hazards and risks, the goal of the workshops was to identify existing controls, risk mitigation and residual risks.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(c) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No Issues Noted.

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-04: Hazard Inventory

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(d) establish and maintain an inventory of the identified hazards and potential hazards.

Expected Outcomes: The company is able to demonstrate that it has identified the hazards and potential hazards associated with the pipeline construction contractor oversight activities and has included them in the inventory. Specific areas for demonstration related to this protocol question include:

- the company has a compliant inventory that is established and maintained;
- the inventory includes hazards and potential hazards associated within the company scope of operations and activities through the lifecycle of the pipelines;
- hazards and potential hazards are identified for the control room;
- the inventory has been maintained, it is current, and is up-to-date including changes made to company operations and activities; and
- the inventory is being used as part of the risk evaluation and controls processes.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- All Submitted Hazards
- SA Energy – Unified Hazard Risk Register
- KLTP – Contractor Unified Hazard and Risk Register
- Unified Hazard and Risk Register Operations 22 October 2019

Assessment:

TMPU demonstrated a hazard inventory for its operations. Updates to the TMPU unified hazard and risk registry (UHRR) are identified through past JHA's, Hazard and Operability reviews (Hazops). TMPU staff noted that the UHRR is updated at least annually or as required. According to the Hazard and Risk Management Standard, the inventory contains records for each identified hazard along with the associated consequences, control measures, events, contributing causes and other applicable information.

The TMEP indicated they used the corporate UHRR as a starting point, but they have created a project specific hazard and risk registry. This registry is shared with contractors and is considered an evergreen document which is updated as required. Contractors are expected to develop a scope specific unified hazard and risk registry from the project list that is subject to TMPU approval. This scope specific register may contain additional hazards and risks not identified on the TMEP registry as it is meant to be at a more refined and specific level of detail.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the



Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,
OPR s. 6.5(1)(d) establish and maintain an inventory of the identified hazards and potential hazards.

documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(d) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No Issues Noted.

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-05: Risk Assessment

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(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 conditions.

Expected Outcome: The company is able to demonstrate that they have evaluated and are managing the risks of the identified hazards associated with the pipeline construction contractor oversight activities, including the risks related to normal and abnormal conditions. Specific areas for demonstration related to this protocol question include:

- the company has a compliant process for evaluating and managing risks that is established and implemented;
- the method(s) for risk evaluation and managing the risks are based on referenced regulatory standards and are appropriate for the nature, scope, scale, and complexity of the company's operations, activities, and s. 55 programs;
- risk is evaluated for all hazards and potential hazards and includes normal and abnormal conditions;
- risk levels are monitored on a periodic basis as-needed, and re-evaluated for changing circumstances;
- risk is managed using defined method(s) appropriate to the s. 55 programs; and
- risk acceptance criteria is determined for all hazards and potential hazards.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Contingency Plan for Abnormal Events Standard
- Quality Assurance Management Plan
- Unified Hazard and Risk Register Operations 22 Oct 2019
- CPM Inert –behind Vaporplugs
- NH Coq15 Q4 2019
- NH Coq16 Q4 2019
- TMEP Unified Hazard and Risk Management Procedure

Assessment:

TMPU indicated that a JHA is completed on an individual project basis and starts by using the information located in the UHRR. The UHRR provides holistic hazards which are then supplemented by specific hazards that are anticipated for the project. It provides a breakdown of the inherent and residual risk score for each hazard or risk on the UHRR along with the consequences and the location of where the risk or hazard is located. Controls are provided along with an indication of whether or not the hazard or risk is considered an abnormal operating condition. The Contingency Plans for Abnormal Events Standard sets the requirements for identifying abnormal conditions and developing appropriate contingency plans where they are



required.

The TMEP Unified Hazard and Risk Management Procedure provides the hazard identification, reporting and risk management requirements for TMEP personnel and contractors working on behalf of the Project. The timing and specific methods of hazard and risk identification and assessment will depend on the project phase. TMEP will use the TMPU ISLMS Operational Risk Management Procedure as its guide when evaluating and managing risk. The TMEP UHRR will include abnormal events or operating conditions that have been identified to date in its various program management plans.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(e) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No Issues Noted.

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-06: Controls

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(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.

Expected Outcome: The company is able to demonstrate that it has developed and implemented controls for the identified hazards associated with the pipeline construction contractor oversight activities and that it has communicated the risk controls to anyone exposed to the risks. Specific areas for demonstration related to this protocol question include:

- the company has a compliant process for developing and implementing risk controls;
- the method(s) for developing risk controls are appropriate for the nature, scope, scale, and complexity of the company's operations and activities and s. 55 programs;
- risk controls are developed and implemented;
- risk controls are adequate to prevent, manage and mitigate the identified hazards and risks;
- risk controls are monitored on a periodic basis and as-needed and re-evaluated for changing circumstances; and
- risk controls are communicated to those exposed to the risks.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Contractor Competency Assurance Plan
- Hazard and Risk Management Standard
- Hazard Identification and Reporting Procedure
- Hazard Identification and Reporting Awareness Training Record

Assessment:

According to TMPU's risk evaluation documentation, controls are required to mitigate each risk that is rated as high or extreme. At the JHA stage, TMPU staff review the residual risk levels and add additional controls if necessary to lower the residual risk levels. TMPU indicated administrative and engineering controls are identified at the JHA stage of a project.

Controls are validated for adequacy during project implementation through the inspection process. Inspectors participate in the development of the JHA, as a result this provides them with the information they need to ensure the controls are performing as expected. One method to communicate the controls to those involved in the project is through project specific training requirements.

TMEP staff indicated the Contractor Execution Plans includes a review of each work activity, develop a detailed execution plan and from this



information they generate a JHA or a documented procedure or safe work practice. TMEP indicated that contractually, it sets specific criteria as to when additional or special controls need to be applied, as an example constructing on steep slopes. From this the contractor is required to develop detailed execution plans which are reviewed and approved by TMEP prior to implementation. During the implementation of controls, Subject Matter Experts are to inspect any necessary equipment and to provide oversight to ensure what is expected to be implemented or applied is being done as required.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(f) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No Issues Noted.

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-07: Legal

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(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

Expected Outcome: The company is able to demonstrate that it has established and implemented a process for:

- the company has a compliant process for identifying and monitoring compliance with legal requirements.
- the method(s) for identifying and monitoring compliance with legal requirements are appropriate for the nature, scope, scale, and complexity of the company's operations and activities and section 55 programs.
- the identification of legal requirements includes an adequate method to identify all of the applicable regulation and standards, including CER orders and conditions, to the clause level.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Legal Requirements List - 2019
- TMEP QAP Training - Core
- Legal Requirements Procedure
- Legal Requirements Standard
- CompliShield User Manual I

Assessment:

TMPU demonstrated its legal requirements standard along with its associated procedures documentation. TMPU provided a demonstration of the software used to manage its legal list.

For the TMEP, changes to the legal list are captured and updated in the relevant contract documents along with any specifications that might be impacted. The contractors are notified of the changes and requested to review and evaluate all of their own applicable internal documentation.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(g) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No Issues Noted.



Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-08: Management of Change

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(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 company's organizational structure or the legal requirements applicable to the company.

Expected Outcome: The company is able to demonstrate that it has established and implemented a process for:

- The company has a compliant process for identifying and managing change.
- Methods are defined to identify and manage change.
- Impacts to the company management system and section 55 programs are identified and assessed.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Change Management Request
- Management of Change Standard
- Operational Management of Change Procedure
- Legal Requirements Management of Change Procedure
- Organizational Change Management Request
- Legal Requirements Change Request Form
- Legal Requirements Change Management Approval Authority Matrix

Assessment:

TMPU's Management of Change Standard states it is intended to meet the management system requirements to have a management of change (MOC) process to ensure the safety and security of people and the pipeline system, and protection of the environment throughout the design, construction, operation, and abandonment of facilities operated by Trans Mountain. The standard acts an umbrella document for 4 (four) different TMPU procedures:

- Operational Management of Change;
- Organizational Management of Change;
- Legal Requirements Management of Change Procedure; and
- TMEP Project Execution Management of Change Procedure.

TMPU staff indicated the above procedures also allow for the ability to initiate emergency change if required, and several MOC procedures can be



combined to make multiple changes.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(i) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No issues noted

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-09: Competency and Training Programs

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(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.

Expected Outcome: The company is able to demonstrate that it has established and implemented a process for:

- the company has a compliant process for developing competency requirements and training programs.
- the company has defined what competency requirements are required.
- training programs are traceable and trackable to the defined competency requirements and effective at achieving the desired competencies.
- employees and those working on behalf of the company are competent to carry out their assigned work.
- provide persons working with or on behalf of the company with adequate training applicable to section 55 programs and the management system.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- General Training Standard
- Control Centre Training Standard
- Operations and Maintenance Training Standard
- Training Management Plan
- Training Practice
- KLTP Training Matrix
- KLTP Onboarding Checklist

Assessment:

TMPU's Training Management Plan is applied to both staff and contractors to ensure they are trained and competent in the work they are required to complete. TMPU training standards ensure the general requirements of the Training Practice documentation are turned into specific requirements for TMPU's various programs and departments.

TMPU has established a Contractor Competency Assurance Plan (CCAP) which is designed to manage the training and qualifications of TMPU's contractors and its staff. Part of the CCAP is the Contractor Qualification Specifications (CQS) that lists the responsibilities, minimum qualifications and other requirements for contractors to perform specific types of work. This document is shared with contractors during the bidding process so they are aware of the expectations and minimum requirements of their staff onsite.



For the TMEP Contractor Competency Assurance Plan, contractors are required to build role descriptions for each position on their organizational chart. TMEP staff indicated that a CQS is developed for all TMEP staff, all general contractors and this requirement extends down to, at a minimum, the first layer of the contractors organizational chart. All TMEP staff and contractors are expected to maintain training requirements, there are no exceptions to this. Companies that are working for TMEP under contract are expected to verify the experience and competency of their own workers. TMEP will conduct periodic record checks to verify this step is being done.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(j) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No issues noted.

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-10: Training and Competency Verification

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(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.

Expected Outcome: The company can demonstrate that it has established and implemented a process for

- The company has a compliant process for verifying employees and other persons are trained and competent.
- Records are maintained demonstrating employees and other persons working on behalf of the company are trained and competent as applicable to section 55 programs.
- The company has a compliant process for supervising employees and other persons working on behalf of the company.
- Supervision of employees and other persons is adequate to ensure they perform their duties in a manner that is safe, ensures the security of the pipeline and protects the environment.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- CER Audit TM Personnel Training Completion Report
- Standard for Supervising Personnel
- Assignment and Acceptance of Supervisory Duties Form
- TMEP Supervisory Training Presentation and Standard

Assessment:

TMPU indicated staff who are to be put in a position where they are to supervise contractors need to be a competent senior level technician, Tech 3, with all competencies and training completed prior to assuming this role. TMPU indicated that contractors may also act in the contractor oversight role just as TMPU staff. The third party contractor can take the same training packages as a TMPU staff to be able to assume this role. Prior to taking on this supervisory role, the TMPU staff member or third party contractor, must formally sign off on the Assignment and Acceptance of Supervisory Duties Form to acknowledge that they are willing to take on this role and that they have the appropriate competencies to complete it.

TMPU conducts field verification checks once per project, within the first 10 days of project start up to verify that all contractor staff are competent in completing their work. Daily field reports from the project back to the hiring manager are also used as part of the field verification check.

TMEP indicated it had borrowed a significant amount of materials from the TMPU management system for this requirement. The TMEP Supervisory Training Presentation and Standard documentation provides information on the expectations for appointing supervisors and the expectations of



those supervisors. Those who are required to act in a supervisory role will:

- have their competency confirmed;
- be provided with a clear scope of their duties along with responsibilities and authority; and
- the person who will be in the role must formally accept the assignment.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(k) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No issues noted.

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-11: Communication – Awareness of Responsibilities

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(l) establish and implement a 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 this section.

Expected Outcome: The company can demonstrate that it has established and implemented a process for:

- The company has a compliant process for making employees and other persons aware of their responsibilities.
- Responsibilities are defined for employees and those other persons working on behalf of the company in relation to the processes and other requirements for OPR section 6.5.(1) a-x.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- O & M Training Assignment Matrix
- TM Training Assignment Matrix 2019
- Trans Mountain Control Centre Skill Matrix
- Director EHS
- Director Engineering – Facility
- Director Pipeline Integrity
- Health Safety Management Plan

Assessment:

TMPU indicated a SME is responsible to determine what needs to be in a CQS. To initiate this process, the SME looks at what is typical for industry as a whole and then adds in specific content. This assessment is typically done annually to ensure the CQS is maintained and current. The CQS is used to ensure contractors are aware of the training, experience and competence required for its staff involved in a specific project. As required, project specific requirements, roles and responsibilities can be added.

For the TMEP, contractors are to provide role descriptions and its version(s) of a CQS to TMEP staff and ask that they be reviewed and approved. To ensure contractors are meeting these requirements TMEP conducts audits, spot checks of records and focused inspections as verification tools. These layers of reviews are in place to ensure contractors are aware of their responsibilities in relation to the activities they are conducting.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(l) of the OPR. TMPU is expected to maintain compliance through the ongoing application



of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No Issues Noted.

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-12: Communication – Internal and External

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(m) establish and implement a process for the internal and external communication of information relating to safety, security and protection of the environment.

Expected Outcome: The company can demonstrate that it has established and implemented a process for

- The company has a compliant process that is established and implemented.
- The methods for both internal communication and external communication are defined.
- The company is communicating internally and externally related to safety, security and protection of the environment.
- Internal and external communication is occurring and it is adequate for the management system and section 55 program implementation.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Records Management Standard
- ISLMS External Communication Standard
- External Stakeholder Communication Standard
- 2019 Capital Projects External Communication Plan
- 2019 Capital Projects Internal Communication Plan
- Record of Contact 09242019
- Internal Communication Plan 2019 – Blank Template

Assessment:

TMPU indicated it has incorporated a risk matrix into its communications process. This risk matrix includes the ranking of information based on its potential impact to the safety and security of people and protection of the environment. Messages that meet the criteria for “higher risk” are subject to a formal communications process that includes roles and requirements for maintaining records such as the acknowledgement of the communications between parties. A message that is ranked at a lower risk requires a less formal type of communications and generally does not require an acknowledgment of receipt. TMPU indicated that when communicating with contractors it's considered internal communication as the contractors are doing work on behalf of TMPU.

For the TMEP, staff indicated they use the same internal and external standards that are part of the ISLMS. These documents are rolled up into an overall communications plan for the project. TMEP had identified communication representatives for each spread. The general contractors for each spread are required to have a liaison in place to communicate with the TMEP representative. These people communicate with each other on a daily



basis.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(m) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No issues noted

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-13: Communication – Co-ordinate and Control

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(q) establish and implement a process for coordinating and controlling the operational activities of employees and other people working with or on behalf of the company so that each person is aware of the activities of others and has the information that will enable them to perform their duties in a manner that is safe, ensures the security of the pipeline and protects the environment.

Expected Outcome: The company can demonstrate that it has established and implemented a process for:

- The company has a compliant process that is established and implemented.
- The methods for coordinating and controlling operational activities are defined.
- Employees and other people working with or on behalf of the company are aware of the activities of others.
- Employees operational activities are planned, coordinated, controlled, and managed.
- People working for or on behalf of the company:
 - are pre-qualified for their assigned duties to ensure safety, the security of the pipeline and to protect the environment;
 - are assigned work plans that have been reviewed by the company and are assessed for the interoperation with the work to be performed by other people working on behalf of the company; and
 - have adequate oversight performed by company representatives for their assigned tasks to ensure safety, security of the pipeline and the protection of the environment.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Contractor Execution Plan
- Engineered Job Plan Standard
- TMEP List of Environmental Plans
- Examples of Communication – inspections, meetings, reports, lunch and learns etc.

Assessment:

TMPU indicated that Contractor Execution Plans provide all of the requirements as detailed in the scope of work. These plans are designed to promote compliant, safe and environmentally sound construction. TMPU stated the Construction Management and Inspection (CMI) Team does not have the authority to direct contractors in their use of manpower, equipment or in the methods used to perform the work. The CMI Team can only stop work or fabrication if they deem it necessary. Prior to the start of work, the CMI Team and the contractor(s) will review the TMPU risk register and identify the applicable hazards that are anticipated to apply to the project, and they will also consider any project specific hazards that are not on the inventory. This group will also re-assess the risk ratings of each identified risk to ensure they are appropriate and project specific.



TMEP staff indicated that all contractors are required to go through an extensive construction spread specific orientation prior to having their competency checked. These orientations are developed by the general contractors based on specific content provided by TMEP, and they are reviewed and vetted by TMEP staff prior to use. Using environmental protection as an example, TMEP indicated that the project contract requires the general contractor to develop 10 different environmental plans, i.e. biosecurity, and each plan is reviewed and approved by TMEP for implementation. These plans are then provided to the environmental inspectors who use them as criteria for their inspections.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(q) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No Issues Noted.

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-14: Hazard Identification, Reporting and Control

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(r) establish and implement a 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.

Expected Outcome: The company can demonstrate that it has established and implemented a process for:

- The company has a compliant process that is established and implemented.
- The company has defined its methods for internal reporting of hazards, potential hazards, incidents and near-misses.
- Hazards and potential hazards are being reported as required by the company's process;
- Incidents and near-misses are being reported as required by the company's process;
- The company has defined how it will manage imminent hazards;
- The company is performing incident and near-miss investigations;
- The company's investigation methodology's are consistent and appropriate for the scope and scale of the actual and potential consequences of the incidents or near misses to be investigated;
- The company has defined the methods for taking corrective and preventive actions;
- The company can demonstrate through records that all corrective and preventive actions can be tracked to closure.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Formal Incident Report Preparation Guide
- Incident Management Procedure
- Incident Reporting and Investigation Standard
- Events 10242019-3 Enblon Incidents
- Enblon Incident Management Training
- KLTP 90 Day Corrective Actions Log
- KLTP 90 Day Incident Reporting Summary

Assessment:

TMPU's Incident Reporting and Investigation Standard applies to all of TMPU's ISLMS programs including the TMEP. It is designed to promote consistent reporting and investigation. The Standard includes a step for the determination of immediate causes, root causes and contributing factors related to the incident.

For their part, Contractors are required to have an incident management plan as part of their Health and Safety Manual. This plan is reviewed and



approved prior to the start of work. TMPU requires contractors to complete their own investigations for incidents that meet the criteria to be serious or high level. TMPU indicated it would automatically conduct its own separate investigation. TMPU's Incident Management Procedure requires the wide dissemination of incident findings to share the lessons throughout the company.

TMEP indicated there is significant overlap between TMPU and TMEP when it comes to incident investigation as it realizes there is significant visibility to what it is doing. TMEP staff indicated all incidents are investigated and, depending on the severity of the incident, the investigation can be formal or informal. Near misses are investigated the same way as actual incidents. TMEP indicated that while each contractor can have slightly different forms or approaches to their incident investigations they are all required to provide very specific and consistent information as part of their data reporting.

Both TMPU and TMEP incidents are analyzed to ascertain lessons learned. These lessons are communicated across the organization and between different construction spreads as required.

In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(r) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No issues noted

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-15: Hazard Identification, Reporting and Control

<p>Regulatory Requirement: OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55, OPR s. 6.5(1)(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>Expected Outcome: The company has a compliant process that is established and implemented.</p> <ul style="list-style-type: none"> • The company has methods for developing contingency plans for abnormal events that include construction, operations, maintenance, abandonment, and emergency situations. • The company's contingency plans are developed, maintained, and apply to all section 55 programs. • The company has the ability to implement contingency plans when required, for one or all section 55 programs at the same time.
<p>Summary of Information Made Available by Trans Mountain Pipeline ULC:</p> <p>To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:</p> <ul style="list-style-type: none"> • Contingency Plan for Abnormal Events Standard • Emergency Management Documentation Procedure • TMEP List of Environmental Plans • Avalanche Assessment Form Oct 10 2019 Upper Coquihalla
<p>Assessment:</p> <p>TMPU's Contingency Plan for Abnormal Events Standard states that it is to be used to establish systematic requirements for identifying abnormal events, which include abnormal operating conditions and emergencies involving TMPU operations. The document also states that it is applicable to all ISLMS programs, including the protection programs, and must identify and react to any imminent hazard or risk. Each program is also responsible for having documented contingency plans ready to implement for any potential abnormal operating conditions.</p> <p>TMEP stated that it has adopted for use the same Contingency Plan for Abnormal Events Standard used by TMPU. Using the UHRR, TMEP identified hazards that fit into the abnormal operating conditions category and attempted to eliminate as many of the operational ones as possible. If a control for an abnormal event does not exist, the situation becomes an incident and work is stopped and reassessed. TMEP used the projects EPP as an example of the contingency plans that have already been identified and developed for use if needed.</p> <p>In consideration of the narrow audit scope and the noted expected audit outcomes, the CER IOs made the following decisions. After a review of the documentation and records provided by TMPU, followed by interviews with select TMPU staff and contractors, the CER is of the view that TMPU is compliant with this AP item as it relates to section 6.5(1)(t) of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.</p>



Finding: No issues noted

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-16: Hazard Identification, Inspecting and Monitoring (IMM)

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(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.

Expected Outcome: The company has a compliant process that is established and implemented.

- The company has developed methods for inspecting and monitoring their activities and facilities.
- The company has developed methods to evaluate the adequacy and effectiveness of the programs referred to in section 55.
- The company has developed methods for taking corrective and preventive actions when deficiencies are identified.
- The company is completing inspections and monitoring activities as per the company's process.
- The company retains records of inspections, monitoring activities, and corrective and preventative actions implemented by the company.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Effectiveness Review Procedure
- Inspection, Measurement and Monitoring Procedure
- Inspection, Measurement and Monitoring Standard
- Enablon Inspection Training
- TMEP Environmental IMM Plan
- TMEP Health and Safety IMM Plan

Assessment:

During the audit, TMPU provided documents and records related to its IMM activities. TMPU demonstrated that it has established its ISLMS Inspection, Measurement and Monitoring Standard (Standard) and that the standard is applicable to all activities throughout the lifecycle of the pipeline including construction. The company demonstrated how it has applied this Standard to the TMEP by providing inspection records for review.

The Standard requires that procedures be developed to address and manage hazards, potential hazards and control the associated risk. These procedures are then be applied to operations and maintenance activities, significant operations projects and construction. The documentation provided for review also confirmed that TMPU has included requirements for developing, implementing and managing corrective and preventive actions to address identified deficiencies. Additionally, TMPU demonstrated that specific training and competency (T&C) requirements were established for workers and contractors. The T&C requirements included content related to all of the facility lifecycle stages. TMPU demonstrated that it had established and implemented T&C oversight and review mechanisms to ensure the training and competency of all of its own personnel



and contract workers.

The CER IOs reviewed records of implementation of the IMM requirements as well as associated T&C requirements noted above. In addition, the CER IOs reviewed records of related on-going operations and maintenance (O&M) activities, significant O&M projects managed (by TPU e.g. North Thompson replacement) and the TMEP project. Record reviews indicated that the company was implementing and managing the IMM requirements as per the ISLMS Standard requirements as well as any procedures and practices developed as required by the standard. The results of the various IMM activities were receiving timely and appropriate oversight including review at the project, program, senior management and Accountable Officer levels. No issues were noted during the review of this protocol item.

Finding: No issues noted

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.



AP-17: Quality Assurance Program (QAP)

Regulatory Requirement:

OPR s. 6.5(1) A company shall, as part of its management system and the programs referred to in section 55,

OPR s. 6.5(1)(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.

Expected Outcome: The company has a compliant quality assurance program.

- The quality assurance program comprises an integrated set of processes and procedures including inspections, monitoring, and auditing activities.
- The company's quality assurance program tests the adequacy and effectiveness of its management system.
- The company's quality assurance program examines each program referred to in section 55.
- The company's quality assurance program will conduct compliance and program audits as well as inspections.
- The company's quality assurance program takes corrective and preventive actions if deficiencies are identified.
- The company regularly monitors and evaluates its quality assurance program to check that the program is achieving the intended results.
- The company retains records of the quality assurance program monitoring and evaluation.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Effectiveness Review Procedure
- ISLMS Quality Assurance Management Plan
- ISLMS Inspection, Measurement and Monitoring Standard Records of QA Assurance Monitoring and Assessment activities
- Documents and Records of Annual Reviews of the Legal list
- ISLMS Compliance Audit Standard
- Records of Inspection, Measuring and Monitoring activities and their review and action at various level within the company
- Records of Internal Audits conducted as per OPR sections 53 and 55 and their review and action at various within the company.
- Records related to the reporting new hazards and response to incidents and near misses
- Records of Program Plan Reviews

Assessment:

During the audit, TMPU provided its Quality Assurance Management Plan (QAMP) for review as the governing document for the Quality Assurance Program. TMPU staff communicated that the QAMP has been developed for compliance with the CER requirement for a QA Program within the management system. It outlines the processes, procedures and plans used by TMPU to ensure the adequacy and effectiveness of the ISLMS and the company's OPR section 55 programs. The QAMP coordinates and gathers information generated within the various ISLMS activities and



company programs to meet its internal and external adequacy and effectiveness requirements as they relate to its management system.

Review of the documents and records provided indicated that the QAMP addressed the OPR requirements and applied to all of the life-cycle stages including construction activities. The company confirmed that the QAMP is also being applied to the TMEP. The documentation provided for CER IO review also demonstrated that TMPU has included requirements for developing, implementing and managing corrective and preventive actions should deficiencies be noted. The results of the various QAMP activities were receiving timely and appropriate oversight including review at the project, program and senior management and Accountable Officer levels. Records review indicated that operational and TMEP QAMP activities were being routinely reviewed as part of the required quarterly and overall annual reviews by program and senior management.

OPR section 6.5(1)(w) specifically requires that each company must establish and implement a process for conducting audits in accordance with section 53 and for taking corrective and preventive actions if deficiencies are identified as part of its Quality Assurance program. To demonstrate compliance to this requirement, TMPU provided its ISLMS Compliance Audit Standard and records of its audits conducted on its OPR section 55 programs and its TMEP construction program.

The CER IOs review of the ISLMS standard indicated that it includes roles and responsibilities for staff and management across all levels of the company and established audit planning, implementation, and the development of corrective and preventive action plans. Additionally the Compliance Audit Standard established competency requirements for auditors. TMPU staff demonstrated how the company uses various work management and review processes for resolving corrective and preventive actions. The company provided records of various program audits conducted in 2018 and 2019 including the Damage Prevention Program and Environmental Management Program. Review of the documents and records indicated that, with the exception of the issues noted below, the Compliance Audit Standard was adequate and was established and being implemented across the lifecycle stages, as required.

CER IO review of the audit reports provided indicated that, while the audits included reviews of the adequacy and applicability of the processes, one audit report specifically did not include reviews of the implementation of the processes or their effectiveness in meeting the desired outcomes. The company was able to provide additional information including letters from the consultants involved in the audits to demonstrate that an evaluation of implementation was included in the audits (in contrast to what was written in the report). As well, the company provided additional documents and records demonstrating that processes for measuring effectiveness were included in other specific ISLMS standards and other company practices.

The CER IOs noted, however, that one audit report indicated the requirements were specifically not included in the report and that TMPU reviewed, approved and adopted the reports. Additionally, it was noted that, while the TMPU had all of the audit reports to provide to CER IOs, it was difficult to obtain documents and records to demonstrate the adequacy of the audits (approved APs, audit schedules and records of review and interviews). These documents are required to be available to demonstrate the audit process as they generally contain the records and proofs of the audit activities and subsequently the content of the "compliance checks" being completed. The ISLMS Compliance Audit Standard appeared to lack certain important requirements, controls and checklists to ensure and be able to demonstrate the adequacy of the audits. Examples of these requirements could include such things as the requirement to provide copies of APs for approval and/or records management, records of interviews and document reviews, checklists or procedures for approving audit reports to ensure their compliance, etc.

Through discussions and providing additional documentation for review, TMPU was able to demonstrate that the combination of the audits and



other activities could meet the requirements of the CER. Recognizing that fact and the resources it takes to undertake an OPR required audit, the CER is therefore not requesting that the company undertake new audits at this time. TMPU can continue with its audit schedule to meet the OPR requirements; however, the ISLMS Standard and sub-ordinate documentation will have to be revised to ensure that it is fully compliant and that the company can demonstrate that compliance.

Finding: Non-compliant.

Based on the information made available and reviewed by the CER IOs, TMPU has been found Non-Compliant relating to items described in this protocol item. While TMPU was able to demonstrate that it has established a Quality Assurance program and conducted audits, it was not able to directly demonstrate the adequacy of its auditing process as per the auditing requirement of the OPR section 6.5(1)(w). A CAPA Plan must be developed to analyze, address and manage these deficiencies.



AP-18: Construction Safety – Contractor Management

Regulatory Requirement:

OPR s. 18(1) If a company contracts for the provision of services in respect of the construction of a pipeline, the company shall

- (a) inform the contractor of all special conditions associated with the construction;
- (b) inform the contractor of all special safety practices and procedures necessitated by the conditions or features specific to the construction;
- (b.1) inform the contractor of the contractor's responsibilities referred to in paragraph 6.5(1)(l);
- (d) authorize a person to halt a construction activity in circumstances where, in the person's judgement, the construction activity is not being conducted in accordance with the manual developed under section 20 or is creating a hazard to anyone at the construction site

OPR s. 18(2) The person referred to in paragraph section 18(1)(d) must have sufficient expertise, knowledge and training to competently carry out the obligations set out in that paragraph.

Expected Outcome: Contractors have adequate information from the regulated company regarding special conditions associated with the construction activities.

- Subcontractors have adequate information from contractors regarding applicable special conditions.
- Contractors have adequate information on the regulated company special safety practices and procedures.
- Subcontractors have adequate information on the applicable special safety practices.
- Contractors and subcontractors have been made aware of their responsibilities by the regulated company.
- Regulated company will perform adequate oversight over the contractors and subcontractors to ensure activities are conducted in accordance to the construction safety manual section 20.
- A competent person has responsibility to halt construction activity as required by the construction safety manual or if the construction activity is creating a hazard.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Contractor Safety Inspection Checklist V2
- Completed Tailgate Meeting form Vac Truck Checklist
- Contract Inspector Orientation Checklist Sample 1 and 2
- ISN Information Slides
- KM Contractor Environmental/Safety Manual
- KLTP Stop Work Project Orientation Slides
- TMEP IMM Report H&S Contractor Monthly Totals 2019-09
- Supervising Personnel Procedure



Assessment:

TMPU indicated the completion of the project JHA is where special conditions or special procedures are communicated to the contractor(s) and sub-contractor(s). The JHA process requires all active parties to be involved in its development, and for complex projects, more than one meeting may be required to satisfy all of the JHA requirements.

TMPU indicated the Designated Representative in charge of contractor oversight is in place for every project. The role is sometimes fulfilled by a TMPU PLM Technician on some smaller projects, or a third party contractor can also be brought in to complete this role to minimize the amount of time operations staff are away from their regular duties. For a third party contractor, they will receive a permit that outlines exactly what they are providing oversight to. All third party contractors who fulfil the role of an inspector are hired separately from the general contractor. TMPU indicated they expect the third party inspector or the PLM Technician who is overseeing the project to make the decision to stop work if required. According to the Supervising Personnel Procedure, TMPU is responsible to outline the role of the designated representative and to ensure all personnel who are working on behalf of TMPU are adequately supervised to ensure safety, environmental, regulatory and technical requirements are being followed. TMPU's designated representative has the following responsibilities:

- Responsible for ensuring compliance to the design plans, specifications, internal standards, permit conditions and contractor supplied procedures;
- If required by the Hiring Manager, this person will act as the Contractor Competency Monitor or the Contractor Qualification Monitor; and
- Responsible for assuring compliance with the Supervise Personnel Procedure for the assigned work.

The Supervising Personnel Procedure states the designated representative has the authority to stop work in the event of a deviation from the scope, specifications, design, permit conditions or unsafe work practices. The procedure does not state the designated representative is to ensure the construction activities are being completed in accordance to the manual developed according to OPR section 20. The procedure does not communicate what expertise, knowledge or training the designated representative is required to have to effectively carry out this role. Since the audit was completed, TMPU has indicated to CER audit staff, that they have already taken steps to correct this non-compliance.

TMEP staff explained how special conditions or special procedures were communicated to contractors through the RFP and other contractual documents. TMEP staff provided details on how Designated Representatives were identified and their responsibilities delegated to them.

Finding: Non-compliant.

Based on the information made available and reviewed by the CER IOs within the scope of the audit, no non compliances relating to this protocol item were identified during the audit as related to TMEP.

Based on the information made available and reviewed by the CER IOs within the scope of the audit, no non compliances relating to section 18(1)(a), (b), (b.1) were identified for TMPU operations.



Based on the information made available and reviewed by audit staff, TMPU has been found Non-Compliant relating to section 18(1)(d), (2). TMPU did not demonstrate a clear communication of authorization of a qualified person to halt a construction activity. A CAPA Plan must be developed to analyze, address and manage these deficiencies.



AP-19: Construction Safety –Hazard and Informed

Regulatory Requirement:

OPR s. 19(a)(b) A company shall, during the construction of a pipeline, take all reasonable steps to ensure that

(a) the construction activities do not create a hazard to the public or the environment; and

(b) all persons at the construction site who are not involved in the construction of the pipeline are informed of the practices and procedures that are to be followed for their safety.

Expected Outcome:

- Risks have been mitigated associated with the hazards of the construction activities.
- Adequate controls are in place to ensure the safety of visitors.
- Visitors to the site are aware of the hazards, practices and procedures to be followed.

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Visitor Orientation Guide
- Pipe Excavation, Shoring and Backfill Standard

Assessment:

TMPU indicated that visitors are required to complete an orientation and are then escorted at all times by a competent PLM Technician while onsite.

TMEP staff explained the procedures that would be followed by any visitors that arrive on the construction site. All visitors would be escorted around the site by qualified staff during any site visits.

In consideration of the narrow audit scope and the noted Expected Audit Outcomes for this AP question, the CER IOs made the following decisions. After a review of the documentation and records provided (see above) by TMPU, followed by interviews with select TMPU staff and contractors, the CER IOs are of the opinion that TMPU is compliant with this AP item as it relates to section 19 of the OPR. TMPU is expected to maintain compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No Issues Noted.

Based on the information made available and considering the scope of this audit, the CER IO did not identify non compliances relating to this protocol item at the time of the audit.



AP-20: Construction Safety – Construction Safety Manual

Regulatory Requirement:

OPR s. 20 (1) A company shall develop a construction safety manual and shall submit it to the Regulator.

(1.1) If a company contracts for the provision of services in respect of the construction of a pipeline, the construction safety manual shall set out the contractor's responsibilities referred to in paragraph 6.5(1)(l).

(2) A company shall keep a copy of the construction safety manual or the relevant parts of it at each construction site of the pipeline, in a location where it is accessible to every person engaged in construction at the site.

Expected Outcome:

- Construction safety manual contains the project construction activities organizational structure, defined roles, responsibilities, practices, procedures and references associated site specific safety plans.
- The construction safety manual is adequately accessible to the construction workforce

Summary of Information Made Available by Trans Mountain Pipeline ULC:

To demonstrate compliance with this requirement, TMPU supplied audit staff with documents and records for review, including the following:

- Health and Safety Plan for KL 424.9 Slope Mitigation
- Trans Mountain – ISNetworld 2018 Contractor Safety Manual Acknowledgement Report
- KLTP - Management Org Chart
- SA Energy – Organization Chart 19.08.16
- TMEP Supervisory Training Presentation

Assessment:

TMPU indicated the Contractor Safety Manual is reviewed annually, and in the latest version the environmental component has been removed and is now its own separate document. Contractors are made aware of this document through ISNetworld, and are required to sign off that they are aware of the newest version.

For TMEP, a three (3) tier set of linked safety manual documents is in place for the project. The first tier is the Condition set the by CER to have a Safety Manual for the project. The second tier is the project specific safety plan which fits under the HSMP. The last and most detailed tier is at the sub-contractor level. All documents require review and approval by TMEP staff.

In consideration of the narrow audit scope and the noted Expected Audit Outcomes for this AP question, the CER IOs made the following decisions. After a review of the documentation and records provided (see above) by TMPU, followed by interviews with select TMPU staff and contractors, the CER IOs are of the opinion that TMPU is compliant with this AP item as it relates to section 20 of the OPR. TMPU is expected to maintain



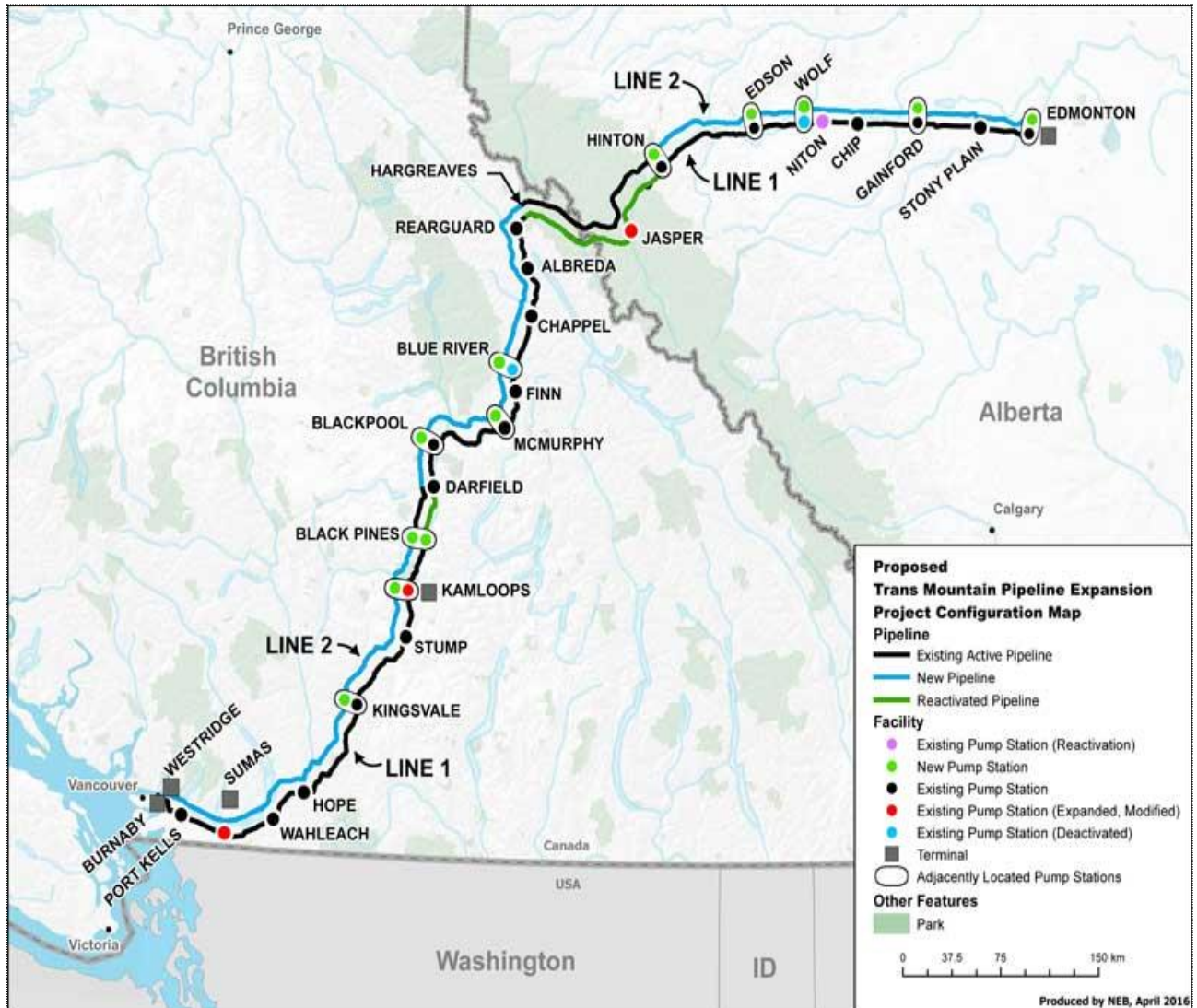
compliance through the ongoing application of its processes, procedures and work instructions relevant to contractor oversight.

Finding: No issues noted

Based on the information made available and considering the scope of this audit, the CER IOs did not identify non compliances relating to this protocol item at the time of the audit.

Appendix 2.0 - Maps and System Descriptions

The Trans Mountain Pipeline and the Trans Mountain expansion project are shown in Figure 1:



Appendix 3.1 - Abbreviations

The following abbreviations were used in this report:

AP:	Audit Protocol
CAPA:	Corrective and Preventative Actions
CCAP:	Contractors Competency Assurance Plan
CER:	Canada Energy Regulator
CER Act:	<i>Canadian Energy Regulator Act</i>
CMI:	Construction Management and Inspection
CQS:	Contractor Qualification Standard
CSA:	Canadian Standards Association
EHS:	Environment, Health and Safety
EPP:	Environmental Protection Plan
FLHA:	Field Level Hazard Assessment
FTE:	Full Time Equivalent
Hazops:	Hazard operability reviews
IO:	Inspection Officer
IR:	CER Information Request
ISLMS:	Integrated Safety and Loss Management System
JHA:	Job Hazard Assessment
MOC:	Management of change
OPR:	<i>Canada Energy Regulatory Onshore Pipeline Regulations</i>
QAMP:	Quality Assurance Management Plan
QAP:	Quality Assurance Program
SME:	Subject Matter Expert
T&C:	Training and Competency
TMEP:	Trans Mountain Expansion Project
TMPU:	Trans Mountain Pipeline ULC
UHRR:	Unified Hazard and Risk Registry

Appendix 3.2 - Glossary of Terminology and Definitions

(The CER 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 CER, 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 CER Act, its associated regulations and referenced standards. Within the CER'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 CER uses this term to indicate that, based on the information made available and reviewed, no non-compliances relating to the protocol item referenced were identified during the audit. A Corrective and Preventive Corrective Action (CAPA) plan is not required to be developed.

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 CER'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 CER 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 *Canadian Energy Regulator 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 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 CER has applied the following interpretation of the OPR for evaluating compliance of management systems applicable to its regulated facilities, and this will continue under the CER.)

As noted above, the CER management system requirements are set out in OPR sections 6.1 to 6.6. Therefore, in evaluating a company's management system, the CER 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.

Manual: A document that contains a set of instructions on methods which are employed to accomplish a result. These instructions will be detailed and comprehensive. The document will be organized for ease of use.

Non-Compliant: The audited company has not demonstrated that it has developed and implemented programs, processes and procedures that meet the legal requirements relating to the protocol item referenced. A CAPA plan must be developed for approval and implemented.

Plan: A detailed, documented formulation for action to achieve an end.

Practice: A repeated or customary action that is well understood by the persons authorized to carry it out.

Procedure: A procedure indicates how a process will be implemented. It provides 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 taking place in an established order, with identified roles and responsibilities, and directed towards a result. A process includes the roles, responsibilities and authorities for the actions. A process may contain a set of procedures, if required.

(The CER 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 CER's required management system processes. In evaluating a company's management system processes, the CER 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 CER considers this to constitute a common 5 w's and h approach (who, what, where, when, why and how). The CER 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 CER 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, and how each one contributes toward the result. Program planning and evaluation are conducted regularly to check that the program is achieving intended results.

(The CER has applied the following interpretation of the OPR for evaluating compliance of programs required by the CER 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 4.0 - List of Company Staff Interviewed and Documents Reviewed

The lists of company staff interviewed and documents reviewed are maintained on file at the offices of the Canada Energy Regulator.