



File OF-Surv-OpAud-M124-2016-2017 01
6 March 2017

Mr. William Yardley
President, US Transmission and Storage
Accountable Officer
Maritimes & Northeast Pipeline Management Ltd.
5400 Westheimer Ct.
Houston, TX 77056 U.S.A.
Email [REDACTED]

Dear Mr. Yardley:

Final Audit Report for Maritimes & Northeast Pipeline Management Ltd. (M&NP)

The National Energy Board (NEB or the Board) has completed its Final Audit Report of M&NP. The audit focused on sub-element 4.2 *Investigation and Reporting Incidents and Near Misses* of the NEB Management System and Protection Program Audit Protocol.

A Draft Audit Report documenting the Board's evaluation of M&NP was provided to M&NP on 1 February 2017 for review and comment. M&NP decided not to provide any comments on the Draft Audit Report. Since the Board had no comments to consider, no changes were made to the Draft Audit Report and its Appendices.

The findings of the audit are based upon an assessment of whether M&NP was compliant with the regulatory requirements contained within:

- The *National Energy Board Act*;
- The *National Energy Board Onshore Pipeline Regulations*;
- The *Canada Labour Code, Part II*, and the *Canada Occupational Health and Safety Regulations*;

M&NP was required to demonstrate the adequacy and effectiveness of the methods selected and employed within its management system and programs to meet the regulatory requirements listed above.

The Board has enclosed its Final Audit Report and associated Appendices with this letter. The Board will make the Final Audit Report public and it will be posted on the Board's website.

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Within 30 days of the issuance of the Final Audit Report by the Board, M&NP is required to file a Corrective Action Plan (CAP), which describes the methods and timing for addressing the Non-Compliant findings identified through this audit, for approval.

The Board will make the CAP public and will continue to monitor and assess all of M&NP's corrective actions with respect to this audit until they are fully implemented. The Board will also continue to monitor the implementation and effectiveness of M&NP's management system and programs through targeted compliance verification activities as a part of its on-going regulatory mandate.

If you require any further information or clarification, please contact Ken Fortin, Lead Auditor, at 403-801-9651.

Yours truly,

Original signed by

Sheri Young
Secretary of the Board

c.c. 

National Energy
Board



Office national
de l'énergie

Suite 210, 517 Tenth Avenue SW
Calgary, Alberta
T2R 0A8

National Energy Board

Final Audit Report of Maritimes & Northeast Pipeline Management Ltd.

File OF-Surv-OpAud-M124-2016-2017 01

Maritimes & Northeast Pipeline Management Ltd.

5400 Westheimer Ct.

Houston, Texas, U.S.A.

77056

6 March 2017

Executive Summary

Companies regulated by the National Energy Board (NEB or the Board) must demonstrate a proactive commitment to continual improvement in safety, security and environmental protection. Pipeline companies under the Board's jurisdiction are required to incorporate adequate, effective and implemented management systems into their day-to-day operations.

This report documents the Board's audit of Maritimes & Northeast Pipeline Management Ltd. (M&NP). The audit was focused on sub-element 4.2 *Investigation and Reporting Incidents and Near Misses* of the National Energy Board Management System and Protection Program Audit Protocol published in July 2013. The audit also evaluated some of the other management system elements which were relevant to the scope of this audit. The audit was conducted using the *National Energy Board Onshore Pipeline Regulations (OPR)* as amended on 19 June 2016 and the relevant sections of CSA Z662-15 as well as the requirements of the *Canada Labour Code (CLC), Part II*, and the *Canada Occupational Health and Safety Regulations (COHSR)*.

The Board conducted the audit using the audit protocols detailed in Appendices I and II. Appendix I covers these five components of sub-element 4.2: Reporting of Incidents and Near-Misses; Investigation; Developing and Implementing Corrective and Preventive Actions; Communication of Findings, Follow Up and Shared Learnings; and Analysis and Trending of Data Related to Incidents and Near-Misses. Appendix II covers other management system elements that were relevant to the scope of this audit. These two Appendices comprise the body of the audit assessment of M&NP.

The Board's audit of M&NP's regulated facilities found that M&NP has established processes for reporting incidents and near-misses, conducting investigations, developing corrective and preventive actions and learning from incidents. Most processes and procedures were appropriately documented, and records reviewed and interviews conducted demonstrated that they were mostly implemented. However, six findings of non-compliances related to internal reporting; taking corrective and preventive actions; goals, objective and targets; records management; and management review have been identified:

Finding 1: M&NP internal reporting process is inadequate since it does not require the internal reporting of all unintended gas releases, which is non-compliant with the OPR s. 6.5(1)(r).

Finding 2: M&NP does not consistently document its corrective and preventive actions for the incidents that M&NP does not consider significant. There is also no documented process for ensuring that all necessary corrective and preventive actions are implemented for abnormal operations. Therefore, M&NP is non-compliant with the OPR s. 6.5(1)(r).

Finding 3: M&NP is not consistently following its own procedure **5.3.385-EHS** with regards to entering corrective actions for EHS incidents in EPASS, therefore M&NP is non-compliant with the OPR s. 4(2).

Finding 4: M&NP does not have performance measures for assessing its success in achieving its goals for the prevention of ruptures, liquid and gas releases, fatalities and injuries, which is non-compliant with the OPR s. 6.5(1)(b).

Finding 5: M&NP did not demonstrate that it has established and implemented a process for generating and retaining the records required by CSA Z662-15 Clause 10.4.4.1 and Clause 10.4.4.2, which is non-compliant with the OPR s. 6.5(1)(p).

Finding 6: M&NP's Annual Report did not describe the performance of the company in meeting its obligations under the OPR s. 6 and the achievement of its goals, objectives and targets, which is non-compliant with the OPR s. 6.6(1)(a).

Within 30 days of the Final Audit Report being issued, M&NP must develop and submit a Corrective Action Plan for Board approval. The Corrective Action Plan must detail how M&NP intends to resolve the non-compliances identified by this audit. The Board will verify that the corrective actions are completed in a timely manner and applied consistently across the M&NP system. The Board will also continue to monitor the overall implementation and effectiveness of M&NP's management system and programs through targeted compliance verification activities as part of its ongoing regulatory mandate.

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1.0 Audit Terminology and Definitions

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

As noted above, the NEB management system requirements are set out in OPR sections 6.1 to 6.6. Therefore, in evaluating a company's management system, the Board considers more than the specific requirements of section 6.1. It considers how well the company has developed, incorporated and implemented the policies and goals on which it must base its management system as described in section 6.3; its organizational structure as described in section 6. 4; and considers the establishment, implementation, development and/or maintenance of the processes, inventory and list described in section 6.5(1). As stated in sections 6.1(c) and (d), the company's management system and processes must apply and be applied to the programs described in section 55.

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

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

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

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

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

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

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

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

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

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

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

2.0 Abbreviations

AO: Accountable officer

AOC: Abnormal operating condition

AOR: Abnormal operation report

CBT: Computer based training

CEO: Chief executive officer

CLC: *Canada Labour Code, Part II*

COHSR: *Canada Occupational Health and Safety Regulations*

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

EHS: Environment, health and safety

EIR: Environmental issues report

EPASS: Environmental performance and safety system

IWOL: Incident without loss

M&NP Maritimes & Northeast Pipeline Management Ltd.

MOC: Management of change

MOP: Maximum operating pressure

NEB: National Energy Board

OCS: Operations compliance subcommittee

OMS: Operations management system

OPR: *National Energy Board Onshore Pipeline Regulations*

ORMC: Operations risk management committee

RoW: Right-of-way

SCADA: Supervisory control and data acquisition

SMP: Security management plan

SOP: Standard operating procedure

3.0 Introduction: NEB Purpose and Audit Framework

The NEB's purpose is to promote safety and security, environmental protection, and efficient energy infrastructure and markets in the Canadian public interest within the mandate set by Parliament in the regulation of pipelines, energy development and trade. In order to assure that pipelines are designed, constructed, operated and abandoned in a manner that ensures: the safety and security of the public and the company's employees; safety of the pipeline and property; and protection of the environment, the Board has developed regulations requiring companies to establish and implement documented management systems applicable to specified technical management and protection programs. These management systems and programs must take into consideration all applicable requirements of the NEB Act and its associated regulations, as well as the *Canada Labour Code, Part II*. The Board's management system requirements are described within the OPR, sections 6.1 through 6.6.

To evaluate compliance with its regulations, the Board audits the management system and programs of regulated companies. The Board requires each regulated company to demonstrate that they have established and implemented, adequate and effective methods for proactively identifying and managing hazards and risks.

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

After completing its field activities, the Board develops and issues a Draft Audit Report. The Draft Audit Report is submitted to the company for its review and to provide the company the opportunity to submit its comments to the Board. The Board will take the company's comments into consideration before issuing the Final Audit Report. The Final Audit Report outlines the Board's audit activities and provides evaluations of the company's compliance with the applicable regulatory requirements. Once the Board issues the Final Audit Report, the company must submit and implement a Corrective Action Plan to address all non-compliances identified. Final Audit Reports are published on the Board's website. The audit results are integrated into the NEB's risk-informed lifecycle approach to compliance assurance.

4.0 Background

The NEB expects pipeline companies to operate in a systematic, comprehensive and proactive manner that manages risks. The Board expects companies to have effective, fully developed and implemented management systems and protection programs that provide for continual improvement.

As required by the OPR, companies must establish, implement and maintain effective management systems and protection programs in order to anticipate, prevent, mitigate and manage conditions that may adversely affect the safety and security of the company's pipelines, employees, the general public, as well as the protection of property and the environment.

This audit is focused on sub-element 4.2 ***Investigation and Reporting Incidents and Near Misses*** of the National Energy Board Management System and Protection Program Audit Protocol, which was published in July 2013.

The Board's Management System and Protection Program Audit Protocol has the following expectations for sub-element 4.2:

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

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

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



5.0 Audit Objectives and Scope

This audit objective was to evaluate the company against the applicable requirements specifically as they relate to incident and near miss reporting and investigation, incident and near miss data analysis and integration, and taking corrective and preventive actions. The audit verified that the company has developed and implemented the systems, programs and processes to meet the applicable legal requirements in order to ensure the protection of property and the environment and the safety and security of the public and of the company's employees.

The applicable regulatory requirements for this audit are contained within:

- the NEB Act and its associated regulations, including;
- the *National Energy Board Onshore Pipeline Regulations*;
- the *Canada Labour Code, Part II*, and the *Canada Occupational Health and Safety Regulations*; and

The audit scope was focused on sub-element 4.2 of the Board's audit protocol, and not all management system elements, per se, were in scope for a complete assessment in this audit. The following elements of the Board's audit protocol were included in the scope but only to assess the requirements directly relevant to incident and near-miss reporting, investigation, and taking corrective and preventive actions:

- 1.1 Leadership Accountability
- 1.2 Policy and Commitment Statements
- 2.1 Hazard Identification, Risk Assessment and Control
- 2.2 Legal Requirements
- 2.3 Goals, Objectives and Targets
- 2.4 Organizational Structure, Roles and Responsibilities
- 3.3 Management of Change
- 3.4 Training, Competence and Evaluation
- 4.2 Investigations of Incidents, Near-misses and Non-compliances
- 4.3 Internal Audit
- 4.4 Records Management

5.0 Management Review

The scope was inclusive of all programs (safety, environment, integrity, emergency, security, damage prevention).

Included in Appendices I and II are the audit questions and NEB assessments pursuant to the audit. Appendix I is the first part of the audit assessment, which is solely focused on sub-element 4.2; that is, the incident and near miss reporting and investigation, incident and near miss data analysis and integration, and taking corrective and preventive actions.

Appendix II is the second part of the audit assessment, which evaluates some of the other elements of the Board's management system audit protocol. Only those management system elements considered to be the most relevant to the scope of the audit have been assessed, and the assessment of those elements was focused on incidents and near misses.

6.0 Audit Process, Methodology and Activities

On 26 September 2016, the Board informed M&NP of its intent to audit M&NP's NEB-regulated facilities. Board staff then submitted the audit protocols (Appendices I and II) to M&NP, requesting it to answer specific questions relevant to the scope of the audit and initial documentation requests. Most documents requested covered the last three year period. Appendix I is divided in five sections, with each section covering a partial component of the Board's expectations for sub-element 4.2. Each section lists the questions that have been asked to the company in order to demonstrate compliance. The NEB conducted its assessment based on the responses provided by the company and the evidence gathered during the audit. The same approach was used for the audit assessment summarized in Appendix II.

Board staff was in contact with M&NP staff on a regular basis to arrange and coordinate this audit. M&NP established a digital access portal for Board staff to review documentation and records.

On 13 October 2016, Board staff conducted an opening meeting via conference call with representatives from M&NP to confirm the Board's audit objectives, scope and process. Subsequent to the opening meeting, interviews were held in Houston, Texas on 8-9 November 2016; in Fredericton, New Brunswick on 15-16 November 2016; and in New Glasgow, Nova Scotia on 17 November 2016. The table below provides more details about the audit activities. Throughout the audit, Board staff gave M&NP daily summaries with action items, where required.

On 8 December 2016, the Board held an audit close-out meeting with M&NP. At this meeting, Board staff and M&NP staff discussed potential deficiencies identified during the audit. M&NP decided not to provide any further documentation after the close-out meeting. On 1 February 2017, the Board issued its Draft Audit Report to M&NP for review. M&NP confirmed on 21 February 2017 that it would not provide any comments on the Draft Audit Report. As such, the Board issued the Final Audit Report without making any changes to its assessment.

Summary of Audit Activities

- Audit opening meeting (conference call) – 13 October 2016
- Houston office interviews – Houston, TX, U.S.A – 8-9 November 2016
- Field verification activities:
 - Interviews – Fredericton, NB – 15-16 November 2016
 - Inspection – Fredericton, NB – Pressure Reducing Station, 16 November 2016
 - Interviews – New Glasgow, NS – 17 November 2016
 - Inspection – Heritage Pictou Metering Station, NS – 17 November 2016
- Audit close-out meeting (conference call) – 8 December 2016

7.0 Audit Summary and Conclusions

During this audit, M&NP was required to demonstrate the adequacy and effectiveness of its management system, programs and its processes as they relate to incident and near miss reporting and investigation, incident and near miss data analysis and integration, and taking corrective and preventive actions. The Board reviewed documentation and records provided by M&NP, conducted inspections and interviewed M&NP's staff.

The Board's audit of M&NP's NEB-regulated facilities found that M&NP has established processes for reporting incidents and near-misses, conducting investigations, developing corrective and preventive actions and learning from incidents. Most processes and procedures were appropriately documented and records reviewed and interviews held demonstrated that these processes and procedures were for the most part consistently implemented.

However, six findings of non-compliances related to internal reporting; taking corrective and preventive actions; goals, objective and targets; records management; and management review have been identified:

Finding 1: M&NP internal reporting process is inadequate since it does not require the internal reporting of all unintended gas releases, which is non-compliant with the OPR s. 6.5(1)(r).

Finding 2: M&NP does not consistently document its corrective and preventive actions for the incidents that M&NP does not consider significant. There is also no documented process for ensuring that all necessary corrective and preventive actions are implemented for abnormal operations. Therefore, M&NP is non-compliant with the OPR s. 6.5(1)(r).



Finding 3: M&NP is not consistently following its own procedure **5.3.385-EHS** with regards to entering corrective actions for EHS incidents in EPASS, therefore M&NP is non-compliant with the OPR s. 4(2).

Finding 4: M&NP does not have performance measures for assessing its success in achieving its goals for the prevention of ruptures, liquid and gas releases, fatalities and injuries, which is non-compliant with the OPR s. 6.5(1)(b).

Finding 5: M&NP did not demonstrate that it has established and implemented a process for generating and retaining the records required by CSA Z662-15 Clause 10.4.4.1 and Clause 10.4.4.2, which is non-compliant with the OPR s. 6.5(1)(p).

Finding 6: M&NP's Annual Report did not describe the performance of the company in meeting its obligations under the OPR s. 6 and the achievement of its goals, objectives and targets, which is non-compliant with the OPR s. 6.6(1)(a).

The details explaining Findings 1, 2 and 3 are contained in Appendix I sections 1.1 and 3.0. The details explaining Findings 4, 5 and 6 are contained in Appendix II sections 2.3, 4.4 and 5.0 respectively.

As per the Board's standard audit practice, M&NP must develop and submit a Corrective Action Plan describing its proposed methods to resolve the non-compliances identified and the timeline in which corrective actions will be completed. M&NP will be required to submit to the Board for approval its Corrective Action Plan within 30 days of the Final Audit Report being issued by the Board.

The Board will assess the implementation of all of M&NP's corrective actions to confirm they are completed in a timely manner and on a system-wide basis until they are fully implemented. The Board will also continue to monitor the overall implementation and effectiveness of M&NP's management system and programs through targeted compliance verification activities as a part of its ongoing regulatory mandate.

The Board will make its Final Audit Report and M&NP's approved Corrective Action Plan public on the Board's website.



National Energy Board Incident Management Audit Protocol

Appendix I – Evaluation of Sub-element 4.2

1.0 Reporting of Incidents and Near-Misses

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

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

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

Regulatory References: OPR s. 6.5(1)(r), 6.5 (2) and 52(1) and CSA Z662-15 Clause 3.1.2 (h)(ii)

1.1 Internal Reporting

Question 1.1:

Describe the company's process for internal reporting of incidents and near-misses. The response should discuss the company's definition(s) and criteria for internally reportable incidents and near-misses.

NEB Assessment:

M&NP categorizes incidents and near-misses in four categories:

- Environment, Health and Safety (EHS)
- Operational - abnormal pipeline operations
- Damage Prevention (unauthorized activity)
- Security

M&NP uses the expression "Incident Without Loss" (IWOL) for "near-miss" and this report uses both terms interchangeably.



EHS Incidents

M&NP indicated that EHS incidents and IWOLs are to be internally reported according to the following procedures:

- **EHS Incident Learning and Prevention Procedure (5.3.385-EHS)**
- **Occupational Injury & Illness Management/Recordkeeping (EC-HS-07)**
- **Spills Reporting: Federal, Provincial, and Internal Requirements (SOP Environmental A-1)**
- **Environmental Issues Reporting (SOP Environmental C)**

Procedure **5.3.385-EHS** defines incident as “*any unplanned event that adversely impacts operations safety, human health, or the environment and requires a response beyond normal business procedures*” and that an “EHS” incident can involve employee or contractor injury or illness, vehicle incidents, spills and notices of violations. This procedure outlines the processes to report, track, investigate and learn from EHS incidents. This procedure documents the incident and IWOL reporting responsibilities and the procedure for the internal reporting from employees, to supervisors, EHS and management personnel within Spectra, the operator of the M&NP system. This procedure leverages the other procedures in place and does not replace these procedures.

Procedure **EC-HS-07** describes the initial process for the internal reporting of occupational accident or other occurrence that has caused or is likely to cause injury to an employee or other person. It requires the user to enter the initial incident information in the **Incident Data Gathering Form HSF-004** and to enter the information in EPASS Incident Express. EPASS is the acronym for Spectra’s Environmental Performance And Safety Systems which is a suite of applications used to manage EHS and operational issues, including incidents and IWOLs.

EHS records for Incident # INJ01739 were provided. This included the EPASS record, investigation notes and meeting minutes, which demonstrated that the findings of the incident were communicated to Area field personnel.

Procedure **SOP Environmental C** provides the instructions for the reporting of environmental issues such as spills, leaks, risk of slope failure, erosion, sedimentation in watercourses, litter on the Right-of-Way (RoW), unauthorized vehicles on the RoW or plants of concern. The issues need to be recorded in an **Environmental Issues Report (EIR)** form which needs to be submitted to the District manager. The procedure also identifies criteria for issues that need immediate reporting to the Region EHS Specialist and District Manager. Spills and leaks that meet the external reporting requirements are to be reported according to procedure **SOP Environmental A-1**.

Procedure **SOP Environmental A-1** provides the instruction for the reporting of spills to federal and provincial agencies. All spills are to be reported to the Region EHS specialist. The procedure states that spills are recorded into EPASS.

Operational - abnormal pipeline operations incidents

These incidents include:

- Equipment failure
- Exceedance of operating limits
- Unintended pipeline shutdown or abnormal pressure /flow
- Unintended valve operation or meter / regulator station issues



- Loss of communication or SCADA failure;
- Personnel error
- Deviation from normal operations

The process for the response and internal reporting of these incidents is documented in the following procedures:

- **Abnormal Operation Response (SOP 8-2070)**
- **Initial Notification of Potential Emergency (SOP 8-2010)**
- **Response to Abnormal Operations (SOP 5-2050)**

SOP 8-2010 provides the instructions to Gas Control in the event of a notification by an outside party or field personnel of a potential emergency condition on the pipeline. The information gathered during the notification is documented in the **Initial Notification Form**. This procedure refers to other procedures for emergency response and abnormal operating conditions.

SOP 8-2070 provides the instructions, including the necessary sequence of actions, to Gas Control on how to respond to abnormal operations. The instructions include, among other things, to document the event in the **Gas Control Daily Event Log** and to notify the supervisor by email and a phone communication. **SOP 5-2050** describes how to respond to an abnormal operation and how to report it internally (beyond the instructions to Gas Control documented in **SOP 8-2070**). Exceedance of the Maximum Operating Pressure (MOP) needs to be reported to Area Management, Region Technical Staff and to the Operational Compliance Department. Abnormal operations need to be documented in an **Abnormal Operation Report (AOR)** in EPASS and the procedure indicates the groups responsible for reviewing the AOR.

Records for recent abnormal operations (**AOR**, **Call-Out Form**, and **Field Investigation Form**) incidents were provided.

Damage Prevention Incidents

Unauthorized activities on the RoW can be identified by aerial patrols, field operation personnel or reported by external parties. Procedure **Right-of-Way Encroachments (SOP 1-6070)** provides the instruction for when the Area discovers or is notified of unauthorized encroachments. The procedure indicates that all encroachment investigations need to be documented in the company electronic database (SAP). **Procedure Aerial Pipeline Patrol (SOP 1-6040)** describes the criteria for conducting and documenting aerial pipeline patrols, including the notification and the recording of unauthorized activities on the RoW. The aerial patrol pilot and the Area Management personnel responsible for investigating the unauthorized activities need to document the results of patrol flights and investigation in the Right-of-way Inspection Report and in the electronic database (SAP).

An example of an unauthorized activity record (**From 7T-367**) was provided.

Security Incidents

The **Security Management Plan (SMP)** section 10.2.2 gives an overview of the internal reporting for security incidents. It indicates that the procedure for reporting security incidents is included in the **Area Security Response Procedure**. It also indicates that in addition to the required notifications, employees must record security incidents and near misses in the EPASS Security Incident Reporting Tool. Security incident and near misses are also included in the **Quarterly OMS Status Report** and evaluated in the



Annual SMP Review.

The **Area Security Response Procedure** provides the instruction to respond and report security incidents. Security incident and near misses are documented in EPASS. Section 3.2 of this procedure details the step for the internal reporting of a security event. It requires notifying the Area / District Manager, pipeline control centre and Corporate security. It also states that all security events are to be documented in EPASS.

Example records of security incident reports have been provided.

Unintended Gas Releases

During the interviews, company representatives explained that small gas releases associated with normal operations (such as fugitive emissions from instrumentation tubing threaded connections) and that do not meet their internal criteria, are not entered and tracked into EPASS, which is in accordance with their own procedures. However, the company explained that since these small gas releases are reportable under the OPR incident definition, which defines any unintended or uncontrolled release of gas as an incident, the company is reporting these small releases to the NEB.

NEB auditors asked for the company internal records of three recent incidents reported to the Board (NEB Incident # 2015-001, 2015-050 and 2016-075). These three incidents involved components malfunctions (relief valves in two cases and a pressure regulator in the other one) which resulted in unintended gas releases. The company explained that since these incidents did not meet their internal reporting requirements for abnormal operations, they don't have internal reports of the incidents. Although these incidents have been reported to the NEB as required, the fact that the company does not have a process for the internal reporting of these types of unintended gas releases, which are incidents as defined in the OPR, is non-compliant with the OPR s. 6.5(1)(r).

The company mentioned that these three incidents were reviewed at its 2016 Annual Corrosion Meeting. The meeting minutes were provided and it showed that the incidents were reviewed at that meeting.

Conclusion:

The audit verified that M&NP has an established, implemented and effective process for the internal reporting of most of its incidents and near-misses. However, M&NP internal reporting process is inadequate since it does not require the internal reporting of all unintended gas releases, which is non-compliant with the OPR s. 6.5(1)(r).

1.2 Reporting to the Board

Question 1.2:

Describe the company's process for the reporting of incidents to the Board. The response should discuss the company's definition(s) and criteria for externally reportable incidents.



NEB Assessment:

M&NP explained that it reports four types of incidents to the Board: unintended gas releases; unauthorized activities on the RoW; spills; injuries and illnesses. The processes for reporting these incidents are described in the following procedures:

- **TSB/NEB Incident Reporting (SOP 5-2140)**
- **Spills Reporting: Federal, Provincial, and Internal Requirements (SOP Environmental A-1)**
- **Injury/Illness Reporting Requirements (EC-HS-07)**
- **Right-of-Way Encroachments (SOP 1-6070)**

The review of the procedures confirmed that the criteria identified by the company for reporting the incidents to the Board are in accordance with the regulatory requirements.

Example records of unintended gas release and unauthorized activities reported to NEB and the 2013 to 2015 **Employers Annual Hazardous Occurrence Reports** were provided. From the sample of incident records reviewed, M&NP has reported to the NEB all the incidents that it had to report.

Conclusion:

The audit verified that M&NP has an adequate process for the reporting of incidents to the Board. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 1.2 - Reporting to the Board.

2.0 Investigation

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

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

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

Regulatory References: OPR s. 6.5(1)(r), 52(1) and CSA Z662-15 Clause 3.1.2 (h)(ii), 10.3.6, 10.4.4.1 and Annex H.

Question 2.0:

Describe the company's process for incident and near-miss investigations. Include in your response how the company identifies causes and contributing factors, including immediate and root causes.

NEB Assessment:

M&NP explained that it conducts comprehensive TapRoot® investigations for significant incidents or IWOLs. Significance is determined based on:

- **M&NP Operational and EHS Significant Incident and Significant IWOL Communication Guide.**
- For EHS incidents, on incident risk ranking, based on the **Spectra Energy Risk Matrix.**
- For operations failure, as per the criteria of the procedure **Investigation of Failures (SOP 5-2030).**
- At management discretion.

M&NP indicated that, to-date, a significant incident that would require a comprehensive Taproot® investigation has not occurred.

Procedures **Incident Investigations (EC-HS-09)** and **5.3.385-EHS** provide the instructions for conducting investigations of EHS incidents. Procedure **5.3.385-EHS** establishes the level of investigation, lists the criteria for selecting the lead investigator and provides specific investigation procedures based on the risk ranking of the incident. Procedure **EC-HS-09** provides further instructions on the responsibilities of the people to be involved such as management, employees and health and safety staff. It also provides more details on the actions to take, including leading the investigation, analyzing cause and corrective actions, and writing the investigation report.

For significant operational failures or containment failures that cause personal injury or substantial property damage, **SOP 5-2030** is to be used for conducting the investigation. This procedure can also be applied to process or equipment failures that do not result in loss of containment. This procedure provides instructions on the responsibilities of the lead investigators, on how to conduct the investigation, control of incident site, identifying and implementing corrective actions and reporting.

For the incidents that do not meet the above criteria for a comprehensive investigation, EPASS provides the ability to document the incident causes and the necessary corrective and preventive actions.

M&NP explained that Gas Control abnormal operating events are documented and investigated, as outlined in **SOP 8-2070**. The gas controller supervisors document the results of their investigation and the results of the controller evaluation. An example of a recent **Abnormal Operations Report** was provided. The report identified the causes and some corrective actions such as reviewing controller procedure and sharing the learnings at the next controller meeting.

Security incidents are investigated as described in the **2016 Security Management Plan (SMP)**. Section 10.2.4 of the SMP describes the security incident investigation process. It indicates that security incidents are investigated by Corporate Security. General incident information is entered in EPASS but actual investigation files are kept in a secured cabinet. The causes of the case are determined and appropriate actions are recommended as appropriate.

**Conclusion:**

The audit verified that M&NP has an established, implemented and effective investigation process that allows the company to investigate its incidents and near-misses, and identify the necessary corrective and preventive actions. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 2.0 - Investigation.

3.0 Developing and Implementing Corrective and Preventive Action(s)

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

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

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

Regulatory References: OPR s. 6.5(1)(r) and CSA Z662-15 Clause 3.1.2 (h)(ii), 10.3.1, and 10.3.6

Question 3.0:

Describe the company's processes and procedures for developing and implementing all necessary corrective and preventive actions to address all of the incident causes and contributing factors.

NEB Assessment:

M&NP explained that the Taproot® methodology provides the structure for determining incident cause and corrective and preventive actions for significant incidents. However this methodology has not been used so far at M&NP because no incident considered significant has occurred.

M&NP explained in its initial response to the above question that corrective and preventive actions that are identified following incidents and IWOLs are documented and tracked using EPASS, SAP work orders, Gas Control AOR, or monthly safety meeting minutes. M&NP also then indicated that corrective and preventive actions are assigned specific actions, accountabilities, due dates and closure tracking.

However, interviews and records reviewed indicate that corrective and preventive actions are not formally documented and tracked for the incidents or near-misses that M&NP does not consider significant. Staff



interviewed indicated that causes and corrective actions only need to be documented and tracked in EPASS for significant incidents (risk levels I and II). For lower risk incidents and near-misses (levels III and IV), M&NP staff indicated that they are not required to document the causes and corrective and preventive actions. Since all the incidents that have occurred on the M&NP system so far are considered not significant based on M&NP criteria, several of the incidents and near-miss records reviewed did not have corrective and preventive actions documented to confirm that they have been implemented. Some of the incident and near-miss records sampled showed that the incident causes, corrective and preventive actions and learnings were shared within the company, but M&NP has not provided clear evidence to demonstrate that all corrective and preventive actions required for preventing the re-occurrence of similar incidents had been implemented. Interviews with staff also confirmed that the implementation of corrective and preventive actions for lower risk incidents is not always documented and that assurance of the implementation of the corrective and preventive actions was essentially relied upon informal communication between staff and management.

Therefore M&NP was not able to demonstrate that it has a consistently established and implemented process for taking corrective and preventive actions for all its incidents and near-misses, which is non-compliant with the OPR s. 6.5(1)(r).

Procedure **5.3.385-EHS** section 3.0 Incident Investigation - Procedure steps 2, 4 and 6 indicates that, for all EHS incidents, corrective actions need to be entered in EPASS. However, as explained above, staff interviews indicated that corrective actions do not need to be entered in EPASS for incidents deemed not significant (risk ranked III and IV). EHS incident records reviewed (risk ranked III and IV incidents) did not have their corrective actions entered into EPASS. The fact that M&NP is not consistently following procedure **5.3.385-EHS** with regards to entering corrective actions in EPASS is not compliant with the OPR s. 4(2).

Procedure **EC-HS-09** also provides instructions on investigating EHS incidents. It states that management has the responsibility to ensure that corrective actions are identified and resolved in a timely manner and that regional health and safety staff will assist in the development of corrective action plans. The procedure refers to using the Taproot® methodology when required and for identifying corrective actions. It also indicates that, as a general consideration, corrective action should be linked to incident cause and be clearly assigned to specific individuals for tracking.

Section 12.0 of the failure investigation procedure **SOP 5-2030**, which is to be used for significant operational failures or containment failures that cause personal injury or substantial property damage, provides some guidance on how to identify and implement corrective actions. However, this procedure does not provide instructions on how to document and ensure that corrective and preventive actions are implemented.

M&NP also provided procedure **SOP 8-2070** in response to this question. This procedure provides the instructions on the response to abnormal operation in order to return to normal operations. However, it does not provide instruction on taking preventive actions to address the underlying causes and contributing factors to the abnormal operation in order to prevent the re-occurrence of similar events.

M&NP provided another procedure to respond to abnormal operations, **SOP 5-2050**, in response to this question. This procedure also provides the instructions on the response to abnormal operation in order to return to normal operations. This procedure provides direction on how to implement corrective measures to address different scenarios of abnormal operations, such as: unintended valve operations, pressure or flow rates outside normal limits, loss of communications, operation of safety devices, personnel error and others. However, similarly to **SOP 8-2070**, **SOP 5-2050** does not provide instructions on taking preventive



actions to address the underlying causes and contributing factors to the abnormal operation in order to prevent the re-occurrence of similar events.

M&NP provided an example record of an abnormal condition that happened on 19 July 2013. The record shows that corrective actions have been taken to return to normal operations and also shows that the applicable procedures have been reviewed with the control room operators. However, there is no evidence in the records to demonstrate that corrective and preventive actions have been taken to address the causes of the abnormal operation which were a leaking valve and an aggressive load cutting situation.

Procedures and records provided for abnormal operations do not demonstrate that M&NP has an established and implemented process for taking all necessary corrective and preventive actions for abnormal operations. Specifically, there is no documented process for ensuring that all necessary corrective and preventive actions are implemented and no documented evidence that all corrective and preventive actions have been implemented. M&NP is therefore non-compliant with the OPR s. 6.5(1)(r) as it relates to abnormal operations. Staff interviewed indicated that all necessary corrective actions have been implemented but that since these incidents were not considered significant, not all corrective actions have been documented.

For security incidents, M&NP explained that corrective actions are documented and tracked as part of the program review process. Also, section 11.2 of the **Security Management Plan** describes the process for managing corrective and preventive actions. According to this document, the corrective and preventive actions are assigned and tracked through EPASS to ensure their completion.

Conclusion:

M&NP was not able to demonstrate that it has established and implemented a process for consistently developing and implementing corrective and preventive actions necessary to address the causes and contributing factors for its incidents and near-misses because it does not consistently document its corrective and preventive actions for the incidents that M&NP does not consider significant. There is also no documented process for ensuring that all necessary corrective and preventive actions are implemented for abnormal operations. Therefore, M&NP is non-compliant with the OPR s. 6.5(1)(r). In addition, since M&NP is not consistently following its own procedure **5.3.385-EHS** with regards to entering corrective actions for EHS incidents in EPASS, M&NP is non-compliant with the OPR s. 4(2).

4.0 Communication of Findings, Follow Up & Shared Learnings

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

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



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

The company shall have an established, implemented and effective process for the internal and external communication of information relating to safety, security and environmental protection. The process should include procedures for communication with the public; workers; contractors; regulatory agencies; and emergency responders - (from sub-element 3.5 Communication).

Regulatory References: OPR s. 6.5(1)(m) and CSA Z662-15 Clause 3.1.2 (h)(ii), (iii) and (vi), 10.3.6

Question 4.0:

Describe the company's processes and procedures to communicate the findings (cause and contributing factors) and corrective and preventive actions related to incidents and near-misses throughout the organization to ensure the company can prevent the occurrence of incidents due to similar causes. Also, describe the company's process for learning from such events.

NEB Assessment:

M&NP explained that insights and learnings for incidents and IWOLs are communicated to employees through monthly safety meetings which include a discussion of all EPASS incidents and IWOLs that occurred in the past month, as well as new hazards identified. Safety alerts are also used to communicate corporate wide regarding incidents and IWOLs.

The processes and procedures for the communication and sharing of learnings from incidents are documented in the following documents:

- **EHS Incident Learning and Prevention Procedure (5.3.385-EHS)**
- **Response to Abnormal Operations (SOP 5-2050)**
- **EHS Communication Strategy (4.4.345-EHS)**
- **Local EHS Committees (EC-HS-03)**

Procedure **5.3.385-EHS** indicates that learnings are shared in three different ways: email notifications, EHS Alerts and Bulletins, and SE Safety Flashes and Alerts. Procedure **4.4.345-EHS** outlines the methods of internal communication within Spectra to convey EHS-related information, such as incidents and near-misses, from and to Corporate Enterprise, Business Unit, Region, Area and Facility levels. This procedure indicates Spectra has several meetings at different levels of the organization to communicate about incidents and near-misses, including:

- Enterprise level: Quarterly Meetings,
- Business Unit and Region levels: Operations Senior EHS Leadership Meetings (monthly), EHS Managers Meetings (quarterly)
- Area and Facility levels: Area Management Meetings (weekly), EHS Meetings (monthly)



As per procedure **SOP 5-2050**, abnormal operations incidents are discussed semi-annually at the Abnormal Operations Meeting. The meeting is attended by representatives from Gas Control, Region Technical Staff and Integrity Management. The meeting is used to review any abnormal operations, determine causes, assess effectiveness of procedures and review or initiate any required corrective actions. Example records of semi-annual **Abnormal Operations Meetings (2013-2016) Minutes** were provided.

M&NP has two local EHS Committees and each has a Health and Safety Representative. Procedure **EC-HS-03** indicates that the Health and Safety Representative has the role of Chairperson and ESG Team Leader for the EHS Committee, and that this role includes reviewing and communicating incident learning opportunities.

M&NP provided records demonstrating that incident causes, corrective and preventive actions, and learnings were discussed at the safety meetings.

Conclusion:

The audit verified that M&NP has processes for and is communicating the findings, corrective and preventive actions, and the learnings from its incidents and near-misses. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 4.0 - Communication of Findings, Follow Up & Shared Learnings.

5.0 Analysis and Trending of Data Related to Incidents and Near-Misses

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

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

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

Regulatory References: OPR s. 6.5(1)(s) and CSA Z662-15 Clause 3.1.2 (h)(ii).

Question 5.0:

Describe the company's processes and procedures to collect, evaluate, monitor and trend the incident and near-miss data. Explain how and for what purpose the company uses this information.

NEB Assessment:

M&NP explained that incident reports are reviewed and analyzed on a regular schedule by the US Senior Leadership Team and the Operations EHS Committee, which is as stated in section 4.0 of the **Reporting of the EHS Incident Learning and Prevention (5.3.385-EHS)** procedure. The information is used to inform decisions regarding short term plans to address deficiencies indicated and for establishing longer-term change initiatives. Record of the **2015 EHS Mid-Year Trending Analysis** was provided. The records showed analysis and trending of EHS incidents such as injuries, illnesses, first aids, vehicle incidents and IWOLs. M&NP also provided a record of trending its gas releases from 2013 to 2015. The company explained that the trending is updated every year and is used to determine if the pipeline integrity associated with leaks should be investigated further.

Procedure **SOP 5-2050 Response to Abnormal Operations** section 3.0 Periodic Review of Abnormal Operations documents the requirement for the review of abnormal operations. It states that Operational Compliance Department shall have meetings with an abnormal operations team at least on a semi-annual basis to review abnormal operation events and determine causes, effectiveness of procedures and initiate or review corrective actions if necessary. Semi-annual meeting minutes of the abnormal operations meetings (2013-2016) were provided.

A record of security incident trends for 2013 – 2016 was also provided.

Conclusion:

The audit verified that M&NP has processes for and is collecting, evaluating, monitoring and trending the incident and near-miss data. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 5.0 - Analysis and Trending of Data Related to Incidents and Near-Misses.



National Energy Board Incident Management Audit Protocol

Appendix II – Incident Management Interaction with other Management System Elements

1.0 POLICY AND COMMITMENT

1.1 Leadership Accountability

Expectations: The company shall have an accountable officer appointed who has the appropriate authority over the company's human and financial resources required to establish, implement and maintain its management system and protection programs, and to ensure that the company meets its obligations for safety, security and protection of the environment. The company shall have notified the Board of the identity of the accountable officer within 30 days of the appointment and ensure that the accountable officer submits a signed statement to the Board accepting the responsibilities of their position.

Regulatory References: OPR s. 6.2

Question 1.1:

Explain the role of the accountable officer and their responsibility and authority with respect to sub-element 4.2 ***Investigation and Reporting Incident and Near Misses***.

NEB Assessment:

As stated in the company's response, Maritimes & Northeast Pipeline Management Ltd. is the certificate holder for the Maritimes & Northeast pipeline system and contracts with Westcoast Energy, Inc. (Operator), an affiliate of Spectra Energy Corp. (Spectra), to operate the M&NP system.

As per the company's response, the Accountable Officer (AO) for M&NP has ultimate accountability for ensuring that incidents and near-miss events are properly and adequately reported to internal and external stakeholders. Additionally, the AO is ultimately accountable for ensuring that adequate human and financial resources are available to complete the required corrective and preventive actions to eliminate repeat incidents.

Spectra's **Operations Management System (OMS) Governance (1.0.100)**, dated 1 July 2016 and approved by the Director of OMS was provided. According to this document, the AO:

- Prepares and communicates a commitment to the policy for internal reporting of hazards, potential hazards, incidents and near-misses with immunity from retribution or retaliation, and ensures that goals are established and monitored.
- Signs off on an annual report (that is, the NEB Annual Report) and submits a signed statement to the NEB indicating that the report has been completed.
- Ensures that the OMS and its programs are established, implemented, and maintained.
- For M&NP, the AO is the President, US Transmission & Storage.



The AO is informed of and engaged in responding to severe incidents on the M&NP system as described in the following paragraphs:

- Chairing the Quarterly OMS Leadership Meetings. Presentation slides of the 20th of September 2016 and the 15th of July 2016 Quarterly Leadership Meeting were provided.
- According to **M&NP's NEB Annual Report for 2015**, the results of the annual management review process including accomplishments and areas of improvement are documented in the Management Review presentation and presented to the AO. The NEB Annual Report for 2015 was provided, signed by the AO and dated 6 April 2016.
- According to the **M&NP's Policy and Commitment Statement**, the **Hazard and Incident Reporting: Non-retaliation and Non-retribution Policy** for internal reporting of hazards, potential hazards, incidents and near-misses is communicated on an annual basis by the AO to M&NP and to employees of the Operator. A copy of the policy dated 6 April 2016 and signed by the AO was provided along with evidence of the AO's annual communication (that is, email sent to East Canada Operations employees on 12 May 2016). The email also included the expectations for employees to adhere to the policy and to have learned about this new policy as part of the Compliance Training or through a leader. Compliance training is conducted through Spectra's iComply System and employees are required to take annual refresher training. One module of iComply focuses on the Hazard and Incident Reporting: Non-Retaliation and Non-Retribution Policy for employees.

Interviews with M&NP personnel confirmed the role, authority and engagement of the AO regarding incidents and near-misses as described above.

Conclusion:

The audit verified that M&NP has established the role of the AO who has the responsibility and authority with respect to sub-element 4.2 Investigation and Reporting Incident and Near Misses. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 1.1 - Leadership and Accountability.



1.2 Policy and Commitment Statements

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

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

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

Regulatory References: OPR s. 6.3 and CSA Z662-15 Clause 3.1.2(a)

Question 1.2:

Describe the policies that the company has to address the above expectations as they relate to incident prevention, reporting and investigation.

NEB Assessment:

As stated in the company's response, policies which address expectations related to incident prevention, reporting and investigation are as follows:

- **M&NP Policy & Commitment Statement**
- **Spectra Energy OMS Policy**
- **Spectra Energy Environmental Health & Safety (EHS) Policy**
- **Spectra Energy Safety Vision**
- **Spectra Energy Hazard and Incident Reporting: Non-Retaliation and Non-Retribution Policy**

The **M&NP Policy & Commitment Statement** states that: *"In connection with this commitment, M&NP GP will employ best practices and dedicate itself to continuous improvement to ensure that the hazards and risks associated with the operation of the M&NP LP pipeline system are being appropriately identified and managed..."* The document was signed by M&NP's AO and dated 6 April 2016.

The **Spectra Energy OMS Policy** states that: *"It's straightforward, really – identify and communicate risks, mitigate and control those risks, monitor the status of those controls, and continuously work to both reduce risks and improve our ability to control them."* The document is signed by M&NP's AO and dated 19 June 2015.

The **EHS Policy** states that: *"We will strive to improve operations with a focus on preventing environmental and safety incidents and preserving public safety."* The document was signed by M&NP's President and Chief Executive Officer (CEO) and dated 21 April 2014.



The **Safety Vision** lists Safety Principles including the following: “*Safety begins at the top; Injuries and work-related illnesses are preventable; Identifying and minimizing safety and health risks are priorities; Openness, feedback and trust are keys to safety success*”. The document is signed by Spectra’s President and CEO without a date.

The **Hazard and Incident Reporting: Non-Retaliation and Non-Retribution Policy**, dated 1 August 2014, includes a Statement of Purpose and Philosophy as well as a Policy Statement. The Statement of Purpose and Philosophy states that “*Spectra Energy expects its employees, contractors, suppliers and others to promptly report hazards, potential hazards, incidents with or without loss*” and that “*This Policy’s aim is to promote the reporting of such information, free from fear of indiscriminate adverse action, retaliation or retribution solely because of such reporting.*” The Policy Statement states that “*Persons who in good faith report a Safety Concern, a suspected violation of laws, governmental rules, regulations or Company policies will not be subjected to adverse employment action solely for making such report.*” Finally, the document includes a phone number and online link to the Spectra Energy Ethics Line to report confidentially or anonymously in the event that an employee feels uncomfortable reporting a Safety Concern through any of the other methods. As described in the assessment for Question 1.1 above, the AO annually communicates this policy to M&NP and to employees of the Operator.

Interviews with M&NP personnel confirmed that the company has policies for internal reporting of incidents and near-misses including immunity provisions and that the AO regularly communicates his commitment and expectations regarding these policies with his staff.

Conclusion:

The audit verified that M&NP has the policies to address the above expectations as they relate to incident prevention, reporting and investigation. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 1.2 - Policy and Commitment.



2.0 PLANNING

2.1 Hazard Identification, Risk Assessment and Control

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

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

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

Regulatory References: OPR s. 6.5 (1) (c),(d),(e),(f),(r),(s) and CSA Z662-15 Clauses 3.1.2 (f)(i), (h)(ii)

Question 2.1:

Explain how hazards identified through incident and near miss reporting are used to input the hazard identification process and the hazard inventory.

NEB Assessment:

Section 3 of Spectra's OMS Manual dated 1 July 2016 was provided. This document outlines the use of various processes to assess risk (includes hazards) as a foundational element of systematic decision-making. According to the **OMS Manual**, risks that could be a threat to operations of M&NP's assets are identified using several techniques such as:

- Discussions (e.g. meetings, phone calls, and emails).
- Risk Escalation Tool (an EPASS tool used for reporting hazards and/or associated risk events that is available to all front line employees).
- Program specific processes (programs include pipeline, measurement, compression and storage; environmental, health and safety; security; public awareness; and emergency management).

Furthermore, according to **section 3 of Spectra's OMS Manual**, risk management committee quarterly meetings are held to review and update the hazard and risk registers. Input received across all programs is consolidated into registers and in turn distributed to all relevant stakeholders. The M&NP hazard and risk registers are updated at least quarterly and on an as needed basis. Changes to the registers are tracked and documented via meeting minutes.



Spectra's Hazard Identification & Risk Management Procedure (3.0.100), dated 1 August 2016 was provided. This document states that: *"All employees are responsible for identifying hazards and risk events in the course of operations"*. The procedure encourages any employee who identifies a hazard to alert his or her supervisor and describes how a hazard identified by an employee is processed. The Procedure also states that: *"At least quarterly, hazard inventory and risk registers are reviewed and updated."* Appendix 7.6 of the procedure describes the Risk Escalation Tool and states that: *"Any employee who identifies a hazard or risk event can use the Risk Escalation Tool within Incident Express to raise the identified risk event. The tool will then alert the employee's direct supervisor via email that a risk event has been submitted for review"*.

According to the company's response, additional ways that a hazard can be entered into the hazard inventory are as follows:

- During the annual **Emergency Management Program Review** which includes a review of the hazard inventory and risk register. A copy of the 2015 meeting minutes was provided.
- During the **Annual Pipeline Integrity Program meetings** (formerly called annual Corrosion Review Meeting) which focus on preventive and mitigative measures including identification of hazards and risks. A copy of the 2016 meeting minutes was provided.
- During the **Quarterly EHS Management Team meetings** which are centered on preventive and mitigative measures, including the identification of hazards and risks. A copy of the minutes for the February 2015 meeting, August 2015 meeting and November 2015 meeting was provided.
- During monthly safety meetings which include a safety round table where employees are encouraged to raise concerns and identify new hazards that can potentially be forwarded to the quarterly Operations Risk Management Committee (ORMC) meetings.

As per the company's response, even though MN&P has not had a significant incident on its system, incidents and IWOLs which occur elsewhere on the Spectra system are discussed at the ORMC to determine if there are related areas of concern which apply to M&NP. An example of this is in May 2014 when a corporate-wide safety alert was issued regarding an arc flash incident at the Empress Plant on the Spectra Energy West system. The 19 June 2014 Area Safety Meeting discussed the incident. At the 24 June 2014 quarterly meeting, the potential for arc flash was discussed in conjunction with revisions to the hazard/risk registers. Evidence of these communications was provided.

Interviews with M&NP personnel confirmed that the company has a hazard identification process that can be used to input new hazards identified through incidents or near misses into the hazard inventory.

Conclusion:

The audit verified that M&NP has adequate processes and procedures to identify hazards through incident and near-miss reporting and that newly identified hazards are incorporated into its hazard and risk registry. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 2.1 - Hazard Identification, Risk Assessment and Control.



2.2 Legal Requirements

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

Regulatory References: OPR s. 6.5 (1) (g)(h)(i)

Question 2.2:

Does your company have a legal list that contains the regulations and/or industry standards, any certificate or order conditions that the company has determined to be related to sub-element 4.2?

NEB Assessment:

As per the company's response, M&NP has a legal list that contains the regulations and industry standards relevant to incident and near-miss reporting and investigation. The list submitted refers to the following regulations and standards and contains more detailed breakdowns of the relevant sections / clauses within the references:

- *National Energy Board Act (R.S.C., 1985, c. N-7)*
- *National Energy Board Onshore Pipeline Regulations (SOR/99-294) amended 2016-06-19*
- *National Energy Board Pipeline Damage Prevention Regulations (SOR/2016-124) and (SOR/2016-133)*
- *Transportation Safety Board Act (SOR/2014-37)*
- *Canadian Standards Association (CSA Z662-15)*
- *Security Program - CSA Z246.1*
- *EHS New Brunswick Provincial Registry – Natural Gas Transmission*
- *EHS Nova Scotia Provincial Registry – Natural Gas Transmission*
- *EHS Additional Regulations Federal Registry – Natural Gas Transmission*
- *Canada Labour Code Part II*
- *Canada Occupational Health and Safety Regulations*
- *Canadian Environmental Protection Act, 1999*

Conclusion:

The audit verified that M&NP has identified the regulations and standards relevant to incident and near-miss reporting and investigation. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 2.2 - Legal Requirements.



2.3 Goals, Objectives and Targets

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

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

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

Regulatory References: OPR s. 6.3, 6.5(1)(a)(b), 6.6 and CSA Z662-15 Clause 3.1.2 (h)(i)

Question 2.3:

- a) Does the company have goals, objectives and specific targets for the prevention of ruptures, liquid and gas releases, fatalities and injuries?
- b) Does the company have performance measures related to the goals, objectives and specific targets for the prevention of ruptures, liquid and gas release, fatalities and injuries?

NEB Assessment:

M&NP provided its **2016 Goals, Objectives and Targets** (approved on 6 April 2016) specific to the following programs:

- OMS
- Integrity
- Safety
- Environmental
- Emergency Management
- Damage Prevention
- Public Awareness
- Security

According to the documentation provided, every program has the same overarching goal of preventing ruptures, liquid and gas releases, fatalities and injuries, and for the response to incidents and emergency situations. Each program lists several specific objectives associated with one or more targets that are tracked and updated every quarter. For the most part, M&NP's objectives and targets involve process improvement and training completion that proactively help prevent ruptures, liquid and gas releases, fatalities and injuries. However, M&NP does not have performance measures to verify if the goal of preventing ruptures, liquid and gas releases, fatalities and injuries has been reached. The OPR s.



6.5(1)(b) requires that companies develop performance measures for assessing the company's success in achieving its goals, objectives and targets; therefore, this is non-compliant with the OPR s. 6.5(1)(b).

During interviews with M&NP personnel, it was explained that each program lead prepares a list of objectives and targets for the upcoming year. The list is then approved by the Management Committee and implemented by the program leads.

Conclusion:

The audit verified that M&NP has goals, objectives and targets and performance measures related to the prevention of ruptures, liquid and gas releases, fatalities and injuries. M&NP does not however, have performance measures for assessing its success in achieving its goals for the prevention of ruptures, liquid and gas releases, fatalities and injuries, which is non-compliant with the OPR s. 6.5(1)(b).



2.4 Organizational Structure, Roles and Responsibilities

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

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

Regulatory References: OPR s. 6.4 and CSA Z662-15 Clauses 3.1.2 (b),(c)

Question 2.4:

- a) Has your company identified and staffed the positions necessary for meeting the requirements of sub-element 4.2 (i.e. incident reporting, investigation, implementing corrective actions, communication and learning)? If so, explain those positions and their roles and provide the names and titles of staff in these positions.
- b) How has the company communicated and documented its roles, responsibilities and authority for the above positions?

NEB Assessment:

Role and Responsibilities - Organizational Structure

M&NP provided its operator organization chart outlining span of control from its Accountable Officer (President US Transmission & Storage/Chairman of M&NP) to each of its Directors, Managers and Section Leads. M&NP stated that the company has identified and staffed the positions necessary for meeting the requirements of sub-element 4.2 and has provided names and titles of leads responsible for incident reporting, investigation and communication activities. **Annex C "Overview - M&NP Operator Incident Reporting and Investigation"** details the process flow for incident management (IM) including accountable personnel positions for each step of the IM process and procedures that may be used or referenced at each step.

Maritimes & Northeast Pipeline Management Ltd. Management Oversight Program (March 2016) describes how M&NP is implementing its Management Oversight Program. This document includes details on responsibilities of each of; M&NP ("Management Committee"), the "Manager", the "Operator" and the Accountable Officer.



The "Operator" is defined in this document as Westcoast Energy Inc. a division of Spectra Energy. The document states that the Operator is responsible for the physical operation, maintenance and repair of the M&NP System, providing certain technical and consulting services, preparing budgets, maintaining records (which are subject to audit), providing reports, and preparing other information as may be directed by M&NP and/or the Manager from time to time. The Operator includes field operations personnel and personnel who are directly responsible for establishing and maintaining programs as defined in Section 55 of the OPR.

As outlined in this document, the Operator must inform the Operations Compliance Subcommittee (the "OCS") of significant incidents in a timely manner. The Operator is to conduct an investigation of these incidents and prepare a report as appropriate, copies of which are provided to M&NP for review. The Operator is responsible for taking any necessary preventative and corrective action. Depending on the nature and severity of the incident in question, M&NP and/or the OCS may get involved in establishing preventative and corrective actions.

As a group, M&NP, the OCS and the Manager, provides oversight of M&NP's management and protection programs to ensure that these programs are run effectively by the Operator.

M&NP has the responsibility to ensure that the Operator maintains appropriate staffing and field operations centers to effectively carry out its responsibilities. The **OMS Management Review Procedure** describes the annual human resource evaluation process used to ensure adequate human resources are maintained to manage the companies programs.

Roles and Responsibilities - Incident Reporting

M&NP stated that the responsibility of reporting incidents and incidents without loss (IWOLs) lies with workforce personnel (including aerial patrol pilots) and with gas controllers.

Roles and responsibilities specific to Gas System Controllers in regard to reporting incidents are outlined in Spectra Energy's **Control Room Management Plan, Roles and Responsibilities (Section 300)**. While this document does not explicitly refer to incident management roles or responsibilities for gas system controllers, it does state that " Management is required to conduct an investigation of all AOC (*abnormal operating condition*) events to determine cause, if appropriate actions were taken to alleviate the condition, to evaluate if the SOP's used are still effective, and if the controller requires additional training if the investigation determines controller error."

Gas Controllers are responsible for initial incident notification for conditions requiring emergency response, security breaches and abnormal operations. Gas control investigates all abnormal operations. Abnormal operations (Gas Control incidents) are discussed at least quarterly when controllers receive training. This includes a review of how the incident occurred, how the incident was managed, and what lessons were learned. Standard operating procedures (SOPs) are reviewed following every incident.

M&NP stated that reporting requirements and responsibilities related to incident reporting are conveyed initially to all new hires during the Onboarding process (**East Canada New Hire Onboarding Checklist**) and reinforced in SOPs including: **Occupational Injury & Illness Management/Recordkeeping (EC-HS-07)**, the **EHS Incident Learning and Prevention (5.3.385 – EHS)** and through the Operator Qualification (OQ) program.

M&NP's document **Occupational Injury & Illness Management/Recordkeeping** outlines responsibilities of each of: Management, Employees, Regional Health and Safety personnel and Houston Health and Safety personnel in regard to reporting and notifying regulatory authorities and internal departments,



entering incidents into EPASS, investigating, and sharing incident related learning across the organization. Detail is also provided in regard to internal reporting, investigation procedures, reporting to the NEB, keeping records, and provides direction in regard to the annual summary report of incidents to be submitted to the NEB.

M&NP's document **EHS Incident Learning and Prevention procedure** addresses personal and environmental incidents that impact EHS performance. (Operations asset integrity incidents, crisis management and emergency response, unplanned or planned natural gas releases, and environmental permit deviations are not within the scope of this procedure.) The Supervisor (also referred to as the incident owner) is responsible for the overall management of the EHS incident reporting and investigation program. The document includes quite detailed procedures and responsibilities associated with each of incident reporting, investigation, incident report review and analysis, and distribution of Lessons Learned Reports.

Roles and Responsibilities - Incident Investigation and Corrective Action Implementation

Investigating and taking action to avoid reoccurrence for the minor incidents that have occurred on the M&NP system is the responsibility of field operations, region staff and Gas Control personnel.

M&NP stated that in the event of a serious incident, a formal investigation team of trained personnel would be assembled and a formal investigation would be carried out. **Procedure 5-2030 (Investigation of Failures)** states that Houston Technical Services shall coordinate with Region Technical Management on selection of an investigation team. Team selection is based on type of incident and level of significance or risk. **Procedure EC-HS-09 (Incident Investigation)** section 5.1, states that Operations holds ownership of all incidents

Procedure EC-HS-09 (Incident Investigation) provides the investigation process and general steps to be completed following an incident in East Canada Operations. Corrective actions identified in investigations would be assigned to the appropriate M&NP employee for execution following standard practices for work execution on the pipeline.

Roles and Responsibilities - Incident Communication and Sharing of Learnings

As outlined in the **Incident Reporting, Review, and Monitoring Process**, initial notification of an incident is to be made by phone or other immediate two-way communication.

Details and follow-up information may be provided by email or other appropriate means agreed upon between the Operator's representative and the Manager. The Manager shall relay the information as it is received to the Accountable Officer, M&NP President, M&NP General Manager, and designated M&NP owner representatives.

Once the M&NP owner representatives are informed of the incident, they will determine how further communication is to be conducted between the majority owner, Spectra Energy, who is also the Operator and manages the emergency, and the minority owners. This determination is made on a case-by-case basis depending on the situation and in accordance with the **Operator's Emergency Preparedness and Response Program.**"

M&NP incidents and IWOLs are also discussed regularly and lessons learned are communicated through a variety of means including weekly, monthly, quarterly and annual meetings, Corporate-wide Safety Bulletins and Alerts, and the Bi-annual Gas System Controllers training.

**Conclusion:**

The audit verified that M&NP has identified and staffed the positions necessary for meeting the requirements of incident reporting, investigation, implementing corrective actions, and communication and shared learning. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 2.4 - Organizational Structure, Roles and Responsibilities.

3.0 IMPLEMENTATION**3.1 Operational Control-Normal Operations**

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

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

Regulatory References: OPR s. 6.5(1)(e),(f) and (g) and CSA Z662-15 Clause 3.1.2(f).

Question 3.1:

The assessment of this sub-element is not included in the scope of this audit.

NEB Assessment:

N/A



3.2 Operational Control-Upset or Abnormal Operating Conditions

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

Regulatory References: OPR s. 6.5(1)(c),(d), (e),(f) and (t), and CSA Z662-15 Clause 3.1.2 (f).

Question 3.2:

The assessment of this sub-element is not included in the scope of this audit.

NEB Assessment:

N/A



3.3 Management of Change

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

Regulatory References: OPR s. 6.5(1)(i) and CSA Z662-15 Clause 3.1.2 (g).

Question 3.3:

- a) Does the company have a Management of Change (MOC) process that could be applicable to changes that could result from incidents or near misses?
- b) Describe how the company applies its MOC process to corrective and preventive actions in relation to sub-element 4.2 (as applicable)?

NEB Assessment:

M&NP has demonstrated that its Management of Change (MOC) procedure and processes apply to all OMS programs and that it could be applicable to changes triggered by incidents or near misses (IWOLS).

Any significant action or significant change developed as part of an incident investigation would be considered within the scope of the MOC process, therefore the process could be used to manage change and any risks that stemmed from the action or change.

Spectra OMS Procedure Management of Change 4.8.100 Revision July 1, 2016, describes how the procedure applies to both US and East Canada Operations, with its objective being to implement and maintain a documented management of change process to manage the risks associated with changes to; operational controls, facilities, procedures, construction plans, equipment, compliance requirements, information technology, and organizations. Activities included in the scope of this MOC procedure include: Operations & Maintenance, New Projects and Facility Modifications, Contractor and 3rd Party Operations, Closure/Decommissioning/Divestitures, and Acquisitions.

The MOC procedure specifically excludes the following types of changes:

- Carrying out normal maintenance and operational duties or changes covered by standard operation and maintenance procedures.
- Carrying out "replacements in kind" or repairs.
- Replacing an individual with someone having the same competencies.
- Carrying out activities determined by the Director of Pipeline Integrity or the Director of Facility Operations to have low impact on pipeline integrity and/or facilities.

Section 3.0 MOC Process includes roles and responsibilities of various positions within the company as they apply to managing MOC, and includes a flow chart to determine if a change is covered by the MOC procedure, and provides a step by step approach to managing the change to closeout. Any changes reviewed and determined to not need the MOC procedure, are to be documented in the "No MOC Log" stored on the SharePoint.



The **US OMS Field Handbook section B7 (Manage Changes)** provides expectations of Operations employees and Operations leaders in regard to managing change and provides guidance on how to use the OMS MOC process when appropriate and when to contact the MOC Coordinator.

Although not considered an incident or IWOL, M&NP did provide an example of a completed MOC, which was done in 2013 to evaluate the implications of the change in requirements in the OPR.

M&NP stated that any significant incident or IWOL would trigger using the MOC procedure. M&NP fortunately has not had any significant incidents or incidents which would trigger a need for significant change resulting in the need to use the MOC procedure. As such, M&NP could not provide records where its MOC procedure/process had been used to evaluate and manage changes that resulted from incidents or near misses (IWOLS).

Conclusion:

The audit verified that M&NP has a Management of Change (MOC) process that is applicable to changes that could result from incidents or near misses. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 3.3 - Management of Change.



3.4 Training, Competence and Evaluation

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

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

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

Regulatory References: OPR s.6.5 (1)(j),(k),(l) and (p) and CSA Z662-15 Clause 3.1.2(c).

Question 3.4:

Describe the training for the company employees related to the reporting of incident and near misses, and the training for staff conducting investigations and developing corrective and preventive actions.

NEB Assessment:

M&NP stated that training relating to the reporting of incidents and IWOLS is provided through a variety of channels. Applicable documentation and records provided include: **iComply training presentation, Incident Reporting training (screenshots from training module), EHS Incident Investigation training (screenshots from training module), New Hire Onboarding Checklist (section 40 EHS Incident Reporting, section 49 EHS Training Assignments, and section 52 Information Security Awareness)**, and attendance records demonstrating completion of training. All M&NP employees are required to take iComply refresher courses annually, including the iComply module focused on the Hazard and Incident Reporting.

EHS Incident Learning and Prevention (5.3.385-EHS) states that one of the criteria in selecting the Lead Investigator is that they must be formally trained in Taproot incident investigation techniques.

M&NP Gas System Controllers are trained in control room functions, including correct incident response. In addition to training provided for new-hires, bi-yearly refresher training is held for Gas Controllers on the SOPs for Abnormal Operations, Emergency Response, Initial Notification and Alarm Management. Nine SOPs are reviewed annually and after every abnormal operations incident. All abnormal operations incidents are investigated by Gas Controllers and documented to closure on an abnormal operation database. All controllers attend quarterly meetings which include a review of all incidents that occurred in that quarter, how the incident was managed, and lessons learned from the incident. Quarterly meetings include representation from Integrity, Gas Control, and Measurement. As Gas Controllers are not responsible for investigating EHS or Operational/Integrity related incidents, they do not receive investigation training in this regard, however, Gas Control stated that, if requested, its Controllers would



be available to assist with investigations and possibly assist in developing corrective and preventive actions. Competency of Gas System Controllers is assessed and addressed on an ongoing basis by the Manager of Gas Control, and following any abnormal operation incident. This includes Drug and Alcohol testing for all personnel on shift following an incident.

M&NP provides awareness training for identifying, reporting and addressing security related issues. Annual security exercises are conducted which includes a review of procedures for reporting security related incidents, both internally and externally. The New Hire Onboarding Checklist includes a module on security training which includes a discussion around security and a review of the security procedures manual.

M&NP stated that key field operations personnel have taken the computer based training (CBT) on Incident Investigation. Field Safety Team Leads complete additional training when taking on the Safety Team Lead role to assist with their responsibilities in investigating incidents. Incidents are reported to the Safety Leads and as all M&NP incidents to date have been relatively minor, the Safety Team Leads have been largely responsible for investigating and closing these. If an incident of higher level of significance were to occur, the investigation would be escalated to the appropriate level of experience and competence to address the investigation appropriately.

In reviewing the **New Hire Onboarding Checklist, EHS Incident Learning and Prevention Procedure (5.3.385-EHS)**, screenshots from Incident Reporting Training and Incident Reporting Training attendance records, it appears that M&NP personnel received some form of training or awareness on the incident and near-misses reporting, based on the level of their involvement required.

As stated within the **East Canada Health and Safety Manual EC-HS-09 Incident Investigation**, Management is responsible to ensure that competencies are established and verified in those employees expected to implement and comply with the incident investigation procedure. Further, the document states that *"All personnel assigned responsibility for leading an investigation shall be qualified based on formal training in investigation techniques, internal legal and corporate processes, and experience in collecting evidence in a controlled manner."*

Responsibilities and training/competence requirements of Lead investigators is outlined within the manual under **section 3.0 (Incident Investigation)**.

Conclusion:

The audit verified that M&NP has developed and implemented training programs for the company employees related to the reporting of incident and near misses, and has training requirements for staff conducting investigations and developing corrective and preventive actions. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 3.4 - Training, Competence and Evaluation.



3.5 Communication

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

Regulatory References: OPR s. 6.5(l), (m) and (q) and CSA Z662-15 Clause 3.1.2(d)

Question 3.5:

This sub-element is partially assessed in Appendix I, section 4.0. The other aspects of this sub-element are not part of the scope of this audit.

NEB Assessment:

N/A



3.6 Documentation and Document Control

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

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

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

Regulatory References: OPR s. 6.5(1)(i), (n) and (o), 6.5(3) and CSA Z662-15 Clause 3.1.2 (e).

Question 3.6:

The assessment of this sub-element is not included in the scope of this audit.

NEB Assessment:

N/A



4.0 CHECKING AND CORRECTIVE ACTION

4.1 Inspection, Measurement and Monitoring

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

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

The company shall have documentation and records resulting from the inspection and monitoring activities for its programs.

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

Regulatory References: OPR s. 6.5(1)(g), (s), (u), (v), (w), 53(1), 54(1), and CSA Z662-15 Clause 3.1.2(h)(v).

Question 4.1:

The assessment of this sub-element is not included in the scope of this audit.

NEB Assessment:

N/A



4.2 Investigations of Incidents, Near-misses and Non-compliances

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

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

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

Regulatory References: OPR s. 6.5(1)(r),(s), (u), (w), (x) and 52, and CSA Z662-15 Clauses 3.1.2(h)(ii), 10.3.6, and 10.4.4.

Question 4.2:

This sub-element is assessed in Appendix I

NEB Assessment:

N/A



4.3 Internal Audit

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

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

Regulatory References: OPR s. 6.5(1)(w) and (x), 55, and CSA Z662-15 Clauses 3.1.2(h)(v),(vi), and (vii).

Question 4.3:

Has your company conducted an audit that included and evaluated the requirements of sub-element 4.2?

NEB Assessment:

M&NP has a documented process (**M&NP Audit and Oversight Process May 2016**) for auditing its programs and for overseeing third party audits of its programs. This document includes; roles and responsibilities, step by step procedures to be followed in coordinating and running the audit, reporting of audit results, addressing corrective actions, retention of documents and records, and includes the requirement for a process review every three years.

M&NP demonstrated that it has conducted audits of its management system as well as various protection programs within its management system. Excerpts of audits completed were reviewed. Since 2015, a contracted third party auditor conducted audits on Crossings, Public Awareness, Environmental Protection, Integrity Management, Security Management, Safety, and on the Management system itself. The audit of each of the programs and of the Operations Management System (OMS) included assessment of compliance with sub-element 4.2 requirements.

As stated in the excerpts of the audit reports, the third party auditor found that " *M&NP has adequate, implemented, and effective processes for the reporting and investigation of hazards, potential hazards, incidents, and near misses and for taking corrective and preventive actions identified during investigations, as required by OPR section 6.5(1)(r) and CSA Z662-15 Clauses 3.1.2(h)(iii), 10.3.6, 10.4.4.1, and 10.4.4.2.*"

The report also states that " *M&NP has a data management system used to monitor and analyze trends in incidents and near misses, as required by OPR section 6.5(1)(s).*"

In addition to the third party audits completed, **M&NP's OMS Procedure - Management Review 6.0.100 (July 1, 2016)** " *documents the process for the annual review of the effectiveness of programs in implementing the systematic management requirements of the OMS. The annual review process includes identification of gaps and development of action plans to address deficiencies. The management review process drives continual improvement at both the program-level and at the OMS-level.*"



Data used to support the management review includes incident reports and investigation findings, NEB pipeline performance measures, and results from internal and external audits, trends and identified areas requiring improvement.

Conclusion:

The audit verified that M&NP has conducted an audit that included and evaluated the requirements of sub-element 4.2. Based on the review conducted and considering the scope of this audit, the Board did not identify compliance issues in relation to Question 4.3 - Internal Audit.



4.4 Records Management

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

Regulatory References: OPR s. 6.5(1)(p), 56 and CSA Z662-15 Clauses 3.1.2(e) and 10.4.4.1

Question 4.4:

Describe how the company meets the record retention requirements set out in OPR s. 56 and CSA Z662-15 Clause 10.4.4.1.

NEB Assessment:

Spectra Energy's Records Management Policy outlines the company's commitment to managing the life cycle of all Company Records in a manner that complies with legal requirements. The **Policy** provides direction for the company to preserve all necessary and required records and eliminate all unnecessary and obsolete records. The **Policy** defines company records to include *"all documentary materials, regardless of media type, physical form or characteristics, made or received in connection with the transaction of business and preserved, or appropriate for preservation, as evidence of the organization, functions, policies, decisions, procedures, operations or other activities of the company or because of the informational value of the data held within them."*

The **Policy** states that it is the Director of Records Management responsibility to carry out the **Policy** and its procedures, and to work directly with the functional units and business units to implement it throughout the Company. The Records Management Steering Committee is responsible for the coordination of activities to ensure records management processes are effective. Records Coordinators are appointed to act as liaisons between their functional and business units and the Director of Records Management. Coordinators' responsibilities include coordinating the development and implementation of the **Policy** within their respective function and business unit and the implementation of recommendations of the Records Management Steering Committee.

All employees participate in annual training regarding records management and retention requirements. Screenshots provided from this training includes messaging that records must be retained in accordance with **Spectra Energy's Records Management (SRM) Policy and Retention Schedule**.

M&NP follows the **Spectra Corporate Records Classification and Retention Schedules** that form part of **Spectra Energy's Records Management Policy**. Retention Rules are reviewed and updated on a regular basis by the Corporate Ethics Compliance Group. Spectra Energy record retention rules that apply to records pertaining to incident reporting and investigation include: **Employee Safety (Rule 806896)**, **Pipeline Integrity Management (Rule 850628)** and **Spectra - Operations and Maintenance (Rule 108960)**.

M&NP Management Oversight Program (March 2016) states that the *"Operator is responsible for ensuring all records supporting the management and protection programs are retained and accessible. The Operator retains all records for at least the minimum length of time required by the applicable record retention laws and regulations. Through the Operating Agreement, M&NP GP has access to all of the*



records retained by the Operator which support the management and protection programs" and that "M&NP GP requires retention of all records for at least the minimum length of time required by the applicable record retention laws and regulations."

M&NP Incident Reporting, Review and Monitoring Process (October 2016) states that the Operator must retain the following for at least 10 years: copies of the annual reports submitted to the Minister of Labour, copies of notifications and investigations of reportable occupational health and safety incidents; and copies of non-reportable investigations of hazardous occurrences and minor injuries. Further, as required per the OPR s. 56, the Operator will retain copies of the notifications and investigations of reportable pipeline incidents for the life of the pipeline plus two years following abandonment. All other incident records to be retained by the Operator in accordance with its Records Management Policy.

SET US – East Canada Records Management Plan (05/09/2016) describes the Company's process for generating, retaining, maintaining and providing access to records in regard to M&NP's environmental protection program. This document details records to be maintained and locations where they must be stored. All environmental records are directed to be retained as prescribed in the OPR s. 56, and retained in accordance to retention timelines, as defined by regulatory agency overseeing that specific environmental aspect/program topic.

OpsCompliance Taxonomy spreadsheet details the Company's retention periods for incidents. For leaks, reportable incidents, safety related conditions, hits and near misses, and abnormal operations, the retention period is prescribed as "Life of Facility plus 10 yrs".

M&NP did not provide evidence to demonstrate compliance with the requirements of CSA Z662-15 Clause 10.4.4.1 and Clause 10.4.4.2 specifically for incidents related to pipeline external interference and pipeline (and associated equipment) failure. Although M&NP provided a draft **NEB Failure Record Form** which would capture the information prescribed in CSA Z662-15 Annex H, M&NP did not provide records to demonstrate that this form is, should be, or has been used, nor did the company provide its process to determine what information in Annex H is to be gathered for each failure incident (for incidents not deemed to be significant).

Conclusion:

The audit verified that M&NP has record retention schedules governing incidents and near misses. M&NP did not however, demonstrate that it has established and implemented a process for generating and retaining the records required by CSA Z662-15 Clause 10.4.4.1 and Clause 10.4.4.2, which is non-compliant with the OPR s. 6.5(1)(p).

5.0 MANAGEMENT REVIEW

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



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

Regulatory References: OPR s. 6.5(1)(w) and (x) and 6.6, and CSA Z662-15 Clause 3.1.2 (h)(vii).

Question 5.0:

Describe the company process for conducting management reviews as it relates to sub-element 4.2.

NEB Assessment:

M&NP conducts Management reviews in accordance with its **Management Review Procedure (OMS 6.0.100)** and the **Operations Management System Manual**. The OMS EC Governance Lead is responsible for preparation and delivery of the annual management review presentation typically scheduled at the end of the first quarter each year. The material summarized for the Accountable Officer reflects performance over the previous year, including, incidents, incident trends, the status of corrective actions, and learnings from incidents. The Management Review summarizes and incorporates the management briefings from monthly and quarterly meetings. Monthly meetings are attended by the program owners where any recent incidents are discussed. Quarterly OMS Leadership meetings review performance status, including any incidents and incident trends. Incident reports, investigation findings, **NEB Pipeline Performance Measures** and status of significant preventative and corrective actions are included in the list of data sources to be used in the preparation for the management review.

A sample of slides from the **OMS Leadership Meeting Q3 2016 - US Transmission**, included reviews of Safety & Occupational Health Program, Emergency management program, and the Security management program. One of the slides illustrates Safety Program performance including statistics and incident trending. **OMS Leadership Meeting Q3 2016 - US Transmission**, included a review of the Environmental Program. Both meetings included performance metrics as an agenda item.

The Management Review recaps significant events of the year (which would include significant incidents, if any), as outlined in the **Management Review Procedure (OMS 6.0.100)**. As part of the recap of performance from the prior year, the review also includes the results of protection program gap analyses, staffing evaluations, proposed corrective actions from audits, and proposed goals, objectives and targets.

Information from the Management Review is presented to Management and summarized (but not described in detail) in the Annual Report as required by the OPR s. 6.6(1). The **2015 MNP Management Review Presentation** slides were provided and included a detailed description of the company's achievement of its goals, objectives and targets, however, this information was not included in the Annual Report.

The **NEB Annual Report for 2015** states that; goals, objectives and targets; evaluations, audits, and assessments; hazards and risks; incidents; trends; corrective actions; staffing evaluation; financial resource review; and learnings, were examined and measured to ensure that OMS management processes and programs are working effectively. Although referenced, the report itself, did not specifically describe the performance of the company in meeting its obligations under the OPR s. 6 and the



achievement of its goals, objectives and targets, which is non-compliant with the OPR s. 6.6(1)(a).

Conclusion:

The audit verified that M&NP has a process for conducting an annual management review of its management system and each protection program as it relates to sub-element 4.2, however, M&NP's Annual Report did not describe the performance of the company in meeting its obligations under the OPR s. 6 and the achievement of its goals, objectives and targets, which is non-compliant with the OPR s. 6.6(1)(a).

APPENDIX III

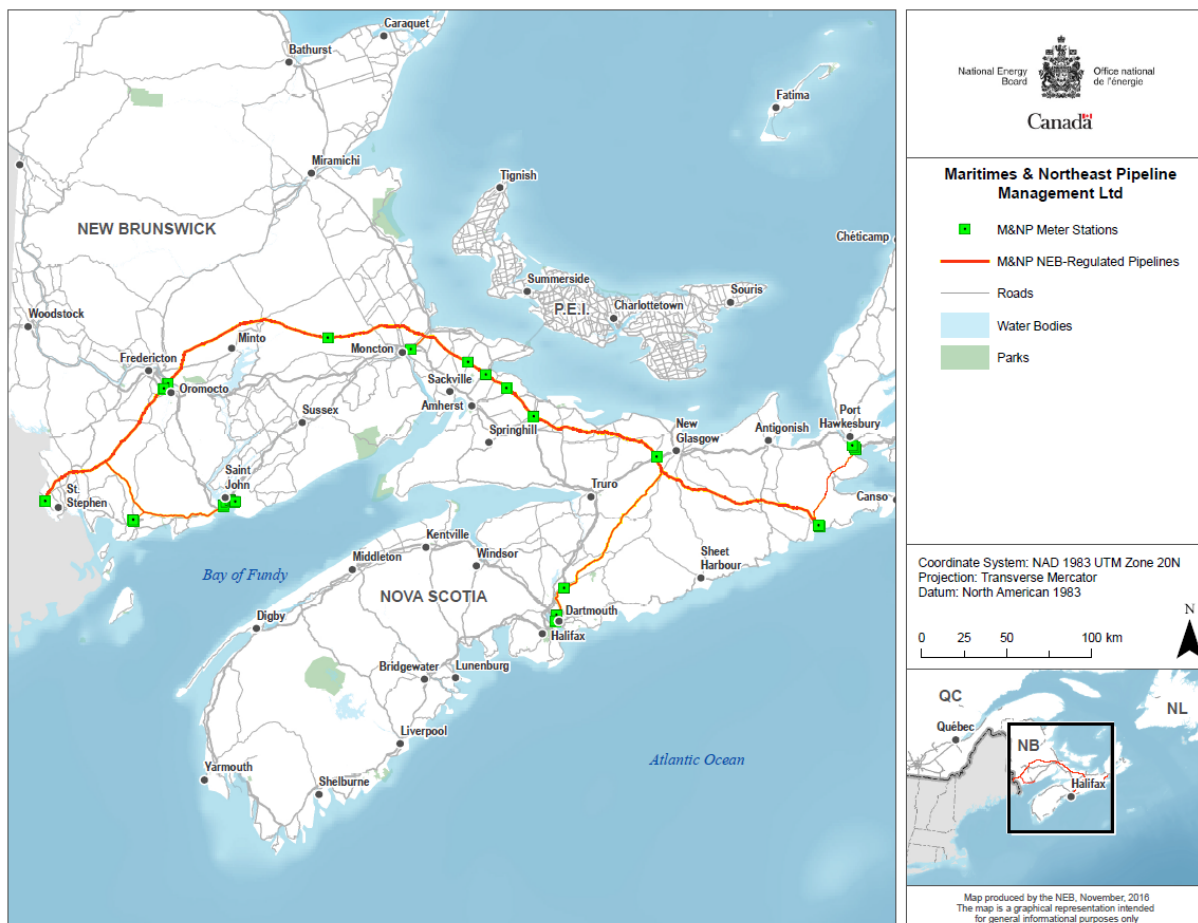
MARITIMES & NORTHEAST PIPELINE MANAGEMENT LTD.

MAPS AND SYSTEM DESCRIPTION

M&NP system includes a total of 874 kilometers of transmission pipeline originally built to transport natural gas from developments offshore Nova Scotia to markets in Atlantic Canada and the northeastern United States (U.S.). The pipeline system consists of a 30 inch diameter underground mainline running from Goldboro, Nova Scotia through Nova Scotia and New Brunswick to the Canadian - U.S. border. The system does not have any compressor stations but has thirty meter stations. The system consists of the following pipelines:

- Mainline – 567 km (30 inch);
- Point Tupper Lateral - 60 km (8 inch/6 inch);
- Halifax Lateral – 124 km (12 inch);
- Saint John Lateral - 103 km (16 inch);
- Moncton Lateral - 12 km (8 inch); and
- Utopia Spur – 8 km (4 inch).

Figure 1: M&NP Pipeline System



APPENDIX IV
MARITIMES & NORTHEAST PIPELINE MANAGEMENT LTD.
COMPANY REPRESENTATIVES INTERVIEWED

| Company Representative Interviewed | Job Title |
|---|---|
| ██████████ | General Manager, M&NP |
| ██████████ | Director, Operations Management System |
| ██████████ | General Manager Gas Control |
| ██████████ | Gas Controller |
| ██████████ | Senior Engineer, Operational Compliance and OMS (East Canada) Lead |
| ██████████ | Director, Operational Compliance and Damage Prevention & Public Awareness Programs Lead |
| ██████████ | Senior Technical Advisor and Security Program Lead |
| ██████████ | Director, EHS US Operations and EHS Programs Lead |
| ██████████ | EHS Manager North East Region |
| ██████████ | Region EHS Specialist |
| ██████████ | Area Manager |
| ██████████ | District Manager, New Brunswick |
| ██████████ | Field Technician and Safety Team Lead (New Brunswick) |
| ██████████ | Field Technician |
| ██████████ | Field Technician |
| ██████████ | Field Technician |
| ██████████ | Lands and Public Awareness (New Brunswick) |

| | |
|------------|--|
| ██████████ | Lands and Public Awareness (Nova Scotia) |
| ██████████ | District Manager, Nova Scotia |
| ██████████ | Manager Communication & Measurements |
| ██████████ | Director, Pipeline Integrity |
| ██████████ | Manager, Project Execution, Operations |

APPENDIX V
MARITIMES & NORTHEAST PIPELINE MANAGEMENT LTD.
DOCUMENTS REVIEWED*

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|--|
| App I Q1.1 1a - EHS Incident Learning and Prevention Procedure (5.3.385 - EHS) |
| App I Q1.1 1b - Occupational Injury & Illness Management/Recordkeeping (EC-HS-07) |
| App I Q1.1 1c - Abnormal Operation Response (SOP 8-2070) |
| App I Q1.1 1d - Initial Notification of Potential Emergency (SOP 8-2010) |
| App I Q1.1 1e - Response to Abnormal Operations (SOP 5-2050) |
| App I Q1.1 1f - Spills Reporting: Federal, Provincial, and Internal Requirements (SOP Environmental A-1) |
| App I Q1.1 1g - Environmental Issues Reporting (SOP Environmental C) |
| App I Q1.1 1h - Right-of-Way Encroachments (SOP 1-6070) |
| App I Q1.1 1i - Aerial Pipeline Patrol (SOP 1-6040) |
| App I Q1.1 2a - Example of EHS Incident |
| App I Q1.1 2b - Example of unintended release reported to NEB |
| App I Q1.1 2c - Example of unauthorized activity record |
| App I Q1.1 2d - Example of completed Unauthorized Activities Form (7T-367) |
| App I Q1.1 2e - Example of Gas Control Abnormal Operation (AO) event |
| App I Q1.1 2f - Example of Security Incident |
| App I Q1.1 2g - Example of Completed Environmental Incident Report (EIR) |
| App I Q1.1 3a1 - EHS Incidents: List of Total Recordable Spills Releases 2013-2016 |
| App I Q1.1 3a2 - EHS Incidents: List of Total Environmental Non-Recordable Records 2013-2016 |
| App I Q1.1 3a3 - EHS Incidents: List of Recordable Vehicle Incident Records 2013-2016 |
| App I Q1.1 3a4 - EHS Incidents: List of Employee Non-Recordable Vehicle Records 2013-2016 |
| App I Q1.1 3a5 - EHS Incidents: List of Employee Injury by Date 2013-2016 |
| App I Q1.1 3a6 - EHS Incidents: List of Total Employee Non-Recordable Incident 2013-2016 |
| App I Q1.1 3a7 - EHS Incidents: List of Contractor Injury by Date 2013-2016 |
| App I Q1.1 3a8 - EHS Incidents: List of Total Contractor Non-Recordable Incident 2013-2016 |
| App I Q1.1 3b - List of Unintended Releases 2013-2016 |
| App I Q1.1 3c - List of Unauthorized Activity Records 2014-2016 |
| App I Q1.1 3d - List of Gas Control AO Event Log Callouts 2013-2016 |
| App I Q1.1 3e - List of Security Incidents 2013-2016 |
| App I Q1.2 1a - Spills Reporting: Federal, Provincial, and Internal Requirements (SOP Environmental A-1) |

* Document titles are shown as presented in the electronic portal from M&NP.

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|---|
| App I Q1.2 1b - TSB/NEB Incident Reporting (SOP 5-2140) |
| App I Q1.2 1c - Injury and Illness Reporting (EC-HS-07) |
| App I Q1.2 1d - Right-of-Way Encroachments (SOP 1-6070) |
| App I Q1.2 2a - Example of Unintended Release Reported to NEB |
| App I Q1.2 2b - Example of Unauthorized Activity Reported to NEB |
| App I Q1.2 2c - Example of Completed Unauthorized Activity Form (7T-367) |
| App I Q1.2 2d - Employers Annual Hazardous Occurrence Reports 2013-2015 |
| App I Q2.0 1a - Operational and EHS Significant Incident and Significant IWOL Communication Guide |
| App I Q2.0 1b - EHS Incident Learning and Prevention Procedure (5.3.385 - EHS) |
| App I Q2.0 1c - Incident Investigation (EC-HS-09) |
| App I Q2.0 1d - Investigation of Failures (SOP 5-2030) |
| App I Q2.0 1e - Abnormal Operation Response (SOP 8-2070) |
| App I Q2.0 1f - Response to Abnormal Operations (SOP 5-2050) |
| App I Q2.0 2a - Example of EHS Incident |
| App I Q2.0 2b - Example of Gas Control Abnormal Operation (AO) Event |
| App I Q3.0 1a - Operational and EHS Significant Incident and Significant IWOL Communication Guide |
| App I Q3.0 1b - EHS Incident Learning and Prevention Procedure (5.3.385 - EHS) |
| App I Q3.0 1c - Incident Investigation (EC-HS-09) |
| App I Q3.0 1d - Investigation of Failures (SOP 5-2030) |
| App I Q3.0 1e - Abnormal Operation Response (SOP 8-2070) |
| App I Q3.0 1f - Response to Abnormal Operations (SOP 5-2050) |
| App I Q3.0 2a - Example of EHS Incident |
| App I Q3.0 2b - Example of Gas Control Abnormal Operation (AO) Event |
| App I Q4.0 1a - Operational and EHS Significant Incident and Significant IWOL Communication Guide |
| App I Q4.0 1b - EHS Incident Learning and Prevention Procedure (5.3.385 - EHS) |
| App I Q4.0 1c - Response to Abnormal Operations (SOP 5-2050) |
| App I Q4.0 2a - EHS Incident Learning and Prevention Procedure (5.3.385 - EHS) |
| App I Q4.0 2b - EHS Communication (4.4.345 - EHS) |
| App I Q4.0 2c - Local EHS Committees (EC-HS-03) |
| App I Q4.0 2d - Response to Abnormal Operations (SOP 5-2050) |
| App I Q4.0 3a - Safety Meeting Minutes |
| App I Q4.0 3b - Minutes from Semi-Annual Abnormal Operations Meetings 2013-2016 |
| App I Q5.0 1a - EHS Incident Learning and Prevention Procedure (5.3.385 - EHS) |
| App I Q5.0 1b - Response to Abnormal Operations (SOP 5-2050) |
| App I Q5.0 2a - Slides from EHS 2015 Effectiveness Review |
| App I Q5.0 2b - 2015 EHS Mid-Year EHS Trending Analysis |
| App I Q5.0 2c - Security Incident Trends 2013-2016 |
| App I Annex A a - Maritimes & Northeast Pipeline Management Ltd Management Oversight Program |
| App I Annex A b - M&NP Audit and Oversight Process |
| App I Annex A c - M&NP Incident Reporting, Review, and Monitoring Process |

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| Overview - M&NP Operator Incident Reporting and Investigations |
| App II Q1.1 a - Governance Procedure (OMS 1.0.100) |
| App II Q1.1 b - Quarterly OMS Leadership Review Meetings (2Q16 & 3Q16) |
| App II Q1.1 c - NEB Annual Report for 2015 for Maritimes and Northeast Pipeline |
| App II Q1.1 d - Guidelines for Response to a Severe Safety Incident (3.5.4) |
| App II Q1.1 e - MNP Policy and Commitment Statement 2016 |
| App II Q1.1 f - Spectra Energy Hazard and Incident Reporting: Non-Retaliation and Non-Retribution Policy |
| App II Q1.1 g - Email from Accountable Officer Regarding Commitment to Non-Retaliation and Non-Retribution from the reporting of Incidents and near misses |
| App II Q1.2 a - Maritimes & Northeast Pipeline Policy & Commitment Statement 2016 |
| App II Q1.2 b - Operations Management System Policy |
| App II Q1.2 c - Environmental Health & Safety Policy |
| App II Q1.2 d - Safety Vision |
| App II Q1.2 e - Hazard and Incident Reporting: Non-Retaliation and Non-Retribution Policy |
| App II Q1.2 f - Email from Accountable Officer Regarding Commitment to Non-Retaliation and Non-Retribution Policy |
| App II Q1.2 g - Screenshots from annual iComply training regarding the commitment to non-retaliation non-retribution from the reporting of incidents and near misses |
| App II Q2.1 a - US Business Unit Operations Management System Manual - Section 3 Risk Assessment |
| App II Q2.1 b - Hazard Identification and Risk Management Procedure (OMS 3.0.100) |
| App II Q2.1 c - 2015 Annual Emergency Management Program Review Meeting Minutes |
| App II Q2.1 d - 2016 Annual Corrosion Review Meeting Minutes |
| App II Q2.1 e - Agendas from quarterly EHS Management Team Meetings |
| App II Q2.1 f - Example incident (including Safety Alert, subsequent Safety Meeting Minutes where issue was discussed, and subsequent ORMC Meeting minutes where issue was discussed) |
| App II Q2.2 a - Legal Register |
| App II Q2.3 a - 2016 GOTs and Performance Indicators for All OMS Programs, including 2Q Status Updates |
| App II Q2.3 b - NEB Annual Report for 2015 for Maritimes and Northeast Pipeline Annual Report |
| App II Q2.4 2a - Spectra Energy Control Room Management Plan |
| App II Q2.4 2b - Operational and EHS Significant Incident and Significant IWOL Communication Guide |
| App II Q2.4 2c - EHS Incident Learning and Prevention Procedure (5.3.385 - EHS) |
| App II Q2.4 2d - Occupational Injury & Illness Management/Recordkeeping (EC-HS-07) |
| App II Q2.4 2e - Incident Investigation (EC-HS-09) |
| App II Q2.4 2f - Investigation of Failures (SOP 5-2030) |
| App II Q2.4 2g - Abnormal Operation Response (SOP 8-2070) |
| App II Q2.4 2h - Management Review Procedure (OMS 6.0.100) |
| App II Q2.4 2i - New Hire Onboarding Checklist |
| App II Q2.4 2j - US Business Unit Operations Management System Manual |

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| App II Q3.3 1a - Management of Change Procedure (OMS 4.8.100) |
| App II Q3.3 2a - MOC for changes due to NEB promulgation of OPR MS regulations |
| App II Q3.4 a - Screenshots from 2015 Compliance Training (iComply) |
| App II Q3.4 b - Screenshots from Incident Reporting Training |
| App II Q3.4 c - Incident Reporting Training attendance records |
| App II Q3.4 d - Screenshots from Incident Investigation training |
| App II Q3.4 e - Incident Investigation Training attendance records |
| App II Q3.4 f - Gas Control training matrix |
| App II Q3.4 g - Spectra Energy Control Room Management Plan |
| App II Q3.4 h - Example of Minutes from Safety Meeting |
| App II Q3.4 I - TapRoot training record |
| App II Q3.4 j - EHS Incident Learning and Prevention Procedure (5.3.385 - EHS) |
| App II Q3.4 k - Occupational Injury & Illness Management/Recordkeeping |
| App II Q3.4 l - Incident Investigation Procedure (EC-HS-09) |
| App II Q3.4 m - Safety Team Leader Training Records |
| App II Q3.4 n - New Hire Onboarding Checklist |
| App II Q4.3 a - Excerpt from DNV Crossings Program Audit Report regarding sub-element 4.2 requirements |
| App II Q4.3 b - Excerpt from DNV Public Awareness Program Audit Report regarding sub-element 4.2 requirements |
| App II Q4.3 c - Excerpt from DNV Environmental Protection Program Audit Report regarding sub-element 4.2 requirements |
| App II Q4.3 d - Excerpt from DNV Integrity Management Program Audit Report regarding sub-element 4.2 requirements |
| App II Q4.3 d - Excerpt from DNV Security Program Audit Report regarding sub-element 4.2 requirements |
| App II Q4.3 d - Excerpt from DNV Safety Program Draft Audit Report regarding sub-element 4.2 requirements |
| App II Q4.3 d - Excerpt from DNV OMS Draft Audit Report regarding sub-element 4.2 requirements |
| App II Q4.4 a - Records Management Policy |
| App II Q4.4 b - Examples of Record Retention Rules (806896 Employee Safety, 850628 Pipeline Integrity Management, 108960 Spectra - Operations and Maintenance) |
| App II Q4.4 c - Screenshots from 2016 annual Compliance (iComply) training regarding Records Management and Records Retention |
| App II Q5.0 a - US Business Unit Operations Management System Manual |
| App II Q5.0 b - Management Review Procedure (OMS 6.0.100) |
| App II Q5.0 c - Minutes from Quarterly Leadership meetings |
| App II Q5.0 d - NEB Annual Report for 2015 for Maritimes and Northeast Pipeline |
| App I Annex A a - Maritimes & Northeast Pipeline Management Ltd Management Oversight Program |
| App I Annex A b - M&NP Audit and Oversight Process |
| App I Annex A c - M&NP Incident Reporting, Review, and Monitoring Process |

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|---|
| M&NP Operator Organization Chart |
| 2015 MNP Management Review Minutes, March 24, 2016 |
| 2015 MNP Management Review Presentation, March 24,2016 |
| Maritimes & Northeast Pipeline Security Management Program |
| Area Security Response Procedures Manual - East Canada Area |
| Maritimes & Northeast Pipeline East Canada Area 2015 Security Management Program Annual Review |
| Maritimes and Northeast Pipeline Canadian Operations Security Management Peer Review Assessment |
| Security Management Program Review (DNV Audit) |
| Latest M&NP Monthly Security Training completion Report |
| Latest Monthly Intruder Alarm Monitoring Report |
| Latest SAP Security Equipment completion report |
| 2015 M&NP Regulatory Required Audit - Crisis Leadership |
| 2016 Aerial Patrol Operations Manual |
| OQ701 Evaluators Guide |
| Pt Tupper Urban Unauthorized Crossing Report 7T-367 (UX2016-109) |
| US OMS Field Handbook 12-16 |
| Leak Assessment Trends MN Canada 2013-2015 |
| 3Q16 MNP Hazards and Risk Register - Wild Parsnip (53) |
| Legal Registry - EHS |
| Environmental SOP F-3, Records Management Plan |
| Draft NEB Pipeline Failure Record |
| EHS Slide from ManCom Presentation from Sept 2016 |
| Supporting Documentation for AO at PRS 118 |
| 2016 NEB Audit EHS Incidents from EPASS (ENV01455, ENV02648, INJ04905, INJ05569, INJ08117, INJ 09200, INS00185) |
| Email regarding IWOL INJ09200 Pt Tupper PRS |
| Email regarding IWOL INJ08117 HG Halifax Airport |
| PRS 118 Callouts |
| Supporting Documentation for PRS 118 |
| 2015-10-20 NB Safety Mtg Minutes - ENV02648 |
| 2015-10-20 October Safety Mtg Minutes - record of EIR discussion - procedures |
| 2015-050 NEB |
| 2016 NEB Audit Incidents RS_10 Nov (same as posted on 11/17 with additional information about INJ04905, INJ05569, INJ08117, and INJ09200) |
| 2016-07-07 NS July Safety Mtg Minutes - INJ09200 |
| annual PPE review training - attendance 2016 - INJ05569 |
| December 2013 S C Meeting - NS and NB Area mtg - INJ05569 |
| July 2013 NB S C minutes - INJ04905 |
| June 2013 NB S C minutes - INJ04905 |
| NB Safety meeting April 2013 - ENV01455 |
| NEB Audit Incidents CA-RC Report |

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|---|
| NEB INC2016-078 |
| NEB Notice of Non Compliance 2013 Oct 9-11 |
| NEB_Injury Inc Detail INJ04905 |
| NEB_Injury Inc Detail INJ05569 |
| NEB_Injury Inc Detail INJ08117 |
| NEB_Injury Inc Detail IWOL INJ09200 |
| NEB_Inspection Detail INS01273 |
| NS S C Meeting Minutes July 25, 2013 - INS04905 |
| NS S C Meeting Minutes June 18, 2013 - INS04905 |
| SOP Volume 1-Pipelines Table of Contents |
| SOP 1-1010 Action Item Summary Sheet |
| Scope and references to 7T-33 within SOP 1-4010 |
| Reference to 7T-22 in SOP 5-4020 |