

National Energy  
Board



Office national  
de l'énergie

File OF-Surv-OpAud-E101-2014-2015 03  
31 March 2015

Mr. Guy Jarvis  
President, Liquids Pipelines  
Accountable Officer under the NEB Act  
Enbridge Pipelines Inc.  
3000 Fifth Avenue Place  
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Calgary, AB T2P 3L8  
Facsimile [REDACTED]

Dear Mr. Jarvis:

**Enbridge Pipelines Inc. (Enbridge) and its Board-Regulated Subsidiaries – *National Energy Board Onshore Pipeline Regulations, (OPR) Final Audit Report – Third Party Crossing Program***

The National Energy Board has completed its Final Report for its audit of Enbridge's Third Party Crossing Program.

A Draft Report documenting the Board's evaluation of Enbridge's Third Party Crossing Program was provided to Enbridge on 4 February 2015 for review and comment. On 6 March 2015, Enbridge submitted its response.

The Board has considered Enbridge's comments and has made changes to the Final Audit Report and its Appendices as it determined to be appropriate.

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

- *National Energy Board Act;*
- *National Energy Board Onshore Pipeline Regulations;*
- *National Energy Board Pipeline Crossing Regulations, Parts I and II; and*
- Enbridge's policies, programs, practices and procedures.

Enbridge was required to demonstrate the adequacy and effectiveness of the methods selected and employed within its Programs to meet the regulatory requirements listed above.

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The Board has enclosed the Final Audit Report and associated appendices with this letter. The Board will make the Final Audit Report public on the Board's website.

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

The Board will make the CAP public and will continue to monitor and assess all of Enbridge'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 Enbridge's Third Party Crossing Program and management system through targeted compliance verification activities as a part of its on-going regulatory mandate.

If you require any further information or clarification, please contact Ken Colosimo, Lead Auditor, Operations Business Unit at 403-292-4926 or toll-free at 1-800-899-1265.

Yours truly,

*Original signed by*

Sheri Young  
Secretary of the Board

Attachment – Final OPR Audit Report documents

c.c. Mr. Al Monaco, President and CEO, Enbridge Inc.

National Energy  
Board



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***National Energy Board Onshore Pipeline Regulations (OPR)***  
**Final Audit Report of the Enbridge Pipelines Inc. Third Party Crossings Program**

**File OF-Surv-OpAud-E101-2014-2015 03**

Enbridge Pipelines Inc. and National Energy Board-Regulated Subsidiaries (Enbridge)  
3000 Fifth Avenue Place  
425 -1st Street S.W.  
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31 March 2015

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## Executive Summary

Companies regulated by the National Energy Board (NEB or the Board) must demonstrate a proactive commitment to continual improvement in safety, security and environmental protection. Pipeline companies under the Board's regulation are required to incorporate adequate, effective and implemented management systems into their day-to-day operations. These systems and associated technical management programs include the tools, technologies and actions needed to ensure NEB regulated pipelines are safe and remain that way over time. In the public interest, the Board holds companies accountable for safety and environmental outcomes.

This report documents the Board's comprehensive audit of Enbridge's Third Party Crossings (Crossings) program as it applies to its NEB-regulated subsidiaries and pipeline facilities. The audit was conducted based on the requirements contained within the *Pipeline Crossings Regulations* (PCR), Canadian Standards Association (CSA Z662-11) as well as the *National Energy Board Onshore Pipeline Regulations* (OPR) as amended on 21 April 2013. The Board has incorporated these requirements within its audit protocol expectations.

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

The Board notes that the companies it regulates must establish and implement documented management systems and apply them to the programs as described within the OPR as well as their Crossings and Public Awareness programs. The specific management system requirements are described within section 6 of the OPR and within the referenced CSA standard Z662, *Oil and Gas Pipeline Systems* in clause 3.1 *Safety and Loss Management System*.

In reviewing the results of Enbridge's Crossings program audit the Board notes that Enbridge did not demonstrate it had developed and implemented a compliant management system that directly applies to this program. Enbridge did not provide evidence of an organized structure that was specifically designed, implemented and managed to meet the regulatory requirements. The Board notes that the Crossings program management system requirements can be met by being directly subsumed within the programs referenced in the OPR or as part of a documented Safety and Loss Management System compliant with clause 3.1 of CSA Z662 *Oil and Gas Pipeline Systems*. The Board did not see evidence that Enbridge had implemented either approach. Further, the Board notes that the requirements to have a documented, implemented and maintained Safety and Loss Management System are not new.

In addition to the lack of management system implementation, Enbridge did not demonstrate that its Crossings program had been the subject of an appropriate audit, as required, at any time. The Board is of the view that its management system deficiency and others identified could have



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been prevented if Enbridge's management had ensured that all of its activities were subject to routine, scheduled audits.

The Crossings program is part of Enbridge's Land Services department. During the audit, Enbridge provided evidence that it was in the process of applying its Integrated Management System to its Lands Services department. Enbridge demonstrated that some of the required processes had already been integrated into its program management activities; however, at the time of the audit, the Integrated Management System had not been fully documented, established or implemented for the Lands Services programs. Enbridge will need to develop and implement corrective actions to ensure establishment and implementation of a compliant management system.

It is important to understand that the Board's finding regarding Enbridge's management system primarily reflects the company's stage in developing and applying its management system. It does not necessarily reflect the lack of technical management activities being undertaken to ensure the safety of the pipeline. The Board found that, regardless of the lack of a compliant management system, Enbridge had developed and implemented a Crossings program that was addressing the majority and most significant of its hazards, and the majority of its regulatory requirements.

The Board has made a significant number of Non-Compliant findings. The Board's analysis of these findings indicates that most of the non-compliances relate to the establishment and implementation of the management system processes and consequently its Safety and Loss Management System. All of the Board's findings are documented in Appendix I of this audit report.

The Board found that the majority of the Non-Compliant findings fall into two general categories:

- lack of integration of its Crossings program into the overall operational oversight management system processes; and
- lack of implementation of management system sub-elements consistent with the Board's expectations.

The Board has determined that no enforcement actions are immediately required to address the Non-Compliant findings identified in this audit. Within 30 days of the Final Audit Report being issued, Enbridge must develop and submit a Corrective Action Plan for Board approval. The Corrective Action Plan must detail how Enbridge intends to resolve non-compliances identified by this audit. The Board will assess the implementation of the corrective actions to confirm they are completed in a timely manner and applied consistently across Enbridge's regulated system. The Board will also continue to monitor the overall implementation and effectiveness of Enbridge's Management systems through targeted compliance verification activities as a part of its ongoing regulatory mandate.



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## 1.0 Audit Terminology and Definitions

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

**Adequate:** The management system, programs or processes 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.



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**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.

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**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.*

## 2.0 Abbreviations

CAP: Corrective Action Plan

CLC: *Canada Labour Code Part II*

COHSR: Canada Occupational Health and Safety Regulations

CSA Z662-11: CSA Standard Z662 entitled *Oil and Gas Pipeline Systems*, 2011 version

Enbridge: Enbridge Pipelines Inc. and its NEB-regulated subsidiaries

GOT: Goals, Objectives and Targets

MOC: Management of Change

NEB: National Energy Board

OMM: Operations Maintenance Manuals

OPR: *National Energy Board Onshore Pipeline Regulations*

PA: Public Awareness

PLM: Pipeline Maintenance

ROW: Right-of-Way

TALL: Transmission Advanced Line Locating

### 3.0 Introduction: NEB Purpose and Framework

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

To achieve compliance, regulated companies must demonstrate established, implemented, adequate and effective methods for identifying and managing its hazards and risks. The Board reviews the documented compliance and incident history of the company. This review determines the appropriate scope for the audit. During the audit, the Board reviews documentation and some company records, and interviews of both corporate and regionally-based staff.

The Board also conducts separate but linked technical inspections of a representative sample of the company's facilities to evaluate the adequacy, effectiveness and implementation of the management system and programs. The Board bases the scope and location of the inspections on the needs of the audit. The inspections follow the Board's standard inspection processes and practices. Although they inform the audit, inspections are considered independent of the audit. If unsafe or non-compliant activities are identified during an inspection, they are actioned in accordance with the Board's standard inspection and enforcement processes to ensure ongoing safe operation.

After completing its field activities, the Board develops and issues a Final Audit Report. The Final Audit Report outlines the Board's audit activities, provides an evaluation of the company's management system and programs, identifies deficiencies and communicates compliance findings. The audit report follows the format of the Board's published Audit Protocol. Once the Board issues the Final Audit Report, the company must submit and implement a Corrective Action Plan to address all Non-Compliant findings for Board approval. Final Audit Reports are published on the Board's website. The audit results are integrated into NEB's risk-informed lifecycle approach to compliance assurance.

### 4.0 Background

Enbridge operates approximately 10,733 km of pipeline in six Canadian provinces and territories. These pipeline facilities include pump stations, tankage and associated operational assets. All of these facilities are within the definition of a "pipeline" as included in the NEB Act.

Enbridge also has a considerable amount of non-federally regulated infrastructure in Alberta and across the United States, which complete its North American system. Enbridge's system allows it to transport liquids from northern and western Canada to end-users in the Eastern regions of Canada and the United States. In order for Enbridge to operate its pipelines effectively, it has developed a management structure that reflects its safety and security management, and environmental obligations, as well as its corporate, national, regional and international needs. Enbridge Pipelines Inc. controls and uses several entities that hold NEB-issued certificates for operating in Canada. The entities included within the scope of this audit are identified in Section 5.0, Audit Objectives and Scope of this report.

During audit planning, company staff indicated that Enbridge and its subsidiaries operate the pipelines and facilities using a common management system and technical programs. In order to effectively evaluate compliance of such an expansive system within a reasonable timeframe, the Board chose to conduct individual, comprehensive audits of Enbridge's required technical programs and management system. This report documents one of six management system and program audits. The audits are titled:

- *Enbridge Integrity Management Program Audit;*
- *Enbridge Safety Management Program Audit;*
- *Enbridge Environmental Protection Program Audit;*
- *Enbridge Emergency Management Program Audit;*
- *Enbridge Third-Party Crossings Program Audit; and*
- *Enbridge Public Awareness Program Audit.*

## **5.0 Audit Objectives and Scope**

The objective of the audit was to determine the establishment and implementation of Enbridge's management system, and the adequacy and effectiveness of its Crossings program. Enbridge was audited against the requirements contained within the following:

- *The National Energy Board Act;*
- *The National Energy Board Onshore Pipeline Regulations;*
- *The Canada Labour Code, Part II (CLC);*
- *The Pipeline Crossings Regulations Part I and Part II;*
- *The Safety and Health Committees and Representatives Regulations;*
- *Canadian Standards Association (CSA) Z662 – 11 – Oil and Gas Pipeline Systems; and*
- *Enbridge's policies, programs, practices and procedures.*

This audit was conducted using the National Energy Board Onshore Pipeline Regulations (OPR) as amended on 21 April 2013. This amendment clarified the Board's expectations for establishing and implementing a documented management system applicable to specified programs. Crossings programs are not referenced directly within the OPR; however, the content addressed by Crossings programs is considered to be subsumed within the integrity, environmental and safety management programs. Before issuing the amendment, the Board consulted and communicated its regulated companies with respect to the new requirements;

therefore, an implementation grace period was not given when the OPR was promulgated. As a result, when evaluating compliance, this audit did not consider any extra time Enbridge may have needed to implement changes.

As noted, Enbridge Pipelines Inc. companies hold a number of certificates to operate in Canada. The Board has included the following companies within the scope of this audit:

- Enbridge Pipelines Inc.;
- Enbridge Bakken Pipeline Company Inc. on behalf of Enbridge Bakken Pipeline Limited Partnership;
- Enbridge Southern Lights GP Inc. on behalf of Enbridge Southern Lights LP;
- Enbridge Pipelines (NW) Inc.; and
- Enbridge Pipelines (Westspur) Inc.

For more Enbridge facility information, refer to Appendix II of this report.

## 6.0 Audit Process and Methodology

In undertaking this audit, the Board has applied its standard audit practice following its published protocols. The Board's standard practice and audit activities include:

- Formal notification of the Board's intent to audit by letter;
- Interactive planning processes with the company;
- Information gathering;
- Documentation and record review;
- Program presentations by company personnel and interviews with company personnel;
- Associated inspections and facility reviews;
- Close-out discussions and meetings;
- Developing and Issuing Draft Audit Report to Enbridge;
- Developing, finalizing and issuing the Final Audit Report;
- Reviewing and approving any required Corrective Action Plans;
- Reviewing implementation of Corrective Action Plans; and
- Issuing closure letters.

These audit activities allow the company to demonstrate the compliance and implementation of its management system and programs. Audits also allow the Board to evaluate the company with respect to: assuring compliance to regulatory requirements; and assuring appropriate safety, security and environmental outcomes as described in the Board's expectations.

As noted, Enbridge Pipelines Inc. operates an expansive liquids pipeline system using a common management system and Crossings program. Furthermore, Enbridge divides its Canadian assets into five operational regions: Northern Region, Western Region, Central Region, Southern Prairie Region and Eastern Region. The Board therefore developed its audit plan to evaluate Enbridge's Crossings program and to assure that it was appropriately managed and applied to all of its regulated facilities regardless of location. To this end, the Board conducted interviews,

inspections and documentation and record reviews in each region as well as the Edmonton office. The Board requires that any audit Non-Compliant findings made and corrective actions implemented as a result, must be applied across all of Enbridge's Board regulated systems and subsidiaries.

## 7.0 Audit Activities

The Board informed Enbridge Pipelines Inc. of its intent to audit its NEB regulated facilities in a letter dated 19 December 2013. Following the issuance of this letter, Board audit staff met with Enbridge staff on a regular basis to arrange and coordinate this audit. The Board also provided Enbridge with an information guidance document to help Enbridge prepare for the audit, and provide access to documentation and records to demonstrate its compliance. Enbridge established a digital access portal for Board staff to review documentation and records.

On 5 May 2014, an opening meeting was conducted with representatives from Enbridge in Edmonton, Alberta to confirm the Board's audit objectives, scope and process. The opening meeting was followed by Edmonton office interviews from 5 to 16 May 2014, and various field level audit activities as described in the table below. Throughout the audit, Board audit staff gave Enbridge daily summaries with action items.

On 21 and 22 October 2014, the Board held an audit pre-close-out meeting with Enbridge. At this meeting Board staff and Enbridge staff discussed potential deficiencies identified during field activities and discussed additional information that could be of value to the Board prior to compiling its draft audit report. An audit close-out meeting was held on 17 December 2014 to provide Enbridge with a description of the recommendations that staff would be bringing to the Board for decision.

<b>Crossings Program Audit Office and Field Activities</b>
<ul style="list-style-type: none"> <li>• Audit Opening Meeting (Edmonton, AB) – 5 May 2014</li> <li>• Edmonton Office Interviews (Edmonton, AB) – 5-16 May 2014</li> <li>• Field verification activities for the Audit:               <ul style="list-style-type: none"> <li>• Interviews – Sherwood Park, AB – 26-30 May 2014</li> <li>• Interviews – Regina, SK and Estevan, SK – 9 -13 June 2014</li> <li>• Interviews – Sarnia, ON - 23-27 June 2014</li> <li>• Inspection – Toronto, ON area - 8-10 July 2014</li> <li>• Inspection – Montreal, QC area - 10-11 July 2014</li> <li>• Inspection – Regina – Estevan, SK- Cromer MB - 18-21 August 2014</li> <li>• Aerial patrol – Sarnia, ON to Montreal QC - 4 September 2014</li> </ul> </li> <li>• Edmonton Office Interviews (Edmonton, AB) – 14-17 October 2014</li> <li>• Audit Pre-Close-Out Meeting of Information Gaps (Edmonton, AB) – 21-22 October 2014</li> <li>• Audit Close-Out Meeting (Edmonton, AB) - 17 December 2014</li> </ul>



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## 8.0 Management System Evaluation

The Crossings program activities are required to be formally managed within a documented and implemented management system. The Board notes that this program requires the development and implementation of a documented management system either directly subsumed within the management system and the applicable programs described in the OPR or as part of a documented Safety and Loss Management System required by clause 3.1 of CSA Z662 *Oil and Gas Pipeline Systems*.

The Board's management system requirements are found in section 6 of the OPR and within the referenced CSA Z662 *Oil and Gas Pipeline Systems* clause 3.1 *Safety and Loss Management System Management System*. The Board notes that Crossings programs are not specifically referenced within section 55 of the OPR and therefore are not subject to the same organizational requirements as other referenced programs.

The Board found that, while Enbridge has demonstrated that it is in the process of applying its Integrated Management System to its Lands Services functions and has accounted for many of the processes described within the Board's protocol and the legal requirements, it did not demonstrate that it has developed and implemented a documented management system that meets the Board's requirements. Enbridge did not provide evidence of an organized structure that was specifically designed, implemented and managed to meet the regulatory requirements. Further, the Board notes that some of the key management system activities were not designed appropriately or were being undertaken as required. As examples, Enbridge's auditing practices were not designed in a manner that would require a full management system or compliance audit to be undertaken and this program had not been the subject of an audit to date.

The Board found Enbridge to be Non-Compliant with its requirements to develop, implement and maintain a documented management system. Enbridge will need to develop and implement corrective actions to ensure establishment and implementation of a management system.

The Board notes that it is important to understand that the Board's management system Non-Compliant finding reflects Enbridge's development and implementation of its management system. It does not necessarily reflect the lack of technical management activities being undertaken to ensure the safety of the public, workers or the environment.

## 9.0 Program Summary

NEB-regulated companies 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 safety management programs into their day-to-day operations. These programs must include the tools, technologies and actions needed to ensure that workers are safe.

The Board found that Enbridge has established and implemented a Crossings program to manage third party excavation and construction work near its facilities. This program is comprised of the administrative function of managing the applications and ensuring that engineering reviews are conducted when required. The Crossings program also has a field component to conduct locates and supervise third party excavation and construction activities on the rights-of-way. Further, the Board found that Enbridge's Crossings program has been designed and implemented to reflect the requirements of the NEB Pipeline Crossings Regulations (PCR).

## **10.0 Summary of Audit Findings**

The Board's audit was conducted following its Audit Protocol, which identifies five Management System elements. These five elements are further broken down into 17 sub-elements. Each sub-element reflects a number of regulatory requirements. The NEB requires companies to be compliant with one hundred percent of the regulatory requirements of each of the Management System sub-elements being assessed. If a company's program is found to be deficient with respect to any regulatory requirement, the entire sub-element will be found in Non-Compliance. A Corrective Action Plan will be required in order to demonstrate to the Board that appropriate actions will be taken to achieve full compliance.

The following summary represents a high-level overview of the Board's audit findings for Enbridge's Crossings program based on information provided for the audit.

**Details of how each of the audited sub-elements impacts the Crossings program and a full description of the Board's assessment for each of its Management System sub-elements can be found in Appendix I of this report.**

### **Element 1.0 - Policy and Commitment**

#### **Sub-element 1.1 - Leadership and Accountability**

This sub-element of the audit requirements states that the company must appoint an Accountable Officer and notify the Board of the appointment.

Enbridge had submitted written notice to the NEB indicating that it had appointed an Accountable Officer. In its submission, Enbridge confirmed that its Accountable Officer had authority over the human and financial resources required to meet the Board's substantive expectations.

Based on the information provided by Enbridge, the Board has not identified any non-compliance issues. The Board has therefore assessed this sub-element as Compliant.

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## Sub-element 1.2 - Policy and Commitment Statements

This sub-element of the audit requirements states that the company must have documented policies and goals to ensure the safety and security of the public, workers, and the pipeline and ensure protection of property and the environment. Further, as these policies and goals are to be used to establish and implement the management and programs, the Board requires that the policies and goals be explicit from the perspective of design, content and communication.

The Board found that Enbridge had corporate and program level policies and goals that related to its Crossings program.

The Board also found that, notwithstanding the general policies developed, Enbridge did not demonstrate that it had a policy that explicitly describes internal reporting of hazards, potential hazards, incidents and near-misses and describes the conditions under which a person making a report will be granted immunity from disciplinary action that meets the Board's requirements.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

## **Element 2.0 – Planning**

### Sub-element 2.1 - Hazard Identification, Risk Assessment and Control

This sub-element of the audit requirements states that the company must have an established, implemented and effective process for identifying and analyzing all hazards and potential hazards, assessing the degree of risk associated with the hazards, and implementing control measures to minimize or eliminate risk.

The Board found that Enbridge demonstrated that it has established and implemented a Crossings/Damage Prevention program that incorporates a process for the identification of hazards and introduces controls as well as a process to evaluate the risk.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

### Sub-element 2.2 - Legal Requirements

This sub-element of the audit requirements states that the company must have an established, implemented and effective process for identifying and monitoring compliance with all legal requirements applicable to the company. Also, the company must maintain a list of the legal requirements that apply to it.

The Board found that Enbridge demonstrated that it was tracking, listing and communicating the majority of its legal requirements.

The Board also found that Enbridge's methods to monitor its legal requirements and compliance to them did not meet the Board's requirements.

The Board found that Enbridge's legal list was not maintained as a single list, was incomplete and was not kept at the level of specificity required to enable the company to ensure and monitor its compliance with the legal requirements.

The Board found that Enbridge had developed and implemented practices to communicate its legal requirements. The Board found one deficiency with Enbridge's communications practices with respect to its compliance practices. Enbridge did not demonstrate that it had an effective method for communicating new or revised legal requirements between the head office and regional field staff and consequently third-parties.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

#### Sub-element 2.3 - Goals, Objectives and Targets

This sub-element of the audit requirements states that the company must have an established, implemented and effective process for developing and setting goals, objectives and specific targets for the risks and hazards associated with the company's facilities and activities. The company must also have established policies and goals for the prevention of ruptures, liquid and gas releases, fatalities and injuries as required by OPR, section 6.3(1)(b).

The Board found that Enbridge had established processes for the development and implementation of Goals, Objectives and Targets that align with the Board's requirements.

The Board also found that Enbridge had not established explicit goals relating to prevention of ruptures, liquid and gas releases, fatalities and injuries the protection of the environment as required by the OPR. Further, while Enbridge demonstrated that it had developed management practices that correspond to the Board's requirements and had implemented initiatives to address the issues, Enbridge did not demonstrate that it had established specific objectives, targets or performance measures that ensure that it is meeting the outcomes required.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

#### Sub-element 2.4 - Organizational Structure, Roles and Responsibilities

This sub-element of the audit requirements states that the company must have a documented organizational structure that enables it to meet the requirements of its management system. The company must also complete an annual documented evaluation to demonstrate that there is adequate human resourcing to meet these obligations.

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The Board found that Enbridge had a documented organizational structure and communicates the roles responsibilities and authorities of the officers and employees at all levels of the company.

The Board found that Enbridge had established and implemented several mechanisms for reviewing its Crossings program workforce needs. The Board did not observe any issues related to insufficient resources during this audit.

The Board also found that Enbridge's evaluation of need practices did not specifically account for all staff with Crossings program responsibilities and, therefore, did not demonstrate that the human resources allocated to establishing, implementing and maintaining its management system and meeting its requirements are sufficient.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

### **Element 3.0 - Implementation**

#### **Sub-element 3.1 - Operational Control-Normal Operations**

This sub-element of the audit requirements states that the company must have an established, implemented and effective process for developing and implementing corrective, mitigative, preventive and protective controls for the hazards and risks identified in Elements 2.0 and 3.0.

The Board found that the Crossings program has incorporated the analysis of the hazards and risks associated with third party crossing applications within its program processes. In addition to the procedural controls introduced through the Crossings program, Enbridge's Damage Prevention group has developed and implemented various programs as controls to protect its facilities from potential damage that complement and support the Crossings program.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

#### **Sub-element 3.2 - Operational Control-Upset or Abnormal Operating Conditions**

This sub-element of the audit requirements states that the company must establish and maintain plans to identify the potential for upset or abnormal operating conditions, accidental releases, incidents and emergency situations.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

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### Sub-element 3.3 - Management of Change

This sub-element of the audit requirements states that the company must have an established, implemented and effective process for identifying and managing any change that could affect safety, security or protection of the environment.

While Enbridge has implemented some aspects of an MOC, it did not demonstrate that it has an established and implemented a process for identifying and managing any change that could affect safety, security or protection of the environment, including new hazards or risks, changes in design, specifications, standards or procedures, and change in the company's organizational structure or the legal requirements.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

### Sub-element 3.4 - Training, Competence and Evaluation

This sub-element of the audit requirements states that the company must have an established, implemented and effective process for developing competency requirements and training programs for its employees and contractors. These competency requirements and training programs must enable employees and contractors to perform their duties in a manner that is safe, ensures the security of the pipeline, and protects the environment.

The Board found that Enbridge had implemented an appropriate training and competency program for its staff who implement the Crossings program.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

### Sub-element 3.5 - Communication

This sub-element of the audit requirements states that the company must have an established, implemented and effective process for internally and externally communicating safety, security and environmental protection information.

The Board found that Enbridge had established an external communication plan that identified and applied to the appropriate stakeholders. Enbridge had developed and communicated messages relating to maintaining the safety and security of the pipeline and protection of the environment through its website, its Crossings procedures and agreements, and as part of its Public Awareness program.

The Board also found that, while Enbridge had been communicating internally, its practices were deficient. The Board found that Enbridge had not developed a communication plan that met the Board's requirements.

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Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

#### Sub-element 3.6 - Documentation and Document Control

This sub-element of the audit requirements states that the company must have an established, implemented and effective process for identifying and managing the documents required to meet the company's obligations for conducting activities in a manner that ensures the safety and security of the public, company employees and the pipeline, and that protects property and the environment.

The Board found that Enbridge had established and implemented a process for controlling its program documentation.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

### **Element 4.0 – Checking and Corrective Action**

#### Sub-element 4.1- Inspection, Measurement and Monitoring

This sub-element of the audit requirements states that the company must establish and implement an effective process for inspecting and monitoring its activities and facilities. This is so that the company can evaluate the adequacy and effectiveness of the protection programs and take corrective and preventive actions if deficiencies are identified.

The Board found that Enbridge has implemented an inspection program in accordance with the PCR, Part II relating to Crossings.

The Board also found that Enbridge did not demonstrate the effectiveness of the ROW patrol and other inspection practices based on reporting practice and observed signage deficiencies identified during Board inspections conducted in support of this audit.

Based on the Board's evaluation of Enbridge's management system and Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

#### Sub-element 4.2 - Investigating and Reporting Incidents and Near-misses

This sub-element of the audit requirements states that the company must establish and implement an effective process for reporting hazards, potential hazards, incidents and near-misses, and for taking corrective and preventive actions to address them. This includes investigating if the hazards, potential hazards, incidents and near-misses have or could have resulted in the safety

and security of the public, employees and the pipeline, and protection of property and the environment. This sub-element also requires a company to have an established, maintained and effective data management system for monitoring and analyzing the trends in hazards, incidents and near-misses.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

#### Sub-element 4.3 - Internal Audit

This sub-element of the audit requirements states that a company must establish and implement an effective quality assurance program for its management system and for each protection program, including a process for conducting regular inspections and audits and for taking corrective and preventive actions if deficiencies are identified.

The Board found that Enbridge had not established or implemented a quality assurance program that meets the Board's requirements.

The Board found that Enbridge's Crossings program had not been audited as per the Board's requirements. The Board also found that Enbridge had not developed processes for conducting audits that meet the Board's requirements.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

#### Sub-element 4.4 - Records Management

This sub-element states that a company must establish and implement an effective process for generating, retaining, and maintaining records that document the implementation of the management system and its protection programs.

Enbridge was able to demonstrate that the records generated from the implementation of its Crossings and Damage Prevention programs meet expectations and are accessible to those who require access to them in the performance of their duties.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

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## **Element 5.0 – Management Review**

### **Sub-element 5.1 - Management Review**

This sub-element states that a company must establish and implement an 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. This sub-element also requires a company to complete an annual report for the previous calendar year, signed by the accountable officer, describing the performance of the company's management system in meeting its obligations.

The Board found that Enbridge had established and implemented processes to address the stated requirements and had undertaken the activities associated with its processes. The Board also found, however, that Enbridge's processes did not fully meet all of the requirements. As a result, the management reviews completed by Enbridge were also found to be deficient.

Additionally, the Board found that some of the Non-Compliant findings made in this audit fall within the responsibility and accountability of Enbridge's senior management. These relate to direction, management and oversight and, as such, have contributed to the Non-compliant finding for this element.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

## **11.0 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. This includes the tools, technologies and actions needed to ensure the public, workers and the environment are safe.

The Board has made a significant number of Non-Compliant findings. The Board's analysis of these findings indicates that most of the non-compliances relate to the establishment and implementation of the management system processes and consequently its Safety and Loss Management System. The majority of the Non-Compliant findings fall into two categories:

- lack of integration of its Crossings program into the overall operational oversight management system processes; and
- lack of implementation of management system sub-elements consistent with the Board's expectations.



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In reviewing the results of Enbridge's Public Awareness program audit the Board notes that Enbridge did not demonstrate it had developed and implemented a management system that directly applies to this program. Further, the Board notes that the requirements to have a documented, implemented and maintained management system are not new as the Safety and Loss Management System requirements have been included in CSA Z662 for a number of years and pre-date the OPR requirements. In addition to the lack of management system implementation, Enbridge did not demonstrate that its Crossings program had been the subject of an appropriate audit, as required, at any time.

The Board found that, regardless of the lack of a compliant management system, Enbridge had developed and implemented a Crossings program that was addressing the majority and most significant of its hazards and the majority of its regulatory requirements. The Board found that Enbridge has established and implemented a Crossings program that provides safety information and timely assistance to third parties who excavate and construct near its pipelines.

The Board has determined that no enforcement actions are immediately required to address these non-compliant findings. Upon receipt of the final report, Enbridge must develop a corrective action plan describing its proposed methods to resolve the non-compliances identified and the timeline in which corrective actions will be completed. Enbridge 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 Enbridge's approved corrective action plan public on the Board's website.

The Board will assess the implementation of all of Enbridge'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 Enbridge's Crossings program and management system as a whole through targeted compliance verification activities as a part of its ongoing regulatory mandate.

## APPENDIX I:

### THIRD PARTY CROSSINGS PROGRAM AUDIT EVALUATION TABLE<sup>i</sup>

#### 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 Audit Team 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 Audit Team accepting the responsibilities of their position.

##### **Assessment:**

##### Accountable Officer

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 31 March 2014, Enbridge submitted written notice to the Board indicating that its President, Guy Jarvis, had been appointed as the accountable officer for Enbridge Pipelines Inc. and all of its subsidiaries regulated by the Board. In its submission, Enbridge confirmed that its accountable officer has the authority over the human and financial resources required to meet the Board's substantive expectations.

##### Summary

Based on the Board's evaluation of Enbridge's Third Party Crossings (Crossings) program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

**Compliance Status: Compliant**

## 1.2 Policy and Commitment Statements

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

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

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.3, 40, 47, 48

### **Assessment:**

The Board expects companies to 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.

### Policies

During the audit Enbridge provided copies of its policies that guide its Crossings program. Enbridge provided copies of the policies applicable to the operational protection programs of its Liquids Pipeline Division as part of its demonstration of compliance. With the exception of the issues identified below, the Board has not identified issues with the documentation provided. Additionally, Enbridge indicated that it was in the process of establishing and implementing its Integrated Management System (IMS) that will include a separate Lands Services management system. Review of the governance documentation of the IMS indicated that it includes management system and program policy requirements.

### Internal Reporting and Immunity Policy

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

Enbridge provided several internal policies associated with its expectations related to employee conduct. For the Liquid Pipelines Division, Enbridge has posted its Compliance Policy on e-link, its intranet site. This policy includes a description of employee accountabilities to “*comply with all applicable laws, regulations and other legal requirements*”. In this policy, employees are expected to “*immediately report any new or suspected material compliance issue to their leader*”, the policy continues to say that “*in reporting any new or suspected compliance issues all employees will be treated in accordance with Enbridge’s non-retaliation principles set out in Enbridge’s Statement on Business Conduct*”.

Enbridge’s IMS-01 Governing Policies and Processes Management System document was released 01-01-2014. According to Enbridge, it is the foundation document for the management systems that were, at the time of the audit, in various stages of development and implementation. This document includes the statement that “*management will provide an open and confidential method for the Workforce to report Non-Compliant unethical or unlawful behaviour, without fear of retaliation*”.

Another document that was presented for the audit was the Statement of Business conduct which applies to the Enbridge group of companies including all employees and contract staff. The Statement includes a section describing Enbridge’s non-retaliation policy. It includes the assertion that “*no retaliatory action will be taken against an employee or contractor for providing good faith information either internally or to a government authority, or for participating in any proceeding concerning alleged violations of any laws of policies. Disciplinary measures may be taken against an employee or contractor if they participated in the activity, even if they reported it*”.

During its review of Enbridge’s documentation the Board found that, while Enbridge has several policies and statements that encourage reporting of certain issues to without fear of reprisal, the existing policies did not explicitly include the reporting of hazards and potential hazards and the conditions under which a person who makes a report will be granted immunity. The Board’s expectations are explicit with respect to the reporting and the immunity provisions being within the same policy. Additionally the Board found that Enbridge limited its reporting requirements to compliance. The Board notes that, as hazards and potential hazards are not necessarily violations of law or the result of unethical behavior, none of these policies or statements provide the required clarity and therefore do not meet the Board’s requirements.

### Summary

The Board found that Enbridge has developed many policies, processes, principles, programs to guide and support its Crossings program.

The Board also found the following areas of non-compliance in the Policy and Commitment Statements sub-element:

- Enbridge did not demonstrate that it has a policy that explicitly describes internal reporting of hazards, potential hazards, incidents and near-misses as required and include the conditions under which a person who reports a hazard, potential hazard, incident or near-miss will be granted immunity from disciplinary action as required by OPR.;
- Enbridge did not demonstrate that its reporting and immunity policy was communicated as explicitly and at the optimal level as expected by the Board; and
- Enbridge did not demonstrate that its immunity policy was adequate as it limited granting immunity to reporting compliance issues.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

**Compliance Status: Non-Compliant**

## 2.0 PLANNING

### 2.1 Hazard Identification, Risk Assessment and Control<sup>1</sup>

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

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

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

**References:** Crossings: PCR Part II section 4, OPR sections 6.1, 6.5(1)(c)(d)(e)(f)(r)(s), 40, 47, 48

#### **Assessment:**

The scope of this audit includes the review of the process for addressing third party requests for permission to cross or conduct work in proximity to NEB regulated Enbridge facilities. These requests from third parties including landowners, municipalities and other utilities are managed by the processes and staff of the Crossings program.

The Board expects companies to 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.

#### Identifying Hazards and Potential Hazards

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

For the Crossings program, the identification and analysis of hazards and potential hazards occurs throughout the crossing application review process. Enbridge has developed its process to reflect the various types of crossing applications it receives and the legal requirements governing those applications. Review of Enbridge's Foreign Crossings Standard, Book 3-02-02-01 and associated procedures, found that these documents outline the process to manage the various types of applications. Review has further determined that these processes include the requirements for the identification and analysis of hazards and potential hazards of requests for permission to excavate using power operated equipment, explosives or construct facilities on, along, under or across Enbridge's facilities. When Enbridge receives a request from a third party, the request is assessed based on parameters outlined in the standard. According to its third party applications process, more complex projects such as road building, widening or other "unusual applications" go to the Engineering Department for assessment and any additional hazards or potential hazards are reviewed. Once the required analysis is completed, the application is returned to the Crossing group for processing and the appropriate safety measures and instructions are incorporated into the crossing agreement and communicated to the third party. Once the agreement has been signed off, a copy of the crossing agreement is sent to the appropriate regional office for their files. The audit noted that the inventory of hazards for Crossings is derived from legal requirements and company standards located within its process for managing third party requests for permission. Also, the hazards introduced through the requests are managed by the controls within the application management processes.

In addition to the analysis and mitigation of third party requests for permission that come through the Crossings program, Enbridge has established a separate, but explicitly linked, Damage Prevention program within the Lands Services department to proactively identify and analyze the threat of potential mechanical damage. More precisely, according to Book 3 04-02-02, the Damage Prevention program's purpose is "*to protect pipelines and facilities when operating mechanized equipment or other below grade activity with the potential for damage takes place near company facilities.*" The Damage Prevention program also advises Enbridge's Integrity Management department and Public Awareness group on trends and conditions that could increase the potential for mechanical damage.

During its audit, the Board identified that Enbridge has been managing its hazard identification requirements by undertaking several activities along its right-of-way (ROW) related to damage prevention. These activities aid in the identification of new hazards, as well as monitoring for the presence of new hazards. These activities include:

- annual aerial ROW class location surveys to identify new developments and urban expansion in proximity to its ROW;
- regular aerial patrols in each region for ongoing monitoring of activities along the ROW;
- creation and distribution of Enbridge's "Agricultural Vehicle & Equipment Screening Tool" as a tool to assist those engaged in agricultural activity as to the types of equipment that do not require permission from the company to cross the ROW;
- creation of Enbridge's vehicle load crossing hoop stress calculation tool to be applied to evaluate whether heavy machinery crossings can be

allowed and what, if any, provisions such as temporary crossings are required;

- the establishment of an ongoing depth of cover monitoring program that tracks the identification and mitigation of pipeline depth of cover issues across Enbridge's system; and
- the creation and maintenance of a database that captures depth of cover over its pipelines across the system. These pipe depths are recorded and available on the Land Owner Information Database (LOID) with mapping capabilities.

Through the audit, it was determined that Enbridge uses various methods to identify hazards and potential hazards for the Crossings program along its ROW. Enbridge demonstrated that there are processes in place to report hazards and potential hazards internally to address issues related to the requests for permission to cross. Through interviews and document review, the audit confirmed that there are controls for these hazards reflected in Crossing and Damage Prevention programs initiatives and outcomes. Further, it was noted that the hazards managed within the Crossings program are considered within the risk assessment practices established in other Enbridge technical programs required by the Board such as Enbridge's Integrity Management, Safety Management and Emergency Management programs. These programs are the subject of concurrent audits conducted by the Board.

#### Summary

The Board found that Enbridge demonstrated that it has established and implemented a Crossing program that incorporates a process for the identification of hazards and introduces controls as well as a process to evaluate the risk.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

**Compliance Status: Compliant**

## 2.2 Legal Requirements

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(g)(h)(i), 40, 47, 48

### Assessment:

#### Identifying and Monitoring Compliance

The Board requires that companies have a process for identifying and monitoring compliance with all legal requirements and to maintain a list of these requirements.

At the time of the audit, Enbridge indicated that it was in the process of implementing its IMS-02 Compliance and Ethics Management System which includes development of a Master Compliance Register to inventory the primary legal and regulatory requirements. This process is managed by Enbridge's Regulatory Law and Affairs Department. Enbridge noted that the described processes and practices are intended to be applied to IMS-19 Lands Services management system. As the IMS-19 process was not fully established and implemented at the time of the audit, the evaluation of the Board limited its review to information gathering and the identification of potential program improvement activities.

The Board identified that Enbridge used several methods to monitor and communicate changes to its legal requirements. These methods included:

- email updates to the departments from Regulatory Affairs staff;
- legal staff review and postings on companywide intranet sites;
- Senior Health and Safety and Emergency Response Coordinator identification and communication; and
- industry communications through membership in the Canadian Energy Pipelines Association.

Enbridge indicated that the identification of legal requirements also occurred as part of its operation document control practices. Enbridge indicated that identification of and monitoring compliance with legal requirements is undertaken as part of its Operations and Maintenance Manuals (OMMs)

annual document maintenance processes. The Board verified that Enbridge was conducting the required OMM reviews and maintenance as set out in its internal procedures. Enbridge indicated that its Health Check and Internal Review processes also review legal compliance to identified requirements. Review of the processes indicated that Health Checks are internal processes undertaken by staff not normally associated with the processes that check the identified requirements. Internal Reviews focus on compliance; however, Enbridge did not demonstrate that this process had been established or implemented.

The Board found, however, that the methods used by Enbridge are inadequate. The Board is of the view that relying on legal lists in procedures as a method of maintaining and monitoring compliance with legal requirements does not meet the Board's requirements. This practice limits the review to those requirements already referenced within the documentation and does result in the development of a legal list as required by the OPR. As noted below, Enbridge's referenced legal lists were not adequate. Further, the Board notes that, legal requirements do not necessarily only drive procedures and that compliance cannot be ensured by incorporating appropriate legal content in procedural documents; therefore, this practice is not adequate for monitoring compliance. Further, the Health Check and Internal Review processes are presently not designed to account for all functions or processes on an adequate basis. Both processes are not designed to be comprehensive with respect to the scope of what must be included in a check or review. As noted above, Enbridge did not demonstrate that its Internal Review process has been established and implemented.

#### Legal List

During the audit, Enbridge indicated that the lists of its legal requirements, as required by the Board, are contained within its Operations and Maintenance Manuals (OMMs) and the procedures contained within them. The Board's evaluation of OMM Book 2 included a review of the *Legislative Glossary* which listed the legal documentation from various legislative instruments. The Board noted that some, but not all, of the legal references had been broken down to the provisional level as required by the Board. Additionally the Board identified that the glossary is incomplete as it does not include all of the required content. For example, updates of the NEB Act, the OPR and CSA were not accounted for in the list. Examples of missing content included NEB Order MO-21-2010, the 2013 Administrative Monetary Penalty (AMP) Regulations or the 2012 Section 112 amendments. During the audit Enbridge staff indicated that legal requirements from the NEB's *Pipeline Crossing Regulations* (PCR) form the foundation of Enbridge's crossing procedures and Technical Crossings Guidelines and, as such, the PCRs are used as a list of requirements.

#### Communicating Legal Requirements

During the audit the Board identified that Enbridge had established a number of methods for communicating the legal requirements. Enbridge did not, however, demonstrate that these methods for communicating new or revised legal requirements between the head office and regional field staff

and consequently third-parties were effective. Questions regarding awareness of new or revised regulatory requirements that relate to Enbridge's Public Awareness and Third Party Crossings Programs were included in the Board's interviews of Enbridge staff with program implementation responsibilities. The Board noted a lack of awareness of certain regulatory changes with potential program or public awareness information implications was identified. Examples of lack of awareness of regulatory changes included knowledge of changes to the NEB Act and the promulgation of the Administrative Monetary Penalties (AMP) Regulations. The Board notes that information regarding the AMP Regulations would normally be included in the public awareness program established to meet the requirements of section 4 of the Pipeline Crossings Regulations Part II. Company staff with responsibilities for implementing or communicating the requirements of the public awareness programs should be aware of the regulatory content included within them.

### Summary

The Board found that Enbridge demonstrated that it was tracking, listing and communicating some of its legal requirements.

The Board also found that Enbridge's methods to monitor its legal requirements and compliance to them did not meet the Board's requirements.

The Board found that Enbridge's legal list was not maintained as a single list, was incomplete and was not kept at the level of specificity required to enable the company to ensure and monitor its compliance with the legal requirements.

The Board found that Enbridge had developed and implemented practices to communicate the legal requirements. The Board found one deficiency with Enbridge's communications practices with respect to its compliance practices. Enbridge did not demonstrate that it had an effective method for communicating new or revised legal requirements between the head office and regional field staff and consequently third-parties.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

**Compliance Status: Non-Compliant**

## 2.3 Goals, Objectives and Targets

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

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

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

**References:** PCR Part II section 4, OPR sections 6.1, 6.3, 6.5(1)(a)(b), 6.6, 40, 47, 48

### **Assessment:**

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

### Goals, Objectives and Targets

The OPR does not include any specific management system process requirements for developing policies and goals. However, Enbridge has established clear management system guidance with respect to its process for developing policies and goals. At a governance level, Enbridge's IMS-01, *Governance Documentation* outlines the company's expectations for documenting key corporate policies, such as the *Strategic and Business Planning Processes*. The *Governance Documentation* also explains the company's "Planning Cascade" and associated documentation. This Planning Cascade document explains how the company links its policies and corporate vision to its performance targets and metrics. The practices described within the *Governance Documentation* process align with the Board's requirements for establishing policies, goals, objectives, targets and performance measures. While not an absolute alignment between the Board's requirements and Enbridge's internal processes it does reflect

integration of the Board's requirements into Enbridge's business management practices. The Board noted that, while Enbridge had not implemented its full IMS requirements within the Lands Services department, the entire LP Division, including the Lands Services department was subject to this practice.

The Board found that Enbridge's Land Services department develops an annual plan that includes performance goals and metrics relating to the functions of each program. As part of its audit the Board reviewed Enbridge's The Land Services department Plan 2014. The Board identified that this included goals and performance measures. Examples included:

- Damage Prevention goals related to the percentage of technicians who have successfully completed the TALL training and been assessed as competent;
- Crossings program performance measures relating to the number of crossing approvals that were meeting Enbridge's 10 day service standard; and
- Unauthorized activity statistics as required by the NEB performance metrics.

### Goals Relating to OPR Section 6.3

Under the OPR, which applies to this program as per the Board's integrity and Safety Management program requirements, companies are specifically required to develop goals relating to goals for the prevention of ruptures, liquid and gas releases, fatalities and injuries, and for the response to incidents and emergency situations. The Board reviewed these requirements as part of its concurrent Integrity Management program audit and as part of this audit.

In its report for Enbridge's Integrity Management program, the Board noted the following:

“The OPR identifies that a company must have goals for preventing ruptures, liquid and gas releases, fatalities and injuries, as well as for responding to incidents and emergency situations. Although implicitly included within its *Integrity Principles*, Enbridge did not demonstrate that it had an explicit statement of goals for preventing ruptures, liquid and gas releases, fatalities and injuries, and for responding to incidents and emergency situations as required in OPR section 6.3 (1)(b). It was noted that Enbridge's *Integrity Principles* described the company's fundamental values with respect to how it manages its Integrity Management program. Further, The Liquids Pipelines Priorities in the annual Product Integrity *Department Plan* include a measurable end result and objectives to be achieved within a set timeframe. Priority (1) for Liquids Pipelines states that company intends to “*Eliminate ruptures and reduce leaks.*” This statement implies preventing ruptures, liquid and gas releases, fatalities and injuries. However, it does not explicitly state that the company's goal is to prevent leaks, not just to reduce leaks. Based on the Board's review of documentation provided, Enbridge did not demonstrate that it has a policy at the governance level that explicitly establishes goals for preventing

ruptures, liquid and gas releases, fatalities and injuries.

In this audit of Enbridge's Crossing program, the Board has identified identical issues. Additionally, the Board identified that, while Enbridge's Damage Prevention program has implemented several initiatives to prevent mechanical damage, such as the depth of cover program, it has not developed targets or objectives that demonstrate or measure whether or not these initiatives are achieving the goals or contributing to the prevention of ruptures as required by the Board's expectations.

### Summary

The Board found that Enbridge had established processes for the development and implementation of Goals, Objectives and Targets that align with the Board's requirements.

The Board also found that Enbridge had not established explicit goals relating to prevention of ruptures, liquid and gas releases, fatalities and injuries the protection of the environment as required by the OPR. Further, while Enbridge demonstrated that it had developed management practices that correspond to the Board's requirements and had implemented initiatives to address the issues, Enbridge did not demonstrate that it had established specific objectives, targets or performance measures that ensure that it is meeting the management outcomes required.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

**Compliance Status: Non-Compliant**

## 2.4 Organizational Structure, Roles and Responsibilities

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

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.4, 20, 31, 40, 47, 48

### **Assessment:**

The Board expects companies have a documented organizational structure that enables it to meet the requirements of its obligations to carry out activities in a manner that ensures the safety and security of the public, company employees and the pipeline, and protection of property and the environment.

#### Organizational Structure

For this audit, the NEB focused on the operational functions of the Lands Services department including Crossings, Damage Prevention and the Public Awareness programs for Enbridge's Canadian federally regulated assets.

Enbridge indicated that its Crossings and Damage Prevention programs staff in the Head Office in Edmonton report to the Lands Services department which is part of the Liquid Pipelines Division. The Crossings and Damage Prevention programs are primarily developed and managed at the Head Office and executed in the region. The Edmonton AB, Estevan SK and Sarnia ON offices manage the crossing applications and the related files for their respective regions with support from the Head Office when required. At the time of the audit, the South Prairie Region, formerly Enbridge Pipelines Saskatchewan Inc. (EPSI), was being re-aligned with the other Canadian divisions.

During the audit, Enbridge provided documents and records that demonstrated it had established and maintained documented roles and responsibilities statements related to its Crossings program and activities that applied to all levels within the organization as well as contractors.

### Annual Evaluation of Resource Need

Along with a documented organizational structure, the Board expects companies to demonstrate an ongoing ability to sustain its program. The Board requires that companies demonstrate, based on an annual documented evaluation of need, that the human resources required to establish, implement and maintain the programs are sufficient to meet operational and regulatory requirements.

Enbridge demonstrated that it uses several mechanisms to evaluate its human resources needs. In order to determine the resources required in a given year, Enbridge uses its formalized workforce planning process and associated practices. The Board identified that Enbridge evaluates its resourcing levels by examining lagging indicators such as the number of crossing applications addressed over the previous year and service standard measures, as well as work activity projections.

Based on the information provided by Enbridge in its documents, records and during interviews, the Board identified one deficiency with respect to Enbridge's evaluation of need. During field interviews, the Board identified that Crossings and related duties included in PLM staff members' workload could account for between 20-80% of their regular duties depending on the region and the time of year. Enbridge did not demonstrate that had accounted for these duties in its program evaluation. Although field staff indicated that staffing levels were supplemented by contract employees in the regional offices when required, Enbridge did not demonstrate that it has a process to determine the appropriateness of its field staff for Crossings or that the evaluation of need is applied to the regional offices.

The Board notes that, at the time of the audit, the Land Services department was in the process of documenting and implementing its management system for the Lands Services (IMS-19). The Board further notes there were no issues related to staffing levels or insufficient resources identified during the audit in the Head Office or regional offices; however, as it moves forward with the implementation of its IMS-19, Enbridge will need to consider the human resources required to maintain its management system as well as the implementation of any identified corrective actions.

### Summary

The Board found that Enbridge had a documented organizational structure and communicates the roles, responsibilities and authorities of the officers and employees at all levels of the company.

The Board found that Enbridge had established and implemented several mechanisms for reviewing its Crossings program workforce needs. The Board did not observe any resourcing issues during this audit.

The Board also found that Enbridge's evaluation of need did not specifically account for all staff with Crossings program responsibilities and, therefore, did not demonstrate that the human resources allocated to establishing, implementing and maintaining its management system and meeting its requirements are sufficient.

Based on the Board's evaluation of Enbridge's Crossing program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

**Compliance Status: Non-Compliant**

## 3.0 IMPLEMENTATION

### 3.1 Operational Control-Normal Operations

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

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(e)(f)(q), 40, 47, 48

#### **Assessment:**

The Board requires that regulated companies to 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.

#### Development of Controls

During the audit Enbridge indicated that its controls, including application specific examination of the hazards and risks are found within Enbridge's OMM Book 3. Review of OMM Book 3: *Pipeline Facilities* confirmed this practice. Review of the *Foreign Crossings 02-02-01* process and associated process flow diagram identified that it provides step by step guidance for the crossings application assessment, including the introduction of preventive and protective controls such as:

- triggers for additional review of third party applications from engineering;
- communication with the third party to request additional information; or
- rejection of the application.

Additionally, the audit identified that Enbridge's Damage Prevention group has developed and implemented various programs that are directly tied to

their Crossings Program as controls to protect facilities from potential damage. These activities and initiatives include:

- the Depth of Cover Project Working Group to monitor depth of cover for its system as well as following up on the mitigation of identified high risk areas;
- One-Call centre participation in each of the areas in which it operates facilities ;
- crossing application processes that identify and account for the variety of potential projects that could take place in proximity to its facilities;
- TALL training locating program development and implementation for each of its PLM staff to promote consistency and standardization for its locate processes;
- development of its Agricultural Vehicle & Equipment Screening Tool that is provided to landowners who conduct agricultural activities;
- development of its vehicle loading assessment tool for determining heavy vehicle crossing (stress calculator);
- annual aerial surveys to monitor and changes along the ROW;
- monitoring trends in unauthorized activities to enhance program activities; and
- development of its application for excavations with power operated equipment within 30m of the pipeline.

With respect to communication of the controls, the Board identified that Enbridge communicates its controls for the hazards and risks to the third parties using the technical crossing guidelines as well in individual, documented crossing agreements that include proximity agreements for work taking place within the 30m safety zone.

With respect to implementing the identified controls, the Board identified that the crossings application process is managed in the Edmonton AB, Estevan SK and Sarnia ON offices and the regional PLM staff were responsible for representing Enbridge at the third party project sites. PLM staff conduct locates as well as all the crossing related inspections. The Board noted that Enbridge used provisional contractors to supplement its staff complement; however, these contractors are typically hired for major projects and not ongoing maintenance.

### Summary

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance.

The Board has determined that Enbridge is Compliant with this sub-element.

**Compliance Status: Compliant**

### **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:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(c)(d)(e)(f)(t), 32, 40, 47, 48

#### **Assessment:**

##### Crossings Program Upset or Abnormal Operating Conditions

Enbridge demonstrated through interviews and training records reviewed that its PLM staff who conduct crossings are also trained in the Incident Command Structure and participate in the emergency exercises that take place in their regions. They are also trained to identify and report upset conditions and intervene if they observe any unsafe work practices occurring around Enbridge facilities in order to prevent an upset condition.

##### Contingency Plans

Under the OPR, companies are required to establish and implement a process for developing contingency plans for abnormal events that may occur during construction, operation, maintenance and abandonment activities. The Crossings program is directly linked to the Integrity Management program that is being concurrently audited with this program. The audit identified that Enbridge did not have an established and implemented program level process for developing contingency plans as required by the OPR. As the Board has made a non-compliant finding in that audit which will cause a corrective action plan that addresses this program deficiency to be developed, the Board will not assign further non-compliance in the sub-element. Enbridge's corrective action plan developed to address that finding must specifically and explicitly include actions to address this program's deficiency.

##### Summary

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

**Compliance Status: Compliant**

### 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:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(i), 40, 47, 48

**Assessment:**

During the Audit, Enbridge indicated that it meets these requirements through its MOC process described in its Book 1 OMM 06-02-01. The Board’s review of this document identified that the purpose of this standard was to “*ensure that the necessary stakeholders are involved in the decisions pertaining to changes to facilities, equipment, processes and policies.*” Enbridge provided information during the audit that its MOC processes and requirements are embedded in all of its existing written processes, procedures and practices. Enbridge indicated that a single MOC process would not be able to meet its or other companies with significant facilities and processes, requirements. Therefore, Enbridge has multiple processes embedded in multiple locations. Further, Enbridge indicated that its interpretation of the OPR is to “ensure that a MOC process is available for unplanned, unexpected or infrequent changes that are not already embedded in existing activities and processes. The Board interpreted this statement to indicate that the Book 1 MOC should then only apply to unplanned, unexpected changes.

The Board has found that Enbridge’s interpretation and practices are inconsistent with the Board’s interpretation of the OPR process requirements. The Board notes that the OPR requires a company to develop a management system MOC process that identifies and manages any change, not only those described by Enbridge. The Board notes that requirements for the development of a MOC process are found within the OPR and CSA-Z662 as well.

Given the parameters of the Enbridge process described above, the scope of this MOC does not meet the Board’s expectations for MOC. Specifically, it does not include the identification and management of 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.

The Board reviewed Enbridge’s MOC application for the Crossings program. The Board found that, while the OMM review and revision process was demonstrated, it did not constitute a compliant MOC due to the failure to demonstrate that the review included new legal requirements. As discussed in Sub-Element 2.2 of this report, Enbridge did not demonstrate a process in place to ensure that changes to legal requirements are being

analyzed for integration into the procedures. The Board notes that without a process where legal changes trigger the MOC, Enbridge could not demonstrate compliance.

Additionally, based on information gathered during this and other concurrent audits, the existing process was reportedly inconsistently applied across its protection programs. Enbridge indicated that it had a project underway to implement a revised MOC as part of its Integrated Management System development that is intended to better meet the Board's requirements.

#### Summary

The Board found that, while Enbridge had implemented some aspects of an MOC process and was in the process of implementing a new process, it did not demonstrate that it had established and implemented a process that meets the requirements of the OPR.

Based on the Board's evaluation of Enbridge's Crossing program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

**Compliance Status: Non-Compliant**

### 3.4 Training, Competence and Evaluation

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

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

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(j)(k)(l)(p), 40, 47, 48

#### **Assessment:**

The Board expects regulated companies to 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.

#### Developing Competency Requirements and Training Programs

During the audit Enbridge indicated that the Crossing program had an office and field component, each requiring different competencies and training. Employees that manage the crossing applications in the offices had to complete a suite of standard courses related to onboarding and ongoing organizational knowledge. In order to ensure that staff becomes proficient in the crossing application processes, Enbridge indicated that it had used mentoring by senior employees augmented with quality control reviews of files until new employees are familiar with the procedures.

Enbridge had identified several industry supplied technical training to reflect the various field tasks PLM staff are required to perform in order to execute the Crossing-related activities. There is a competency matrix V01 for positions that are expected to conduct Crossing related tasks such as probing and demonstrating knowledge of safety practices. In addition to industry supplied training, Enbridge employees that conduct locates are trained through its internally developed TALL program. Developed in the Damage Prevention Group with subject matter experts from SAIT, this

program is a combination of online modules (with exams), classroom sessions and live demonstrations. The program also accounts for the advanced locating skills required to locate pipelines within the boundaries of its stations and includes standards for using the markers. At the end of the training, each candidate in the program is subject to documented reviews of competency by the certified TALL trainer. The trainer completes documented, in-field assessments of pipeline locates of varying levels of difficulty. These competency reviews include an assessment of skill as well as tests of knowledge related to Enbridge's expectations. During interviews, field staff in the regions confirmed that they were aware of the requirements to successfully complete the entire program before being permitted to perform locates on Enbridge's behalf.

While the Board acknowledges that Enbridge has a Violence in the Workplace (VIW) Policy in place as required by the Canada Occupational Health and Safety Regulations (COSHR) Part XX, interviews with staff along the system identified that Enbridge employees were not aware that VIW training requirements must include violence from external parties. During the audit, field staff across the system reported encounters with hostile third parties. Interviews with Enbridge staff during the review of the VIW practices identified that the field staff and contractors were not aware of procedures for identifying, formally reporting or addressing aggressive behavior. The audit identified, that there was no training or procedures provided to the field staff or its contractors that outlined Enbridge's expectations for events where staff are met with hostility during their interactions with the public or third parties that would meet the requirements of the COSHR Part XX.

Due to information provided by field staff during the audit, combined with the heightened levels of scrutiny of and public attention on the company's activities, the NEB's CLC delegate of the Minister of Labour received an Assurance of Voluntary Compliance (AVC) from Enbridge to develop and implement a Violence in the Workplace Program in accordance with the requirements of the COSHR Part XX. As part of its corrective action, Enbridge demonstrated that it was developing interim measures which included providing Conflict Management and Situational Awareness training for its field staff as well as establishing long term project to satisfy the requirements of the COSHR.

As the root of this issue is a failure to identify and manage legal requirements for workers, this deficiency is addressed in the Board's concurrent Safety Management Program Audit in sub-element 2.2 *Legal Requirements* of the report for that audit. No additional non-compliance will be assigned as the corrective action plan developed for that finding will address this audit's identified deficiency. Enbridge's corrective action plan developed to address that finding must specifically and explicitly include actions to address this program's deficiency.

### Managing Training Records

Enbridge demonstrated that it had developed its Electronic Learning Management System (eLMS) to manage corporate training and the TRAC database to manage the technical training. Further, Enbridge demonstrated that there were designated training coordinators in each of the regional

offices to ensure that all staff remains current as per standards established by the company.

Summary

Through interviews and document review, the Board found that, subject to the Violence in the Workplace deficiency noted by the Board and addressed by Enbridge, Enbridge had implemented an appropriate training and competency program for its staff who implement its Crossings program.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

**Compliance Status: Compliant**

### 3.5 Communication

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(m), 40, 47, 48

#### **Assessment:**

##### External Communication

During the audit, Enbridge indicated that its Crossing program has limited responsibility for external communication within its Land Services department. Enbridge indicated that its Public Awareness program is responsible for the majority of the external communication plan. To meet its communications requirements the Crossing program had defined its communications requirements and identified practices to communicate and manage communication. Examples of required communications included third party crossings applications and approval, and a permissions to conduct excavation construction work around pipelines for various types of projects.

Document review of Enbridge's Third Party Application for Crossings Flow Chart identified that communication with external stakeholders was incorporated into the procedures for processing requests and confirmed that the Crossing agreements included information pertaining to the project to ensure that the third party is informed regarding how to complete the project and work safely and in compliance during the project.

The audit also confirmed that Enbridge has established several processes for communication with external stakeholders including web based practices and its permit requirements to have Enbridge representative onsite for any excavation and involvement with local One-Call organizations.

##### Internal Communication

The Board found that, at the department level, Enbridge did not demonstrate that it has a documented communication plan that supports the effective implementation and operation of the safety and loss management system as per CSA Z662-11 clause 3.1.2(d) and as required by Enbridge's governance management system commitments.

Enbridge was able to demonstrate that there was informal internal communication occurring between all of the Lands Services groups. For example,

Board review of records identified that there were regular meetings occurring where internal initiatives were discussed. The Board found, however, that the internal communications practices used by Enbridge were insufficient and did not meet the Board's requirements. During the audit, there were several examples identified that demonstrated that operational information was not being communicated both within the Lands Services department and between other Enbridge groups. For example, at the time of the audit, Enbridge's Mainline Projects group was coordinating and undertaking several hundred maintenance projects along its system. Although construction and major projects group were not considered to be within the scope of this audit, inspections and interviews with field staff completed to inform the audit indicated that these projects impacted operations field staff and landowner relationships. Operations field staff at various locations indicated that, because they were unaware of integrity dig project deadlines and locations, they were unable to respond effectively to landowner concerns and questions. It was observed that this lack of communication and follow up between the groups and the regional offices regarding these initiatives had an impact on regional staff's ability to inform external stakeholders during the performance of regular operational duties. Another example of lack of internal communication was the failure of Enbridge to communicate the regulatory changes throughout its Crossings and Damage Prevention programs down to the office and field staff. As discussed in sub-element 2.1 of this report, there were uncommunicated amendments to the NEB Act, the Low Risk Crossings Order, the NEB AMP regulations that could potentially have an impact on the Crossings staff in the offices as well as in the field.

#### Summary

The Board found that Enbridge had established external communication practices applicable to its Crossings program that identified the appropriate stakeholders and developed messages relating to maintaining the safety and security of the pipeline and protection of the environment.

The Board found that, while Enbridge had been communicating internally, its practices were deficient. The Board found that Enbridge had not developed a communication plan that met the Board's requirements.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

**Compliance Status: Non-Compliant**

### 3.6 Documentation and Document Control

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

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

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(i)(n)(o), 6.5(3), 40, 47, 48

#### **Assessment:**

During the audit, Enbridge indicated that the Crossing program documentation management is governed through its *Documents Policy*, which is available on the company's intranet and through an online tool called the Governance Documents Library. According to Enbridge, the Governance Documents Library was created to ensure access to the most current governance documents. Enbridge defines governance documents as "*documents which lay out the expectations, standards, requirements and activities that will be demonstrated in order to support effective execution of the management system*". They include standards, specifications, guides, work instructions, policies and procedures and include related documents such as checklists and templates.

Enbridge indicated that, at the program level, operational documents were housed within the OMMs. Further, Enbridge indicated that the OMMs

included a document control process (*OMM Management Standard*) within them. The documented purpose of this overarching standard is to “provide a framework of standards and processes used to ensure the consistent and compliant management of the Operations & Maintenance Manuals.” The OMM program document describes the roles and responsibilities for ensuring that procedural documentation is updated and revised on a maximum 15 month schedule. The Board identified that the OMM documents were officially available in electronic format only to ensure that staff were following the most current versions. Enbridge staff demonstrated that the procedures, forms and templates related to crossing agreements are posted on the Crossings SharePoint intranet site.

During the audit the Board found that Enbridge had consistently implemented the described processes and practices.

#### Summary

The Board found that Enbridge had established and implemented a process for controlling its program documentation.

Based on the Board’s evaluation of Enbridge’s Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

**Compliance Status: Compliant**

## 4.0 CHECKING AND CORRECTIVE ACTION

### 4.1 Inspection, Measurement and Monitoring

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

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

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

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(g)(s)(u)(v), 40, 47, 48

#### **Assessment:**

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.

#### Inspection

The Board found that Enbridge's field staff were undertaking inspections to verify that third parties had completed the approved work in accordance with the agreements and Enbridge's established standards. Through document and record reviews and interviews in the regions, the Board confirmed that Enbridge staff were aware of the inspection and reporting requirements and were undertaking inspections of crossings and maintaining records of those inspections as required by the PCR. The Board did not note any issues with the post – crossing inspection processes.

## Monitoring

The Damage Prevention program is responsible for the ongoing Pipeline Depth Monitoring Program (PDMP) to ensure a consistent standardized depth of cover over all Enbridge pipelines. According to the documentation provided, the PDMP was initiated in response to NEB conditions imposed on Enbridge to monitor the depth of cover for the Southern Lights and Alberta Clipper projects and was expanded to include its other assets. As part of the program, minimum acceptable depths were developed in order to establish a threshold where mitigation would be required.

## ROW Patrol

Enbridge indicated that, due to the nature of its ROW where large sections of its system can bisect several properties, it has determined that routine ground inspections would be logistically challenging. Therefore, with the exception of a section of the ROW in Toronto that is patrolled on foot, the Board identified that the majority of Enbridge's routine ROW patrol is undertaken by aerial patrol. During the audit, Enbridge provided the detailed procedures used during its pipeline ROW patrols. Enbridge indicated that the requirements for undertaking the patrols were in the OMMs in Book 03-02-01 and OMM Book 3-02-02. These OMMs include guidelines for identifying issues such as unknown construction activity and erosion. These procedures include the requirement to visually monitor each of the pipeline threats listed and prescribed in CSA Z662-11 Clause 10.6.11.

Enbridge had established an aerial patrol frequency schedule for each of its regions based on the level of activity that typically occurs. No issues were identified with the aerial patrol schedules and frequencies.

Enbridge also conducted focused annual aerial inspections to monitor specific threats along its rights-of-way. These inspections included:

- an annual aerial patrol to monitor urban development as part of the class location survey; and
- annual aerial surveys with vapour monitors to identify potential leaks.

Board interviews with the surveillance pilots indicated that they are aware of their requirement to be report unauthorized activities for immediate response from the regional ground crew. Further, the pilots interviewed indicated that they have had occasion to land their aircraft in order to intervene in potentially unauthorized activities when there was a potential threat to the pipeline observed.

The pilots' aerial inspection reports are saved and made available to regional staff using an electronic database. The Board confirmed that inspection records were being generated; however, a review of a sample of aerial inspection reports identified that they did not include confirmation that each of the CSA Z662-11 Clause 10.6.11 conditions and activities were being monitored or assessed during flights. The pilot reports only included any

issues noted along the ROW. This reporting by exception does not typically allow for any monitoring of developing trends that can affect the safety and operation of the pipeline nor does it document an assessment of the various potential issues. Enbridge was not able to provide an assessment of its aerial patrol program which would confirm that this type of inspection meets the intent of the regulatory requirements and considered to be effective.

In order to verify the implementation of the various ROW monitoring programs, the NEB conducted several ROW inspections in the Eastern, Central and South Prairie Regions in support of the audit. While the majority of the ROW inspected were maintained for visibility and had the appropriate signage present, the Board identified several instances where ROW signage was inadequate, obscured by vegetation, damaged or missing and did not meet the requirements of CSA Z662-11 Clause 10.5.3. These issues were addressed through the Board's inspection process. However, the Board considers that these deficiencies demonstrate a lack of implementation of the OMMs related to ROW inspection and sign maintenance.

### Summary

The Board found that Enbridge has implemented an inspection program in accordance with the PCR, Part II relating to Crossings.

The Board also found that Enbridge did not demonstrate the effectiveness of the ROW patrol and other inspection practices based on reporting practice and observed signage deficiencies.

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

**Compliance Status: Non-Compliant**

## 4.2 Investigating and Reporting Incidents and Near-misses

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

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

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(r)(s)(u)(w)(x), 40, 47, 48, 52

### **Assessment:**

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

During the audit, Enbridge indicated that its *Incident Reporting Standard* (Book 1: 02-02-01) outlined its requirements for the reporting on hazards, potential hazards, incidents and near-misses. Review of this documentation indicated that it included requirements and processes for making verbal and written reports. Table 4A of this standard, Property Damage – Structural Integrity or Structural Threat to the Pipeline or Operating beyond design limits, includes information which outlines the regulatory reporting requirements.

Enbridge provided information demonstrating that near-misses or unauthorized activities were being reported internally and to the NEB in accordance with the NEB PCR requirements. These reports are typically submitted to Enbridge's Damage Prevention Group for tracking and response by the regional representatives. Document review confirmed that there are procedures in place for reporting and following up on unauthorized activities by Enbridge's Land Agents in the regional offices. Interviews with Enbridge's field staff confirmed were aware of the process and the conditions that require reporting regarding unauthorized activities. Through document review and during interviews, Enbridge field staff confirmed that follow-up is being conducted to determine if damage has been done and to provide additional awareness where required.

### Trending and Analysis

The Board expects companies to have an established, maintained and effective data management system for monitoring and analyzing the trends in hazards, incidents and near-misses.

The Damage Prevention program receives all of the unauthorized activity reports. At the time of the audit, the unauthorized activities were being tracked in a spreadsheet; however, during the audit, Enbridge provided a demonstration of its EnCompass data management system that it indicated it was in the process of expanding to include unauthorized activities.

No issues were identified with Enbridge's present or proposed practices.

### Summary

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

**Compliance Status: Compliant**

### 4.3 Internal Audits

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

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(w)(x), 40, 47, 48

CSA Z662-11 clause 3.1.2

#### **Assessment:**

The Board expects companies to have an established, implemented and effective quality assurance program for each protection program, including a process for conducting regular inspections and audits and for taking corrective and preventive actions if deficiencies are identified.

#### Quality Assurance Program

The specific requirements for establishing and implementing a quality assurance program are found within the OPR. As noted elsewhere in this report, the Crossing program aligns with requirements found within the OPR required Safety and Integrity Management programs. As such, the Crossing program quality assurance management practices must be accounted for in those, or a separate quality assurance program. Enbridge did not demonstrate that it has a quality assurance program applicable to its Crossings programs.

During the audit, Enbridge indicated that it was in the process of developing its Lands Service management system that will conform to its overall IMS requirements once it is established. During the Board's concurrent audit of the Safety and Integrity Management programs Enbridge indicated that the IMS implicitly includes or leads to a quality assurance program. In its audits the Board found that Enbridge's quality assurance program did not meet the Board's requirements.

The Board notes that Enbridge provided information that its Damage Prevention program conducts assessments to monitor and evaluate the various

initiatives through the use of assessment forms. These forms are also designed to identify potential improvements to the respective programs. In 2013, Enbridge conducted assessments to evaluate TALL competency, One-Call response and excavation site response. The Damage Prevention program compiles the results in an annual report. The results inform the development of the department and program level work plans. The Board found that these are quality assurance activities but they do not constitute a program.

#### Internal Audits

During the audit, Enbridge acknowledged that, at the time of the audit, neither the Crossings nor Damage Prevention programs had been the subject of an internal audit. While Enbridge provided information that demonstrated that it conducts reviews and assessments of certain crossings and damage prevention initiatives, it did not demonstrate that it was evaluating these programs in a manner consistent with its CSA Z662-11 requirements. CSA Z662-11 Clause 3.1.2 requires companies to conduct “periodic audits and reviews to evaluate the effectiveness of the safety and loss management system”.

#### Summary

The Board found that Enbridge had not established or implemented a quality assurance program that meets the Board’s requirements.

The Board found that Enbridge’s Crossings program had not been audited as per the Board’s requirements.

The Board also found that Enbridge had not developed processes for conducting audits that meet the Board’s requirements.

Based on the Board’s evaluation of Enbridge’s Crossings program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

**Compliance Status: Non-Compliant**

#### 4.4 Records Management

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(p), 40, 47, 48

#### **Assessment:**

The Board requires companies to 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.

At the time of the audit, Enbridge was implementing a new corporate level management system (IMS-01) across the organization. The program level management system for Land Services (IMS-19) was under development, and not yet rolled out. As a result, the audit reviewed the practices and procedures that were in use at the time, including the records management procedures.

Through interviews and document and record reviews, the Board confirmed that the Lands Services programs were managing their records in accordance with the existing *Records Management Policy*, *Records Retention Schedule* and the *Records Retention Schedule Development and Sustainment Standard*. These policies are managed by Enbridge Records Management.

Enbridge demonstrated that its Crossings and damage prevention records were being stored and managed appropriately and were accessible to all of the staff requiring access. It was noted during the audit that the Damage Prevention program stores some of its records in the Landowner Information Database (LOID). LOID is used to track issues and technical information such as depth of cover data or integrity dig locations. LOID can also be used to generate line lists to identify stakeholders in the event of an emergency. With the South Prairie Region coming online with LOID throughout 2014, all of the Enbridge's Canadian entities are now using LOID. Interviews in the regions confirmed that there is an annual submission to the various One-Call organizations to update maps in the systems.

#### Summary

Based on the Board's evaluation of Enbridge's Crossings program against the requirements, the Board has not found any issues of Non-Compliance. The Board has determined that Enbridge is Compliant with this sub-element.

**Compliance Status: Compliant**

## 5.0 MANAGEMENT REVIEW

### 5.1 Management Review

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

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

**References:** PCR Part II section 4; OPR sections 6.1, 6.5(1)(w)(x), 6.6, 40, 47, 48

#### **Assessment:**

*(The sub-element is attributed to companies' senior management and Accountable Officer; therefore, the Board does not break up its review into governance and program levels.)*

#### Annual Management Review

During the audit, Enbridge indicated that IMS-01 Section 4.3 outlines the Management System Review Process to ensure that each management system is reviewed on annual basis to confirm that desired results are being achieved. Enbridge also indicated that an additional process, PC-1801 Accountable Officer Report Development Process, is also used to evaluate the management system with the output being the Annual Report.

Upon review of the various processes and records supporting the implementation therein, the Board notes the follow:

- IMS-01 Management System Review Process is not fully established as defined by Enbridge standards as all process steps were considered to be aspirational;
- Although still in draft, IMS-19 does not include a management review process in its current format;
- PC-1801 Accountable Officer Report Development Process is not referenced or inferred in IMS-01 or IMS-19 and thus is not integrated into

Enbridge's management system;

- PC-1801 Accountable Officer Report Development Process is not established as per the NEB's working definition (approval date on the document is 21 October 2014); and
- Evidence was not provided to demonstrate that an annual review of the Crossings program has occurred.

Based on the Board's evaluation of Enbridge's Management System and the Crossings program against the requirements, the Board has determined that Enbridge has not established and implemented a process for conducting an annual review of the management system and protection program.

#### Management System Evaluation

While the Board has listed this requirement under sub-element 4.1 of the Protocol, Enbridge indicated during the audit that their IMS-01 Management System Review Process is also used to evaluate the adequacy and effectiveness of their management system. When reviewing the content of this governance process, Enbridge indicates that each process within the management system is reviewed to ensure effectiveness. In addition, Enbridge has developed an additional process, PC-1701 Management System Evaluation Process, which includes an evaluation of the adequacy and effectiveness of the overall management system. Records provided to demonstrate the implementation of each of these processes include:

- 2013 Internal Management System Alignment Assessment; and
- 3<sup>rd</sup> Party Assessment (Dynamic Risk) completed in 2013.

Upon review of the various processes and records supporting the implementation therein, the Board notes the follow:

- IMS-01 Management System Review Process is not fully established as defined by Enbridge standards as all process steps were considered to be aspirational;
- IMS-01 Management Review Process does not include an evaluation of the adequacy of the management system;
- PC-1701 Management System Evaluation Process is not referenced or inferred in IMS-01 or IMS-19 and thus is not integrated into Enbridge's management system;
- Although in draft, IMS-19 does not have a management review process in its current format;
- Internal Management System Alignment Assessment does speak to an assessment of adequacy, effectiveness and implementation of processes but is based on the OPR requirements and not an evaluation of Enbridge's management system as designed; and

- 3<sup>rd</sup> Party Assessment (Dynamic Risk) is strictly an alignment/compliance assessment to the OPR 6.1-6.6 requirements and does not attest to the adequacy or effectiveness of Enbridge's management system (IMS 01 et al).

Based on the Board's evaluation of Enbridge's Management System and the Crossings program against the requirements, the Board has determined that Enbridge has not established and implemented a process to evaluate the adequacy and effectiveness of the management system.

### Annual Report

Annually, Enbridge develops an "Annual Accountable Officer Report (AO Report)" describing the performance of its 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 PC-1801 Accountable Officer Report Development Process describes the process required to develop the AO Report. The process states that the AO report must "detail the performance of Enbridge LP management system and will cover areas of leadership, performance measures, internal review, management review and corrective actions taken." The report also is to include details regarding achievement of goals, objectives and targets during that year as assessed through performance measures.

The PC-1801 Accountable Officer Report Development Process includes the requirement that Enbridge must complete its AO Report, have it signed by the accountable officer, and submit it to the Board no later than 30 April each year. NEB auditors confirmed that the AO Report covering the 2013 performance year was signed by the accountable officer, and submitted to the Board by 30 April 2014.

The Board reviewed Enbridge's Annual Report and notes that, while the report does make reference to some of the internal and external reviews conducted on the management systems and includes a section that documents the actions taken that year to address deficiencies, the deficiencies and actions items are not specified and are focused on the development and status of the management system. While this information is important to communicate to the Accountable Officer, it is not fully representative of Board's quality assurance program requirement (see sub-element 4.3) and thus is it unclear whether the Accountable Officer is aware of the actions taken that year to address deficiencies identified by the quality assurance program. The Board also notes that the deficiencies identified in sub-elements 1.2 and 2.3 will also need to be reflective in future Annual Reports.

### Management Responsibility

Further to the review of these processes and activities, the Board notes that Enbridge has not conducted audits consistent with its OPR obligations. The Board views the responsibility for undertaking these audits as resting with the company's senior management (as represented by its accountable officer) as the annual report developed as per OPR specifically requires review and reporting on aspects of the Quality Assurance program (specifically including audits) and the performance of the management system in meeting its obligations under OPR section 6. Additionally, the

Board has made Non-Compliant findings related Sub-elements *1.2 Policy and Commitment Statements and 2.3 Goals, Objectives and Targets* that relate to the development of explicit policies and goals required by the OPR. While the Board’s Non-Compliant findings are mitigated by the nature of the deficiencies (implicit inclusion vs. explicit requirements), it is the responsibility of company management to ensure the development and implementation of compliant policies and goals that guide the company’s management system and programs.

Summary

The Board found that Enbridge had developed processes for and undertaken activities relating to its Management Review responsibilities.

The Board also found that Enbridge’s management review processes did not meet all of the requirements outlined in the OPR. Additionally, the Board has found that Enbridge has not conducted audits consistent with the requirements of OPR and CSA Z662-11.

Based on the Board’s evaluation of Enbridge’s Crossing program against the requirements, the Board has determined that Enbridge is Non-Compliant with this sub-element. Enbridge will have to develop corrective actions to address the described deficiencies.

**Compliance Status: Non-Compliant**

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

**APPENDIX II**  
**ENBRIDGE PIPELINES INC.**  
**MAPS AND SYSTEM DESCRIPTIONS**

Enbridge Pipelines Inc. and its subsidiaries included in the scope of this audit included specifically:

- Enbridge Pipelines Inc.;
- Enbridge Bakken Pipeline Company Inc. on behalf of Enbridge Bakken Pipeline Limited Partnership;
- Enbridge Southern Lights GP Inc. on behalf of Enbridge Southern Lights LP;
- Enbridge Pipelines (NW) Inc.; and
- Enbridge Pipelines (Westspur) Inc.

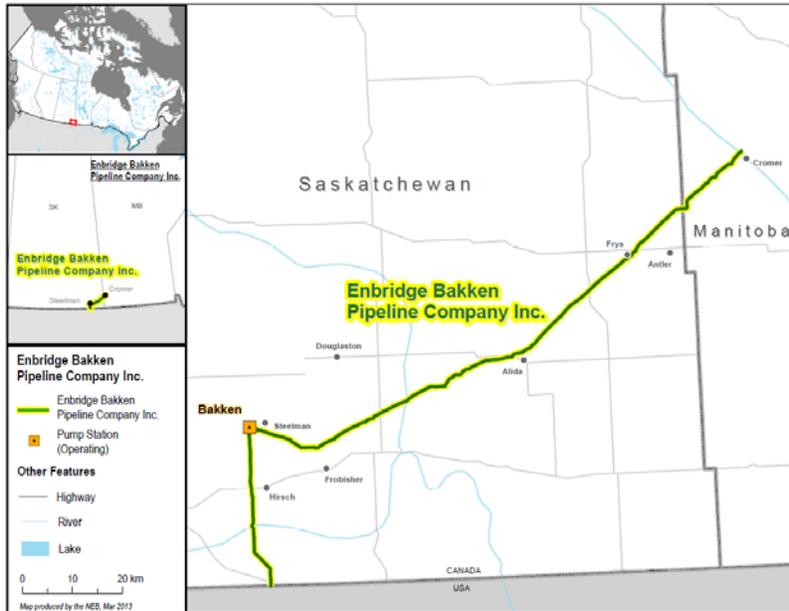
These subsidiaries hold the certificates for Enbridge’s NEB-regulated facilities.

**Figure 1: Enbridge Pipelines Inc.**



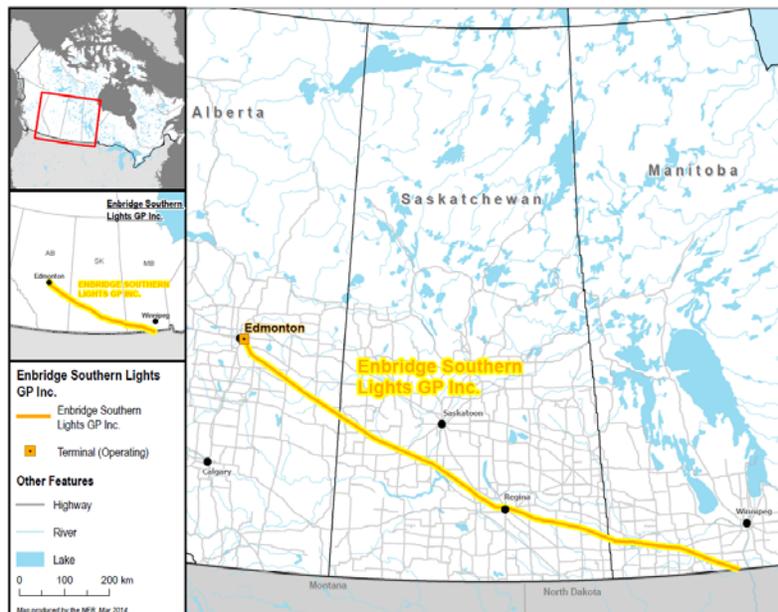
The Enbridge pipeline system, shown in Figure 1, is 7,747.04 km of oil pipelines that extend from Edmonton, Alberta, to Montréal, Québec, connecting with other oil pipelines in the United States at the Manitoba/North Dakota and Michigan/Sarnia Ontario borders.

**Figure 2: Enbridge Bakken Pipeline Company Inc.**



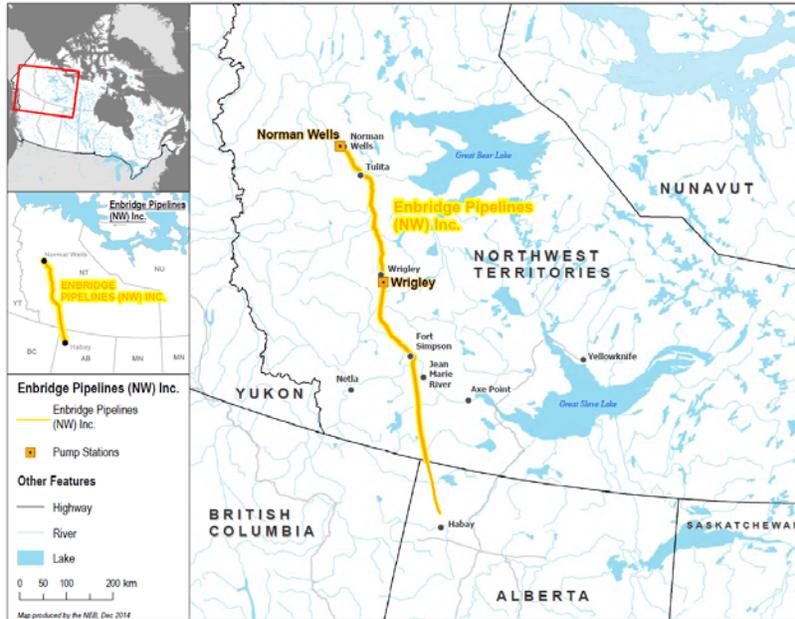
The Enbridge Bakken pipeline, shown in Figure 2, is a 157.28 km pipeline that transports oil from Cromer, Manitoba to the Saskatchewan/North Dakota border. The Enbridge Bakken pipeline continues into the United States.

**Figure 3: Enbridge Southern Lights GP. Inc**



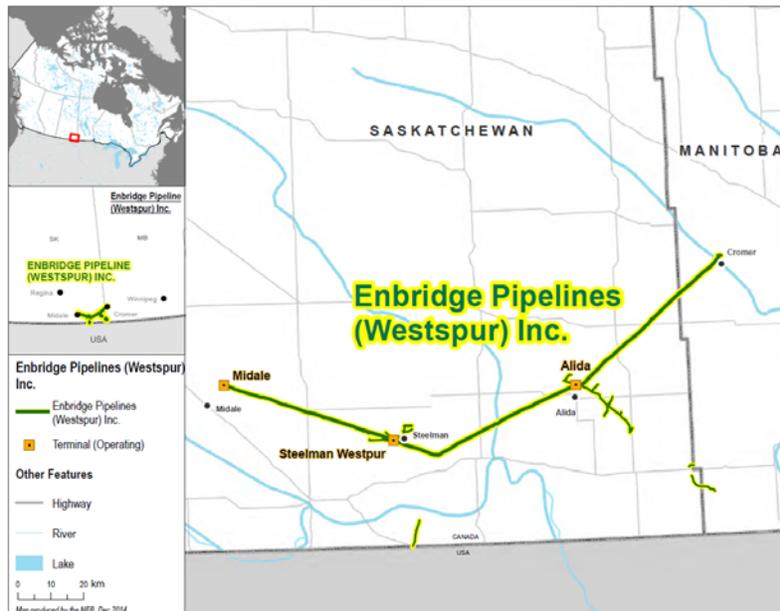
The Enbridge Southern Lights pipeline, shown in Figure 3, is a 1529.75 km pipeline that transports oil from Edmonton Alberta to the Manitoba/North Dakota border. The Enbridge Southern Lights pipeline continues into the United States.

**Figure 4: Enbridge Pipelines (NW) Inc.**



The Enbridge (NW) pipeline, shown in Figure 4, is a 854.65 km pipeline that transports oil from Norman Wells, Northwest Territories into Northern Alberta.

**Figure 5: Enbridge Pipelines (Westspur) Inc.**



The Enbridge Westspur pipeline, shown in Figure 5, is a 483.33 km pipeline that transports oil and gas from Midale Saskatchewan to Cromer Manitoba.

**APPENDIX III**  
**ENBRIDGE PIPELINES INC.**  
**COMPANY REPRESENTATIVES INTERVIEWED – THIRD PARTY CROSSING**  
**PROGRAM**

<b>Company Representative Interviewed</b>	<b>Job Title</b>
██████████	Land Information Management Senior Advisor
██████████	Director Leadership & LS
██████████	Supervisor, Right-of-Way Services, Eastern Region
██████████████████	Director HR Business Support
██████████	Safety Coordinator
██████████	S.M.T
██████████████████	Senior Director RCIM
██████████	Hardisty Operations Coordinator
██████████	Engineer Pipeline Compliance
██████████	Electrical Maintenance
██████████	PLM Welder
██████████	Supervisor PLM Services
██████████	Safety Coordinator
██████████	Microprocessor Coordinator
██████████████████	Public Awareness Coordinator EPSI
██████████	PLM
██████████	Operations Coordinator Cromer Area
██████████	Senior Electrical Technician

[REDACTED]	Right of Way Agent
[REDACTED]	Manager Learning Solutions
[REDACTED]	Supervisor Lands and Right of Way
[REDACTED]	Manager Pipeline Compliance
Dale Burgess	Vice President Canadian Operations
[REDACTED]	Manager RINI
[REDACTED]	Supervisor Engineering
[REDACTED]	Kerrobot Area Supervisor
[REDACTED]	Compliance Coordinator
[REDACTED]	Director
[REDACTED]	Manager RS&D
[REDACTED]	Acting Area Supervisor
[REDACTED]	Senior Engineer
[REDACTED]	Supervisor PLM Services
[REDACTED]	Public Awareness Advisor
[REDACTED]	Supervisor Compliance RCIM
[REDACTED]	Senior Manager Community Relations
[REDACTED]	Senior Mechanical Technician
[REDACTED]	Manager Media Relations
[REDACTED]	Manager RS&D
[REDACTED]	Sr. Electrical Technician
[REDACTED]	Internal Audit Manger
[REDACTED]	Sr. Electrical Technician

[REDACTED]	S.M.T
[REDACTED]	Senior Mechanic
[REDACTED]	S.M.T
[REDACTED]	Sr. Mechanical Technician
[REDACTED]	Leader OMM Management
[REDACTED]	Director, Eastern Region
[REDACTED]	Coordinator Maintenance Services - Sarnia
[REDACTED]	Supervisor Operation Training
[REDACTED]	Manager Edmonton
[REDACTED]	Kerrobot Maintenance Coordinator
[REDACTED]	Maintenance Technician #1
[REDACTED]	PLM
[REDACTED]	Compliance Coordinator EPSI
[REDACTED]	Director EPSI
[REDACTED]	Kerrobot PLM
[REDACTED]	Damage Prevention Advisor
[REDACTED]	Leader Internal Coms (LP)
[REDACTED]	Senior Manager O&M Service
[REDACTED]	Compliance Coordinator
[REDACTED]	Supervisor P/L Services
[REDACTED]	Manager Reg. Services
[REDACTED]	Manager RSS
[REDACTED]	Senior Manager Risk Management

[REDACTED]	Training Coordinator
[REDACTED]	PLM Supervisor
[REDACTED]	Senior Electrical Technician
[REDACTED]	Director Land Services
[REDACTED]	Community Relation Specialist
[REDACTED]	Ethics and Compliance Officer
[REDACTED]	Manager Integrated Management Governance
[REDACTED]	Director Central Region
[REDACTED]	Area Operations Manager
[REDACTED]	Kerrobot PLM
[REDACTED]	Advisor LP H&S
[REDACTED]	Sr. Mechanical Technician
[REDACTED]	Manager Area Operations
[REDACTED]	PLM QMS Manager
[REDACTED]	Damage Prevention Inspector
[REDACTED]	Senior Mech. Technologist
[REDACTED]	PC Analyst
[REDACTED]	Area Supervisor
[REDACTED]	PLM Services - Westover
[REDACTED]	Senior Manager Strategic Planning
[REDACTED]	PLM
[REDACTED]	Manager Communications Enterprise
[REDACTED]	Senior Manager Compliance

[REDACTED]	Crossing Coordinator
[REDACTED]	Emergency Response Coordinator
[REDACTED]	PLM Services - Westover
[REDACTED]	Damage Prevention Supervisor
[REDACTED]	Director Environment
[REDACTED]	Engineering Supervisor Compliance
[REDACTED]	Senior Compliance Specialist
[REDACTED]	Senior Integrity Engineer
[REDACTED]	Senior Manager Integrated Management
[REDACTED]	Sarnia Operations
[REDACTED]	Team Lead Crossings
[REDACTED]	Area Manager Midale/Weyburn
[REDACTED]	Senior Manager Regional Services
[REDACTED]	Safety Coordinator
[REDACTED]	Senior Electrical Technician
[REDACTED]	Pipeline Compliance Specialist
[REDACTED]	Hardisty Maintenance Coordinator
[REDACTED]	Manager Land Services Canadian Operations
[REDACTED]	Right of Way Agent
[REDACTED]	Pipeline Integrity
[REDACTED]	Kerrobert PLM
[REDACTED]	PLM

**APPENDIX IV**  
**ENBRIDGE PIPELINES INC.**  
**DOCUMENTS REVIEWED\* – THIRD PARTY CROSSINGS PROGRAM**

NAME
2012 07 16 - Letter to Third Party Redacted
2012 08 01 - Letter to NEB re Third Party Redacted
2012 and 2013 Unauthorized Activity Report
2013 07 05 - Letter to Third Party Redacted
2013 Enbridge Pipelines, Canadian Class Location Change Survey Rev 0
2013 Land Agent Orientation
2013 PAP status report
2014 Audit IR Response Status Check_041014
2014 Eastern Helicopter Planning Schedule
2014 NEB Audit - All Asset Registry - Eastern Region
2014 NEB Audit - All Asset Registry - EPSI Region
2014 NEB Audit - All Asset Registry - Northern Region
2014 NEB Audit - All Asset Registry - Western Region
2014 NEB Audit - Asset Registry - Central Region
2014 NEB Audit - Central Region Org Chart
2014 NEB Audit - Central Region PSV's
2014 NEB Audit - Central Region Stations and Terminals
2014 NEB Audit - Eastern Region Org Chart
2014 NEB Audit - Pipe Asset Registry - Central Region
2014 NEB Audit - Pipe Asset Registry - Eastern Region
2014 NEB Audit - Pipe Asset Registry - EPSI Region
2014 NEB Audit - Pipe Asset Registry - Northern Region
2014 NEB Audit - Pipe Asset Registry - Western Region
2014 NEB Audit - Eastern Region PSV's
2014 NEB Audit - Eastern Region Stations and Terminals
2014 NEB Audit - EPSI PSV's
2014 NEB Audit - EPSI PSV's
2014 NEB Audit - EPSI Region Org Chart
2014 NEB Audit - EPSI Stations and Terminals
2014 NEB Audit - Field Operations Services Org Chart
2014 NEB Audit Information Exchange Agenda - Emergency and Security Management
2014 NEB Audit Information Exchange Agenda - Environment Management
2014 NEB Audit Information Exchange Agenda - Integrity Management Program
2014 NEB Audit Information Exchange Agenda - Public Awareness and Crossings
2014 NEB Audit Information Exchange Agenda - Safety Management System V2

\* Document titles are shown as presented in the electronic portal from Enbridge Pipelines Inc.

2014 NEB Audit - Northern Region Org Chart
2014 NEB Audit - Northern Region PSV's
2014 NEB Audit - Northern Region Stations and Terminals
2014 NEB Audit - Northern Region Sump Tanks
2014 NEB Audit - Western Region Org Chart
2014 NEB Audit - Western Region PSV's
2014 NEB Audit - Western Region Stations and Terminals
2014 NEB Audit - Western Region Sump Tanks
2014-481 Seismic Permission_Redacted
2014-482 Seismic Permission_Redacted
2014-595 Seismic Permission_Redacted
2014-754 Seismic Permission_Redacted
22797_Utility_Energy_Services_Joint_Work_Auth1_Redacted
4.4 GV D Email Management Policy V01
4.4 GV D Records Discovery Policy V01
4.4 GV D Records Management Policy V01
4.4 GV D Records Retention Schedule V01
4.4 GV D Retention Schedule Development Sustainment Standard V01
4.4_GV_Documents and Records Summary
Action Items from Supervisor Mtg - May 221st
ASR Rating Blue Sky Air 2013-10-03
Att GV 2 - Inventory of Hazards and Potential Hazards
Att GV 3 - Identifying and Communicating Legal Requirements
Att GV 4 - Field Operations Training Update
Att GV 5 - Interim Training Verification Solution (Electrical Role)
Att GV 6 - Process for Developing Competency and Training Program
B Sangster IS Network Updates_Redacted
Baron Apr sked
Baron Aug sked
Baron Feb sked
Baron Jan sked
Baron Jul sked
Baron Jun sked
Baron Mar sked
Baron May sked
Baron Sept sked
Blue Sky Air Ltd 2013-Oct-03
Central Region Aerial Patrol Reports May June 2014
Central Region proximity and crossing records_Redacted
Central Region Scorecards March to June2014_Redacted
Central Region unauthorized crossings 20132014_Redacted
CentralRegioncrossingsFLHAexamples
Certification History by People Leader Logged In
Compliance Coordinator job description
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CR_3.1_R_Capability Roadmap Final Document_V01_Redacted
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CR_3.1_D_Crossing Report_V01
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GV_3.6_D_OMS_Operating-Maintenance Procedures Management Standard Document_V01
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IR May 12 - Survey Analysis - PAC Q1 2013 Minutes
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IR May 12 - Trending - Analysis of Survey Cards from EPI Newsletter of Fall 2013
IR May 12 - Trending - Landowner Newsletter EPI Fall 2013 Response Survey
IR May 7 - Analysis - Crossings Monthly Meeting - Minutes - Dec 17, 2014_Redacted
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