

Alberta Pipeline Safety Review ERCB Response to the Minister of Energy

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ENERGY RESOURCES CONSERVATION BOARD

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Suite 1000, 250 – 5 Street SW

Calgary, Alberta

T2P 0R4

Telephone: 403-297-8311

Toll free: 1-855-297-8311

E-mail: Inquiries@ercb.ca

Website: www.ercb.ca

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About the ERCB

Alberta produces about 816 million barrels of oil and 4 trillion cubic feet of natural gas each year, almost 80 per cent of Canada's total production. What isn't consumed in Alberta is shipped across North America through a vast continental pipeline network.

Canada's pipeline network extends over 700 000 kilometres. While pipelines crossing provincial or international boundaries, such as the proposed Keystone XL pipeline or the Northern Gateway pipeline, are regulated by the National Energy Board, more than half of that network, slightly more than 400 000 kilometres, operate solely within Alberta's boundaries. These pipelines carry virtually all of Alberta's produced oil and gas to market and are regulated by the Energy Resources Conservation Board (ERCB). Alberta's pipelines are mostly 168 mm (6 inches) outside diameter and smaller and transport raw product from the well to a central facility and then to a central delivery point. These are commonly referred to as gathering lines.

The ERCB works to ensure that Alberta's extensive pipeline network operates safely through a regulatory framework that includes

- a pipeline applications process;
- requirements around the design, construction, operation, maintenance, discontinuation, and abandonment of pipelines;
- inspection procedures that prioritize pipelines with higher-risk profiles; and
- requirements to ensure operators are prepared to effectively respond to emergency situations.

ERCB field surveillance staff conducted more than 13 500 inspections in 2011 to ensure industry compliance with ERCB regulations, including 1450 pipeline inspections. The ERCB conducts both random and prioritized inspections, the latter focusing on high-risk operations or operations that have had recent complaints or incidents. If companies fail to comply with ERCB regulations, the ERCB works to ensure that any noncompliance is immediately corrected. If the infraction is found to be a risk to public safety or the environment, the ERCB has the legislated authority to immediately stop pipeline operations until the problem is corrected.

If necessary, a detailed enforcement protocol is enacted. This can lead to restrictions on operations and future development. In these situations, the ERCB may prohibit the pipelines from operating until all problems are fully corrected.

Alberta Pipeline Safety Review

On July 26, 2012, the Honourable Ken Hughes, Minister of Energy, directed the ERCB to contract an independent third-party group to conduct a review of specific elements of Alberta's existing pipeline system. On September 10, 2012, following a competitive procurement process, the ERCB engaged

Group 10 Engineering (Group 10) of Calgary, Alberta, to conduct the review with a focus on three specific issues:

- public safety and response to pipeline incidents,
- pipeline integrity management, and
- safety of pipelines near water bodies.

The purpose of the assessment was to determine if the ERCB's current regulatory requirements and industry best practices are relevant and accurately reflect the risk profile of ERCB-regulated pipelines and to identify areas for improvement. The review also included an assessment of how the ERCB's pipeline regulatory requirements compare to other jurisdictions (including other Canadian pipeline regulators). The review compared ERCB regulatory requirements with those of other Canadian and international regulators, including British Columbia, Saskatchewan, and the National Energy Board in Canada; Texas, Alaska, and the Pipeline and Hazardous Materials Safety Administration in the United States; and the UK, the Netherlands, and Australia.

Group 10 conducted interviews with the Canadian Energy Pipeline Association and the Canadian Association of Petroleum Producers to identify industry best practices. A random selection of sixteen pipeline licensees under ERCB jurisdiction were interviewed. Selection was based on criteria such as industry sector (upstream and transmission), product transported, and whether or not the licensee operates under multiple jurisdictions.

The ERCB reviewed a draft of the report, titled *Alberta Pipeline Safety Review*, only for the purpose of confirming the accuracy of the data, statistics, and factual information, prior to the submission of the final report on December 7, 2012. The review, which includes seventeen recommendations, was submitted to the Minister of Energy on December 20, 2012.

Immediately following its receipt of the review, the ERCB formed teams of technical and regulatory experts to evaluate and develop an action plan for each of the recommendations. As per the ERCB's commitment to providing the Minister of Energy with an official response to the review, this document provides a summary of that work and outlines how the ERCB proposes to address those recommendations in the months ahead.

Summary of the Findings of the Review

Overall, the review found that "Alberta (the ERCB) provides the most thorough overall regulatory regime of all the assessed Canadian jurisdictions." Group 10 attributed this finding to "the fact that Alberta has a very mature (well established) pipeline industry and the largest number of pipelines; and the ERCB, as a regulator has evolved over time to regulate and manage the industry as appropriate" (p. 4).

While all Canadian regulators have adopted the Canadian Standards Association document *Z662-11: Oil and Gas Pipeline Systems*, the review reported that there are varied approaches to regulation, specifically with regard to integrity management and safety near water bodies. The review noted CSA standards are generally the minimum, with each jurisdiction applying additional regulatory requirements based on their own unique circumstances.

The review concluded that “the tendency is for the licensees to perform to the dominant regulators’ requirements; which in most instances were the ERCB with supplemental requirements from the other jurisdictions included and addressed” (p. 5). Furthermore, Group 10 determined that “the presentation and comparison of pipeline leak or failure statistics for Alberta with other Canadian and international jurisdictions is not possible, as each jurisdiction has unique requirements as to which incidents, and what detail is reported. Alberta appears to demonstrate the most mature and complete approach to incident reporting and statistical comparison” (p. 5).

The review concluded that the “safety of pipelines near water bodies appears to be an area without clear definition or consistent regulatory direction” (p. 5) and makes recommendations for improving identification and mapping, inspection, and monitoring requirements.

The review’s assessment of the regulatory requirements for public safety, the response to pipeline incidents, and the preparedness of the regulators (including the ERCB) and licensees determined an “overall consistency in competence, understanding and preparedness for an incident” (p. 5).

Ultimately, Group 10 concluded that the assessment of Canadian and international regulatory jurisdictions highlight that “no single right answer exists on how to best ensure pipeline safety. There are many varying pipeline environments and each has its own unique requirements with respect to life cycle management” (p. 6).

“In summary, a ‘one size fits all’ approach to the provision of regulatory oversight is impractical. Instead Canadian pipeline regulators tend to use an equitable tailored ‘fit-for-purpose’ approach that meets the overall needs of their jurisdictions. This allows the regulators to focus on oversight in areas where risk is, or perceived to be, higher” (p. 11).

ERCB Response to Recommendations

The ERCB accepts the findings and recommendations of the *Alberta Pipeline Safety Review*. The ERCB embraces the continuous-improvement process and views the independent Group 10 review as providing insight to both what is working well within the ERCB’s regulatory construct as well as areas for improvement.

The ERCB notes that, in some cases, the recommendations made by Group 10 are national in scope, address policy or legislative issues, or involve third-party entities, thus falling outside of the ERCB’s regulatory mandate and jurisdiction.

The full list of recommendations as they appear in the review is available as appendix A. For the purposes of this response, the ERCB has grouped the recommendations into three categories:

1. Recommendations for the ERCB's Safety and Loss Management System Assurance Program
2. Recommendations for general operational change
3. Recommendations outside the ERCB's mandate and jurisdiction

The ERCB has begun work to determine resources and implementation times to respond effectively to the recommendations in the review. As part of the ERCB's normal operational planning process, required resources will be assessed and applied to priority projects. Implementation will commence in the 2013/14 operating year.

Recommendations outside of the ERCB's jurisdiction will be immediately shared with appropriate organizations. The ERCB will provide support and assistance in the implementation of these recommendations if required.

The ERCB will provide a status report to the Minister of Energy on the implementation of the recommendations in March 2014.

Recommendations for the ERCB's Safety and Loss Management System Assurance Program

ERCB *Directive 077: Pipelines – Requirements and Reference Tools* requires that licensees “develop, implement, and document for all its pipelines a pipeline integrity management program that complies with the latest edition of *CSA Z662, Annex N.*” Annex N provides an approach for ensuring that pipelines are capable of transporting product safely, with no short-term or long-term negative effects on public safety or the environment.

Clause 3.1.1 of *CSA Z662* requires that operating companies develop, implement, and maintain a documented Safety and Loss Management System.

A Safety and Loss Management System (SLMS) is a systematic, proactive process to manage safety and loss control¹ associated with pipeline design, construction, operation, maintenance, discontinuation, and abandonment. The SLMS helps to ensure the protection of people, the environment, and property. A licensee's Integrity Management Program (IMP) is only one element of a comprehensive SLMS that must also include

- clear policy and leadership commitment;

¹ Loss control refers to reducing and eliminating the occurrence of undesired events through engineering controls, enforcement of established procedures, frequent training, and continuous evaluation.

- organizational structure with well-defined responsibilities and authorities that supports the effective implementation of the SLMS;
- a communication plan that supports the effective implementation and operation of the SLMS;
- a document- and records-management process for effective operation of the SLMS;
- operational controls that include procedures for hazard identification and risk management, design and material selection, construction, operation and maintenance, and security management;
- a change-management process; and
- a continual-improvement process.

While the ERCB has, through *Directive 077*, established a requirement for the content of pipeline licensee IMPs and has been developing a process to evaluate such programs, it had recently decided to expand the process to include evaluation of a licensee's entire SLMS. To do this, the ERCB had begun to identify and design the key components of an SLMS Assurance Program. Upon receipt of the *Alberta Pipeline Safety Review* report, the ERCB examined the fundamental principles of the SLMS Assurance Program to ensure they were aligned with, and could respond to, the recommendations in the report.

Currently, the ERCB inspects the portion of a licensee's SLMS related to field pipeline operation. The ERCB SLMS Assurance Program is a new, expanded approach to compliance which will address a variety of ERCB requirements in a more comprehensive manner. The expanded ERCB SLMS Assurance Program will ensure that a licensee's entire SLMS, including IMPs, is effective.

The ERCB SLMS Assurance Program will

- ensure that all Alberta licensees implement an effective SLMS and related IMP,
- review innovative methods for increasing the understanding of the compliance level of pipeline licensees,
- verify compliance beyond the current inspections related to pipeline operation,
- incorporate an automated system that manages the data and processes associated with the ERCB SLMS Assurance Program, enhancing the productivity of the ERCB staff assigned to operate the SLMS Assurance Program, and
- enable the ERCB to monitor the effectiveness of SLMSs on a province-wide basis.

Work to design and develop the ERCB SLMS Assurance Program is currently underway, with completion of the design process proposed by mid-2014. After the design phase, the ERCB proposes to execute the build and test phase, which would be immediately followed by internal and industry

implementation. The ERCB proposes to have full implementation of the SLMS Assurance Program by the end of 2015.

Implementation and expansion of the ERCB SLMS Assurance Program will assist the ERCB in addressing the following recommendations made in the review:

Recommendation² **Integrity Management Programs for all companies under the ERCB’s jurisdiction should be audited on a routine basis for compliance with respect to adequacy, implementation and effectiveness. Given the number of licensees in Alberta, this is potentially a near impossible task for the ERCB to achieve on its own. Consideration should be given to accepting self or third party audits from licensees; complemented by random and risk assessed requirements for ERCB led audits (which could vary in intensity or focus as required). (p. 9)**

Response The ERCB SLMS Assurance Program will address the recommendation to implement effective and innovative audits of the IMPs. This would avoid the inefficient operation of separate IMP audit processes and separate SLMS Assurance Programs. The SLMS Assurance Program will enable the ERCB to describe the state of SLMS effectiveness on a province-wide basis, improve pipeline licensee compliance with ERCB requirements through continuous improvement, and lead pipeline licensees to the next level of improved performance through SLMS.

The ERCB will ensure that all Alberta licensees have implemented effective SLMSs and related IMPs. The ERCB will review innovative and effective methods for increasing the understanding of the compliance level of pipeline licensees, including reviewing the role and frequency of audits. Such audits may include independent third-party audits of some licensees SLMSs. The ERCB will also work towards developing an automated system to support the ERCB in its operation of the SLMS Assurance Program.

Recommendation **ERCB should work collaboratively with stakeholders to set clear goals and objectives to focus and manage the reduction of pipeline failures to a level as low as reasonably practicable (ALARP). (p. 9)**

² These recommendations are quoted verbatim from the review itself. They have not been edited.

Response The fundamental principle of risk-based hazard management is that while risk cannot be eliminated altogether, it is possible to reduce the risk to a level that is as low as reasonably practicable (ALARP). The ERCB has many recognized risk management practices and measures used by pipeline operators to manage well-understood hazards arising from their activities; these will be considered in the development of an ALARP assessment process.

The ERCB is familiar with ALARP principles and has considered the ALARP approach while developing *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry*. Recently, the ERCB has included the ALARP principle in the *Pipeline Regulation* for the design of emergency shutdown devices for sour gas pipelines.

To improve the ALARP assessment process to better focus on and manage the reduction of pipeline failures, the ERCB proposes to work collaboratively with stakeholders to

- conduct a review of ALARP processes for pipelines implemented by other regulatory jurisdictions,
- review the entire system the ERCB uses to regulate the safety of pipeline activities and determine how ALARP will be incorporated,
- set ALARP goals and objectives, including risk tolerability limits,
- define and test an ALARP assessment process, and
- develop regulatory requirements for ALARP assessments.

The ALARP approach, along with the ALARP assessment process and the SLMS Assurance Program, will reduce the risk of pipeline failures to a level that is as low as reasonably practicable.

Recommendation **The ERCB should require that all integrity management programs contain a process for identifying and mitigating the risk associated with high consequence areas, including for the safety of pipelines near water bodies. (p. 10)**

Response The SLMS requires a documented approach to identify hazards and manage risk. The *CSA Z662* standard currently addresses consideration for risk in developing pipeline integrity management programs, and the ERCB uses a risk ranking process for setting inspection priorities.

As a part of the ERCB SLMS Assurance Program, the ERCB will review additional requirements and procedures for mitigating risk.

Recommendation **The ERCB should require an inventory be kept by licensees of all pipeline water crossings and water bodies to a 1:50 000 map scale as a minimum, (this provides a more stringent level of identification of water crossings and water bodies, and more refined input for risk ranking). An example of this taken from interviews is Company “A” who had 2200 crossings on a 1:1 000 000 mapping scale; but at a 1:50 000 scale it identified 16 000 crossings. (p. 9)**

Response The ERCB currently requires pipeline licensees to provide information on water crossings during the pipeline application stage. Various mapping data sets showing water bodies are available; however, there is no established practice for the related spatial accuracy of the data or for what water bodies are included in the data set. The ERCB proposes to work with stakeholders to determine the best combination of existing mapping data sets and water bodies to be used by pipeline licensees to identify pipeline water crossings and proposes to implement a requirement for pipeline licensees to maintain an accurate inventory of water bodies and water crossings to a minimum set standard of 1:50 000 map scale. In some situations, the licensees may need to use maps with even more detail to maintain accurate inventory of water bodies and water crossings.

Recommendation **ERCB should require depth of cover determinations on a scheduled basis on all critical and high-risk water crossings. Recommendations 1 and 3 in Pipeline Integrity Management, if implemented, will guide this recommendation. (p.10)**

Response The ERCB has requirements in place for minimum depth of cover and requires annual inspections of water crossings. The pipeline licensee is expected to meet the depth of cover requirements at all times and must ensure the appropriate frequency of monitoring to maintain the depth of cover. Once the mapping of water bodies and water crossings is established, the ERCB proposes to determine with stakeholders a standardized method to identify critical and high-risk water crossings and implement a requirement for the licensees to monitor depth of cover at such crossings.

The ERCB proposes to enhance a process to evaluate licensees' compliance with the current water-crossing inspection requirements and evaluate the acceptability of the right-of-way inspection requirements for existing pipelines.

If appropriate, the ERCB will propose regulatory changes to the current right-of-way inspection requirements to address frequency of inspections on all critical and high-risk water crossings.

The ERCB *Pipeline Regulation* and the *CSA Z662* standard prescribe minimum depth of cover on pipelines. As a part of the ERCB SLMS Assurance Program, the ERCB will review additional requirements and procedures for mitigating risk.

Recommendation **Record retention and transfer requirements, specifically during takeovers, mergers, acquisitions and sales, should be clearly defined in the regulation. (p. 9)**

Response The ERCB *Pipeline Regulation* and the *CSA Z662* standard have requirements for record retention by the pipeline licensee. During the development of *Directive 071: Emergency Preparedness and Response Requirements*, the ERCB expanded and clarified the requirements for emergency response programs during asset transfer.

The ERCB proposes to evaluate current CSA requirements, ERCB requirements, and those of other regulators for the transfer of design, construction, operation, maintenance, discontinuation, and abandonment records to subsequent owners of pipelines. As a part of the SLMS Assurance Program, the ERCB proposes to determine existing availability of pipeline data and determine appropriate actions to address missing data. The ERCB proposes to also evaluate the possibility of a centralized electronic record storage where companies could store pipeline records and make them available as necessary.

Recommendation **Where appropriate the ERCB should consider using performance-based regulation for those licensees whose performance warrants such an approach (this approach is used by the pressure equipment regulator in Alberta and is the trend among major regulators such as PHMSA and in the EU). This process should be evolutionary with compliance audits**

providing the necessary confidence for the transition to a performance-based system. (p. 9)

Response Performance-based requirements specify the desired regulatory outcomes but not the manner in which those outcomes must be achieved. Compliance with performance-based requirements is best achieved through implementation of effective management systems and is best evaluated by the regulator through the assessment of the pipeline companies' management systems and operating performance. Assessment of management systems requires a different approach to those traditionally used for the evaluation of prescriptive requirements.

The ERCB has been using a blend of prescriptive requirements and performance-based requirements. The ERCB recognizes the benefits and challenges of using performance-based requirements and has been using them where appropriate.

As part of the ERCB SLMS Assurance Program, the ERCB proposes to evaluate opportunities for using performance-based requirements and proposes to adjust its requirements based on the results.

Recommendation The ERCB should be staffed appropriately to manage and enforce regulations (whether prescriptive or performance based) to ensure pipeline safety and integrity. (p. 9)

Response As a part of its planning process, the ERCB balances the need to ensure appropriate staffing levels for all areas and the need to address changes to the staffing needs, whether triggered by changes in the regulations or changes in priority areas. The ERCB proposes to address required staffing complement and competencies in conjunction with requirements needed to manage and operate the SLMS Assurance Program and the normal regulatory management and operational duties carried out by the Pipeline Operations Section and Field Operations.

The ERCB proposes to review staffing for Pipeline Operations and Field Operations to ensure that there are appropriate resources to meet current and future processes and programs.

Recommendation Institute the risk ranking of all pipelines based on standardized methodology to be developed by Canadian regulators and stakeholders.

(Must be standardized so that all stakeholders are using the same basis for comparison and have a common level of understanding and definition of risk.)
(pp. 8–9)

Response

The review highlighted a common requirement by all Canadian regulators to adopt the Canadian Standards Association document *CSA Z662* as the minimum standard for pipelines. It stated that this provides consistency with respect to design and construction and somewhat to operations and maintenance, integrity management, and risk management.

The CSA is a not-for-profit association that develops Canadian standards; the ERCB actively participates in the development of the CSA pipeline standards. *CSA Z662* requires companies to develop, implement, and maintain a documented safety and loss management process for the pipeline system. Although CSA has a requirement for operating companies to develop and implement an integrity management program, the ERCB has made specific content of the program mandatory in Alberta.

The existing *CSA Z662* standard includes “Annex B – Guidelines for risk assessment of pipelines.” As a part of the SLMS Assurance Program, the ERCB proposes to work with the CSA to enhance the existing standardized method for the risk ranking of pipelines. The ERCB proposes to evaluate the enhanced risk ranking process for use in the ERCB SLMS Assurance Program to apply appropriate emphasis on Alberta pipelines.

The ERCB lacks the authority to directly influence Canadian regulators and stakeholders to establish a standardized methodology for risk ranking of all pipelines. However, the ERCB believes this to be an important idea and proposes to work, through initiatives with the CSA, to establish a Canadian standardized methodology. At the same time, the ERCB proposes to initiate development and implementation of a standardized method for risk ranking pipelines in Alberta.

Recommendation

Set minimum requirements for comprehensive inspection and testing programs for pipelines to establish the current condition of pipelines in assessed high-risk areas as identified in recommendation 1 above. (*Leak detection, depth of cover, inline inspection, direct assessment and right of way surveillance. Used with recommendation 5 below, this will allow*

licensees with solid performance records to meet these requirements on a risk managed and performance based approach.) (p. 9)

Response Under existing requirements, all pipeline licensees in Alberta must have IMPs for all of their pipelines. As a part of the SLMS Assurance Program, the ERCB proposes to continue to work with the CSA to enhance its standards. The ERCB proposes to evaluate comprehensive pipeline inspection and testing requirements for use in the ERCB SLMS Assurance Program.

Recommendations for General Operational Change

A number of the review's recommendations do not seek the implementation of a specific program, rather they may be incorporated into regular operational activities immediately. The ERCB constantly updates policies, plans, and requirements based on ongoing assessments of operations, lessons from inspections, incidents, and a study of best practices from other regulatory jurisdictions.

Recommendation Regulators and licensees could jointly develop a stakeholder education/awareness program on the consequences of right-of-way encroachment and how to react in the event of an emergency. (p. 8)

Recommendation Third party encroachment and pipeline interference is still a major concern to licensees. Additional education of industries and the public as to the risks and regulatory requirements of working near pipelines could be promoted. Some licensees stated the setback requirements are inadequate for class 4 areas (where there is presently municipal development, or a high future potential for municipal development). (p. 9)

Response CSA Z662 prescribes pipeline requirements according to approximate population density within 200 metres of the centreline of the pipeline and groups the locations into four class areas. Class-4 areas are defined in the CSA Z662 as locations with a prevalence of buildings intended for human occupancy with 4 or more storeys above ground.

The ERCB provides education and awareness to stakeholders on pipeline safety by giving formal presentations, participating in spill co-ops and emergency response exercises, setting up booths at applicable tradeshow, and as a routine part of inspections and audits.

To enhance these efforts and to address both of these recommendations, the ERCB will establish a working team with other Alberta regulators, damage prevention organizations, and industry associations to evaluate, enhance, and execute existing education programs. Such programs can increase awareness of pipelines among licensees, the public, municipalities, land developers, and excavators; such programs will also communicate which precautions to take prior to excavating near pipelines, how to identify hazardous situations and consequences, what actions to take in the event of an emergency, and how to reduce encroachment on pipelines and thereby reduce public impact in an emergency.

The ERCB will consult key stakeholders to implement enhanced education and awareness plans and to coordinate the execution of these plans.

Recommendation **ERCB staff should consider increased participation in stakeholder hosted emergency response exercises, as these present an opportunity to share knowledge as well as provide an opportunity to the regulatory staff to informally review ERP documents and processes (It is noted that the ERCB participates in many ERP exercises, but when it comes to pipeline specific exercises, licensees indicated there was opportunity for more attendance). (p. 8)**

Response In 2012, the ERCB received notifications of approximately 150 facility and pipeline emergency response plan (ERP) exercises and participated directly in approximately 20 of those exercises.

The ERCB will make exercise participation a core activity with annual objectives; it will also work with stakeholders to identify gaps and ensure that gaps are addressed with the goal of continuous improvement. In addition to formal reviews and approvals of ERPs, the ERCB will determine the optimal number of licensee pipeline-specific ERP exercises to participate in to better review an ERP's implementation, to share knowledge, and to support continuous improvement.

The ERCB will participate in exercises based on random and judgement criteria such as exercises on moving water, exercises required by ERCB hearing decisions, exercises within each ERCB field centre boundary, and exercises based on pipeline scenarios.

Recommendations **The ERCB should work with other regulators to harmonize regulatory requirements and support a consistent regulatory basis for stakeholders (for example the recently stated key performance indicators required by the National Energy Board could be considered for adoption by the ERCB). The use of a standard such as CSA Z662 is a valuable tool in promoting harmonization. (p. 9)**

Response The ERCB recognizes the benefits of harmonization both to Alberta and to the pipeline industry. The review identified the importance of the ERCB regulatory framework in influencing the requirements of other regulators. Even though the ERCB bears no responsibility to lead the harmonization of requirements, it will work towards harmonizing requirements and will continue to support all such efforts.

The ERCB will evaluate the review's comparison tables of regulatory requirements to identify and understand focus areas for harmonization. The ERCB will continue its participation in the CSA to help influence and harmonize regulatory requirements. The ERCB will increase communication and sharing of information with other agencies and will work with other regulators and industry associations to develop key performance indicators.

The ERCB will evaluate and consider existing assurance programs used by other regulators to incorporate into its own SLMS Assurance Program.

The ERCB will continue to participate in existing industry workshops and conferences (such as the Banff Pipeline Workshop and the International Pipeline Conference in Calgary) and may conduct or participate in other events that promote harmonization.

Recommendations Outside the ERCB's Mandate and Jurisdiction

A number of the review's recommendations fall outside of the ERCB's mandate and jurisdiction. However, the ERCB acknowledges the benefit of appropriately addressing these recommendations to improve the regulation of pipelines in Alberta; the sharing of information and best practices with other jurisdictions is similarly beneficial. Where appropriate, the ERCB will inform responsible organizations and third parties of the recommendations immediately and support actions to implement those recommendations, if required.

Recommendation **The Call Before You Dig (Alberta 1 Call) membership requirement is legislated as compulsory in Alberta for pipeline licensees; but this is not**

the case nationally. Consideration should be given to instituting this as a Canada wide program. Not only would this benefit other jurisdictions where it is not a requirement, but it would also ensure that new Albertans are consistently aware of these requirements. (p. 8)

Response The ERCB lacks the authority to implement Canadian call-before-you-dig programs; however, the ERCB will inform the Alberta Common Ground Alliance (ABCGA) of this recommendation. The ERCB will continue to be an active member of the ABCGA.

Recommendation Work with appropriate education or industry institutions to develop certification programs for individuals (operators, construction and integrity inspectors and supervisors) in the areas of pipeline safety, including construction, operation, inspection and integrity management. (p. 9)

Response The ERCB sees the benefits of certification programs for pipeline industry workers, but the ERCB has limited jurisdiction over certification programs. However, should the Government of Alberta wish to pursue this recommendation, the ERCB is available to work with industry and educational institutions by providing technical advice and guidance towards the establishment of a certification program.

Recommendation Definition should be provided on what constitutes a water body. More clarity with regard to expectations for design, inspection, mitigation and monitoring at water bodies could be provided (in an ERCB directive or in CSA Z662). (p. 9)

Response The SLMS requires a documented approach to identify hazards and manage risk. The ERCB SLMS Assurance Program results will provide further guidance on the requirements for design, inspection, mitigation, and monitoring at water bodies.

This recommendation falls outside of the ERCB's mandate and jurisdiction. However, should the Government of Alberta wish to pursue this recommendation, the ERCB will work with Alberta Environment and Sustainable Resource Development to clarify the definition of water body relative to Alberta pipelines and the related design, construction, operation, and inspection requirements. The definition of water body could then be

applied consistently across all Alberta regulatory instruments, including those of the ERCB.

Once water body is defined, ERCB staff will review all requirements and risk-management standards associated with water crossings to ensure they remain effective as a result of the standard definition and make necessary changes. In addition, the ERCB will determine if changes are needed to the response to recommendations regarding the mapping of water crossings and depth of cover determinations at critical and high-risk water crossings.

Conclusion and Next Steps

The ERCB has begun work to determine resources and implementation times to respond effectively to the recommendations in the *Alberta Pipeline Safety Review*. As part of the ERCB's normal operational planning process, required resources will be assessed and applied to priority projects.

Work to design and develop the ERCB SLMS Assurance Program is currently underway, with completion of the design process proposed mid-2014. After the design phase, the ERCB proposes to execute the build and test phase, which would be immediately followed by internal and industry implementation. The ERCB proposes to have full implementation of the SLMS Assurance Program by the end of 2015.

Since some outcomes are national in scope, or depend on organizations that are independent of the ERCB, the ERCB proposes to initiate the development of the associated requirements in Alberta while working collaboratively to pursue national approaches.

As noted previously, recommendations integrated into ERCB operations are currently being addressed within the ERCB's regular planning process. Implementation will commence in the 2013/14 operating year. Recommendations outside of the ERCB jurisdiction will be immediately shared with appropriate organizations. The ERCB will provide support and assistance in the implementation of these recommendations if required.

The ERCB will immediately engage industry stakeholders to discuss the review's recommendations and determine how industry can contribute to developing the necessary actions to address these recommendations. As the recommendations are implemented, the ERCB will continue to engage with key stakeholders throughout the development of awareness programs and obtain feedback on proposed regulatory changes.

The ERCB believes that taking the above actions fulfill the objectives identified in the original request to conduct the *Alberta Pipeline Safety Review*, specifically

- to identify any need to change the *Pipeline Act* or other regulatory instruments,

- to revise or improve industry best practices regarding pipeline construction, operation, and maintenance, and
- to identify any necessary changes or opportunities in other relevant policy matters.

In addition, these recommendations will continue to support the ERCB in its pursuit of continuous improvement and efficient regulatory oversight of pipeline operations in Alberta.

The ERCB will provide a status report to the Minister of Energy on the implementation of the recommendations in March 2014.