



File OF-Surv-OpAud-K077-2016-2017-01
19 June 2017

Mr. Ronald G. McClain
President and Accountable Officer
Kinder Morgan Inc.
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Suite 1000
Houston, Texas 77002
Email: [REDACTED]

Dear Mr. McClain:

**Notification of the National Energy Board's (Board or NEB)
Final Audit Report of Kinder Morgan Cochin ULC**

On 16 November 2016, the National Energy Board (NEB or the Board) informed Kinder Morgan Cochin (KM-Cochin) of its intent to audit KM-Cochin's NEB regulated facilities. The audit focused on the patrol activities as required by sub-element 4.1 *Inspection, Measurement and Monitoring*, of the NEB Management System and Protection Program Audit Protocol. The findings of the audit are based upon an assessment of whether KM-Cochin was compliant with the regulatory requirements contained within:

- The *National Energy Board Act*;
- The *National Energy Board Onshore Pipeline Regulations*;
- The *Damage Prevention Regulations*; and
- *Canadian Standards Association (CSA) Z662 – 15 – Oil and Gas Pipeline Systems*; and Kinder Morgan Cochin's policies, programs, practices and procedures.

KM-Cochin was required to demonstrate the adequacy and effectiveness of the methods it has selected and employed within its management system and programs to meet the regulatory requirements listed above. Throughout this audit, the Board evaluated patrol activities in the context of the protection programs and the management system.

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.

Within 30 days of the issuance of the Final Audit Report by the Board, Kinder Morgan-Cochin 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.

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The Board will make the CAP public and will continue to monitor and assess all of Kinder Morgan-Cochin'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 Kinder Morgan-Cochin'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 Barbara Wegernoski, Lead Auditor, at 403-299-3151.

Yours truly,

Original signed by L. George for

Sheri Young
Secretary of the Board

c.c. 

National Energy
Board



Office national
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**Final Report of the Kinder Morgan Cochin ULC. (KM-COCHIN)
Pipeline Patrol Activities**

File OF-Surv-Op-Aud-K077-2016-2017-01

Suite 2700, 300-5th Avenue SW
Calgary, AB T2P 5J2

19 June 2017

Canada

Executive Summary

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

This report documents the Board's audit of the above ground monitoring and surveillance activities (collectively referred to as patrol activities) implemented by Kinder Morgan Cochin ULC (KM-Cochin or KM) for its NEB-regulated pipeline facilities. The audit focussed on sub-element 4.1 **Inspection, Measurement and Monitoring** of the National Energy Board Management System and Protection Program Audit Protocol published in July 2013, specifically as it applies to pipeline right of way patrol activities. Given the scope of this audit, it included requirements contained within the *National Energy Board Onshore Pipeline Regulations (OPR)*; the *Damage Prevention Regulations – Obligations of Pipeline Companies (DPR-O)*; and the Canadian Standards Association- Oil and Gas Pipeline Systems (CSA Z662-15).

The Board conducted the audit using two sets of protocols. The protocol in Appendix I focused on the requirements for patrol activities described in sub-element 4.1: Inspection, Measurement and Monitoring. In Appendix II, the Board evaluated how the company's patrol activities interacted with the other elements of KM-Cochin's management system, specifically as they interact with the information inputs and outputs of the management system elements.

The Board's audit of KM-Cochin's regulated facilities found KM-Cochin conducts aerial patrol activities for its NEB regulated facilities and that KM-Cochin has implemented processes for the reporting of potential unauthorized activities noted during patrol activities as required by the DPR-O.

After auditing to the protocols in Appendix I and II, the Board verified that KM-Cochin has integrated its patrol activities into some management system sub-elements and, based on the review conducted and considering the scope of the audit, the Board did not identify any issues of non-compliance in the following seven areas:

- Leadership Accountability
- Goals, Objectives and Targets (GOT)
- Investigation of Incidents, Near Misses and Non-compliances
- Records Management
- Inspecting and Monitoring
- Evaluating Adequacy and taking corrective action
- Reporting unauthorized activity

Following the review of the records and documentation provided, the Board found that several process and operational documents were inadequately developed and not fully implemented. Throughout the audit period, the Board encountered significant issues with non-submission or late submission of requested documents by KM-Cochin that impeded the conduct of the audit. In cases where compliance could not be verified due to KM-Cochin's failure to provide documentation, the Board assigned a status of non-compliant. For the reasons discussed above, non-compliances were noted in the areas of:

The non-compliances in Appendix I were found in the sections related to:

- Monitoring of Adjacent Lands;
- Observing conditions and activities;
- Frequency of inspections; and
- Notification of locations regarding low-risk activity.

The non-compliances in Appendix II were found in the sections related to:

- Policy and Commitment Statement;
- Hazard Identification, Risk Assessment and Control;
- Legal Requirements;
- Organizational Structure, Roles and Responsibilities;
- Operational Control-Normal Operations;
- Operational Control-Upset or Abnormal Operating Conditions;
- Management of Change;
- Training, Competence and Evaluation;
- Communication;
- Documentation and Document Control;
- Internal Audit; and
- Management Review.



A detailed analysis of these non-compliances can be found in Appendices I and II of this report.

The Board acknowledges Kinder Morgan's commitment to conduct a review of its own internal processes for regulatory audits to assess where improvements can be made and to dedicate a broader group of its personnel to work with the Board on future Kinder Morgan audits. The Board commends Kinder Morgan's efforts for the continual improvement of its management system and looks forward to working openly with Kinder Morgan in the future to help achieve the NEB mandate to promote safety and security, environmental protection and economic efficiency in the Canadian public interest.

Within 30 days of the Final Audit Report being issued, KM-Cochin must develop and submit a Corrective Action Plan (CAP) for Board approval. The CAP must outline how KM-Cochin 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 KM-Cochin's system. The Board will continue to monitor the implementation and effectiveness of KM-Cochin's management system and programs through targeted compliance verification activities as part of its ongoing regulatory mandate.

Table of Contents

1.0 INTRODUCTION:	6
2.0 BACKGROUND	6
3.0 AUDIT OBJECTIVES AND SCOPE	7
4.0 AUDIT PROCESS, METHODOLOGY AND ACTIVITIES	8
5.0 SUMMARY OF AUDIT FINDINGS	9
6.0 CONCLUSIONS	11
7.0 AUDIT TERMINOLOGY AND DEFINITIONS	11
8.0 ABBREVIATIONS	14

Appendices

Appendix I:	Audit Protocol Part 1
Appendix II:	Audit Protocol Part 2
Appendix III:	Facility Summaries and Map
Appendix IV:	Company Representatives Interviewed
Appendix V:	Documents Reviewed

1.0 Introduction:

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; the 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.

This audit is one in a series of focused audits that the Board is conducting of sub-element 4.1 *Inspection, Measuring and Monitoring* of the National Energy Board Management System and Protection Program Audit Protocol published in July 2013, focused on company right of way (ROW) patrol activities.

During an audit, the Board reviews documentation and samples records provided by the company in its demonstration of compliance and interviews corporate and regionally-based staff. This enables the Board to evaluate the adequacy, effectiveness and implementation of the management system and programs.

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.

2.0 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.

In fiscal year 2016/17, the Board is piloting a new approach to audits. It identified the need to conduct a series of audits focused on company patrol activities. This decision was based on an internal analysis of compliance data and application of the NEB risk model. This model combines different aspects of the pipeline system's location, product etc. with the companies' performance in other compliance areas. Kinder Morgan Cochin ULC (KM-Cochin) was therefore selected to be audited based on its compliance history and relative risk presented by its pipeline system.

This audit focused on sub-element 4.1, *Inspection, Measurement and Monitoring* of the National Energy Board Management System and Protection Program Audit Protocol, published in July 2013, which has the following expectations:

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

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

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

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

3.0 Audit Objectives and Scope

The objective of the audit was to evaluate KM-Cochin's performance against the applicable requirements identified in sub-element 4.1 of the Board's audit protocol. The scope of the audit focused on KM-Cochin's ROW patrol activities to assess if they adequately identifying issues

noted on the rights-of way to promote safety, environmental protection, pipeline integrity, emergency response, security and damage prevention. The Board also examined the degree to which patrol activities were integrated with the company's management system to ensure the protection of the environment and the safety and security of the public.

This audit was based on the requirements for federally regulated pipeline companies to conduct patrols of their ROWs to actively monitor hazards and potential hazards that could jeopardize the safety of people and the environment. The information gathered and issues observed by patrol activities must be communicated to the appropriate protection programs for tracking and resolution. Equally important, the hazards identified by the protection programs must inform the patrol activities to promote effective monitoring of these hazards. For this audit, KM-Cochin was audited against the requirements contained within the following legal requirements as they relate to patrol activities:

- The *National Energy Board Act*;
- The *National Energy Board Onshore Pipeline Regulations*;
- The *National Energy Board Damage Prevention Regulations*;
- Canadian Standards Association (CSA) Z662 – 15 – Oil and Gas Pipeline Systems; and
- KM-Cochin's policies, programs, practices and procedures.

During the audit, the NEB reviewed documentation and conducted interviews with the company's staff and contractor personnel with the aim to:

- Obtain a snapshot of the patrol activities being conducted;
- Assess the implementation of company management systems as they relate to pipeline patrols;
- Allow for a broader assessment of industry performance with regards to pipeline patrols; and
- Provide clarity around the Board's expectations regarding these patrol activities.

4.0 Audit Process, Methodology and Activities

The Board informed KM-Cochin of its intention to audit its NEB regulated facilities in a letter dated 16 November 2016. Following the issuance of this letter, Board audit staff contacted KM-Cochin to arrange and coordinate this audit. On 22 November 2016, the Board provided KM-Cochin with the audit protocols (Appendices I and II), an information request guidance document, audit schedule and timelines as well as discussion questions to help KM-Cochin prepare for the audit, and provide access to documentation and records to demonstrate its compliance. Appendix I is divided into five sections, with each section covering a partial component of the Board's expectations for sub-element 4.1. In Appendix II, the Board's Audit Protocol identifies five Management System elements which are further broken down into 17 sub-elements. Each sub-element reflects a number of regulatory requirements. As the audit focussed on patrol activities and related inputs and outputs from other protection programs, many of the processes required by the OPR were considered within the scope of this audit.

On 5 December 2016, KM-Cochin shared a digital access portal they had established for Board staff to review documentation and records.

On 1 December 2016, an opening meeting was conducted with representatives from KM-Cochin to confirm the Board's audit objectives, timelines and schedule, scope and process. The opening meeting was followed by various audit activities as described in the table below. Throughout the audit, Board audit staff gave KM-Cochin daily summaries which included requests for additional documentation and interviews.

On 20 January 2017, Board audit staff postponed the scheduled pre-close out meeting, indicating by email that KM-Cochin was being given an additional week to present additional information that was required. On 26 January 2017, the pre-close out meeting occurred. In advance of the meeting, the Board sent a pre-closeout information request to KM-Cochin. This request outlined where gaps in information were identified during field activities, interviews and documentation reviewed to date and the request was discussed at the pre-close out meeting that day. A final deadline of 30 January 2017 was set for submission of all outstanding document requests. KM-Cochin had submitted some, but not all documents, by 30 January 2017 and continued to upload documents after this date. KM-Cochin requested an extension for document submission on 31 January 2017, which the Board denied.

An audit close-out meeting was held on 6 February 2017 to provide KM-Cochin with a description of the recommendations that staff would be bringing to the Board for decision.

Summary of Audit Activities
<ul style="list-style-type: none"> • Audit Opening meeting – 1 December 2016 • Field Verification Activities: <ul style="list-style-type: none"> Interviews Calgary, AB – Arial Patrol Contractors - 15 December, 2016 Interviews Regina, SK, 9 January, 2016 – 13 January, 2016 • Audit Closing Meeting – 6 February 2017

5.0 Summary of Audit Findings

During this audit, KM-Cochin was required to demonstrate the adequacy and effectiveness of its management system, programs and its processes as they relate to pipeline patrols. The Board reviewed documentation and records provided by KM-Cochin and interviewed KM-Cochin's staff.

The Board's audit of KM-Cochin regulated facilities confirmed that KM-Cochin is conducting aerial ROW patrol activities of its NEB regulated facilities. The audit also verified that KM-Cochin has implemented processes for the reporting of potential unauthorized activities noted during patrol activities as required by the DPR-O. In addition, KM-Cochin demonstrated that it has integrated its patrol activities into some of the management system sub-elements including leadership accountability; goals, objectives and targets (GOTs); investigation of incidents; near misses and non-compliances; records management; inspecting and monitoring; evaluating adequacy and taking corrective action and reporting unauthorized actions.



Following the review of the records and documentation provided by the final deadline for submission, the Board found that several process and operational documents were inadequately developed and not fully implemented. In addition, KM-Cochin failed to provide certain documentation that was requested during the audit period. In cases where compliance could not be verified due to KM-Cochin's failure to provide documentation, the Board assigned a status of non-compliant. For the reasons discussed above, non-compliances were noted in the areas of:

The non-compliances in Appendix I were found in the sections related to:

- Monitoring of Adjacent Lands;
- Observing conditions and activities;
- Frequency of inspections; and
- Notification of locations regarding low-risk activity.

The non-compliances in Appendix II were found in the sections related to:

- Policy and Commitment Statement;
- Hazard Identification, Risk Assessment and Control;
- Legal Requirements;
- Organizational Structure, Roles and Responsibilities;
- Operational Control-Normal Operations;
- Operational Control-Upset or Abnormal Operating Conditions;
- Management of Change;
- Training, Competence and Evaluation;
- Communication;
- Documentation and Document Control;
- Internal Audit; and
- Management Review.

The full assessment is available in Appendix I and II of this report.



6.0 Conclusions

Companies regulated by the NEB must demonstrate a proactive commitment to continual improvement in safety, security and environmental protection. Pipeline companies under the Board's regulation must establish and implement effective management systems in their day-to-day operations. In conducting this review, the Board has determined that KM-Cochin is conducting aerial patrol activities and its management system has been implemented into some of its patrol activities.

Upon receipt of the final report, KM-Cochin must develop a corrective action plan describing its proposed methods to resolve the non-compliances identified in Appendices I and II and the timeline in which corrective actions will be completed. KM-Cochin is required to submit its corrective action plan for Board approval within 30 days of the final Audit Report being issued. The Board will make its final Audit Report and KM-Cochin's approved corrective action plan public on the Board's website.

The Board will assess the implementation of KM-Cochin'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 KM-Cochin's patrol activities.

7.0 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 complies with the scope, documentation requirements and, where applicable, the stated goals and outcomes of the NEB Act, its associated regulations and referenced standards. Within the Board's regulatory requirements, this is demonstrated through documentation.

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

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

Corrective Action Plan: 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 have 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: A program element does not meet legal requirements. The company has not demonstrated that it has developed and implemented programs, processes and procedures that meet the legal requirements. A corrective 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) establishes the basic requirements for 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 may 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 system requirements are 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 a 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.

8.0 Abbreviations

CAP: Corrective Action Plan

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

DPR-A: *National Energy Board Damage Prevention Regulations- Authorizations*

DPR-O: *National Energy Board Damage Prevention Regulations – Obligations of Pipeline Companies*

EHS: Environment, health and safety

GOT: Goals, Objectives and Targets

MOC: Management of Change

NEB: National Energy Board

OEMS: Operations Excellence Management System

OPR: *National Energy Board Onshore Pipeline Regulations*

ROW: Right-of-Way

APPENDIX I

PIPELINE PATROL AUDIT - EVALUATION OF SUB-ELEMENT 4.1

4.0 CHECKING AND CORRECTIVE ACTION

4.1 Inspection, Measurement and Monitoring

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

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

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

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

Requirements: OPR s. 6.1(d), 6.5(1)(g), (s), (u), (v), (w), (x), 39, 56
CSA 10.6.1, 10.6.1.2, 10.6.210.7 (class location)
DPR-O s.16 (b)(c)

NEB Assessment

Appendix I focuses solely on the various types of patrol activities conducted pursuant to the legal requirements. An evaluation of the patrol activities in the context of the management system and the process requirements is provided in Appendix II of this report.

1.1 Inspecting and Monitoring

The Board expects companies to 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. In order to verify the implementation of the right-of-way (ROW) monitoring activities.

Given the scope of this audit, these processes and protection programs were not reviewed for compliance or adequacy. Rather, the Board conducted a focused audit of the company's pipeline patrol activities which is typically part of the surveillance and monitoring program. Patrol activities are one method used by a company to monitor the effectiveness of the protection programs as well as any hazards or potential hazards on its ROW. The review in this appendix relates directly to the patrol activities that KM-Cochin had in place at the time of the audit. The Board noted that at the time of the audit, KM-Cochin was conducting the following types of ROW patrols:

- Aerial Patrol – KM Cochin did demonstrate that it is conducting ROW patrol activities

Weekly aerial patrols are conducted a minimum of 26 times a year with a maximum of 21 days between patrols. The company has a backup plan to conduct ground patrols in the event aerial patrols cannot be carried out due to inclement weather.

KM-Cochin's rights of way are patrolled by contractor personnel via a overhung fixed wing aircraft and, with the exception of one annual trip in which a KM-Cochin Pipeline Technician rides as an observer, the contract pilot conducts the aerial patrol alone, acting as both pilot and observer, responsible for identifying potential hazards, taking photos, inputting the data into KM Flight Tracker database and initiating all required communications when high priority observations are noted.

Flight Tracker is the database used by KM-Cochin for tracking the aerial patrols flight path and observation description. Flight Tracker does not attach photos taken during the flight to the report. Whenever the pilot records an observation in Flight Tracker, he also takes a photo with a hand-held camera. Photos are numbered starting at zero and are correlated to the waypoints taken during the flight; these photos are then sent via email to the KM-Cochin representative at the end of the patrol.

Flight Tracker is linked to Kinder Morgan's One Call (KMOC) ticket system. When a final report is sent, KM-Cochin personnel in each region are able to view it in KMOC.

- Ground Patrols – During interviews, KM-Cochin representatives indicated conducting a ground patrol as a contingency due to inclement weather impacting the aerial patrol. KM Cochin did not provide records to demonstrate that any ground patrols had occurred to date.
- KM monitors selected water course crossings on a 1, 3, 5 year basis. KM provided a list of water crossings within the four areas of the Cochin operating area.

Conclusion

Given the scope of the audit and the documents reviewed, and due to the fact that KM Cochin could demonstrate that it is conducting aerial patrol activities, the Board did not find any issues of non-compliance for this aspect of the requirement.

1.2 Evaluating adequacy and taking corrective action

The Board also requires companies to evaluate the adequacy and effectiveness of the protection programs and for taking corrective and preventive actions if deficiencies are identified. During the audit, the Board reviewed records of various types of patrol activities as part of its surveillance and monitoring program. KM-COCHIN was able to demonstrate that it has established practices to identify, evaluate, track, communicate and resolve issues related to hazards and potential hazards on the rights-of-way identified on patrols.

Although KM-Cochin did not provide an internal communication plan (see sub-element 3.5 of Appendix II). However, KM-Cochin provided documentation demonstrating that they track and follow-up on all unauthorized activities in KMOC. KM-Cochin also demonstrated that it take corrective actions when deficiencies are identified from aerial patrols.

Based on the review of the records, the Board is satisfied that KM-Cochin demonstrated it had practices in place to meet this requirement.

Conclusion

Given the scope of the audit and the documents reviewed, the Board did not find any issues of non-compliance for this aspect of the requirement.

2.0 Right of Way Patrols

Regulatory Requirements

DPR-O s. 16(b): The damage prevention program that a pipeline company is required to develop, implement and maintain under section 47.2 of the *National Energy Board Onshore Pipeline Regulations* must include ongoing monitoring of any changes in the use of the land on which a pipeline is located and the land that is adjacent to that land.

CSA Z662-15, Clause 10.6.1.1, Pipeline patrolling:

Operating companies shall periodically patrol their pipelines in order to observe conditions and activities on and adjacent to their rights-of-way that can affect the safety and operation of the pipelines. Particular attention shall be given to the following:

- a) construction activity;
- b) dredging operations;
- c) erosion;
- d) ice effects;
- e) scour;
- f) seismic activity;
- g) soil slides;
- h) subsidence;
- i) loss of cover;
- j) evidence of leaks; and
- k) unauthorized activities.

CSA Z662-15, Clause 10.6.1.2:

The frequency of pipeline patrolling shall be determined by considering such factors as

- a) operating pressure;
- b) pipeline size;
- c) population density;
- d) service fluid;
- e) terrain;
- f) weather; and
- g) agricultural and other land use.

2.1 Monitoring of adjacent lands (DPR-O s.16)

The National Energy Board *Damage Prevention Regulations – Obligations of Pipeline Companies* (DPR-O) requirements came into effect on 19 June 2016. The DPR-O requires that companies develop a Damage Prevention Program which includes ongoing monitoring of any changes in the use of the land on which a pipeline is located and the land that is adjacent to that land. Guidance provided by the Board indicates that the monitoring of lands adjacent to the ROW should include the monitoring of changes in the use of the land on which a pipeline is located and the adjacent land is required in order for a company to effectively identify hazards and manage the risks related to pipeline damage prevention over time.

At the time of the audit, KM Cochin did not provide a procedure for monitoring lands adjacent to its ROW. The Board noted that KM Cochin had not updated its procedures to reflect the DPR requirements. Additionally, during interviews KM Cochin staff stated that land owner contact information and monitoring is done by the KM Lands Department staff in the KM Vancouver office.

Conclusion

The Board has determined that KM-Cochin is in non-compliance with DPR-O s.16 (b). The Board requires that a CAP be developed to address this non-compliance.

2.2 Observing conditions and activities (CSA clause 10.6.1.1)

KM-Cochin was able to demonstrate it has established aerial patrol activities to monitor its rights of way. These patrols have resulted in the identification of potential hazards on the rights of way such as unauthorized third party activity. During the audit, the Board reviewed KM-Cochin's procedure and report samples for its aerial patrols.

Through interviews with KM Cochin staff, the Board noted that information provided regarding ground patrols was inconsistent, whereby one staff member indicated completing a ground patrol as a result of inclement weather impeding the aerial patrol, with the KM supervisor indicated that no ground patrols have ever taken place. As there was no ground patrol documentation provided during the audit, the Board could not evaluate this.

Although the Patrolling and Leak Detection procedure includes a lists of potential hazards that should be monitored during patrol, the documentation of these patrols does not confirm that each of the issues is being assessed during the patrols or tracked over time. During the review of the report of aerial patrols, the Board found that KM-Cochin reports by exception only, that is, observations are only made when an activity or an issue is present.

The Board is of the view that reporting only what is out of the norm, or by exception, does not typically allow for an adequate demonstration of the ongoing monitoring of hazards or developing trends that can affect the safety and operation of the pipeline. Also, this type of reporting does not provide documentation to confirm that an assessment of the potential issues as identified in CSA has occurred during the patrols.

Conclusion

Due to the fact that aerial patrols report by exception, that is, only note when an issue is present, KM-Cochin could not demonstrate that it is documenting its assessment of all the issues as noted in CSA Z662-15 clause 10.6.1. As a result, the Board has determined that KM-Cochin is in non-compliance with this requirement. The Board requires that a CAP be developed to address this non-compliance.

2.3 Frequency of inspections (CSA clause 10.6.1.2)

KM-Cochin's procedure document L-O&M 215 – Patrolling and Leak, section 3.1 Inspection Intervals, describes the following:

“Pipeline right-of-way and areas adjacent to the right-of-way, shall be inspected at intervals not exceeding 3 weeks, but at least 26 times per calendar year. This will be performed by aerial patrol pilot, or KM representative...”

In Canada, CSA clause 10.6.1.2 includes factors to be considered when determining pipeline patrol frequency. During interviews, KM Cochin indicated that it bases its patrol frequency on the US Department of Transportation regulations which requires companies to conduct at least 26 patrols per year. Therefore, KM Cochin could not demonstrate that it considers the factors listed in CSA clause 10.6.1.2 were considered or evaluated when determining the patrol frequency or method.

Upon review of KM-Cochin's documentation, the Board is of the view that KM-Cochin has not established a list of criteria for the scheduling of patrols that is appropriate to its system and therefore does not meet the intention of CSA 10.6.1.2.

Conclusion

KM-Cochin could not demonstrate that it is considering the factors outlined in CSA Z662-15, Clause 10.6.1.2 when determining the frequency of its patrols. The Board requires that a CAP be developed to address this non-compliance.

3.0 Reporting

Regulatory Requirements

OPR s. 52 (1): A company shall immediately notify the Board of any incident relating to the construction, operation or abandonment of its pipeline and shall submit a preliminary and detailed incident report to the Board as soon as practicable.

DPR-O s. 7: Even if the condition set out in paragraph 13(1)(a) of the *National Energy Board Pipeline Damage Prevention Regulations – Authorizations* is met, when the operation of vehicles or mobile equipment across a pipeline at specific locations for the purposes of performing an agricultural activity could impair the pipeline’s safety or security, the pipeline company must identify those locations and notify the following persons in writing of those locations:

- (a) landowners of the specific locations in question; and
- (b) persons that are engaged in agricultural activities, rent or lease the land or work as service providers or employees at the specific locations in question.

DPR-O s. 11(1): The pipeline company must immediately report to the Board

- (a) every contravention of the *National Energy Board Pipeline Damage Prevention Regulations – Authorizations*;
- (b) all damage to its pipe caused or identified during the construction of a facility across, on, along or under a pipeline, the operation, maintenance or removal of a facility, an activity that caused a ground disturbance within the prescribed area or the operation of vehicles or mobile equipment across the pipeline; and
- (c) any activity related to the construction of a facility across, on, along or under a pipeline, an activity that caused a ground disturbance within the prescribed area or the operation of vehicles or mobile equipment across a pipeline that the pipeline company considers could impair the safety or security of the pipe.

Requirements: OPR s. 52(1), DPR-O s. 7, 11

3.1 Notification of locations regarding low risk agricultural activity (DPR-O s.7)

The Board issued the Order MO-21-2010, *Exemption Order Respecting Crossings By Agricultural Vehicles Or Mobile Equipment* on 22 December 2010. This Order required that regulated companies identify areas of their rights-of-way where low-risk agricultural crossings may jeopardize the safe and secure operation of the pipelines. With the release of the DPR-O, requirements for the monitoring of agricultural lands to promote safe operations are incorporated into section 7.

During the audit, KM-Cochin indicated that it does not have an established or implemented process in place or procedures developed to ensure monitoring depth of cover activities are taking place as required by the DPR-O.

Conclusion

For the purposes of this audit, KM Cochin did not demonstrate that it has established a procedure to identify areas of their rights-of-way where low-risk agricultural crossings may jeopardize the safe and secure operation of the pipelines as required by DPR-O s.7. The Board requires that a CAP be developed to address this non-compliance.

3.2 Reporting unauthorized activities (DPR-O s. 11)

KM-Cochin procedure document L-O&M 159 – Incident Reporting and Investigation, section 3.7.2.1 contains a detailed list of instances for the reporting of incidents to the NEB, which includes the following:

- a. *The death of or serious injury to a person*
- b. *A significant adverse effect on the environment*
- c. *An unintended fire or explosion*
- d. *An unintended or uncontained release of LVP hydrocarbons in excess of 1.5 cu m*
- e. *An unintended or uncontrolled release of gas or HVP hydrocarbons*
- f. *The operation of a pipeline beyond its design limits or any operating limits imposed by the NEB*

During the audit, the Board noted that this procedure does not contain the reporting requirements under the NEB Pipeline Crossing Regulations and had not been updated to reflect the obligations to report to the Board under DPR-O s.11 which states:

11 (1) The pipeline company must immediately report to the Board

(a) every contravention of the National Energy Board Pipeline Damage Prevention Regulations – Authorizations;

(b) all damage to its pipe caused or identified during the construction of a facility across, on, along or under a pipeline, the operation, maintenance or removal of a facility, an activity that caused a ground disturbance within the prescribed area or the operation of vehicles or mobile equipment across the pipeline; and

(c) any activity related to the construction of a facility across, on, along or under a pipeline, an activity that caused a ground disturbance within the prescribed area or the operation of vehicles or mobile equipment across a pipeline that the pipeline company considers could impair the safety or security of the pipe.

Through document and record reviews, the Board confirmed that KM-Cochin has reported 3 unauthorized crossings, one in 2009, 2015 and 2016. Also, KM-Cochin provided the following statistics on unauthorized activities and third party activities for 2016:

- Alberta and Saskatchewan had a total of 1585 One Call tickets with 190 tickets marked and 1395 no conflict tickets
- KM-Cochin reported one “unauthorized activity that was reportable to the NEB” – Event Details – UX2016-132

The Board verified that KM-Cochin has been identifying, tracking and reporting issues of unauthorized activity in accordance with regulatory requirements, however the Board notes that KM-Cochin's procedure requires updating to reflect the changes in legislation.

Conclusion

Although it was not included in its reporting procedure, KM Cochin demonstrated that is reporting unauthorized activity by practice. In addition, the audit found that its procedure have not been updated to reflect the changes in the DPR. The Board requires that a CAP be developed to address this non-compliance.

PIPELINE PATROL AUDIT – KINDER MORGAN COCHIN ULC

APPENDIX II - PIPELINE PATROL AUDIT –

INTERACTION WITH OTHER MANAGEMENT SYSTEM SUB-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.

References: OPR s. 6.2(3)

NEB Assessment:

The Board requires the company to appoint an accountable officer. The accountable officer must be given appropriate authority over the company’s human and financial resources for ensuring that the company meets its obligations for safety, security and protection of the environment. On 9 May 2013, Kinder Morgan Cochin ULC. (KM-Cochin) submitted written notice to the Board indicating that its President, Ron G. McClain, had been appointed as the accountable officer. In its submission, KM-Cochin confirmed that its accountable officer has the authority over the human and financial resources required to meet the Board’s expectations.

The audit verified that KM-Cochin has established the role of the Accountable Officer who has signed a letter confirming that he has the responsibility and authority with respect to sub-element 4.1 Inspection, Measurement and Monitoring.

Conclusion:

Based on the review conducted and considering the scope of this audit, the Board did not identify any issues of non-compliance in relation to sub-element 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.

References: OPR s. 6.3 CSA Z662-15 clause 3.1.2 (a)

NEB Assessment

At the time of the audit, KM-Cochin provided its Code of Business Conduct and Ethics" which includes, "*Ethics hotline which is hosted by a third party to maintain confidentiality and anonymity when requested. There will be no action taken against anyone who is good faith reports an ethics or compliance concern.*" Good Faith reporting was not defined.

KM-Cochin has not provided a policy for the internal reporting of hazards, potential hazards, incidents and near-misses that includes the conditions under which a person who makes a report will be granted immunity from disciplinary action.

KM-Cochin provided its Operations Management System (OMS) document. Upon review, it is unclear whether this OMS is implemented as it was not on KM letter head, or signed by the Accountable officer.

For the purposes of this audit of patrol activities, KM-Cochin's has not provided a policy signed by the AO that provides line of sight from the policy to the protection programs.

Conclusion:

The audit determined that KM-Cochin did not provide a policy to address the above expectations as they relate to inspection and monitoring. As KM-Cochin failed to provide a policy that meets the requirements of the OPR, and based on the review conducted and considering the scope of this audit, the Board finds KM-Cochin in non-compliance with NEB OPR s. 6.3. The Board requires KM-Cochin to develop a corrective action plan to address the described deficiencies.

2.0 PLANNING

2.1 Hazards Identification, Risk Assessment and Control¹

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 risk associated with these hazards, including the risks related to normal and abnormal operating conditions. As part of its formal risk assessment, a company shall keep records to demonstrate the implementation of the hazard identification and risk assessment processes.

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

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

References:

OPR sections 6.5 (1)(c), (d),(e), 40, 47, 48

CSA Z662-15 clauses 10.6.1, 10.6.2, 10.1, 10.7

DPR-O sections 7, 9, 10, 11, 16(b)(c)

NEB Assessment

The Board expects companies to have an established, implemented and effective process for identifying and analyzing all hazards and potential hazards. In addition, the Board expects companies to establish and maintain an inventory of hazards and potential hazards. Although the review of the hazard identification process is outside the scope of this audit, the Board examined the methods and the extent to which the identification, tracking and evaluation of hazards was reflected within KM-Cochin's patrol activities.

¹ Hazard: Source or situation with a potential for harm in terms of injury of ill health, damage to property, damage to workplace environment, or a combination of these. Risk: Combination of the likelihood and consequence(s) of a specified hazardous event occurring

Identifying Hazards and Potential Hazards:

- KMC-Cochin provided its Patrolling and Leak Detection Procedure for review. The procedure lists what sightings on the ROW should be documented in the patrol reports including: sign of a leak, excess of excess vegetation, encroachments and unusual activities.

Although the list consists of typical issues for ROW monitoring, the Board is of the view that it does not constitute a hazard inventory as required by the OPR. KM-Cochin did not demonstrate that it has linked a hazard and potential hazard inventory to its patrol activities- 6.5(1)(d).

- Also, KM-Cochin did not provide documentation to demonstrate how the identification of hazards within the protection programs is communicated to patrol activities or how the identification of hazards within the protection programs has been considered to determine patrol frequency.
- At the time of the audit, KM-Cochin aerial patrol contractor and staff demonstrated that hazards identified on the ROW were reported through the KMOC system.

Risk Assessment:

- During interviews, KM-Cochin indicated that its risk assessment process was owned by the KMEP Risk Management team out of the Houston office.
- As evidence of its risk management process, KM-Cochin provided the following:
 - L-O&M 276 – Annual IMP Schedule
 - L-O&M 278 – Field Data Validation by SME's
 - Field Data Validation Survey Sheets (FDVS)
 - L-O&M 275 – Continuing Risk Analysis to Identify Preventive and Mitigative Measures
- KM-Cochin Annual IMP Schedule indicated its purpose is to ensure that integrated analysis of data and identification of potential risk prevention and mitigation activities is complete and available for consideration in the annual budget preparation process.
- KM-Cochin Field Data Validation by SME's procedure requires the collection of additional local information as appropriate for integrity management and risk management purposes and will be input into the IMP risk database.
- FDVS's are completed annually and include feedback from the subject matter expert (SME). FDVS's fields (area to be populated or answered) include: company information; pipeline ROW information (areas of construction activity; farming activity; ROW Condition; Ground Movement/Slope Instability; Potential damage due to local hazards; line marking; patrol frequency; third party spans; ground cover protection and dispersion potential. Each of these areas has space to be individually completed and graded.

After reviewing all of the FDVS's (a total of 6 submitted to represent the entire Cochin line for 2016), the Board notes that the following fields were not completed in ANY of the FDVS's:

- Ground Movement/Slope Instability
 - Potential Damage due to Local Hazards
 - Third party spans
 - Verify Ground cover protection
 - Dispersion potential
- KM-Cochin's Continuing Risk Analysis to Identify Preventive and Mitigative Measures procedure states that the KMEP Risk Management Team shall ensure completion of a number of procedures including L-O&M 278 Field Data SME Validation and the FDVS', reference above. KM-Cochin is not following its developed procedures.

Additionally, this procedure requires an annual risk evaluation to be completed, KM-Cochin has not defined any risk tolerance for which they will conduct their activities.

- KM-Cochin did not demonstrate that a link exists between the risk assessment and patrol activities to demonstrate where the risk analysis information has effected a change to the patrol program frequency or method. – KM-Cochin's response to this request included, *“Given that Cochin Canada currently patrols its pipeline more frequently than the LOM 215 requirement of 26 patrols per year local operations believes that the current frequency is more than adequate to address current risk threats.”*

Analysis of Hazards and Potential Hazards:

At the time of the audit, KM –Cochin did not provide evidence that it monitors analyzes and trends hazards, incidents and near misses related to patrols.

The Board is of the view that KM-Cochin has established regular ROW patrol activities based on pre-determined frequency requirements and not linked to real time hazard identification or analysis of hazards over time.

Conclusion

Based on the review conducted and considering the scope of this audit, the Board finds KM-Cochin in non-compliance with the OPR s.6.5 (1) (c), (d) and (e) as it relates to patrol activities. The Board requires KM-Cochin to develop a corrective action plan to address the described deficiencies.

2.2 Legal Requirements

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

References: OPR sections 6.5(1) (g), (h), (i)

NEB Assessment:

At the time of the audit, KM-Cochin provided the legislation listed in its procedures for review. The Board is of the view that these lists do not meet the OPR requirements because they are incomplete and maintained at an insufficient level of detail. In particular, the lists provided did not meet the OPR requirements in the following ways:

- titles of legislation were listed in procedures and not in one master list
- the list consisted of titles of legislation not broken down to the requirement level;
- the lists were out of date and did not include the new Damage Prevention Regulations (DPR);

NEB Board Orders; and the CSA standards were not included in the procedures provided.

Conclusion:

KM-Cochin did not demonstrate that it is tracking and listing legal requirements and that its list included NEB Orders, Certificates or referenced legislation. Therefore this list is non-compliant with the OPR 6.5(1) (h). As a result, the Board requires KM-Cochin to develop a CAP to address this deficiency.

The Board notes that the legal list affects several sub-elements within the management system as it relates to the patrol activities. By addressing the deficiencies related to the maintenance of the legal list, this list will impact related processes such as Internal Audits and Document Control.

2.3 Goals, Objectives and Targets (GOTs)

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.

References:

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

CSA Z662-15 clause 3.1.2 (h)

NEB Assessment:

- KM-Cochin follows the corporate goals established by Kinder Morgan. Program goals are established at the Company level and are driven down to the departmental level to the staff (Individual) performance.
- The operational and compliance objectives include:
 - Perform at levels better than the industry averages and our three-year averages in terms of incidents
 - Experience no significant incidents in our operations or expansions
 - Operate Kinder Morgan assets in compliance with all applicable laws, regulations, permits and in compliance with all Kinder Morgan processes, procedures and compliance plans
 - Have no material or intentional violations of applicable laws
 - Have very few exceptions in our compliance systems (less than 1 percent)
 - Keep compliance systems up to date
 - Track and close audit findings in a timely fashion
 - Manage costs responsibly
- The Departmental goals for the protection programs include: zero recordable injuries, zero vehicle accidents, incident or traffic violations and zero recordable spills ensure prompt and proper recording of all regulatory forms.
- During the audit, KM-Cochin provided screen shots demonstrating that its corporate goals were related to department, local and individual goals which include the performance of the required number of patrols. These goals are communicated to staff on its Operations and Compliance Goals on the KM Intranet.

Conclusion

The audit verified that KM-Cochin has G.O.T.'s that are specifically linked to its patrol activities at the departmental level. Based on the review conducted and considering the scope of this audit, the Board did not identify any issues of non-compliance in relation to sub-element 1.2 – Goals, Objectives and Targets.

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.

References:

OPR sections 6.3, 6.4, 6.5 (c), (j), (k), (l)
CSA Z662-15 3.1.2 (b), (c)

NEB Assessment

The Board expects companies to follow 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.

Organizational Structure:

- During the audit, KM-Cochin provided their organizational structure demonstrating the line of sight from the AO to the accountable person(s) responsible for the patrol program for Cochin. KM-Cochin's ROW Specialist and Sr. Supervisor for the Cochin line are primarily responsible for patrol activities.

Job descriptions (Roles and Responsibilities):

- During the audit, KM-Cochin provided its organizational structure to demonstrate the line of sight from the AO to the patrol activities for the Cochin system. According to the documentation, KM-Cochin's ROW Specialist and Sr. Supervisor for the Cochin line are responsible for managing patrol activities.

The Board expects that companies have a documented structure that enables it to communicate the roles, responsibilities and authority of the officers and employees at all levels. Although it was able to provide a job description for the Senior Right of Way Specialist, KM-Cochin confirmed that it does not have documentation such as job descriptions for the field staff conducting patrols; therefore it could not demonstrate that staff were being made aware of their duties as they relate to patrols.

In assessing the communication and understanding of roles within the organization, the Board discussed roles related to patrols during interviews with staff. While the majority of staff understood patrols and related activities such as the procedure for reporting unauthorized activity, two of the four Pipeline Technicians interviewed were aware that ground patrols were a potential method used by KM-Cochin to conduct ROW patrols. KM-Cochin did not provide a consistent method for the communication of roles, such as job descriptions, for its field staff conducting patrols.

In order to confirm and assess their awareness of tasks, Pipeline Technicians are questioned during the annual review of all applicable Land Operations & Maintenance procedures. This review requires Pipeline Technicians to sign off once they have reviewed 86 procedures including the Patrolling and Leak Detection procedure. During the audit, however, KM-Cochin did not provide records to demonstrate that this procedural review had occurred.

Aside from the training material for aerial patrollers discussed in sub-element 3.4 of this report, KM-Cochin did not provide documentation demonstrating that it communicates its expectations to its contractors who conduct the aerial patrols.

Allocation of resources:

Along with a documented organizational structure, the Board expects companies to demonstrate an ongoing ability to sustain its activities including patrols. The Board requires that companies demonstrate that the human resources required for establishing and maintaining its activities are sufficient to meet operational and regulatory requirements based on an annual documented evaluation of need.

For patrol activities, KM-Cochin provided its "Plus One" business case for employees as the demonstration of its evaluation of need for ROW maintenance which includes patrols. The email provided includes: Cochin Canada Headcount, technician distribution, number of pump stations,

area distance, area boundaries, location of technicians, and required on-call personnel. According to the documentation, KM Cochin also includes overtime hour, pump hours and One-Call activity to assess staff levels.

Based on the interviews and the documentation reviewed, the Board is of the view that KM-Cochin demonstrated it has been conducting its evaluations of resource levels for patrols activities.

Conclusion

The audit verified that KM-Cochin has an organizational structure that meets the above expectations for its patrol activities. However KM Cochin did not demonstrate that it has a consistent method to communicate staff roles and responsibilities as required by OPR s. 6.4(b). Therefore, the Board requires KM-Cochin to develop a CAP to address this deficiency.

3.0 IMPLEMENTATION

3.1 Operational Control-Normal Operations

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

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

References:

OPR sections 39, 6.5(1)(e), (f), (q)
CSA Z662-15 clauses 3.1.2(f), 10.6.1, 10.6.1.2, 10.6.2

NEB Assessment:

Patrols:

The Board requires that companies have an established, implemented and effective process for developing and implementing corrective, mitigative, preventive and protective controls associated with the hazards and risks. The scope of this audit is limited to the assessment of patrol activities, and based on the information provided during interviews and related document review.

- KM-Cochin provided its *L – O&M 215 - Patrolling and Leak Detection* procedure that outlines the inspection intervals and high level objectives of the patrol activities. According to the document, the Kinder Morgan standard dictates that patrols are to be conducted a minimum of 26 times per calendar year with no longer than 3 weeks between patrols. Also, it states that an aerial patrol pilot or KM-Cochin representative is required to report each “unusual incident” verbally as soon as possible and document observations on the appropriate Pipeline Patrol Report.
- The audit noted that this procedure does not include details for regional practices such as the specific contact for this report, or a phone number or radio channel to call.
- The KM-Cochin ROW Specialist monitors Flight Tracker database to determine if patrols are close to exceeding the max patrol frequency of 21 days and will discuss potential need for a ground patrol with local Operations Management. The Flight Tracker database is also used to monitor issue resolution. The ROW Specialist reviews the follow-up activities with KMOC system to ensure patrol observations are updated.
- The Board notes that KM-Cochin’s issue follow-up practices are not documented in a work instruction or reflected in the “Specialist – Right of Way SR” job description provided.

Sign maintenance and vegetation management:

- KM-Cochin’s Patrolling and Leak Detection procedure also requires that ROW inspections document excessive vegetation and missing or damaged signs. In addition, its ROW signage guidelines are outlined in the *L-O&M 205 – Pipeline Markers, Signs and Cover*. Although, the KM-Cochin’s procedure indicates that patrols should identify signage issues, KM-Cochin did not indicate how its aerial patrol was identifying signage issues. KM-Cochin did not provide aerial patrol reports to demonstrate that aerial patrol had identified damaged or faded signs. In addition, KM-Cochin did not present an alternative patrol method that it used to verify that its ROW signage was meeting its internal standards.
- During the interviews, KM-Cochin indicated that it had replaced several signs in multiple areas due to fading. However, the percentage and location that these signs were replaced was not tracked or documented, and no documentation was presented to confirm these activities.

Conclusion

The audit verified that KM-Cochin has a procedure for right of way maintenance that includes patrols activities. Through the audit, the Board noted that KM-Cochin conducts a number of ROW maintenance activities by practice and without documentation and cannot demonstrate it has 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. Therefore, the Board requires KM-Cochin to develop a CAP to address this deficiency.

3.2 Operational Control-Upset or Abnormal Operating Conditions

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

References:

OPR sections 6.5(1)(c), (d), (f), (t)
CSA Z662-15 clauses 3.1.2 (f)ii, h)vi

NEB Assessment:

- Given the scope of this audit is patrol activities, the Board’s review of this sub-element were limited to considering the role of patrol activities during upset conditions. Considering that patrol activities are only relied on for the identification of potential upset conditions, the Board verified that KM-Cochin has established their databases for reporting incidents, staff report in Kinder Morgan Emergency Response Line (ERL) and incidents or events are reported through Impact.
- KM-Cochin has provided its Aerial Patrol Training and L-O&M 215 procedure for review. The aerial patrol training contains “aerial patrol codes” with descriptors. Code 1, 2 and 3 define high priority encroachment items. Kinder Morgan’s Aerial Patrol Training/Review” package states, “*Pilots will contact someone on the ground*” when high priority events are encountered.

The procedure does not define any high priority events or descriptors for reporting emergencies, but it states, “*immediately communicate any conditions found requiring immediate attention*”. This procedure also requires the pilot or KM representative to report each unusual incident by direct verbal contact as soon as possible and document observations on the appropriate Pipeline Patrol Report.

- Interviews indicated that the practice currently being followed by KM-Cochin is to report emergencies to the Kinder Morgan control center in Houston. KM-Cochin provided its “Emergency Condition Reported by Telephone” report dated 09/02/2016 as evidence that

this practice is being followed. The report was generated by KM- Cochin aerial patrol pilot in Saskatchewan and received by Kinder Morgan control Room personnel in Houston.

- The Patrolling and Leak Detection procedure indicates that the ROW shall be inspected by an aerial patrol pilot or KM representative at intervals not to exceed 3 weeks, and at least 26 times per calendar year and that the inspection will be performed. During interviews, KM-Cochin indicated that ground patrols may be conducted by company representatives as a contingency measure if the aerial patrol cannot be completed due to inclement weather.
- The audit verified that KM-Cochin maintains a database to manage the reporting of emergency events and that there is a practice of contacting the KM control center for emergencies that is not established in its procedures or training for upset and abnormal conditions.

Conclusion

The audit verified that Cochin is reporting emergency events and that there is a practice of contacting the KM control center for emergencies. However, KM-Cochin was unable to provide documentation, procedures or training. Therefore, the Board requires KM-Cochin to develop a CAP to address this deficiency in relation to OPR s. 6.5(1) (e).

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.

References:

OPR s. 6.5(1)(i)

CSA Z662-15 clause 3.1.2 (g)

NEB Assessment:

As evidence of its Management of Change process, KM-Cochin provided the following:

- L-O&M 155 – Management of Change procedure
- KM-Cochin's Regulatory Update and Verification Policy

KM-Cochin 's Management of Change procedure indicates its scope to include “*managing technical, physical, procedural, administrative and organizations changes, whether permanent or temporary, that affect a facility's safe operation, integrity, or an employee's understanding of a process or procedure*”.

In order to identify changes to legal requirements, KM-Cochin has established a “Regulatory Update and Verification Policy” which outlines the identification, communication and verification of changes in applicable regulatory requirements. During interviews, KM-Cochin stated there is a Monthly Regulatory Verification (MRV) committee, consisting of subject matter experts, who evaluate and determine impacts of regulatory changes. This committee provides feedback and may initiate a review by technical specialists for the consideration of a committee that assesses impacts on the business units.

The Board requested the following documentation as evidence that these procedures have been established:

- Documentation from the MOC process specific to the changes in the DPRs
- Evidence of internal communication reflecting the changes in the DPRs
- Updated documentation reflecting changes to the DPRs

KM-Cochin did not provide any documentation to demonstrate that it has implemented an MOC process that has been applied to its patrol activities.

Conclusion

The audit verified that KM-Cochin has not provided support documentation to demonstrate it has a Management of Change (MOC) process that was applied to patrol activities and the changes in the Damage prevention regulations. Therefore, the Board requires KM-Cochin to develop a CAP to address this deficiency in relation to sub-element 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.

References:

OPR sections 6.5(1)(j), (k), (l), (p), 46
CSA Z662-15 clause 3.1.2(c)

NEB Assessment:

The Board requires companies to have processes 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. Given that patrol activities are the scope of this audit, the Board focused its assessment of the training program and competency evaluations on the expectations for staff and contractors who conduct patrols.

ROW Patrols:

- KM-Cochin provided sign-in sheets to demonstrate it conducts Pilot training with its contract pilots annually. This training includes the review of the “Kinder Morgan Yearly – Aerial Patrol Training/Review” material. This training is given solely to the contractor pilots who conduct patrols on behalf of KM-Cochin.
- During interviews, KM-Cochin indicated that Pipeline Technicians have the potential to conduct patrols as a contingency when aerial patrol cannot be completed due to poor weather. KM-Cochin stated that Pipeline Technicians received - Operator Qualification training (OQ training) which qualifies them to conduct ground patrols. The table of contents for its ROW Protection Training from August 2008 included:
 - Overview of ROW responsibilities;
 - Damage Prevention/Public Education; and
 - Various procedure numbers

The training material was not provided and therefore the audit could not verify if the training meets the expectations as required by the regulations.

- KM-Cochin also provided a blank template documents for – “Covered Task 104.05 – Inspect surface conditions of right-of-way” performance evaluation and skill checklist. Revised in 2004 and 2006 respectively. These documents were not referenced in the ROW Protection Training table of contents so it is unclear whether or not KM-Cochin Pipeline Technicians receive this training as part of their competency training to conduct patrol activities. The Board also recognizes that the request to provide “completed” training and competency evaluations of personnel was not provided and therefore it cannot determine if OPR sections 6.5(1)(l) is being met.

ROW maintenance training requirements and responsibilities:

The OPR section 6.5(1)(l) requires an established and implemented process for making employees and other persons working with or on behalf of the company aware of their responsibilities in relation to the processes and procedures required by this section.

- The Board notes that KM-Cochin did not provide its training matrix, job descriptions or other documentation that defines training requirements to perform patrols.

ROW training and competency - Environment:

The Board is of the view that, in order for companies to meet the requirements of CSA that Environmental training is mandatory for staff and contractors who conduct patrols to ensure that they are able to identify conditions as listed in CSA Z662-15 10.6.1.2 or environmental hazards identified along the right of way.

- KM provided its site-specific procedure, “*Adapted Weed Management Plan for Kinder Morgan Cochin ULC*”. The purpose of this procedure is to, “address long term weed monitoring and control procedures, decision criteria and accountabilities and responsibilities for the operations phase of the Cochin Canada pipeline system”.

The Board notes KM-Cochin did not provided any documentation as evidence of environmental training completion by those responsible for conducting specified patrols to enable employees/ contractors to identify environmental issues on ROW patrols.

The Board also recognizes that this procedure is not included in the list of procedure’s that are reviewed by Pipeline Technicians annually (Procedures Review Form). No records were provided to demonstrate who reviews this procedure or who evaluates competency on this procedure.

Training and competency verification:

The OPR section 6.5(1)(k) requires that companies have an established and implemented 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.

- During interviews KM-Cochin indicated that it conducts annual training with the contract Aerial Patrol pilots, however they do not complete an assessment of learning or competency evaluation.

- KM-Cochin provided a job description for its “Specialist – Right of Way SR” which outlined duties and responsibilities including, “Assess the competence of ROW personnel, including both evaluation of ROW personnel’s understanding of associated procedures and performance of associated duties. This will be accomplished by conducting periodic formal, supervisory “ride-alongs’ as well as through day-to-day interfacing and associated evaluation of ROW personnel”. The Board noted that KM-Cochin did not provide any records to demonstrate that these evaluations have occurred for patrol activities.

[REDACTED]

- [REDACTED]

Conclusion

KM-Cochin did not demonstrate that it has developed and implemented a process for identifying, tracking and managing training for staff and contractors conducting patrols. In addition, the Board could not confirm that its training provides patrol staff and contractors with the adequate awareness to identify the issues as listed in CSA. The Board also found that KM-Cochin has not established and implemented a process for identifying and verifying competencies of its contractors with respect to its patrol activities. As a result, the Board finds KM-COCHIN in non-compliance with the NEB OPR s. 6.5(1)(j), (k), (l), (p), and CSA Z662-15 clause 3.1.2(c). The Board requires KM-Cochin to develop a corrective action plan to address the described deficiencies.

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.

References:

OPR sections 6.5(l), (m), (q)
CSA Z662-15 clauses 3.1.2d), g)(v)

NEB Assessment

During the audit, KM-Cochin did not provide documentation or records to demonstrate that it has documented external and internal processes for communicating information relating to its

ROW maintenance and surveillance program. Internal communication at KM-Cochin is largely informal and KM-Cochin did not provide a communication plan was provided to indicate how safety, security and environmental information is communicated throughout the company.

KM-Cochin conducts weekly and monthly safety meetings. KM-Cochin was able to demonstrate that it communicated the DPR in May 2016 through a view of the meeting minutes from the monthly safety meeting.

The Board notes that KM-Cochin did not provide a process describing how it notifies patrol contractors of procedural changes.

Conclusion

While KM-Cochin demonstrated that there is communication of issues related to damage prevention from the patrollers to the programs as well as from the programs to the patrols, it did not demonstrate that this communication was occurring as the result of a documented communication plan.

Based on the Board's evaluation of KM-Cochin's communication practices against the requirements and the scope of this audit, the Board has determined that Cochin is non-compliant with NEB OPR s. 6.5(1)(m). KM-Cochin will have to develop corrective actions to address the described deficiencies.

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.

References:

OPR sections 6.5(1)(i), (n), (o), 6.5(3)
CSA Z662-15 clause 3.1.2 (e)

NEB Assessment

The Board expects companies to 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. Due to the scope of this audit, the Board focused its review on the examination of procedures and templates related to patrol activities.

During the audit, KM-Cochin did not provide a company process outlining how it prepares, reviews, revises and controls documentation such as procedures and templates. KM-Cochin procedures are available through the KM intranet and on local drives. Procedures on the intranet are corporate procedures; those maintained on the local drives are “site specific” procedures.

KM-Cochin makes its procedures available through an intranet and on local drives. Procedures on the intranet are corporate procedures and procedures maintained on the local drives are “site specific” procedures.

By practice, site specific procedures are reviewed annually. KM-Cochin provided blank templates of procedures to be reviewed and maintained annually, but did not provide evidence that supported “completion” of these reviews.

KM-Cochin provided L-O&M 2000 – Site Specific procedure. The scope of this procedure is to *“allow site specific procedures to be written to address site specific operating and maintenance needs. They conform to federal, state and local environmental, safety and health regulations and fulfill Department of Transportation, Occupational Safety and Health Administration and KM-Cochin requirements”*. This procedure stipulates that site specific procedures be reviewed and approved by local management. The audit notes that this procedure did not clearly define, if, or by whom the site-specific procedure is reviewed to ensure they are in-line with and approved by corporate office and the accountable officers’ direction.

KM-Cochin was not able to demonstrate “how” document control is established and implemented.

During interviews, KM-Cochin indicated that a review of the new DPRs was conducted and it was determined that no immediate changes were required to maintain compliance. KM-Cochin did not provide any evidence to support that this review and gap analysis were completed.

KM-Cochin did not provide documentation to verify that regulatory changes, such as changes to the DPRs, triggered a review of its procedures.

Conclusion

Based on the Board's evaluation of KM-Cochin's Document Control process, the Board has determined that KM-Cochin is non-compliant with the NEB OPR sections 6.5(1)(i), (n), (o), 6.5(3) and CSA Z662-15 clause 3.1.2 (e). KM-Cochin will have to develop corrective actions to address the described deficiencies.

4.0 CHECKING AND CORRECTIVE ACTION

4.1 Inspection, Measurement and Monitoring

See Appendix I – Pipeline Patrol Audit – for the evaluation of sub-element 4.1

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.

References:

OPR sections 6.5(1)(r), (s), (u), (w), (x), 52
DPR-O s.11

NEB Assessment

The Board expects companies to have an established, implemented and effective process for reporting on hazards, potential hazards, incidents and near-misses, and for taking corrective and preventive actions. Given the focused scope of this audit, the Board evaluated the processes described in the expectations for this sub-element only as they related to patrol activities.

Reporting on hazards, potential hazards, incidents and near-misses

Through document and record reviews, the Board confirmed that KM-Cochin's L-O&M 159 – Incident Reporting and Investigation procedure provides instructions for incidents involving employees, contractors, visitors, regulatory agency interactions, or assets. KM Cochin demonstrated its databases to manage the reports of incidents and emergencies. Potential emergency events are reported through the KM-Cochin Emergency Response Line (ERL) are managed through the Impact database. Interviews confirmed that staff and contractors who conduct patrols are aware of the procedures for reporting potential emergencies on the ROW.

In addition, KM-Cochin provided records of its follow-up on unauthorized activities. It also provided a report and the follow-up activities of a high priority event that was reported to the Houston control center.

Conclusion

The audit verified that KM-Cochin has an established process to evaluate and track issues to resolution that includes those issues identified by patrols. As a result, based on the scope of this audit and the information reviewed, the Board did not identify any areas of non-compliance with sub-element 4.2 Investigations of Incidents, Near-misses and Non-compliances.

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.

References:

OPR sections 6.1, 6.5(1)(w), (x), 40, 47, 48
CSA Z662-15 clauses 3.1.2 h(v), (vi), (vii)

NEB Assessment

The Board expects companies to have an implemented an 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. Considering the scope of this audit, the Board only evaluated the quality assurance program as it applies to the patrol activities.

During the interviews, KM-Cochin stated that patrol activities were not included as part of its internal audit program. Therefore, KM-Cochin could not demonstrate that its patrol activities had been the subject of a review for adequacy or effectiveness or as part of a quality assurance program.

Conclusion

The Board found that KM-Cochin has not established and implemented an effective quality assurance program for the management system and for each protection program, including a process for conducting regular inspections and audits that include patrols.

As a result, the Board finds KM-Cochin in non-compliance with NEB OPR s 6.5(1)(w). The Board requires KM-Cochin to develop a corrective action plan to address the described deficiencies related to its patrol activities.

4.4 Records Management

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

References:

OPR sections 6.1, 6.5(1)(p), 40, 47, 48
CSA Z662-15 clauses 3.1.2 (e) , 10.4.4.1

NEB Assessment

During the audit, KM-Cochin demonstrated that its flight patrol records are filed in the Flight Tracker database. Records related to its ROW activity such as third party permits, one-call request verifications, and patrol reports are managed in KMOC. The audit verified that the files included the assessment and photos of unauthorized activities reported by patrols as well as any follow-up that occurred.

Conclusion

The audit verified that KM-Cochin has an established process to manage records generated by its patrol activities. As a result, based on the scope of this audit and the information reviewed, the Board did not identify any areas of non-compliance with sub-element 4.4 Records Management.

5.0 MANAGEMENT REVIEW

5.1 Management Review

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

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

References:

OPR sections 6.1, 6.5(1)(w), (x), 6.6, 40, 47, 48
CSA Z662-15 clause 3.1.2 (h)(vii)

NEB Assessment

The Board expects companies to have an established, implemented and effective process for conducting an annual management review of the management system and each protection program. Given that the scope of this audit is focused solely on patrol activities and its links to the management system.

During this audit, KM-Cochin provided excerpts from its Integrity Management Program's performance presentation to Senior Management which included third party damage as a threat and patrols as part of the damage prevention activities. This presentation also presented its percentage of employees who have attended ROW college and public awareness activities that have been conducted for the system.

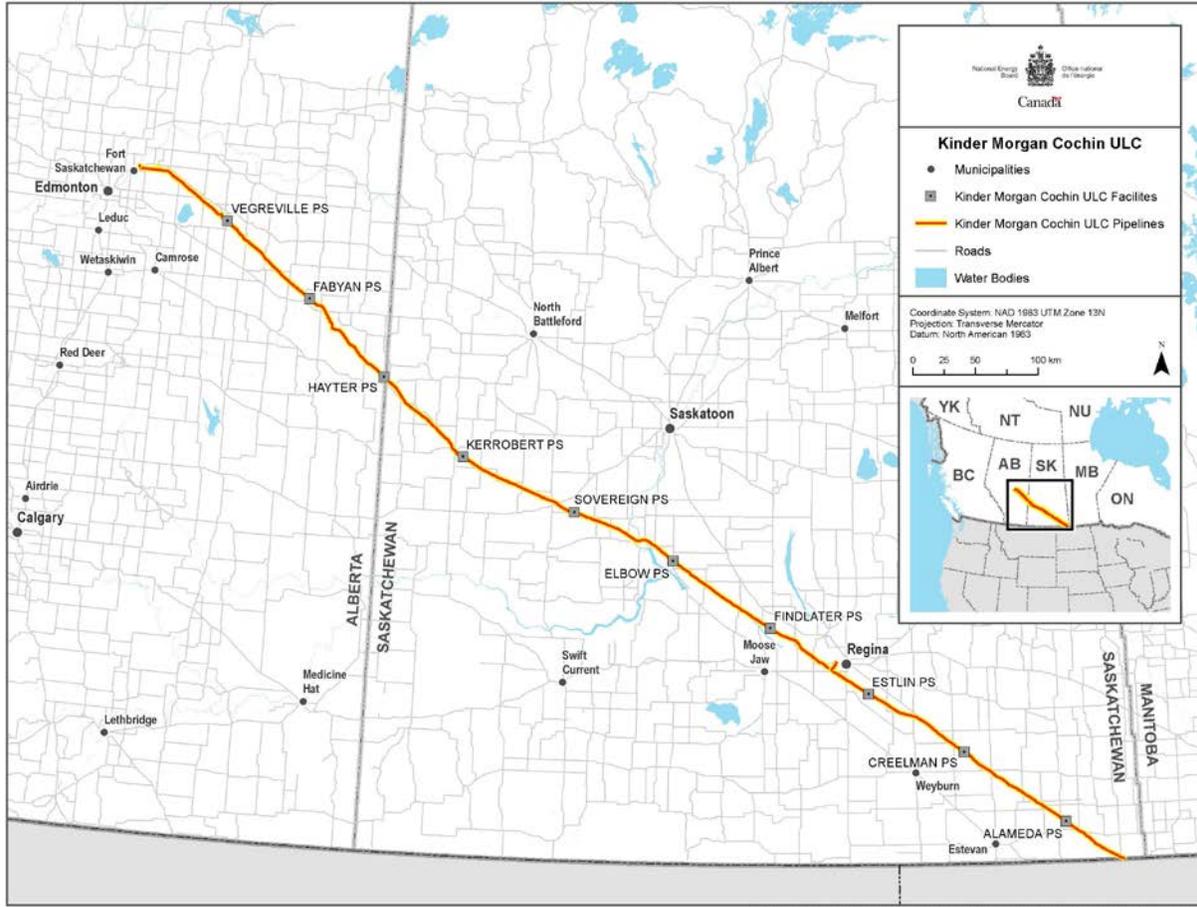
KM-Cochin did not provide evidence that patrol activities were contained in the annual report to the AO.

Conclusion

Based on the lack of information provided to demonstrate Management Review of patrol activities, the Board has determined that KM-Cochin is non-compliant with NEB OPR sections 6.1, KM-Cochin will have to develop corrective actions to address the described deficiencies.

APPENDIX III:

**KINDER MORGAN COCHIN ULC
MAPS AND SYSTEM DESCRIPTIONS**



The NEB regulated Cochin Pipeline (Cochin) system consists of a meter station; pump stations and transports condensate through 629 statute miles of pipe. Kinder Morgan Cochin moves product westbound from the Explorer pipeline in Kankakee County, IL through Regina, SK to Fort Saskatchewan, AB.

APPENDIX IV
KINDER MORGAN COCHIN ULC
COMPANY REPRESENTATIVES INTERVIEWED – Pipeline Patrol audit

Company Representative Interviewed	Job Title
██████████	Senior Supervisor, Operations Canada
██████████	Right of Way Specialist
██████████	Manager, Compliance Codes and Standards
██████████	Pipeline Technician/Apprentice Mechanic
██████████	Pipeline Technician
██████████	Pipeline Technician 2
██████████	Journeyman Pipeline Technician
██████████	Manager, Risk Management
Contractors	Company Name
██████████	Owner/Pilot, Westflight Aviation
██████████	Senior Pilot, Westflight Aviation

APPENDIX V
Kinder Morgan Cochin ULC
Documents Reviewed

Documents reviewed during audit by title or description:

- Accountable officer appointment letter sent to the Secretary of the Board
- KM Cochin – Environment, Health and Safety Policy
- KM Products Pipeline Operations management System – not on KM letter head, did not contain any signatures
- Email from Sr. Operations Supervisor from 29 April, 2015 – subject header: Justification for =1 for KRBT-SVRN-ELBW (A2)
- KM Code of Business Conduct and Ethics
- PowerPoint – Kinder Morgan Risk and Patrols
- Definitions for acronyms used in the “Preventive and mitigative measures document
- Pipeline System P&MM Analyses Sheet
- L-O&M 276 – Annual IMP Schedule procedure
- L-O&M 278 – Field Data Validation by SME’s procedure
- L-O&M 275 – Continuing Risk Analysis to Identify Preventive and Mitigative Measures
- Field Data Validation by SME’s Survey Sheets completed in 2016 for the following areas:
 - Alameda to US Border
 - Elbow to Estlin
 - Estlin to Alameda
 - Fabyan to Kerrobert
 - Fort Saskatchewan to Fabyan
 - Kerrobert to Elbow

- Kinder Morgan document outlining annual bonus funding targets. (This document did not have a title or document control number to reference)
- KM – Job Description – Specialist Right of Way SR
- Ticket Audit Report from 09/06/16 – initiated by contract patrol pilot.
- L-O&M 205 – Pipeline Markers, Signs and Cover procedure
- Emergency Condition Reported by Telephone – from Contractor patrol pilot on 09/02/2016
- L-O&M 155 – Management of Change procedure
- Kinder Morgan Regulatory Update and Verification Policy
- Screen shot showing acknowledgment that “Pipeline Damage Prevention Regulations now in force (National Energy Board)
- Screen shot of descriptor or Monthly Regulations Verification Regulatory Updates 9 This is a generic screen shot taken from KM-online under the EHS tab.
- Covered Task 104.05 – Inspect surface conditions of right-of-way Performance Evaluation Study Guide
- Blank template - Covered Task 104.05 – Inspect surface conditions of right-of-way Skill Checklist
- ROW Protection Training – Table of Contents
- Site-Specific Procedure – Adapted Weed Management Plan for Kinder Morgan Cochin ULC
- Blank template – Procedures Review Form
- Kinder Morgan Yearly – Aerial Patrol Training/Review presentation
- L-O&M 2000 – Site Specific procedure
- L-O&M 159 – Incident and Investigation Reporting procedure
- Kinder Morgan – Incident Reporting and Investigation SAF102ALL PowerPoint
- Incident Investigation Summary instructions (4 page document)

- L-O&M 215 – Patrolling and Leak Detection procedure
- L-O&M 100 – Employees’ O&M Responsibilities procedure
- List of Water Crossings for Cochin
- Letter regarding KM Cochin ULC’s Exemption Order MO-21-2010 update submittal
- Bullets providing stats on unauthorized activities – 3rd party activities for 2016