



Safety and Security of Energy Pipelines in Canada: A Report to Ministers

Energy and Mines Ministers' Conference

Sudbury, Ontario

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Table of Contents

Executive Summary.....	1
Context and Methodology	3
Introduction.....	4
Survey Results and Analysis	6
I) Prevention	7
Safety Culture and Standards.....	7
Maintenance, Testing, Inspections and Audits	9
Spill Data	9
Compliance, Orders, Penalties, and Fines	10
II) Preparedness & Response.....	11
Emergency Management Program	11
Incident Reporting	13
Response Standards.....	13
Restoration of Environmental and Natural Resources Damages	14
Response Equipment	16
Drills, Exercises, and Personnel Training	17
III) Liability & Compensation	18
Comprehensive Liability Regime	18
Financial Capacity Requirements	19
Independent Financial Backstop	19
Conclusion	20
Next Steps.....	20
Annex 1: Survey Questions	21
Annex 2: Survey Responses.....	23
Annex 3: Pipeline Regulators in Canada	89

Executive Summary

Canada's oil production in 2012 was higher than it has ever been before, and is projected to continue growing in coming years. Production from Canada's oil sands is forecast to continue growing from 1.8 million barrels per day to more than 5 million barrels per day in 2035. New gas discoveries, particularly from shale, are also rising, further driving forecasts of growing natural gas production. Moving this oil and gas to markets requires infrastructure in the form of pipelines, rail or marine tankers. In Canada, the vast majority of oil, and all natural gas, is moved to market in pipelines. Federally regulated pipelines transport more than \$100 billion worth of oil, gas, and petroleum products each year.

With several major pipelines being proposed or developed in recent years and in light of a number of high-profile incidents across North America recently, the safety and security of Canada's pipelines is under intense scrutiny. With this in mind, the federal, provincial and territorial governments undertook a detailed review of the safety regimes governing pipelines across Canada. The analysis involved a survey of jurisdictions with pipeline systems.

This report consolidates the input received from across the country to provide a comprehensive perspective on Canada's overall pipeline regulatory regime. The approach to pipeline safety in Canada can be divided among three pillars: (1) prevention; (2) preparedness and response; and (3) liability and compensation. There are many similarities in the regulatory approach undertaken by different jurisdictions under each of these pillars.

Prevention

Both Federal and Provincial pipeline regulators require pipeline operators to anticipate, prevent, manage and mitigate potentially dangerous conditions associated with pipelines under their jurisdiction. Companies must design safety management, environmental protection, emergency management, security management, third party crossings, public awareness and integrity programs, which are reviewed and audited by regulators. Pipeline management is always improving with regular updates to standards and regulations that require operators to systematically inspect and evaluate pipe condition and proactively ensure safe operation.

Preparedness and Response

Federal and provincial pipeline regulatory oversight is aimed at preventing incidents from happening. However, if an incident occurs, regulators exercise their authority to protect the public, workers, property, and the environment. A company's emergency management program guides response and containment of a spill with appropriate equipment and personnel. Pipeline companies must have internal or contracted spill first-responders, and continually educate them on practices and procedures to be followed in the event of an emergency.

Industry also has voluntary arrangements in place to collaborate on emergency preparedness and response. For example, through oil spill co-operatives, companies within a specific geographic region work together to achieve a state of spill response readiness. Additionally, member companies of the Canadian Energy Pipeline Association (CEPA) recently formalized an agreement to collaborate on emergency response, which allows for the sharing of resources, personnel, equipment and advice, in the event of an emergency.

Liability and Compensation

Provincial liability regimes apply to both federally and provincially regulated pipelines as long as they do not violate the inter-jurisdictional immunity and paramountcy. The provinces and territories have used two general approaches, often simultaneously, to create statutory civil liability regimes. Some provinces, as well as the Yukon Territory, have enacted legislation governing the operation of intraprovincial pipelines; in many cases, such legislation imposes some degree of liability on pipeline operators for government spill response costs. Second, every province and territory has enacted legislation governing the release of environmental pollutants. These laws typically establish a cost recovery mechanism that governments may use to hold pipeline operators liable for spill response costs. In some cases, pipeline operators are also subject to codified liability where a spill causes government and/or third party loss or damage.

Next Steps

Continuous improvement is an absolute requirement for achieving and maintaining a world-class energy pipeline regulatory regime in Canada. Building on recent and ongoing pipeline regulatory improvements across federal, provincial and territorial jurisdictions, areas of focus moving forward include:

- Continue implementing proposed legislative, regulatory, and related pipeline initiatives while ensuring that Aboriginals and other key stakeholders are meaningfully engaged;
- Commit to further studying and improving the safety and security of broader energy transportation systems including rail, marine and trucking;
- Enhance communications to ensure fact-based dialogue surrounding energy transportation;
- Explore options for improved cooperation and collaboration between jurisdictions either through harmonization, sharing or leveraging information and expertise;
- Explore opportunities for enhanced collaboration on pipeline innovation between governments, regulators and industry – for example, “Best Available Technologies” recognized through the Canadian Pipeline Technology Collaborative (CPTC);
- Continue to cooperate in efforts to enhance the safety and security of hydrocarbon production and transportation systems, including damage prevention and cyber security.

Context and Methodology

With 825 000 kilometres of transmission, gathering and distribution pipelines in Canada, most provinces have significant pipeline infrastructure. This includes 105 000 kilometres of large-diameter transmission pipelines. Oil and natural gas pipelines are generally buried underground and service most major Canadian cities. The National Energy Board (NEB) regulates about 100 companies which operate over 73 000 kilometres of pipelines in Canada.

Pipelines are necessary to deliver fuel to Canadians to heat their homes, drive their cars, or travel by bus, ship, train, or air. The majority of homes in Canada are heated with natural gas, all of which is delivered by pipeline. Petroleum products are also used as feedstock to make materials found in everyday household items, such as toiletries, electronics and clothes. Pipelines are used to move these petroleum products to refineries and to customers across the country. Canadians simply could not live as they do today without pipelines.

Before any pipeline project can proceed, it must be reviewed by the appropriate federal or provincial regulator to ensure that it is designed, constructed and operated in a manner that is safe and secure, protects the environment and the public, and is economically feasible and in the public interest. Pipelines are regulated throughout their entire life cycle (planning, design, construction, operation, decommissioning and abandonment). An integral part of this process is the engagement of stakeholders. This two-way communication keeps stakeholders informed about projects and keeps the pipeline operator and government aware of community issues and concerns while informing appropriate mitigation to minimize impacts

Canada has the resources to become a global supplier of oil and natural gas, but requires additional infrastructure to access new or expanding markets. Markets are responding, by driving the pursuit of various transportation options, including pipelines, marine, and rail. In light of this expanding energy transportation infrastructure, when taken in conjunction with several recent high-profile incidents, there is increasing scrutiny on the part of Canadians regarding the safety of Canada's energy infrastructure and transportation systems.

Within this context, federal, provincial and territorial officials sought to catalogue existing safety and security measures and regimes covering pipelines across Canada, to take stock and assess the scope of these activities.

A survey (ref. Annex 1) was circulated to federal, provincial and territorial officials through the Energy and Mines Ministers' Conference Markets and Trade Working Group. Annex 2 provides the jurisdictions' responses. The survey collected information on specific elements related to pipelines, organized under three pillars: 1) Prevention; 2) Preparedness & Response¹; and, 3) Liability & Compensation.

Each jurisdiction was invited to use the survey as a means to frame their particular pipeline safety regime. This report consolidates the input received from the provinces so as to provide an overview of pipeline regulatory regimes across Canada. The report is not intended to provide comparisons between jurisdictions or to serve as a gap analysis tool; instead, it is a simple compendium of pipeline regulatory

¹ In some provinces, such as British Columbia, provincial environment ministries have legislated responsibilities for spills of hazardous materials. Provincial environment ministries were not specifically surveyed in this exercise.

regimes across Canada. This is an important point as the jurisdictions being compared differ substantially in the amount of pipelines and types of products that flow through them, making comparisons difficult.

Introduction

Canadian pipeline regulators provide safety-focused oversight and emergency management for energy pipeline facilities and operations. The National Energy Board (NEB) is the independent federal agency established to regulate international and inter-provincial pipelines, energy development and trade. Pipelines contained entirely within a single jurisdiction are generally regulated by provincial or territorial regulatory bodies. Annex 3 provides a list of pipeline regulators in Canada.

Pipeline regulatory regimes across Canada have much in common, including the adoption of the Canadian Standards Association (CSA) standard Z662 – *Oil and Gas Pipeline Systems*, which sets out the technical standards for the design, construction, operation, maintenance and decommissioning of Canada’s oil and gas pipelines. However, there are still significant differences in regulatory regimes across Canada. This report uses survey data to compare and contrast pipeline regulatory regimes across Canada, focusing on three particular areas.

Prevention

Regulatory oversight is aimed at preventing incidents from happening. Pipeline regulators require companies to anticipate, prevent, manage and mitigate potentially dangerous conditions associated with their pipelines. Companies must design safety management, environmental protection, emergency management, security management, third party crossings, public awareness and integrity programs, which are reviewed and audited by regulatory bodies. Regulators have various enforcement measures at their disposal to ensure compliance.

Preparedness & Response

In the event of a spill, pipeline regulators must be notified immediately. A company’s Emergency Procedures Manual guides the response and containment of a spill. Pipeline companies must have internal or contracted spill first-responders and continually educate all first responders – including external agencies such as fire departments and police – on practices and procedures to be followed in the event of an emergency.

Liability & Compensation

If the operator is at fault, the pipeline company is liable for costs to clean up a pipeline spill. Regulators can order remediation. The Government of Canada intends to enshrine in legislation the ‘polluter pays’ principle and require pipeline companies to have sufficient financial capacity to respond to spills, leaks and ruptures while ensuring companies remain responsible for their abandoned pipelines. In addition to being financially responsible for clean-up, the company may also be fined or be subjected to other enforcement actions such as Notices of Non-Compliance, Orders, Administrative Monetary Penalties, revocation of authorization or prosecution. Violators may also be subject to prosecution and fines under other federal and provincial legislation.

The next chapter lists Government of Canada actions to improve the federal pipeline regime within the context of safety and security. The balance of the report compares and contrasts highlights of pipeline regulatory regimes across Canada.

Canada's World-Class Pipeline Safety

The Government of Canada is taking action to improve Canada's pipeline safety system on federally regulated pipelines through the strongest measures in three areas — 1) Prevention; 2) Preparedness & Response; and 3) Liability & Compensation. Examples of recent changes, initiatives and proposed amendments include:

Prevention

- Increase the number of annual oil and gas pipeline inspections conducted by the National Energy Board (NEB) by 50 percent
- Double the number of annual comprehensive audits by the NEB (from three to six)
- Improve disclosure of publicly available pipeline safety documents
- The government will seek guidance from NEB on the application of “best available technology” in pipeline construction and operations
- Apply Administrative Monetary Penalties for violations of the *NEB Act*
- Strengthen and clarify the powers of NEB audit and inspection officers

Preparedness & Response

- Require pipeline companies to have minimum financial resources to be prepared for an incident (set at \$1B for major oil pipelines)
- Require companies to have a minimum amount of cash on hand to respond quickly to incidents
- Enable the NEB with the ability to take control of response and clean-up
- Provide the NEB authority and resources to take control of incident response if a company is unable or unwilling to do so
- Develop a strategy for integrating Aboriginal communities in pipeline safety operations, e.g., emergency response planning, pipeline monitoring, and related employment and business opportunities

Liability & Compensation

- Make companies operating pipelines liable on a “no-fault” basis for up to \$1 billion, in addition to unlimited liability when at fault or negligent
- Hold pipeline companies responsible for pipelines for entire life cycle, including post abandonment
- Provide government funds for clean-up if a company is unable or unwilling (incapacitated) and recover costs from industry
- Provide the NEB with authority to order companies operating pipelines to reimburse any cleanup costs incurred by governments or individuals
- Improve pipeline arbitration for compensation disputes

Survey Results and Analysis

I) Prevention

Both Federal and Provincial pipeline regulators require pipeline operators to anticipate, prevent, manage and mitigate potentially dangerous conditions associated with pipelines under their jurisdiction. Companies must design safety management, environmental protection, emergency management, third party crossings, public awareness and integrity programs, which are reviewed and audited by regulators. Pipeline management is always improving, with regular updates to standards and regulations that require operators to systematically inspect and evaluate pipe condition and proactively ensure safe operation.

Safety Culture and Standards

Safety culture is an assembly of characteristics and attitudes that ensure an overriding priority for safety issues. Safety culture is implemented by organizations and reinforced and mandated through the adoption of codes, standards and regulations.

The Canadian Standards Association (CSA) provides the benchmark standards and regulations for all pipelines in Canada. The CSA [Standard Z662 — Oil and Gas Pipeline Systems](#) sets out the technical standards for the design, construction, operation, maintenance and decommissioning of Canada’s oil and gas pipelines. Standards are continually reviewed using strict revision and approval protocols by a knowledgeable and experienced group of professionals representing industry stakeholders, including provincial and federal pipeline regulators. CSA Z662 is revised and published on a four-year basis.

Regulations and legislation govern pipeline activities within Canadian jurisdictions. Examples include [New Brunswick’s Pipeline Act 2005](#) and [Manitoba’s Oil and Gas Act](#). All provincial and federal regulatory bodies adopt the latest version of CSA Standard Z662 into their own regulatory frameworks through “incorporation by reference”. Some provinces adapt CSA Z662 to reflect unique circumstances in their jurisdiction.

Other examples of recognized standards organizations that can be incorporated by reference include: the American Petroleum Institute (API), the American Society of Mechanical Engineers (ASME), the American Society for Testing and Materials (ASTM), Underwriters Laboratories of Canada (ULC) and the National Research Council Canada (NRCC).

GOVERNMENT OF CANADA
CanmetMATERIALS Pipelines Program

CanmetMATERIALS is a materials research laboratory in Natural Resources Canada. Its Pipelines Program develops and validates new materials and technologies to:

- extend the life of oil and gas pipelines;
- increase pipeline capacity;
- ensure pipeline integrity and reliability;
- provide authoritative information on pipeline materials issues;
- improve or enable development of new codes and standards; and,
- facilitate innovation and competitiveness.

INDUSTRY-LED INITIATIVE
Canadian Pipeline Technology Collaborative

The recently established Canadian Pipeline Technology Collaborative (CPTC), led by industry, will address key challenges in technology development for the pipeline industry. The key objectives of the CPTC include: to develop, implement and commercialize new pipeline technologies; champion the expansion of research infrastructure in government, academic and private research facilities across Canada to meet the needs of industry-driven projects; and support a network for pipeline research in Canada and around the world to focus collaboration on priority issues.

Supply chain partners, especially small and medium enterprises, will be engaged to validate new technologies as well as to develop new technologies to fill technology gaps identified through the project work. Priority topics, identified by industry, include:

- **Integrity Management:** Reduce the number of pipeline leaks through effective design, construction, inspection and maintenance;
- **Leak Detection:** Improve the sensitivity and reliability of leak detection systems; and,
- **Spill Response:** Mitigate the environmental impact of spills through faster response and effective restoration techniques.

While most jurisdictions use CSA Z662 as the minimum performance standard for pipelines, some provinces impose additional requirements. For example, CSA Z662 contains non-mandatory provisions in its annexes such as “*Guidelines for pipeline system integrity management programs*”. Alberta and British Columbia make these guidelines mandatory and enforce them through provincial regulatory frameworks. The Alberta Energy Regulator (AER) and the British Columbia Oil and Gas Commission (BCOGC) require pipeline operators to develop, implement, and document, for all of its pipelines, a pipeline integrity management program that complies with the latest edition of CSA Z662, Annex N. Similarly, Alberta and Saskatchewan require that the recommended leak detection requirements contained in Annex E of CSA Z662 are mandatory for liquid hydrocarbon pipelines.

In British Columbia, pipeline companies are required to develop, implement and maintain Damage Prevention Programs designed to anticipate and proactively prevent third party damage to pipelines resulting from unsafe excavation practices. Nationally, a new CSA standard is under development to establish minimum requirements for damage prevention programs (CSA Z247). This new standard is multi-sectoral and is being drafted in a form suitable for adoption by reference by all regulators across Canada.

Quebec has an overarching department of public security that is in charge of public safety. Its main goal is to reduce the vulnerability of Quebecers to disaster risks by developing a safety culture. The Department is responsible for administering the Quebec Civil Protection Policy 2014-2024 and the *Civil Protection Act*, which both have the primary objective of making Quebec society safer and more resilient to disasters. Similarly, as infrastructure is being proposed, Quebec’s BAPE (public environmental hearings board) advises, surveys and consults the public on projects or matters involving environmental quality issues referred to it by the Minister, including pipeline projects. It then publishes reports on its inquiries. The BAPE is a government agency with advisory functions and no decision-making authority. In matters related to pipeline construction projects, the BAPE is primarily concerned with issues surrounding the safety of proposed infrastructure.

Maintenance, Testing, Inspections and Audits

Ensuring pipeline safety and integrity is primarily the responsibility of pipeline operators. In all instances, companies must have robust management systems in place to design, construct, operate, maintain, test and inspect pipelines.

Most pipeline regulators require pipeline operators to develop, implement and abide by pipeline integrity programs. Integrity Management Programs are required under CSA Z662 and form the basis for much of the required maintenance, testing and inspections on pipelines.

Pipeline integrity programs must be approved by regulators. Typical integrity management programs include: inline pipeline inspections, records of the pipeline’s history, operating manuals which include testing requirements (type, frequency, location etc.), engineering assessments to address issues such as corrosion, third-party damage and geotechnical hazards, mitigation plans and priorities.

Usually, Inline Inspection (ILI) testing is performed at a frequency determined by the age, material and product characteristics being transported. Other tests used are based on the results of ILI. This usually means inspection digs, visual inspection, and non-destructive testing. Companies must also periodically test instruments and equipment at the pipeline stations to verify their proper and safe operation.

In addition to pipeline operators’ own efforts to maintain, test, and inspect their pipeline infrastructure, regulators also inspect infrastructure and conduct independent audits. The types of testing and the frequency and location of such tests depend largely on the products being transmitted, the location, the line size, the age of the pipeline and issues identified during past integrity audits. Taken together, this provides a risk-informed model for inspection and verification.

If issues arise that may threaten the protection of property and the environment and the safety of the public and the company’s employees, pipeline regulators can direct the company to test, inspect or assess a pipeline in accordance with CSA standards or any other comparable standards. Repairs are to be carried out in accordance with CSA Z662, the company’s operation manuals and its Pipeline Integrity Management Program as well as any relevant legislation and regulations.

Spill Data

Over the 2008–2013 period, 99.999 percent of the crude oil and petroleum products transported by Canada’s federally-regulated pipelines arrived safely. Further, over the past 3 years (2011–2013),

SPOTLIGHT - Alberta

The Alberta Energy Regulator (AER) performs proactive pipeline inspections using a prioritization model called ‘OSI’. ‘The OSI’ helps determine the frequency of facility inspections.

- ‘O’ stands for ‘operator history’ – operators with poor compliance records will have their facilities inspected more frequently.
- ‘S’ represents ‘site sensitivity’ – the AER assigns inspection priority to higher risk areas including densely populated areas or wetlands.
- ‘I’ refers to ‘inherent risk’ – the AER considers the nature of the resource being transported. For example, high vapor pressure fluids such as propane or ethane would warrant more frequent inspections.

Besides prioritizing inspections by the OSI system, the AER routinely conducts proactive random inspections.

100 percent of the liquids spilled by these pipelines were completely recovered. All Canadian jurisdictions make spill data available to the public and many jurisdictions also make broader compliance reports available to the public. For example, the National Energy Board (NEB) routinely posts compliance and enforcement actions [online](#).

Compliance, Orders, Penalties, and Fines

Jurisdictions have a variety of tools and powers at their disposal for enforcing compliance and reprimanding non-compliance. Enforcement options are generally based on significance and severity of the contravention and the ability to achieve compliance as quickly and effectively as possible. Enforcement options include administrative penalties, tickets, warning letters, enforcement and environmental protection orders and prosecution. In all instances, pipeline regulators have the power to issue advisories, request corrective action, revoke authorizations, impose safety orders that restrict operations, and issue stop-work orders.

In most instances, pipeline regulators have the authority to levy fines and monetary penalties to pipeline operators as a result of non-compliance. For example, a company may be prosecuted under the *National Energy Board Act* for contravening orders or regulations, ranging from \$100,000 and one year in prison to \$1 million and five years in prison. The NEB can also issue administrative monetary penalties to companies and individuals. The maximum daily penalty to individuals is \$25,000 (per violation) and \$100,000 for companies (per violation).

In many jurisdictions, regulators have developed prioritization models for the application of compliance assessment resources such as audits and inspections. In British Columbia, the BCOGC conducts periodic (maximum 5-year interval) assessments of Damage Prevention Programs and Integrity Management Programs. Risk prioritization is used, factoring inherent risk and operator performance data to assign the majority of inspection activities.

Provincial environment ministries also have powers to charge and prosecute pipeline operators for non-compliance. For example, under the penal provisions of Quebec's *Environment Quality Act*, a fine of \$5,000 to \$1,000,000 or a maximum term of imprisonment of 18 months, or both, in the case of an individual, and a fine of \$15,000 to \$6,000,000 for a legal entity, are provided for whoever contravenes the standards governing the discharge of contaminants into the environment or the requirement to inform the Minister of the

SPOTLIGHT - Ontario

A person may be charged, prosecuted and convicted of an offence under the *Environmental Protection Act* in addition to an environmental penalty. Operating licenses and permits may be suspended under the EPA until the environmental penalty is paid.

- The maximum first-offence penalties for failure to comply with the terms and conditions of an environmental compliance approval, certificate of property use, of a license or permit under EPA or failure to comply with terms of a report is \$4 million for individuals and \$6 million for corporations.:
- The maximum first-offence penalties for failure to comply with an order or pay fees as required is \$50,000 for individuals and \$250,000 for corporations.
- For failure to do everything practicable to control the spill of a pollutant or exceeding discharge limits, including a limit of zero the environmental penalties shall not exceed \$100,000 for each day on which the contravention occurred or continued.

MDDELCC² without delay of the accidental presence in the environment of a contaminant. Reference Ontario’s fact box, which provides additional insights into Ontario’s enforcement options under the *Environmental Protection Act*.

II) Preparedness & Response

Federal and provincial pipeline regulatory oversight is aimed at preventing incidents from happening. However, if an incident occurs, regulators exercise their authority to protect the public, workers, property, and the environment.

A company’s emergency management program guides response and containment of a spill with appropriate equipment and personnel. Pipeline companies must have internal or contracted spill first-responders, and continually educate them on practices and procedures to be followed in the event of an emergency.

Industry also has voluntary arrangements in place to collaborate on emergency preparedness and response. For example, through oil spill co-operatives, companies within a specific geographic region work together to achieve a state of spill response readiness. Additionally, member companies of the Canadian Energy Pipeline Association (CEPA) recently formalized an agreement to collaborate on emergency response, which allows for the sharing of resources, personnel, equipment and advice, in the event of an emergency.

Emergency Response Plans outline the action a company will take should an emergency situation occur. They are developed and updated by pipeline operators and submitted to the appropriate regulator for review and audit.

Oil Spill Co-operatives operate within specific geographic areas. The petroleum companies in each co-operative work together to achieve a state of spill response readiness by maintaining spill contingency plans and strategically placing specialized equipment, infrastructure and personnel, available to all member companies in the area, and undergo regional training.

Emergency Management Program

Emergency management includes all activities done prior to an emergency so that designated personnel are ready and able to respond quickly and appropriately to an incident. Activities include identifying hazards; preparing and maintaining an emergency management plan and specific response procedures; identifying and securing sufficient resources and equipment; and designating response personnel and ensuring they are suitably equipped to carry out their duties through training, drills and exercises.

An emergency response plan outlines the necessary steps and decisions required to manage an emergency situation. It contains specific steps that the operator must take to control the incident. It also identifies the detailed roles and responsibilities for all responders, and specifies how a company will work with the appropriate government agencies. Emergency response plans may or may not be geographically specific. Often, such plans include manuals on how to proceed with the deployment of emergency personnel, evacuation plans, communication procedures, and protocols.

² MDDELCC : ministère du Développement durable, de l’Environnement et de la Lutte contre les changements climatiques

In Canada, the National Energy Board requires companies with federally regulated pipelines to have an emergency management program. This program must anticipate, prevent, manage and mitigate conditions during an emergency that could adversely affect property, the environment or safety of the workers or the public. Companies must design emergency response plans for any event that could affect the pipeline, including accounting for geographically specific hazards. Similar requirements are found within British Columbia's Emergency Management Regulation under the BCOGC.

Operators of provincially regulated pipelines must have an approved emergency response plan registered with the appropriate regulator or ministry, or, if located in Alberta, British Columbia or Saskatchewan, must be a member in good standing of Western Canadian Spill Services Ltd. (WCSS)³ oil spill cooperatives. WCSS prepares and submits an emergency response plan to the appropriate regulator on behalf of its members. Going forward, Saskatchewan is considering having all pipeline companies adhere to an oil spill co-op in each geographic area through which their pipeline is routed, and British Columbia is considering requiring all potential spillers (including liquid pipelines) to belong to a province-wide spill response organization similar to Transport Canada's requirements for marine traffic.

Nationally, the CSA Group Strategic Steering Committee on Petroleum & Natural Gas Industry Systems is overseeing the development of a new national standard for Emergency Management that will apply across the entire petroleum and natural pipelines sector. CSA Z246.2 is scheduled for publication in the spring of 2015 and will likely be adopted by reference across much of Canada similar to the current use of CSA Z662.

To test emergency response plans, provinces may require operators to conduct regular emergency response exercises and to regularly consult with those involved in emergency response procedures. Outreach activities to inform nearby residents of what to do in case of a pipeline emergency are considered a best practice.

Some provincial regulators require specific information and tools within or in addition to an operator's emergency response plan. For example, Nova Scotia and New Brunswick require operators to produce an emergency procedures manual in addition to their emergency response plan. Ontario and Saskatchewan require operators to include a procedure within their emergency response plan to notify specific government departments or agencies, municipalities, public authorities or members of the public who may be affected in case of a spill. In Ontario, companies are required to meet with local police, firefighting and conservation authorities, the Ministry of Transportation, the Ministry of Natural Resources, the Ministry of the Environment and the Technical Standards and Safety Authority (TSSA) at set intervals to communicate capabilities and coordination required to respond to emergencies.

The required scope of emergency response plans varies. Most provinces do not require emergency response plans to be site- or area-specific, and instead require plans that can address a spill onto land or water from any well, pipeline or facility.

In Quebec, the *Civil Protection Act* requires regional authorities, in conjunction with their constituent municipalities, to establish a civil protection plan determining objectives and actions to reduce disaster vulnerability across their territory. Operators must take additional precautions when installing pipelines

³ [Western Canadian Spill Services Ltd](#) (WCSS) provides preparedness and response support services that meet regulatory requirements for pipeline licensees that are members in good standing of WCSS oil spill cooperatives in Alberta, NE British Columbia and Area 1 in Saskatchewan.

through cultivated land to restore the soil to agricultural use, ensure soil productivity, and to monitor soil health.

Emergency response plans in Ontario and Alberta must include hazard analysis, risk assessments, and the identification of high-consequence areas. Emergency response planning must then be structured in proportion to risks involved in operations. In Ontario, plans for oil pipeline segments located in high-consequence areas must be provided to the Ministry of Natural Resources and the Ministry of the Environment for review and comment.

Incident Reporting

There is no standard definition for a “pipeline incident” in Canadian law. Definitions vary by jurisdiction, which can influence the scale, scope, and pace of a response.

For example, federally, the [Transportation Safety Board](#) defines a “reportable pipeline incident” as an incident resulting directly from the operation of a pipeline where any amount of uncontained and uncontrolled release of a commodity occurs. The [National Energy Board](#) definition of a “pipeline incident” differentiates between liquid and non-liquid spills. It includes any amount of unintended or uncontrolled release of gas or high vapour pressure hydrocarbons, and of liquid hydrocarbons in excess of 1.5m³. Pipeline (and associated facilities such as pumps, valves or compressors) incidents may also include fires or explosions, death or serious injury to a person, a reduction in the structural integrity of a pipeline, threats in the vicinity of the pipeline, or the operation of a pipeline beyond design limits.

Provincial regulators have different definitions for pipeline incidents. Incidents may be considered “reportable” depending on their size, severity, location, type or frequency. For example, definitions may differ in terms of the minimum volume of a spill constituting a “pipeline incident”, which must be reported to the regulator.

In some provinces, such as Ontario, a spill of petroleum product of not more than 100 L in areas restricted to the public, or not more than 25 L in areas with public access may be exempted from reporting to the Ministry of the Environment and municipalities only if it is unlikely to enter a watercourse or to cause adverse effects other than those readily and immediately remediated, and only if records of the spill are maintained. Alberta is unique in that it requires all pipeline failures – including tests failures, or any contact or damage to a pipeline – to be reported, regardless of the size of the spill, area affected, status of the pipeline, or type of fluid released.

Response Standards

In the event of a pipeline incident, federal and provincial regulators must be notified immediately by law. For example, in New Brunswick, the regulator must be immediately notified of any pipeline incident, and a detailed report must be filed within 48 hours. The province also asks that companies consider reporting any events having the potential to attract public or media attention or which have or may have significant adverse effects on property, the environment, or the safety of persons, regardless of whether or not they meet the strict definition of an “incident” in the *Pipeline Act*. In Quebec, licensees must notify the provincial government without delay, or, in cases provided for by regulation, within the time prescribed, of accidental occurrence in the environment of any contaminant. In some provinces the pipeline operator must also notify any affected municipality (e.g. Ontario) or landowner (e.g. Alberta) immediately following a pipeline incident.

Response standards (i.e. response time) vary within Canada, and are specified in each company's emergency response plan or emergency procedures manual. These standards may be specified to the location or type of pipeline.

SPOTLIGHT – Transportation Safety Board

The Transportation Safety Board (TSB) is an independent agency that reports to Parliament through the Leader of the Government in the House of Commons. The TSB advances transportation safety in marine, pipeline, rail and air by conducting independent investigations into selected transportation occurrences in order to make findings as to their causes and contributing factors by: conducting independent investigations; identifying safety deficiencies; making recommendations designed to eliminate or reduce any such safety deficiencies; and reporting publicly on its investigations and on the findings in relation thereto.

In making its findings as to the causes and contributing factors of a transportation occurrence, it is not the function of the TSB to assign fault or determine civil or criminal liability. However, the TSB does not refrain from fully reporting on the causes and contributing factors merely because fault or liability might be inferred from the Board's findings.

Federally, the National Energy Board oversees a company's immediate response during a serious incident and requires that appropriate repair methods be used, in accordance with regulation. British Columbia takes a similar approach, ensuring that the company's response is effective and that the response is coordinated, employing the principles of unified command. In other provinces, serious incidents are generally overseen by first responders, with regulators providing assistance.

Provincial regulators conduct inspections during and following pipeline incidents. Some regulators can take control of the response if it is deemed insufficient or inadequate. For example, in New Brunswick the regulator may enter a spill site to conduct operations as necessary to repair a leak or break, contain the escaped substance, and prevent further escape. In Quebec, through [Urgence-Environnement](#), Quebec's provincial government provides 24/7 response province-wide to minimize the impacts of environmental emergencies. In major environmental emergencies, the government response is coordinated by Organisation de la sécurité civile du Québec. In Manitoba, the regulator can take control of a response if needed, but would only do so in rare exceptions. Instead, most provincial regulators issue orders to pipeline operators to address insufficient or inadequate responses.

The National Energy Board coordinates follow-up for incidents involving federally regulated pipelines. Provincial requirements for post-incident follow-up vary depending on the scale of the incident, but usually involve, at a minimum, the submission of an incident report to the regulator. Additional follow-up may require monitoring, best practice sharing, communications, or further investigation.

Restoration of Environmental and Natural Resources Damages

In Canada, federal and provincial regulations indicate the extent to which the site of a spill must be remediated, including damage to wildlife and the environment.

Remediation involves the improvement of a contaminated site to prevent, minimize or mitigate damage to human health or the environment. It involves the development and application of a planned

approach that removes, destroys, contains or otherwise reduces the availability of contaminants to receptors of concern.

In the case of a spill from a federally regulated pipeline, the National Energy Board appoints an Environmental Specialist to act as a liaison with the responsible party, and verifies that an adequate and appropriate clean-up and remediation is completed, following the National Energy Board [Remediation Process Guide](#).

Almost all provinces have laid out the requirement for remediation of a contaminated site in regulation. For example, rehabilitation of a site is required under Nova Scotia’s *Environment Act*, Ontario’s *Environmental Protection Act*, and Quebec’s *Environment Quality Act*. In New Brunswick, although the need for remediation as a result of a pipeline incident is not laid out in regulation, the Energy and Utilities Board can deal with smaller cases and issues orders as it determines necessary, while extreme cases are dealt with within environmental legislation such as the *Clean Environment Act*.

Some provinces require pipeline operators to develop a remediation plan based on an assessment identifying all potential risks of a spill and the estimated reclamation cost to reclaim a site. This plan is then approved by the regulator. For example, in Alberta, the regulator requires all licensees to undergo an assessment to identify and evaluate all remediation and surface reclamation issues. In British Columbia, the regulator requires pipeline operators to conduct an assessment of wildlife or natural resource impact, to develop a regulator-approved remediation plan. The British Columbia Ministry of the Environment is currently considering additional measures to ensure a consistent process is in place to assess the level of environmental damage associated with a spill and require a restoration plan to ensure appropriate restoration of environmental and natural resource damage is achieved.

Regulators verify that adequate and appropriate clean-up and remediation is completed by pipeline operators. For example, in Quebec, responsible parties may be ordered to submit a rehabilitation plan to the provincial government, setting out the measures that will be

SPOTLIGHT - Manitoba

Provincial regulation in Manitoba requires companies to fully clean up contaminated sites to their original condition.

Contaminated sites are entered into the regulator Rehabilitation Program, and progress of their clean-up is tracked on a yearly basis.

The province uses Canadian Environmental Quality Guidelines, even though not specifically referenced in the regulations, as the baseline for clean-up.

SPOTLIGHT - British Columbia

The provincial government in British Columbia is proposing policies to ensure both government and industry can respond to heavy oil and other hazardous material spills on land in a timely and effective manner. One proposal is for a new provincial preparedness and response organization.

The policy would create a provincially certified, industry-led non-profit organization to conduct spill planning and preparedness activities on behalf of its members and to provide incident management and spill response when activated by a spiller or the Province.

The organization would be funded by companies that would be required to join based on the level of risk they present, as well as by voluntary members.

implemented to protect human beings, other living species, and the environment in general, including property, together with an implementation schedule. In Ontario, the Ministry of the Environment verifies that adequate and appropriate clean-up and remediation has been completed by the responsible party in an acceptable manner. In Saskatchewan and Manitoba, regulators inspect spill sites to verify acceptable clean-up and remediation, and contaminated sites are entered into rehabilitation programs which require the company to complete a remediation plan, submit follow-up reports to the regulator, and enable additional inspections by the regulator.

Response Equipment

The National Energy Board requires identification, maintenance, and regular checking and certification of equipment for federally regulated pipelines. Equipment must be readily accessible and positioned as specified in relevant standards. Companies must also, where practicable maintain materials, equipment and spare parts in adequate quantities and at suitable locations for use in emergency repairs. Finally, the NEB requires that employees be instructed in the proper operation of equipment and emergency equipment.

Most provincial regulators require companies to include within their emergency response plan or emergency procedures manual a description of the type and location of available emergency equipment. Generally, companies are not required to report the location of their equipment to the regulator; however, this information is provided to the regulator upon the submission of a new or updated emergency response plan. In the event of an emergency, Alberta requires pipeline companies to provide a list of emergency equipment (including location, number, and type), communications equipment, equipment for roadblock kits, ignition equipment, and gas monitoring equipment to the regulator.

Some require provisions in emergency response plans covering the accessibility of equipment. Often, provincial pipeline operators are also required to maintain – for emergency repair purposes – materials, equipment and/or spare parts in adequate quantities and at suitable locations. Furthermore, companies are required to regularly check, certify, and/or maintain their equipment.

In some provinces such as Manitoba and Saskatchewan, companies who belong to oil spill co-ops are not required to maintain their own stock of emergency equipment, and may instead rely on the immediate emergency response capabilities

SPOTLIGHT - Quebec

Through **Urgence-Environnement**, the Quebec government provides 24/7 response province-wide to minimize the impacts of environmental emergencies.

Urgence-Environnement normally acts as a technical advisor, with municipalities responsible for emergency measures within their respective jurisdiction. It ensures that all possible measures to protect the environment are promptly taken.

It has the necessary specialized equipment to respond to the majority of emergency situations reported to it, and each of its regional branches also has the most frequently used equipment.

Urgence-Environnement also has three mobile laboratories, including a trace atmospheric gas analyzer, a leading-edge analytical tool. This equipment can be immediately dispatched to the site of a major disaster. It also has a mobile command post that allows for timely and effective on-site response, in particular for oil spills.

of the co-op, which can provide specialized equipment, infrastructure and personnel, should a release occur. In Quebec, the ministry responsible for environmental emergency response carries specialized equipment for the majority of emergency situations, and each of its regional branches also carries the most frequently used equipment.

Drills, Exercises, and Personnel Training

Even the best equipment is useless in untrained hands. That is why regulators require company employees and their own personnel to be trained and instructed in the proper operation of equipment and emergency response procedures.

Operators of both federally and provincially regulated pipelines are required to develop training programs and conduct exercises to verify their capabilities to respond to incidents. Companies regularly test their emergency response plans through major “live” exercises and tabletop simulations.

In some jurisdictions, like Ontario, companies are required to document drills. Regulators may participate in these exercises to assess the knowledge and capability of a pipeline operator to respond should an incident occur. Pipeline companies operating in Quebec regularly conduct emergency response exercises in the field on a voluntary basis. These exercises normally involve the deployment of emergency equipment and the participation of first-line responders. The government departments and agencies likely to be called upon in the situation attend as observers. The provincial government also regularly holds emergency preparedness exercises involving the participation of municipalities and private sector partners. In jurisdictions with oil spill co-operatives, members are required to participate in spill exercises organized by the co-operative, or to organize their own.

The National Energy Board requires processes to be in place to verify that those working on behalf of the company are trained, competent and able to perform their duties safely and in a manner that ensures the security of the pipeline and protection of the environment.

Provincial regulators also require training programs for personnel related to construction, operations, maintenance, and emergency response. For example, in New Brunswick, the required Training Program for Operators and Contractors ensures that those working on behalf of the company are trained and competent in performing their duties. In Ontario, companies are required to have an Operator Qualification Program stating the training, competency and scope of work of employees and contractors. Emergency response training is included in both programs.

III) Liability & Compensation

Provincial liability regimes apply to both federally and provincially regulated pipelines as long as they do not violate the doctrines of inter-jurisdictional immunity and paramountcy. The provinces and territories have used two general approaches, often simultaneously, to create statutory civil liability regimes. Some provinces, as well as the Yukon Territory, have enacted legislation governing the operation of intraprovincial pipelines; in many cases, such legislation imposes some degree of liability on pipeline operators for government spill response costs. Second, every province and territory has enacted legislation governing the release of environmental pollutants. These laws typically establish a cost recovery mechanism that governments may use to hold pipeline operators liable for spill response costs. In some cases, pipeline operators are also subject to liability where a spill causes government and/or third party loss or damage.

Comprehensive Liability Regime

All jurisdictions have enshrined ‘polluter pays’ principle in their pipeline management regimes. In all instances, the operator is liable for any damages caused by the pipeline regardless of fault or negligence. For example, in Nova Scotia, it is a term and condition of every permit and licence to construct and operate a pipeline that each holder of the permit or license shall carry adequate personal injury, property damage and third party liability insurance for losses suffered in the construction and operation of the pipeline on such terms and in such amounts as determined by the provincial regulator.

Operators can sometimes minimize their liability if they can prove to a court that all reasonable steps were taken to prevent a spill. The court would then determine the degree to which a third party contractor might be responsible.

The Civil Code of Quebec contains provisions regarding civil liability. These state, in particular, that every person has a duty to abide by the rules of conduct incumbent upon them so as not to cause injury to another. Where an entity is endowed with reason and fails in their duty, they are liable for any injury they cause to another by such fault and are bound to make reparation for the injury. This liability is unlimited. In addition, the Civil Code stipulates that every person has a duty to honour his contractual undertakings. Where they fail in this duty, they are liable for any bodily, moral or material injury caused and are bound to make reparation for the injury.

SPOTLIGHT - Canada

Unlimited liability exists for companies found to be at fault or negligent.

Regardless of fault or negligence, companies are required to address and mitigate pipeline incidents and the National Energy Board can issue orders to this effect.

Canada proposes to amend the *NEB Act* to provide governments with the ability to recover costs associated with clean-up, to ensure that companies are responsible for abandoned pipelines, and to enshrine the ‘polluter pays’ principle in law to reinforce that polluters are financially responsible for costs and damages.

Measures to implement absolute liability are planned for inclusion in the *NEB Act*.

For this reason, over-the-counter contracts for hydrocarbon transportation, storage or distribution services in Quebec usually require valid and current general liability insurance covering personal injury and damage to property and contractual liability, civil liability insurance (typically for at least \$2 million) as well as environmental liability insurance (typically for at least \$10 million) issued by recognized insurers.

Financial Capacity Requirements

Ensuring operators have sufficient financial capacity is key to a successful liability and compensation regime. Most provinces have regulations requiring operators to prove that they have sufficient resources either through insurance or other financial capacity to respond to a spill or other type of damage. There is not a minimum level, as each province allows the regulator to assess the project and determine the required financial capacity.

The Government of Canada is considering legislation that will require operators to have sufficient financial capabilities to respond to an incident. This will include a minimum requirement of \$1 billion for major crude oil pipelines. British Columbia is currently considering a risk based approach, whereby operators will be required to provide a security deposit to ensure financial capacity based on the level of risk their project entails.

Independent Financial Backstop

Other than insurance, there are currently very few mechanisms in place in any jurisdiction that allow for independent financial backstopping. Since March 31, 2007, the Quebec government's consolidated financial statements have included an environmental liability associated with the costs of contaminated site rehabilitation. As of March 31, 2013, this liability was estimated at \$3.2 billion.

British Columbia has indicated that they are considering proposals but have not made details public. The Government of Canada announced that it proposes to implement a government financial backstop to ensure funds are available to the National Energy Board for spill clean-up, should it be required to assume control of incident response, in exceptional circumstances.

The Alberta Orphan Well Fund acts as an independent financial backstop in the event that a pipeline operator goes bankrupt in the process of cleaning a spill. The Orphan Well Fund is entirely industry funded and is used as an alternative to an insurance-based system.

In British Columbia, the BCOGC has developed and implemented an Orphan Fund that can be utilized for remediation and restoration of orphaned infrastructure. In addition, the Commission maintains funds under a Liability Management Program under which permit holders are required to maintain a specific level of financial solvency ensuring financial capacity to respond to major incidents.

Conclusion

Regulators continue to pursue the ultimate objective of zero incidents. Federal and provincial pipeline regulators continue to work with stakeholders to improve pipeline regulatory regimes by focusing on the three pillars encompassing: 1) prevention; 2) preparedness and response; and 3) liability and compensation. Governments are taking steps to ensure that taxpayers are protected from clean-up costs should an incident occur.

Ensuring a world-class pipeline regulatory regime is critical for Canada to pursue its natural resource advantage. While most crude oil and natural gas in Canada moves via pipeline, increasing crude oil and petroleum product volumes are moving via rail and marine. These alternative modes of transportation are becoming increasingly important for delivering Canada's resources to markets.

Next Steps

Continuous improvement is an absolute requirement for achieving and maintaining a world-class energy pipeline regulatory regime in Canada. Building on recent and ongoing pipeline regulatory improvements across federal, provincial and territorial jurisdictions, areas of focus moving forward include:

- Continue implementing proposed legislative, regulatory, and related initiatives while ensuring that Aboriginals and other key stakeholders are meaningfully engaged;
- Commit to further studying and improving the safety and security of broader energy transportation systems including rail, marine and trucking;
- Enhance communications to ensure fact-based dialogue surrounding energy transportation;
- Explore options for improved cooperation and collaboration between jurisdictions either through harmonization, sharing or leveraging information and expertise;
 - o For instance, the harmonization of performance measures such as spill reporting remains an important impediment to measuring the progress of companies across jurisdictions.
- Explore opportunities for enhanced collaboration on pipeline innovation between governments, regulators and industry – for example, “Best Available Technologies” recognized through the Canadian Pipeline Technology Collaborative;
- Continue to cooperate in efforts to enhance the safety and security of hydrocarbon production and transportation systems, including damage prevention and cyber security.

Annex 1: Survey Questions

Element	Questions
1) Prevention	
Safety culture (i.e. processes, accountabilities)	<ul style="list-style-type: none"> • Are (and if so, how) are companies: <ul style="list-style-type: none"> ○ held accountable for meeting safety objectives ○ held responsible for addressing or correcting deficiencies ○ required, at a senior level, to sign off on safety reports
Standards (e.g. CSA, technical)	<ul style="list-style-type: none"> • CSA standards required in regulations (e.g. Z662-11; Z246.1; Z246.2; Z662; Z1600) <ul style="list-style-type: none"> ○ Whether standards are updated periodically ○ Whether regulator participates in development of standards or serves on technical committees
Maintenance and testing	<ul style="list-style-type: none"> • Do regulations require regular or periodic testing of instruments and/or equipment? • Types of testing required (integrity digs, etc.) • Locations of required testing (pipeline stations, pipelines) • Frequency of testing. Note if variables affect frequency of maintenance or testing • Standards for pipeline repairs
Inspections and audits	<ul style="list-style-type: none"> • Whether inspections and audits are required • How often inspections and/or audits are required, and basis for this frequency (e.g. random, risk-based, based on prioritization model, etc.) • What is inspected and/or audited (e.g. emergency manuals, exercise evaluations, integrity management programs, facilities, etc.)? • Who is responsible for inspections?
Compliance and spill data	<ul style="list-style-type: none"> • Is compliance and enforcement data collected and posted publicly? • How often is this data posted (e.g. monthly, quarterly)?
Orders, penalties and fines	<ul style="list-style-type: none"> • What enforcement powers does the regulator have to issue penalties or orders for contraventions (monetary, jail time, etc.)? • List available penalties for both individuals and companies • Include available orders (e.g. pipeline shutdown, reduced pressure, etc.)
2) Preparedness, Response and Recovery	
Emergency management program	<ul style="list-style-type: none"> • Are companies required to have an emergency management program, and what is the high-level focus / objective of the program?
Response standards (e.g. response time, level of remediation)	<ul style="list-style-type: none"> • Notification standards in the event of an incident (polluter notifying regulator) • Scale of incidents requiring notification • Response standards in the event of an incident (e.g. response time) • Does regulator oversee incidents? To what extent (e.g. dependent on size)? • Can the regulator take control of the response if it is deemed to be insufficient or inadequate? • Can the regulator issue orders if response is deemed to be insufficient or inadequate? • What post-incident follow-up takes place (e.g. reporting, best practice sharing, communications, investigation, etc.)?

Element	Questions
Restoration of environmental and natural resources damages (e.g. remediation)	<ul style="list-style-type: none"> • Is the extent to which remediation is required laid out in regulation? What remediation is required (e.g. site of spill including wildlife, environment)? • Does regulator verify that adequate and appropriate clean-up and remediation is complete? Does the regulator appoint a specialist to address incidents?
Geographically specific plans	<ul style="list-style-type: none"> • Are companies required to design plans that account for geographically specific hazards? • Are companies required to be part of spill geographically specific cooperatives?
Response equipment	<ul style="list-style-type: none"> • Are companies required to have readily accessible equipment? Are there standards for where equipment must be located (accessibility, positioning, etc.)? • Are companies required to maintain – for emergency repair purposes – materials, equipment and/or spare parts in adequate quantities and at suitable locations? • Are companies required to identify the location of their equipment to the regulator? • Are companies required to regularly check, certify, and/or maintain their equipment? • Are company employees required to be trained and instructed in the proper operation of equipment and emergency equipment?
Response drills and exercises	<ul style="list-style-type: none"> • Are companies required to develop a training program and/or conduct exercises to verify their capabilities to respond to incidents? <ul style="list-style-type: none"> ○ Are these exercises conducted “live”? How often? ○ Are these tabletop exercises? How often? • Does the regulator participate in and/or oversee exercises?
Personnel training	<ul style="list-style-type: none"> • Are companies required to ensure that those working on behalf of the company (employees and/or contractors) are trained and competent in performing their duties? • Does the regulator require companies to identify personnel to be deployed in the event of an incident who are responsible for responding to incidents? • Does the regulator have a training program for its own personnel (specialists, response personnel, etc.)?
3) Liability and Compensation	
Comprehensive liability regime	<ul style="list-style-type: none"> • Please outline the liability regime for pipeline companies in the event of an incident • Are companies responsible for costs associated with non-use value (environmental damages)? • Is the ‘polluter pays’ principle in force? • Are companies responsible for the actions of third party contractors? Is this found in legislation or regulation? • Are companies liable for costs associated with abandoned pipelines?
Financial capacity requirements	<ul style="list-style-type: none"> • Are companies required to demonstrate a minimum financial capacity requirement to the regulator? (e.g. security deposit, letter of credit, cash-on-hand, insurance, etc.)
Independent financial backstop/fund	<ul style="list-style-type: none"> • Does an independent financial backstop exist in the event a company is unable to pay for the costs of an incident?

Annex 2: Survey Responses

Government of Canada



National Energy Board:

independent federal agency established to regulate international and interprovincial aspects of the oil, gas, and electric utility industries in Canada.

Transportation Safety

Board: *independent federal agency that advances transportation safety by investigating occurrences in the marine, pipeline, rail, and air modes of transportation.*

Prevention

<p>Safety culture</p>	<p>Under the <i>Onshore Pipeline Regulations</i>, companies must produce an annual report signed by an accountable senior officer describing performance of management systems; achievement of goals, objectives, and targets during that year; and any actions taken to correct deficiencies.</p>
<p>Standards</p>	<p>CSA standards required in regulations: Z662-11 (Sections 3 and 10 relate to loss management programs); Z246.1 (Security Management Systems); and CSA Z662. The standards are updated periodically.</p> <p>The NEB also serves on technical committees for standards under development, e.g. Z1600 (emergency and continuity management) and Z-246.2 (Emergency Preparedness and Response for Petroleum and Natural Gas Industry).</p> <p>The NEB will develop guidance on the application of “best available technologies” to pipeline construction and operations.</p>
<p>Maintenance and testing</p>	<p>The <i>NEB Act</i> requires periodic testing of instruments and equipment at pipeline stations for proper and safe operation.</p> <p>The NEB inspects pipelines and facilities, examines the integrity of the pipelines and facilities, and requires that appropriate repair methods be used.</p>
<p>Inspections and audits</p>	<p>NEB specialists conduct reviews and critical information checks on emergency procedures manuals, emergency response exercise evaluations, compliance meetings, and audits of facilities.</p> <p>The NEB follows a risk-informed model and annual Compliance Verification Plan.</p>
<p>Compliance and spill data</p>	<p>The NEB posts compliance and enforcement actions online regularly.</p> <p>The Minister of NRCan announced in June 2013 that companies’ emergency and environmental plans would be transparent and easily available to the public. Implementation options are under consideration.</p>
<p>Orders, penalties and fines</p>	<p>The NEB has broad authority to issue orders. Fines (as determined by the Courts) for contravening orders range from \$100,000 and one year in prison, to \$1 million and 5 years in prison.</p> <p>The NEB can also issue administrative monetary penalties to companies or individuals. The maximum daily penalty is \$25,000 for individuals (per violation) and \$100,000 for companies (per violation).</p>

Preparedness Response and Recovery

<p>Emergency management program</p>	<p>The NEB requires companies to have an emergency management program that anticipates, prevents, manages and mitigates conditions during an emergency that could adversely affect property, the environment, or the safety of workers or the public.</p>
<p>Response standards</p>	<p>Operators must notify the NEB of an incident immediately.</p> <p>The NEB will oversee the company’s immediate response during a serious incident. Regulation requires that appropriate repair methods be used.</p> <p>The NEB coordinates post-incident follow-up (e.g. reporting, best practice sharing, communications, investigation).</p> <p>The NEB requires that pipeline companies hold a minimum level of accessible financial resources to ensure they can respond quickly to pipeline incidents.</p> <p>The NEB will have the authority to take control of incident response if a company is unable or unwilling to shoulder its responsibilities.</p>
<p>Restoration of environmental and natural resources damages</p>	<p>Regulations indicate the extent to which the site of a spill must be remediated, including damage to wildlife and the environment. The NEB will appoint an Environmental Specialist to act as a liaison with the responsible party.</p> <p>The NEB verifies that an adequate and appropriate cleanup and remediation is completed. Companies follow the NEB remediation process guide.</p>
<p>Geographically specific plans</p>	<p>Companies must design plans for events that could affect the pipeline, including accounting for geographically specific hazards.</p>
<p>Response equipment</p>	<p>The NEB requires identification, maintenance, and regular checking and certification of equipment. Equipment must be readily accessible and positioned as specified in relevant standards; employees must be instructed on proper operation of equipment and emergency equipment. Companies must, where practicable, maintain materials, equipment and spare parts in adequate quantities and at suitable locations for use in emergency repairs.</p>
<p>Response drills and exercises</p>	<p>Companies are required to develop a training program and conduct exercises to verify their capabilities to respond to incidents.</p>

Personnel training	The NEB requires processes to be in place to verify that those working on behalf of the company are trained and competent and able to perform their duties safely and in a manner that ensures the security of the pipeline and protection of the environment. NEB specialists must be trained for response and other program areas.
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Liability and Compensation

<p>Comprehensive liability regime</p>	<p>Unlimited liability exists for companies found to be at fault or negligent.</p> <p>Regardless of fault or negligence, companies are required to address and mitigate pipeline incidents, and the NEB can issue orders to this effect.</p> <p>The <i>NEB Act</i> is to be amended to provide government with the ability to recover costs associated with non-use value environmental damages to ensure that companies are responsible for abandoned pipelines and to enshrine the “polluter pays” principle in law to reinforce that polluters are financially responsible for costs and damages.</p> <p>Measures announced May 14, 2014, will expand NEB authority to order reimbursement of spill cleanup costs incurred by governments or individuals. They will also subject companies operating pipelines to “no fault” or absolute liability for all pipelines, up to \$1 billion in the case of major oil pipelines.</p>
<p>Financial capacity requirements</p>	<p>Legislation and regulations are in development to require all companies to have sufficient financial capability to respond to incidents, including a minimum requirement of \$1 billion for major crude oil pipelines.</p>
<p>Independent financial backstop/fund</p>	<p>Announced May 14, 2014, the NEB will have access to the funds needed for a cleanup and will have the authority to ensure that tax payers are protected from the costs of an incident (NEB authority to recover costs incurred for incident response from industry, in exceptional circumstances).</p>

Province of New Brunswick



New Brunswick Energy and Utilities Board: independent crown agency established by the Legislature to regulate the electricity, natural gas, pipeline, and motor carrier industries and set maximum gasoline prices for the province.

Prevention

<p>Safety culture</p>	<p>The <i>Pipeline Act</i>, 2005 and associated Pipeline Regulation, 2006-2 outline the procedures and methods required during the design, construction, operation and maintenance of pipelines and stipulate that the responsibility for these requirements lie with the companies who own and operate the pipelines.</p> <p>Also, Guidance Notes are provided to companies to assist in understanding the requirements of the Pipeline Regulation, 2006-2 and how those requirements could be met. The actual methods used to meet the specific requirements are at the discretion of individual companies, but the onus is on each company to maintain adequate records and demonstrate the adequacy and effectiveness of the methods employed to the New Brunswick Energy and Utilities Board (EUB), when requested.</p> <p>Section 38 of the regulation requires that a corporation develop and implement a pipeline integrity management program.</p> <p>Further to the above, Section 4 of the Pipeline Regulation, 2006-2 states that the CSA Z662 – <i>Oil and Gas Pipeline Systems</i> standard shall govern the design, construction, operation and abandonment of a pipeline. The latest edition of this standard requires that a pipeline company implement a Safety and Loss Management system.</p>
<p>Standards</p>	<p>Applicable standards and specifications:</p> <ul style="list-style-type: none"> • CSA Z276, if the pipeline transports liquefied natural gas; • CSA Z341 for the underground storage of hydrocarbons; and • CSA Z662, if the pipeline transports liquid or gaseous hydrocarbons or minerals as defined in the Act. <p>The regulation allows for alternate standards to be used, if approved by the EUB and if they provide for a level of safety or protection at least equivalent to the level of safety or protection generally provided for by a comparable CSA standard or by another applicable standard; or, in the absence of a comparable CSA or other applicable standard, it provides for a level of safety or protection that is adequate in the circumstances.</p> <p>Also, the required Emergency Procedures Manual under Section 31 of the Pipeline Regulation must conform to the standard CSA Z731 Emergency Preparedness and Response for industry.</p>

	<p>Most standards are continually reviewed using strict revision and approval protocols by a knowledgeable and experienced group of professionals representing the industry stakeholders. Specifically, the Z662 is revised and published on a 4-year basis. For the past 12 years, the EUB Director of Pipeline Safety has been a member of the main Technical Committee of the Z662 as a full voting committee member and on the Gas Distribution Technical Sub-Committee of the Z662 as well as the Technical Sub-Committee of the B137.4 Polyethylene Piping Systems Fittings for Gas Services. This person also is a member of the CSA Regulatory Authority Committee for the group of CSA standards used in the oil and gas industry.</p>
<p>Maintenance and testing</p>	<p>Any equipment used for integrity testing of pipelines must be tested and calibrated within the manufacturer’s recommended timelines. The certificate of testing must be available at the location of testing and be maintained on file.</p> <p>The types of testing and the frequency and location of such tests depend largely on the products being transmitted, the age of the pipeline and issues identified during past integrity audits. Usually Inline Inspection (ILI) testing is performed at a frequency determined by the age, material and product characteristics being transported. Other tests used are based on the results of ILI. This usually means inspections digs, visual inspection, and non-destructive testing. The companies must also periodically test instruments and equipment at the pipeline stations to verify their proper and safe operation.</p> <p>The company’s Pipeline Integrity Manual must clearly outline the types and frequency of testing specific to each pipeline owned. Also, if issues arise that may threaten the protection of property and the environment, and the safety of the public and the company’s employees, the Board may direct the company to test, inspect or assess a pipeline in accordance with CSA standards or any other comparable standards.</p> <p>Repairs shall be carried out in accordance with Section 10 in the Z662, the company’s operation manuals and Pipeline Integrity Manual, and the Pipeline Act and regulations.</p>
<p>Inspections and audits</p>	<p>The <i>Pipeline Act, 2005</i> empowers the EUB to inspect and audit a company’s records and any pipeline and associated facilities. Audits are carried out by the EUB and are primarily aimed at determining compliance with the Pipeline Regulation and the company’s Pipeline Integrity Management Plan. The frequency of compliance audits is based on a number of factors such as past compliance issues, the safety culture present, the company’s internal audits, etc. All construction is inspected on a daily basis and the final construction turnover package is audited for completeness. Also, the Pipeline Regulation requires that the companies conduct their own internal inspections and audits.</p>

<p>Compliance and spill data</p>	<p>Historically, public information has been available upon request. The EUB has recently moved to electronic document filing and the goal is to provide access to public information through the EUB website. This is an ongoing project and all public information dealing with recent applications before the board is currently available.</p>
<p>Orders, penalties and fines</p>	<p>The <i>Pipeline Act</i>, 2005 gives the EUB broad supervisory powers over regulated companies and it may inquire, hear and determine any matter where it appears any person failed to comply with any Act administered by the EUB or where the EUB feels it is in the public interest to do so. As a result of any inquiry held, the EUB may order a person to comply or forbid a person from continuing any act that is contrary to legislation, order or directive.</p> <p>The EUB has no authority to issue an administrative penalty. Any penalties for violation or failure to comply with a provision of select sections of the Pipeline Regulation must be dealt through the <i>Provincial Offences Procedure Act</i> (through the provincial courts).</p>

Preparedness Response and Recovery

<p>Emergency management program</p>	<p>Companies are required to have an emergency management program. Section 31 of the Pipeline Regulation deals with emergency procedures manuals. CSA Z731 Emergency Preparedness and Response for industry is referenced. The Guidance Notes also provide some direction for companies preparing such plans. The plans must be comprehensive in nature, with the main focus being the protection of life, property and the environment.</p>
<p>Response standards</p>	<p>The EUB must be notified immediately of any incidents (regardless of scale) as defined in the <i>Pipeline Act</i> and a detailed report must be filed with the Board within 48 hours.</p> <p>The Guidance Notes ask that companies consider reporting to the EUB events having the potential to attract public and/or media attention or which have or may have significant adverse effects on property, the environment or the safety of persons, regardless of whether or not they meet the strict definition of an "incident".</p> <p>Response standards vary and are specific to the location and type of pipeline. The standards are stated in a company's Emergency Procedures Manual.</p> <p>First responders such as the fire or police department oversee more serious incidents. The EUB's role in these situations is to ensure that pipeline-related evidence is secured, and to be available to first responders as needed.</p> <p>The EUB has the power to conduct their own investigations and also works closely with the emergency and police agencies having jurisdiction. The EUB reviews incidents with the pipeline operator and as a result of the investigation may issue orders or directions to the pipeline operator. Most operators use Root-Cause Analysis.</p>
<p>Restoration of environmental and natural resources damages</p>	<p>Remediation needed as a result of an incident is not laid out in regulation, but the EUB can deal with smaller cases and issue such orders as it determines necessary. However, extreme cases are better dealt with within environment legislation such as the <i>Clean Environment Act</i> administered by the Department of the Environment and Local Government.</p>
<p>Geographically specific plans</p>	<p>The Emergency Procedures Manual must include a list or map of areas susceptible to potentially adverse environmental effects that may require special attention during an emergency (refer to Pipeline Regulation – Section 31(3)(o)).</p> <p>Companies are required to be part of geographically specific spill cooperatives, where these cooperatives exist.</p>

<p>Response equipment</p>	<p>Companies are required to have an emergency procedures manual which includes a description of the types and locations of available emergency clothing and equipment: refer to Pipeline Regulation – Section 31(3)(l).</p> <p>Companies are required, where practicable, to maintain materials, equipment, and spare parts in adequate quantities and at suitable locations for use in emergency repairs. In addition, companies must regularly check, certify, and/or maintain their equipment: refer to Z662-11 – clause 10.5.2.5</p> <p>The location of equipment is required to be included in the Emergency Procedures Manual, and Section 31 of the Pipeline Regulation states that the Emergency Procedures Manual (and any updates) must be submitted to the Board.</p> <p>Company employees are required to be trained in the proper operation of equipment and emergency equipment, under Pipeline Regulation – Section 26(2)(q) and Section 44(2)(d).</p>
<p>Response drills and exercises</p>	<p>Companies are required to develop a training program and to conduct exercises to verify their capabilities to respond to incidents. This is an essential element of the Emergency Procedures Manual. Refer to Pipeline Regulation – Section 26(2)(q).</p> <p>The EUB usually participates in these exercises and provides feedback as required.</p>
<p>Personnel training</p>	<p>The required Training Program for Operators and contractors ensures that those working on behalf of the company are trained and competent in performing their duties. Refer to Pipeline Regulation Section 26(2)(q) and Section 44.</p> <p>Identification of personnel to be deployed in the event of an incident is required to be included in the Emergency Procedures Manual.</p> <p>EUB Pipeline Inspectors participate in most operations and emergency training conducted by the regulated pipeline companies.</p>

Liability and Compensation

<p>Comprehensive liability regime</p>	<p>Section 20 of the <i>Pipeline Act</i>, 2005 states that the Board shall not issue a permit or license to any person unless the person is insured by an insurance company licensed to do business in the Province, and in an amount approved by the Board.</p> <p>The company's insurance policy must be approved by the EUB prior to the issuance of a License to Operate and this is a condition for maintaining this license. Comprehensive Pollution Legal Liability insurance is normally required.</p> <p>The <i>Pipeline Act</i>, 2005 is silent on whether companies are liable for costs associated with abandoned pipelines. A condition is added to any EUB approval for pipeline abandonment, stating: The Board's consent to an abandonment operation does not relieve (the applicant) from any liability with respect to this pipeline or part or part thereof.</p>
<p>Financial capacity requirements</p>	<p>The <i>Pipeline Act</i> requires that the EUB take into account the financial responsibility of the applicant when considering the application for a permit to construct. The company is required to demonstrate its abilities in this regard including insurance provisions as noted above.</p>
<p>Independent financial backstop/fund</p>	<p>N/A</p>

Province of Nova Scotia



Nova Scotia Utility and Review Board: independent quasi-judicial body which has both regulatory and adjudicative jurisdiction for pipelines in Nova Scotia.

Prevention

Safety culture	Pipeline regulations require companies to establish and implement a pipeline integrity management program. Where defects are found in excess of that allowed by the latest version of CSA Z662 the company shall document the particulars of the defect, the cause of the defect and the corrective action taken or planned. No requirement for senior level to sign off on safety reports.
Standards	The latest version of CSA standards are incorporated by reference, e.g. Z662-; W178.2; Z731. Regulatory staff serves on the CSA Z662 technical committee.
Maintenance and testing	Regulations require a company to develop and implement a monitoring and surveillance program for the protection of the pipeline and the public.
Inspections and audits	The Board may direct any company, at that company's own cost and expense, to test, inspect, or assess a pipeline in accordance with CSA standards or such other standards as the Board directs. Depending on the circumstance, the Board or the pipeline operator can be responsible for the inspection. In the case of the pipeline operator, any inspection must be done independent of any construction contractor. Inspections and/or audits include facilities, emergency manuals, exercise evaluations, integrity management programs, training manuals and emergency responses.
Compliance and spill data	Reports can be semi-annual or annual. All reports are public.
Orders, penalties and fines	The Board will exercise control over the manner in which all pipelines including gas pipelines are constructed, tested, maintained and operated and, subject to the regulations, may issue such orders and directives as it deems appropriate. Penalties are not to exceed one hundred thousand dollars and imprisonment term is not to exceed two years.

Preparedness Response and Recovery

<p>Emergency management program</p>	<p>Pipeline operators are required to develop and regularly update an emergency plan and an emergency procedures manual. An emergency procedures manual should set out the information and procedures referred to in CSA Z662 and in CSA Z731, a statement of the scope of application of the emergency procedures, and a detailed description of the facilities to which the emergency procedures apply.</p>
<p>Response standards</p>	<p>Incident is a defined term and includes the death of or serious injury to a person, a significant adverse effect on the environment and an unintended or uncontained release of LVP hydrocarbons in excess of 1.5 m³. The Board is to be notified immediately following the discovery of an incident relating to the construction, operation, maintenance, deactivation, reactivation or abandonment of pipeline. Notification of a release and rehabilitation of a site is required under the Nova Scotia <i>Environment Act</i>. The Board can direct that adequate steps are taken to repair a leak or break in a pipeline or to contain any escaped substance and may enter a site where the leak or break occurred or the substance has escaped and conduct such operations as it considers necessary to repair the leak or break and contain the escaped substance and to prevent further escape. Preliminary and detailed incident reports are to be made with the Board as soon as practical.</p>
<p>Restoration of environmental and natural resources damages</p>	<p>Rehabilitation of a site is required under the Nova Scotia <i>Environment Act</i>.</p>
<p>Geographically specific plans</p>	<p>A bulk plant should be located in an area that is known to be free from flooding, landslides, rockfalls and geological faults.</p>
<p>Response equipment</p>	<p>An emergency response plan includes provisions covering accessibility of equipment, materials/ equipment for emergency repair and checking, certifying, and/or maintaining equipment. Company employees are required to be trained and instructed in the proper operation of equipment and emergency equipment.</p>
<p>Response drills and exercises</p>	<p>Companies are required to develop a training program and/or conduct exercises to verify their capabilities to respond to incidents. Frequency varies depending on facility. They are live and table top. Regulator participates through a third party representative.</p>

Personnel training	Companies are required to ensure that those working on behalf of the company (employees and/or contractors) are trained and competent in performing their duties related to construction, operations, maintenance and emergency response.
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Liability and Compensation

<p>Comprehensive liability regime</p>	<p>It is a term and condition of every permit and licence to construct or operate a pipeline that each holder of the permit or licence shall carry adequate personal injury, property damage and third party liability insurance for losses suffered in the construction and operation of the pipeline on such terms and in such amounts as is determined by the Board. The <i>Environment Act</i> embodies the ‘polluter pays’ principle. Companies are responsible for the actions of third party contractors. Third party liability insurance is required by Regulation.</p>
<p>Financial capacity requirements</p>	<p>Requirement to have insurance in an amount and form satisfactory to the regulator.</p>
<p>Independent financial backstop/fund</p>	<p>Other than insurance, an independent financial backstop does not exist in the event a company is unable to pay for the costs of an incident.</p>

Province of Quebec



The following institutions regulate pipelines in

Quebec: Régie de l'énergie (REQ), Régie du bâtiment (RBQ), ministère de la Sécurité publique (MSP), ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC), ministère de la Justice (MJQ), ministère des Forêts, de la Faune et des Parcs (MFFP), Société de l'assurance automobile du Québec (SAAQ), Commission de la santé et de la sécurité du travail (CSST), Commission de protection du territoire agricole du Québec (CPTAQ), Sûreté du Québec (SQ), Bureau d'audiences publiques sur l'environnement (BAPE), Info Excavation

Prevention

Safety culture

The MSP [Department of Public Security] is in charge of public safety in Quebec. Its main goal is to reduce the vulnerability of Quebecers to disaster risks by developing a culture of safety. The Department is responsible for administering the Québec Civil Protection Policy 2014-2024 and the *Civil Protection Act*, which both have the primary objective of making Quebec society safer and more resilient to disasters.

In terms of public protection, the RBQ [Quebec building authority] is responsible for the quality of construction and the safety of buildings and facilities, as well as professional qualifications and the integrity of contractors and owners-builders. The RBQ fulfills its mandate by enacting and administering construction, safety and professional qualification standards. It oversees compliance with these standards through investigations and audits, applying legislative remedies in the event of non-compliance and establishing financial guarantees to protect consumers. The RBQ is also a recognized authority in the inspection and verification of quality control programs for pressure vessels.

The BAPE [Public environmental hearings board] is a public and non-partisan agency reporting to the Minister of the MDDELCC [Department of Sustainable Development, Environment and the Fight Against Climate Change]. Its mission is to inform government policy-making related to sustainable development, encompassing ecological, social and economic factors. To fulfill this core mission, the BAPE advises, surveys and consults the public on projects or matters involving environmental quality issues referred to it by the Minister, including pipeline projects. It then publishes reports on its inquiries for the public. The BAPE is a government agency with advisory functions and no decision-making authority. In matters related to pipeline construction projects, the BAPE is primarily concerned with issues surrounding the safety of the proposed infrastructures.

As regards the prevention of damage to underground or other infrastructures, Info-Excavation offers a range of services to ensure public and worker safety, protect the environment and maintain essential public services. Info-Excavation is a not-for-profit organization that operates a free one-call centre to handle requests for locating underground facilities, particularly pipelines. The organization is the authority in Quebec for the development and promotion of best practices for preventing damage to underground infrastructure and maintaining public services. Info-Excavation's members include 125 companies and 70 municipalities. In Quebec, it is not mandatory to request a locate before digging. However, Info-Excavation strongly recommends always dialling before digging, given the economic, physical and/or environmental impacts of a breach.

Standards

As in other Canadian jurisdictions, companies operating pipelines in Quebec must comply with the technical design, construction and operation standards of various recognized standards organizations, including the Canadian Standards Association (CSA), the American Petroleum Institute (API), the American Society of Mechanical Engineers (ASME), the American Society for Testing and Materials (ASTM), Underwriters Laboratories of Canada (ULC) and the National Research Council Canada (NRCC).

In Quebec, the requirement to comply with these technical standards is usually imposed by stipulations in Acts and regulations (e.g.: the Construction Code and Safety Code, administered by the RBQ).

In addition, the following are subject to the environmental impact assessment and review procedure provided for under the *Environment Quality Act* and require a government-issued certificate of authorization (CA): the construction of installations for natural gas gasification or liquefaction and the construction of more than 2 km of oil pipeline in a new right-of-way, except conduits for transporting petroleum products under a municipal street, and the construction of a gas pipeline more than 2 km in length. Excluded are the construction of such a gas pipeline in an existing right-of-way used for the same purposes, and the installation of gas mains less than 30 cm in diameter designed for a pressure of less than 4,000 kPa.

Certificates of authorization issued by government decree normally include safety and environmental protection conditions. For example, decree 207-2010, dated March 17, 2010, with respect to the Pipeline Saint-Laurent project sponsored by Ultramar Ltd. (now Valero), includes the following conditions:

[TRANSLATION]

CONDITION 9: Emergency measures plan

Ultramar Ltd. must map the high pressure zone of 0.3 lb. per sq. in. for all sectors with potential fuel vapour containment when evaluating the risk of explosion as part of its emergency measures planning.

Ultramar Ltd. must develop its emergency measures plan in consultation with the municipalities concerned, the Department of Public Security, the Department of Health and Social Services, Transports Québec, the Department of sustainable development, environment and parks, and, as required, any adjacent industries. The plan must be filed with the Minister of sustainable development, environment and parks at the same time as the application for the certificate of authorization to operate the pipeline, provided for in Section 22 of the *Environment Quality Act*.

	<p>Condition 10: REPORTING ON MONITORING AND FOLLOW-UP PROGRAMS</p> <p>Ultramar Ltd. must file with the Minister of Sustainable Development, Environment and the Fight against Climate Change, no later than three months after their final production, five copies of the monitoring and follow-up reports provided for under this certificate of authorization.</p> <p>The mandatory follow-up period may be adjusted depending on the findings of the follow-up studies and the environmental components involved.</p>
<p>Maintenance and testing</p>	<p>The Safety Code adopted under the <i>Building Act</i> administered by the RBQ stipulates that every piped gas undertaking must submit to the RBQ, within 90 days following the start of each fiscal year, its yearly program for maintenance of the transportation systems, gas distribution systems and storage facilities.</p>
<p>Inspections and audits</p>	<p>The Safety Code adopted under the <i>Building Act</i> administered by the RBQ stipulates that every piped gas undertaking must submit to the RBQ, within 90 days following the start of each fiscal year, its gas leak detection program for the current year, and at the end of the same year, a report on the findings of the program and measures taken to remedy any problems.</p>
<p>Compliance and spill data</p>	<p>The Regulation respecting hazardous materials adopted under the <i>Environment Quality Act</i> administered by the MDDELCC stipulates that every person who accidentally releases a hazardous material into the environment shall immediately stop the spill, inform the Minister of the MDDELCC, recover the hazardous material and remove all contaminated material that is not cleaned or treated on site.</p> <p>As provided in the <i>Environment Quality Act</i>, the MDDELCC publishes on its website a register of environmental emergency interventions, summarizing the incidents handled by Urgence-Environnement, the environmental emergency service. The register lists all environmental incidents that have required on-site response by Urgence-Environnement since April 1, 2008, with the exception of fuel tank spillage from vehicles involved in road accidents. The information given is as known at the time of publication of the register, which is published by region. The information is updated only while the intervention is in progress.</p>

Orders, penalties and fines

As provided in the *Environment Quality Act*, the MDDELCC publishes on its website a register of information relating to guilty pleas/convictions for offences under the Act or its regulations. The MJQ [Department of Justice] notifies the MDDELCC of guilty pleas received by the Bureau des infractions et amendes [offences and fines division] and court rulings in matters involving notices of violations issued by the Director of Criminal and Penal Prosecutions of Quebec. The officials authorized to identify violations of the Act or its regulations include inspectors or auditors from the Centre de contrôle environnemental du Québec (CCEQ) [environmental control centre], wildlife protection officers from the MFFP [Department of Forests, Wildlife and Parks], highway controllers from the SAAQ [Quebec’s automobile insurance agency], and provincial (SQ) police officers. The register has been kept since November 4, 2011 and is updated weekly.

Also as provided in the *Environment Quality Act*, the MDDELCC publishes on its website a register of monetary administrative penalties relating to violations of the Act or its regulations. These penalties are imposed by CCEQ regional directors on any person or municipality failing to comply with the Act or its regulations. The register has been kept since February 1, 2012 and is updated at the beginning of each month.

Under the penal provisions of the *Environment Quality Act*, a fine of \$5,000 to \$1,000,000 or a maximum term of imprisonment of 18 months, or both, in the case of a natural person, and a fine of \$15,000 to \$6,000,000 for a legal entity, are provided for whoever contravenes the standards governing the discharge of contaminants into the environment or the requirement to inform the Minister of the MDDELCC without delay of the accidental presence in the environment of a contaminant and to take immediate measures to minimize or eliminate the effects of the event or incident and to eliminate the causes thereof.

Maximum penalties apply in cases where the harm or damage caused by the offence to human health or the environment, including vegetation and wildlife, is sufficiently serious to justify heavier penalties.

The stipulated fines are doubled for a second offence, and tripled for any subsequent offence. The maximum term of imprisonment for a second offence increases to five years less a day.

When an offence under the Act or its regulations is committed by an administrator or director of a legal entity, a corporation or an association without legal personality, the minimum and maximum fines are twice those imposed on a natural person for the same offence.

When an offence under the Act or its regulations persists for more than one day, it constitutes a separate offence for each day the event or incident continues.

Preparedness Response and Recovery

<p>Emergency management program</p>	<p>The <i>Civil Protection Act</i>, administered by the Department of Public Security, imposes mandatory reporting of any risk-generating activities to the local municipality where the source of the risk is located. In unorganized territory as well as in the case where reports must be made in more than one locality, the person may report the risk either to each competent regional authority or to the Minister of Public security. A monitoring procedure, a procedure for warning authorities and any other safety measures deemed necessary must be maintained.</p> <p>Through Urgence-Environnement, the MDDELCC provides 24/7 response province-wide to ensure that everything possible is done to minimize the impacts of environmental emergencies.</p> <p>Urgence-Environnement normally acts as technical advisor, because in Quebec the municipalities are responsible for emergency measures within their respective jurisdictions. Urgence-Environnement ensures that all possible measures to protect the environment are promptly taken.</p> <p>In the event of a major environmental emergency, government response is coordinated by the Organisation de la sécurité civile du Québec (OSCQ) [civil protection organization], which reports to the Department of Public Security. The organization of the Quebec government's civil protection actions falls within the framework of the National Civil Protection Plan, which provides for responses to 15 needs likely to arise in a disaster situation. In the plan, these needs are translated into the concept of "missions". Each mission is assigned to the government department or agency whose regular tasks and activities most closely resemble those entailed in the mission, or who have the expertise required to take charge of the mission (e.g. the MDDELCC mission relating to water and hazardous and residual materials).</p>
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<p>Response standards</p>	<p>Under the <i>Environment Quality Act</i>, the holder of a depollution attestation must notify the Minister without delay or, in cases provided for by regulation, within the time prescribed therein, of the accidental occurrence in the environment of any contaminant, and take all the necessary measures to minimize the effects and to eliminate and prevent the causes thereof. The holder must keep up to date and preserve, in accordance with the regulations, the records indicated therein, and must provide the Minister of the MDDELCC, in accordance with the regulations, with the reports indicated therein. At the Minister's request, he must also furnish any information necessary to ascertain compliance of the contaminant discharge with the applicable standards.</p> <p>Furthermore, he must inform the minister, in accordance with the regulations, of any event or incident entailing a contravention of the provisions of his attestation and of the measures he has taken to minimize or eliminate the effects of the event or incident.</p> <p>Furthermore, in accordance with the <i>Civil Protection Act</i> administered by the Department of Public Security, every person required to report a risk must inform the civil protection authorities without delay of any risk-related incident that is likely to exceed the person's emergency response capabilities. In addition, the person must, within three months of such an incident, inform the civil protection authorities of the date, time, place, nature, probable cause and circumstances of the incident and the response operations conducted.</p>
<p>Restoration of environmental and natural resources damages</p>	<p>In accordance with the provisions of the <i>Environment Quality Act</i> regarding land characterization and rehabilitation, when it appears to the Minister of the MDDELCC that contaminants are present in the land in a concentration exceeding the limit values prescribed by regulation, or that the contaminants, even though they are not specified in the regulation, are likely to adversely affect the life, health, safety, welfare or comfort of human beings, other living species or the environment in general, or to be detrimental to property, the Minister may order any person or municipality that has emitted, deposited, released or discharged all or part of the contaminants or has allowed the contaminants to be emitted, deposited, released or discharged, or has or has had custody of the land as owner or lessee or in any other capacity, to submit for the Minister's approval within the time specified a rehabilitation plan setting out the measures that will be implemented to protect human beings, the other living species and the environment in general, including property, together with an implementation schedule.</p>

In accordance with its mission, which is to guarantee for future generations land suitable for the practice and development of agricultural activities and, to this end, to ensure the preservation of agricultural land and contribute to stakeholder engagement in achieving this objective, the CPTAQ [commission for the preservation of agricultural land] is responsible for deciding on applications for authorization submitted to it pursuant to the Act respecting the preservation of agricultural land and agricultural activities regarding the use for purposes other than agriculture, subdivision or alienation of a lot and applications for the inclusion of a lot in an agricultural zone, to issue the operating permits required for the removal of topsoil and sod, to supervise the administration of the Act by conducting appropriate investigations and audits and applying sanctions for offences as required, to advise the government on any matters relating to the preservation of agricultural land, and to issue a notice regarding any matter referred to it pursuant to the Act. The Act applies over all Quebec territory south of the 50th parallel.

When authorizing, for the purpose of installing a pipeline, the alienation and non-agricultural use of land for the uses and lots in each municipality and the entire area targeted by the project, the CPTAQ generally imposes the following conditions for the protection and/or restoration of environmental and natural resources:

- The pipeline must be installed at a minimum depth of 1.6 metres through cultivated land (including forested areas restored to agricultural use following the work) and 1.2 metres in forested areas. However, a depth of 1.2 metres may be required on cultivated land, and 0.9 metre in forested areas, if the bedrock is reached at or above this depth. Also, the depth to which agricultural and forestry works may be carried out before the company needs to be notified is 60 centimetres on cultivated land and 45 centimetres in forested areas. The company does not need to be notified of work using a subsoil plough.
- The duration of work to install the pipeline and restore the soil to agricultural use must not exceed two growing seasons. The project must not adversely affect drainage or soil productivity. The project sponsor has one year following completion of the soil restoration to ensure that the cultivated soil disturbed is restored to the same level of productivity as it had prior to the pipeline installation.
- The project sponsor is required to monitor soil health for a period of seven (7) years following completion of the restoration work. Within three (3) months of completion of the soil restoration, the sponsor must provide the CPTAQ with the name and contact information of the person who will act as liaison to ensure compliance with this condition, throughout the seven-year period.

<p>Geographically specific plans</p>	<p>The <i>Civil Protection Act</i> administered by the Department of Public Security requires that regional authorities, in conjunction with their constituent municipalities and in compliance with the policies determined by the Department of Public Security, establish a civil protection plan determining objectives to reduce major disaster vulnerability across their territory and the actions required to achieve those objectives.</p>
<p>Response equipment</p>	<p>Under the <i>Civil Protection Act</i> administered by the Department of Public Security, the government is authorized to make regulations prescribing standards applicable to civil protection equipment, the use thereof and the identification of rescue workers and equipment.</p> <p>The MDDELCC has the necessary specialized equipment to respond in the majority of emergency situations reported to it. Each of the Department's regional branches also has the most frequently used equipment.</p> <p>The MDDELCC has three mobile laboratories, including a trace atmospheric gas analyzer (TAGA), a leading-edge analytical tool. This equipment can be immediately dispatched to the site of a major disaster. The Department also has a mobile command post that allows for timely and effective on-site response, in particular for oil spills.</p>
<p>Response drills and exercises</p>	<p>The Department of Public Security, through the OSCQ [civil protection organization] and its regional counterparts, Organisations régionales de sécurité civile (ORSC), regularly holds emergency preparedness exercises (e.g. the SOS drill held on April 30, 2014). Along with the departments and agencies assigned missions under the National Civil Protection Plan, these exercises involve the participation of the municipalities and private sector partners affected by the situation being tested.</p> <p>For their part, pipeline companies operating in Quebec regularly conduct emergency response exercises in the field on a voluntary basis. These exercises normally involve the deployment of emergency equipment and the participation of first-line responders (firefighters, police, etc.). The government departments and agencies likely to be called upon in the situation attend as observers.</p>

Personnel training

The CSST [occupational health and safety commission] is the organization mandated by the Quebec government to administer the occupational health and safety regime. As part of its mandate, the commission administers the Act respecting Occupational Health and Safety, the object of which is the elimination, at the source, of dangers to the health, safety and physical well-being of workers. The CSST's activities include prevention and inspection, support for the efforts of workers and employers to eliminate dangers in their workplace, workplace inspections and the promotion of occupational health and safety.

Under the Act and its regulations, a worker is entitled to training, information and counselling services in matters of occupational health and safety, especially in relation to his work and his work environment, and to receive appropriate instruction, training and supervision.

Also under the Act, every employer must take the necessary measures to protect the health and ensure the safety and physical well-being of his worker. In particular, he must:

- see that the establishments under his authority are so equipped and laid out as to ensure the protection of the worker;
- designate members of his personnel to be responsible for health and safety matters and post their names in a conspicuous place easily accessible to the worker;
- ensure that the organization of the work and the working procedures and techniques do not adversely affect the safety or health of the worker;
- use methods and techniques intended for the identification, control and elimination of risks to the safety or health of the worker;
- take the fire prevention measures prescribed by regulation;
- supply safety equipment and see that it is kept in good condition;
- see that no contaminant emitted or dangerous substance used adversely affects the health or safety of any person at a workplace;
- give the worker adequate information as to the risks connected with his work and provide him with the appropriate training, assistance or supervision to ensure that he possesses the skill and knowledge required to safely perform the work assigned to him;

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| | <ul style="list-style-type: none">• provide the worker, free of charge, with all the individual protective health and safety devices or equipment selected by the health and safety committee or, as the case may be, the individual or common protective devices or equipment determined by regulation, and require that the worker use these devices and equipment in the course of work;• give to the workers, the health and safety committee, the certified association, the public health director and the Commission, the list of the dangerous substances used in the establishment and of the contaminants that may be emitted. |
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Liability and Compensation

Comprehensive liability regime

The Civil Code of Québec contains provisions regarding civil liability. These state, in particular, that every person has a duty to abide by the rules of conduct incumbent on him, according to the circumstances, usage or law, so as not to cause injury to another. Where he is endowed with reason and fails in this duty, he is liable for any injury he causes to another by such fault and is bound to make reparation for the injury, whether it be bodily, moral or material in nature. This liability is unlimited. He is also bound, in certain cases, to make reparation for injury caused to another by the act or fault of another person or by the act of things in his custody.

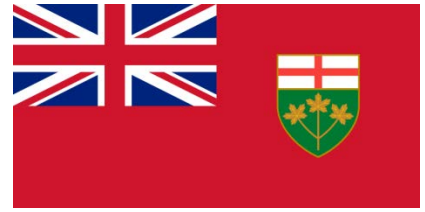
In addition, the Civil Code stipulates that every person has a duty to honour his contractual undertakings. Where he fails in this duty, he is liable for any bodily, moral or material injury he causes to the other contracting party and is bound to make reparation for the injury; neither he nor the other party may in such a case avoid the rules governing contractual liability by opting for rules that would be more favourable to them.

In this respect, over-the-counter contracts for hydrocarbon transportation, storage or distribution services usually require valid and current general liability insurance covering personal injury and damage to property and contractual liability, civil liability insurance (typically for at least \$2 million) as well as environmental liability insurance (typically for at least \$10 million) issued by recognized insurers.

The Civil Code provides for certain cases of exemption from this liability. It states that a person may free himself from his liability for injury caused to another by proving that the injury results from superior force, unless he has undertaken to make reparation for it. Superior force is an unforeseeable and irresistible event, including external causes with the same characteristics. However, a person may not exclude or limit his liability for material injury caused to another through an intentional or gross fault; a gross fault is a fault which shows gross recklessness, gross carelessness or gross negligence. He may not in any way exclude or limit his liability for bodily or moral injury caused to another.

<p>Financial capacity requirements</p>	<p>Pursuant to the Act respecting the Régie de l'énergie, every natural gas distributor is required to submit to the Régie, each year, a report containing the following information, in the case of a company carrying on an enterprise: its capital stock, the various issues of securities made since the establishment of the enterprise or since the last report, the names of its directors, its assets, liabilities, revenues and expenditures for the year, the prices and rates charged during the year and any other information required by the Régie.</p> <p>In addition, under the Regulation respecting the conditions and cases where authorization is required from the Régie de l'énergie adopted pursuant to the Act respecting the Régie de l'énergie, authorization from the Régie de l'énergie is required to acquire, construct or dispose of immovables or assets for energy transmission or distribution purposes as well as to extend, modify or change the use of the transmission or distribution system as part of a project involving the distribution of natural gas worth \$1.5 million or more, where the distributor's total annual delivery is 1 billion cubic metres or more; or the distribution of natural gas worth \$450,000 or more where the distributor's total annual delivery is less than 1 billion cubic metres. Authorization is also required for projects for which the cost is under the specified limits and which have not yet been recognized as prudently acquired and useful for the operation of the natural gas distribution system.</p> <p>In Quebec, the National Assembly's Committee on Agriculture, Fisheries, Energy and Natural Resources has recommended that any pipeline company not subject to the Régie's rules and regulations be required to submit a financial guarantee plan sufficient to cover any damages in the event of a disaster, including damages that may arise following cessation of operations.</p>
<p>Independent financial backstop/fund</p>	<p>Since March 31, 2007, the Quebec government's consolidated financial statements have included an environmental liability associated with the costs of contaminated site rehabilitation. As of March 31, 2013, this liability was estimated at \$3.2 billion.</p>

Province of Ontario



Ontario Energy Board:

oversees the province's electricity and natural gas sectors through regulation and in accordance with the objectives set out in the governing statutory framework.

Technical Standards &

Safety Authority: *promotes public safety and enforces technical standards in the province.*

Prevention

<p>Safety culture</p>	<p>Pipeline operating companies are required to establish a management system with clearly defined roles and responsibilities. The management system must be kept up to date and is audited by the Technical Standards & Safety Authority (TSSA) every five years. Safety reports are to be provided upon request by the TSSA and must be signed accordingly by the appropriate authority as specified in the management system.</p> <p>Under Section 90 of the <i>Ontario Energy Board (OEB) Act</i>, the OEB’s approval for construction of new pipelines is conditional upon the applicant’s compliance with all applicable regulatory requirements including the design specifications, operation, maintenance, safety and integrity requirements under the TSSA mandate.</p> <p>The TSSA has forums to discuss issues regarding pipelines:</p> <ol style="list-style-type: none"> 1) Natural Gas Council: A TSSA steering group typically chaired by a representative from industry, which meets every six months. 2) Risk Reduction Group (RRG) on Pipelines: a group chaired by a TSSA representative meeting as frequently as required to address technical pipeline safety issues. Corrective actions, deadlines and the party responsible for the actions are identified. <p>Prior to excavation, the location of utility lines must be requested through Ontario One Call or the utility at or near the excavation to prevent inadvertently damaging pipelines and other utility lines. Warning signs and markers along the pipeline right-of-way must be maintained.</p>
<p>Standards</p>	<p>The Oil and Gas Pipeline Systems Code Adoption Document (CAD) contains the adopted and modified national standards that are applicable to Ontario. The national standards are issued by the Canadian Standards Association (CSA). The TSSA serves on technical committees and typically adopts and modifies national standards, which are updated periodically. The following standards are adopted and modified in the CAD as part of the Ontario Regulation 210/01 on Oil and Gas Pipeline Systems under the <i>Technical Standards and Safety Act</i>: CSA Z662-11 Oil & Gas Pipeline Systems, CSA Z276-11 Liquefied Natural Gas Production, Storage and Handling, CSA Z246.1-09 Security Management for Petroleum and Natural Gas Industry Systems. The TSSA recommends the TSSA Guidelines for Natural Gas Utilities Locating New Pipeline Facilities PI-98-01 and CSA Plus 663, Land use planning for pipelines: A guideline for local authorities, developers, and pipeline operators – to municipalities, developers, pipeline operators or other parties involved in subdivision planning, approval, design, etc.</p>

<p>Maintenance and testing</p>	<p>Pipeline safety and integrity is primarily the responsibility of pipeline operating companies. O.Reg. 210/01 on Oil and Gas Pipeline Systems requires that operators of high-pressure pipelines must have a Pipeline Integrity Management Program in place to ensure that pipeline companies have proper controls to mitigate safety risks. A Pipeline Integrity Management Program includes in-line pipeline inspections, records of the pipeline history, operation manual and documentation required to develop and implement the integrity management program. These documents must be available for inspection by the TSSA. The program requires an engineering assessment of the pipeline to address issues such as corrosion, 3rd party damage and geotechnical hazards. Criteria for assigning pipeline repair priorities and procedures for mitigation shall also be established. The short term (1 to 3 year) and long-term (4-10 year) mitigation program plans and priorities must also be outlined. The Pipeline Integrity Management Program is audited approximately every five years by the TSSA. Pipeline companies are required to have an Operation and Maintenance Manual for the pipeline system specifying the testing requirements (type, frequency, locations, pipeline size, etc.) of the pipeline systems, including related instruments and/or equipment. The Operation and Maintenance Manual must comply with standards in the CAD and must be updated annually. Any changes to the manual must undergo a change management process to ensure their compliance with standards.</p>
<p>Inspections and audits</p>	<p>The TSSA audits oil transmission pipelines and natural gas transmission and distribution pipelines approximately every five years. Documentation is typically audited by the TSSA to prove that the requirements under CSA Z662, the CAD, and manuals are met.</p>
<p>Compliance and spill data</p>	<p>The Ministry of the Environment tracks spills data, which are maintained at the Ministry of the Environment’s Spills Action Centre and can be obtained upon request.</p>

Orders, penalties and fines

A person may be charged, prosecuted and convicted of an offence under the *Environmental Protection Act* in addition to an environmental penalty. Environmental compliance approval, license or permit may be suspended under the EPA until the environmental penalty is paid. Available orders include pipeline shutdown and reduced pressure.

There are a number of penalties available under the *Environmental Protection Act*. For failure to comply with the terms and conditions of an environmental compliance approval, certificate of property use, of a license or permit under EPA or failure to comply with terms of a report:

- Maximum penalties for individuals: \$4,000,000 on a first offence, \$6,000,000 for a subsequent offence.
- Maximum penalties for corporations: \$6,000,000 on a first offence, \$10,000,000 for a subsequent offence.

For failure to comply with an order or pay fees as required (e.g. licence fees, registration or record fees, services etc.):

- Maximum penalties for individuals: \$50,000 for a first offence, and \$100 000 for a subsequent offence.
- Maximum penalties for corporations: \$250,000 for a first offence, and \$500 000 for a subsequent offence.

For failure to do everything practicable to control the spill of a pollutant or for exceeding discharge limits, including a limit of zero:

- Environmental penalties shall not exceed \$100,000 for each day on which the contravention occurred or continued.

For failure to apply for an environmental compliance review, register an activity in the Environmental Activity and Sector Registry, or carry out measures set out in a notice from a provincial officer:

- Administrative penalty shall not exceed \$100,000 in total and shall not exceed \$5,000 for each contravention.

Preparedness Response and Recovery

<p>Emergency management program</p>	<p>Pipelines must have world-leading contingency planning and emergency response programs. Under Part X of the EPA, companies must develop and implement plans to prevent or reduce the risk of spills of pollutants and remediate any adverse effects that may result from spills of pollutants. This includes plans to notify the Ministry of the Environment (Spill Action Centre), any municipalities within the boundaries of the spill, other public authorities and members of the public who may be affected by a spill, and implement plans to ensure that appropriate equipment and personnel are available to respond to a spill. For oil pipeline segments located in high consequence areas, the pipeline company shall provide the Ministry of Natural Resources and Ministry of the Environment an opportunity to comment on the company’s contingency plan for leaks or spills and address their comments. The pipeline companies shall conduct meetings with local police, firefighting, and conservation authorities, Ontario Ministry of Transportation, Ministry of Natural Resources, Ministry of the Environment and the TSSA to communicate the capabilities and coordination required to respond to pipeline emergencies. These emergency communication meetings shall be conducted at intervals not exceeding five years.</p>
<p>Response standards</p>	<p>The Ministry of the Environment’s Spills Action Centre and any municipality within the boundaries of the spill should be notified as soon as possible. A Class VIII spill (the spill of petroleum product of not more than 100 L in areas restricted to the public, or not more than 25 L in areas with public access) is exempt from reporting to the Ministry of the Environment or municipality if it meets the following conditions:</p> <ul style="list-style-type: none"> • The product does not enter and is not likely to enter a watercourse; • The spill does not cause adverse effects other than those that are readily remediated through clean-up and restoration of paved, gravelled, or sodded surfaces; • Arrangements for remediation are made immediately; and • Records of the spill are maintained. <p>Response standards in the event of an incident should be outlined in the pipeline company’s Emergency Procedures Manual. The TSSA investigates incidents as required in the regulation (i.e. involving death, injuries, fire, explosion, media attention, substantial damage). The TSSA cannot take control of the response if it is deemed insufficient or inadequate but can issue orders as required. Inspectors release a report as a follow-up after an incident.</p>

<p>Restoration of environmental and natural resources damages</p>	<p>Part X of the EPA requires the owner of the spilled material to do everything practicable to restore the natural environment. “Restore the natural environment,” when used with reference to a spill of a pollutant, means that all forms of life, physical conditions, the natural environment and things existing immediately before the spill of the pollutant that are affected or that may reasonably be expected to be affected by the pollutant must be remediated. The Ministry of the Environment verifies that adequate and appropriate clean-up and remediation has been completed in an acceptable manner.</p>
<p>Geographically specific plans</p>	<p>Depending on the scale of the project, a company may be required to apply to the OEB for a leave to construct.</p> <p>The CAD also requires for new construction to address high consequence areas. Operating companies are required to identify segments of their oil and gas pipeline system that are in high consequence areas and must determine if additional preventative or mitigation measures are needed. For oil pipeline segments located in high consequence areas, the operating company shall provide the Ministry of Resources (MNR) and Ministry of the Environment (MOE) an opportunity to comment on the company's contingency plan for leaks or spills and shall address any comments provided by the MNR or MOE.</p> <p>In the Sarnia area, pipeline companies are part of the Chemical Valley Emergency Coordination Organization (CVECO), which brings municipal and industrial emergency responders together to identify potential risks associated with industrial operations and to develop emergency plans around them.</p>
<p>Response equipment</p>	<p>Equipment required must be listed in a company Emergency Procedures Manual and must be readily available. In the event that equipment is not available, contact information must be available to locate equipment. Certain spare equipment and parts are required to be available on hand for emergency repair purposes. Companies are required to regularly check, certify, and/or maintain their equipment (i.e. firefighting equipment, water pump, hoses etc.). Company employees are required to be trained and instructed in the proper operation of equipment and emergency equipment.</p>
<p>Response drills and exercises</p>	<p>Pipeline companies are required to develop a training program for responding to incidents, and drills shall be documented and performed periodically. Tabletop exercises are performed as per company manuals. Pipeline companies typically invite the TSSA to participate in response drills and exercises.</p>

Personnel training	<p>Companies are required to have an Operator Qualification Program stating the training, competency and scope of work of employees and/or contractors. Emergency response training must also be included in the qualification program. The roles and responsibilities of personnel in the event of an incident must be established in the company Emergency Procedures Manual. Any employee and/or contractor handling oil or gas must be a holder of a certificate or license. The TSSA administers the certification of occupations regulated under the <i>Technical Standards and Safety Act</i>. Programs include Gas/Oil Technician Certification and Gas Pipeline Inspector Training.</p>
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Liability and Compensation

<p>Comprehensive liability regime</p>	<p>Economic and environmental risks and responsibilities, including remediation, should be borne exclusively by the pipeline companies. Any person has the right to compensation for loss or damage from the owner of the pollutant. However, a polluter is not liable if they establish that they took all reasonable steps to prevent the spill of the pollutant. The court would determine the degree, if any, in which a 3rd party contractor contributed to the loss, damage, cost or expense by fault or negligence.</p>
<p>Financial capacity requirements</p>	<p>Pipeline companies must provide financial assurance demonstrating their capability to respond to leaks and spills under EPA Part XII.</p>
<p>Independent financial backstop/fund</p>	<p>There is no independent financial backstop in the event a company is unable to pay for the costs of an incident.</p>

Province of Manitoba



Manitoba Public Utilities

Board: regulates the construction and operation of natural gas and propane pipelines within the province of Manitoba.

Manitoba Petroleum

Branch: supervises the construction of oil and gas pipelines for the upstream and midstream oil and gas industry where the lines do not cross provincial boundaries.

Manitoba Environmental Approvals Branch:

regulates developments in a manner that protects the environment and public health, and sustains a high quality of life for present and future Manitobans.

Prevention

Safety culture	Companies must comply with <i>The Oil and Gas Act</i> and associated regulations. Pressure tests for pipelines are witnessed by an inspection team and facilities are inspected yearly, at a minimum. Company safety manuals must contain updated sections pertaining to ERPs, Spill Containment and Fire Prevention.
Standards	Manitoba's regulations reference CSA Z662, and the regulations can be updated as needed.
Maintenance and testing	Provincial regulations require periodic testing of pipeline instruments and equipment, and companies must prove the meters in those tests.
Inspections and audits	Pipeline terminals in Manitoba must be inspected annually by provincial Petroleum Inspectors. A pipeline spill could instigate an additional audit or inspection. Companies are also required to participate in the Manitoba Spill Co-op.
Compliance and spill data	Spill data is posted on a website on a yearly basis.
Orders, penalties and fines	The Minister has the authority to order a shutdown of a pipeline facility if it is deemed necessary due to environmental concerns of as a result of non-compliance with regulations. Monetary penalties can be administered when warranted.

Preparedness Response and Recovery

<p>Emergency management program</p>	<p>Pipeline operation permits granted by the province require companies to have and maintain a Safety and Emergency Response Plan (ERP) program. The goal is to prevent events before they occur and to have effective plans in place in case of an emergency.</p>
<p>Response standards</p>	<p>All companies are required to report any serious accident or incident to the Branch within 12 hours of the event. This can include, but is not limited to, a liquid spill greater than 0.5 m³, any spill on land outside of the company's lease, a fire, or a blow-out.</p> <p>An inspection team will inspect the site of the incident and direct the company to an appropriate response. A spill report is required in all cases, and additional action may be required depending on the scale of the incident.</p> <p>The regulator can issue orders if the response by the company is deemed to be insufficient. In exceptional circumstances, the regulator can take control of the response.</p>
<p>Restoration of environmental and natural resources damages</p>	<p>Manitoba regulation requires companies to fully clean up the site to its original condition. Companies must report to the province on the progress of their clean-up activities annually, based on a pre-approved plan. Inspectors can inspect any time and provide input or feedback to the company regarding their progress.</p> <p>The Branch uses Guidelines developed by the Canadian Council of Ministers of the Environment as the baseline required for clean-up, even though these Guidelines are not specifically referenced in the current version of regulations.</p>
<p>Geographically specific plans</p>	<p>There are provisions within the regulation for the Branch to require an Environmental Protection Plan for certain types of locations, and all companies must belong to the Manitoba Spill Co-operative.</p>
<p>Response equipment</p>	<p>Companies have access to equipment through the Manitoba Spill Co-op. Companies are not required to identify the location of their equipment, but it is often referenced within the ERP. Companies are required to regularly check, certify, and/or maintain their equipment. Company employees are required to be trained and instructed in the proper operation of equipment and emergency equipment per CSA Z662.</p>
<p>Response drills and exercises</p>	<p>All members of the Manitoba Spill Co-op are required to participate or send company representation to the spill exercises put on by the co-op. These field exercises are conducted once or twice a year. If a company does not attend they are required to organize their own spill exercise. Regulators sit on the Manitoba Spill Co-op and often coordinate and oversee the exercises.</p>

Personnel training	Companies are required to ensure that those working on their behalf are trained and competent in performing their duties. The roles of company personnel to be deployed in the event of an incident should be within a company ERP. The Manitoba regulator has a dedicated training program for its own personnel.
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Liability and Compensation

<p>Comprehensive liability regime</p>	<p>The licenced operator for a pipeline is legally liable for the line throughout its lifetime use and after abandonment. Companies are responsible for costs associated with environmental damages, and owners are compensated during pipeline installation and in the event of an unintentional release.</p> <p>The ‘polluter pays’ principle is in force.</p> <p>Companies are responsible for the actions of third party contractors, although this is not specifically referenced within Manitoba regulation.</p>
<p>Financial capacity requirements</p>	<p>The <i>Oil and Gas Act</i> specifies the requirement of a performance deposit for pipeline (although the amounts are not spelled out at this time...)</p>
<p>Independent financial backstop/fund</p>	<p>The Branch maintains an Abandonment Fund that could be made available for use as an independent financial backstop in the event a company is unable to pay for the costs of an incident.</p>

Province of Saskatchewan



Saskatchewan Ministry of the Economy: *advances and regulates responsible resource development in Saskatchewan.*

Prevention

<p>Safety culture</p>	<p>The Ministry of the Economy (ECON) recommends to all operators to be a member of Sask 1st Call. Most large pipeline companies are subscribers.</p> <p>ECON requires a licensee to develop, implement, and document – for all of its pipelines – a pipeline integrity management and safety management program as well as an emergency response plan in accordance with the latest edition of the CSA Z662 standards.</p> <p>ECON licenses transmission pipelines. However, flowlines, pipelines between a well and a gathering facility, are exempt from licensing.</p>
<p>Standards</p>	<p>The minimum requirements for the design, construction, testing, operation, maintenance and repair of pipelines shall be in accordance with the most recent version of CSA Z662 – Oil and Gas Pipeline Systems, unless otherwise approved by the minister.</p> <p>ECON actively participates in the development of CSA Z662 standards as a member of two technical subcommittees.</p>
<p>Maintenance and testing</p>	<p>A licensee must submit a Leave to Open application with the proper documentation, including charts and logs for strength and leak tests, before commencing operation of the pipeline.</p> <p>Pipeline integrity is the primary responsibility of a pipeline company.</p> <p>ECON requires companies to develop and implement integrity management programs to identify, manage, monitor, and address any potential hazard associated with each individual pipeline.</p> <p>ECON requires that the leak detection requirements contained in Annex E of CSA Z662 are mandatory for liquid hydrocarbon pipelines.</p> <p>ECON also requires, for the purpose of leak detection, that every operator of a pipeline shall accurately measure all the substances transported by that pipeline.</p>
<p>Inspections and audits</p>	<p>ECON conducts proactive and random pipeline construction, pressure test and operation inspections and audits.</p> <p>ECON is considering implementing a risk-based model for inspections and/or audits, including reviews of emergency response plans as well as integrity and safety management programs.</p>
<p>Compliance and spill data</p>	<p>ECON is considering publishing compliance reports on its website.</p> <p>ECON files and posts all incidents and spills in a spill database available to the public. This data is updated monthly.</p>

Orders, penalties and fines	ECON has enforcement authority ranging from administrative penalties to monetary penalties, including notices of contravention, suspension or cancellation of a licence and fines based on the gravity of the contravention not exceeding \$50,000, and in the case of a continuing offence to a further fine not exceeding \$50,000 for each day or part of a day during which the offence continues.
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Preparedness Response and Recovery

<p>Emergency management program</p>	<p>ECON requires every pipeline operator to prepare and maintain up to date an emergency response plan, which must be accessible to operating and maintenance personnel, that sets out the action to be taken and the agencies and persons to be contacted in the event of a rupture, break, leak or fire.</p> <p>ECON is considering requiring all pipeline companies to adhere to an oil spill co-op in each geographic area through which their pipeline is routed. There are six oil spill co-ops capable of providing immediate emergency response in all areas of the province through the provision of specialized equipment, infrastructure and personnel, should a release occur.</p>
<p>Response standards</p>	<p>Every operator shall immediately notify ECON of spills, fires, etc., except where the volume of oil, salt water, condensate or other product that escapes or is released is less than 1.6 cubic metres and is contained on property that the operator owns or leases.</p> <p>ECON field personnel respond with field inspections and clean-up follow-ups.</p> <p>Emergency response plans detail the process and timelines for responding to incidents and follow-up investigations.</p> <p>ECON requires written reports and closely monitors post-incident remediation.</p>
<p>Restoration of environmental and natural resources damages</p>	<p>ECON requires pipeline operators to clean up and remediate the site of any spill, including reclaiming the soil.</p> <p>ECON inspects a spill site to verify acceptable cleanup and remediation (SPIGEC).</p>
<p>Geographically specific plans</p>	<p>ECON requires design plans in accordance with the latest version of CSA Z662 standards.</p> <p>ECON is considering requiring all pipeline companies to adhere to an oil spill co-op in each geographic area through which their pipeline is routed. There are six oil spill co-ops capable of providing immediate emergency response in all areas of Saskatchewan through the provision of specialized equipment, infrastructure, and personnel, should a release occur.</p>
<p>Response equipment</p>	<p>In accordance with CSA Z662 standards, ECON requires pipeline companies to have the capability to respond to an emergency, and where practicable, operating companies must maintain materials, equipment, and spare parts in adequate quantities and at suitable locations for use in emergency repairs.</p> <p>Oil spill co-ops provide immediate emergency response capabilities in all areas of Saskatchewan through the provision of specialized equipment, infrastructure, and personnel should a release occur.</p>

<p>Response drills and exercises</p>	<p>ECON requires operators to train emergency response personnel and regularly test their emergency response plans through major ‘live’ exercises and tabletop simulations.</p> <p>ECON participates in these annual exercises to assess the knowledge and capability of a pipeline operator to respond should an incident occur.</p>
<p>Personnel training</p>	<p>ECON requires every pipeline operator to have an emergency response plan that sets out the action to be taken and the agencies and persons to be contacted in the event of a rupture, break, leak or fire.</p> <p>ECON does not monitor training of personnel.</p>

Liability and Compensation

<p>Comprehensive liability regime</p>	<p>Where an incident occurs, the operator shall take immediate action in accordance with the emergency response plan.</p> <p>Regardless of fault or negligence, Saskatchewan holds all licensees/operators responsible for spill clean-up and remediation.</p> <p>An orphan well, facility or associated flowline are subject to the provisions of “The Oil and Gas Orphan Fund”.</p> <p>Companies are responsible for abandoned pipelines.</p>
<p>Financial capacity requirements</p>	<p>ECON may contemplate developing the necessary legislation to have companies contribute to a common financial fund associated with the cost of abandoning orphan licensed pipelines.</p> <p>An orphan well, facility or associated flowline are subject to the provisions of “The Oil and Gas Orphan Fund”.</p>
<p>Independent financial backstop/fund</p>	<p>An orphan well, facility or associated flowline are subject to the provisions of “The Oil and Gas Orphan Fund”. Funding is provided by companies based on an orphan fund levy.</p> <p>No financial funds are available for licensed pipelines.</p>

Province of Alberta



Alberta Energy Regulator:
regulatory body with a mandate
to provide for the efficient,
safe, orderly, and
environmentally responsible
development of Alberta's
energy resources.

Prevention

<p>Safety culture</p>	<p>The Alberta Energy Regulator (AER) has a long history of regulating pipeline companies and is unique in North America in that it requires all pipeline failures to be reported regardless of the size of the spill, area affected or type of fluid released. This process has created an industrial culture characterized by a safety first attitude.</p> <p>Inspections are based on a three-tiered model: baseline inspections; random inspections; and a prioritized system that takes into account a company’s history, location of the facility, and the type of resource being developed. This system ensures that all licensees make safety and compliance their most important priority.</p>
<p>Standards</p>	<p>The AER ensures that the design, construction, operation, and maintenance – including discontinuation and abandonment of regulated pipelines (the full pipeline life cycle) complies with Alberta’s <i>Pipeline Act</i>, Pipeline Rules, and applicable Canadian Standards Association (CSA) standards.</p> <p>The AER incorporates several standards of the CSA for the regulation of pipelines, as stated in the Pipeline Rules Section 9. The primary standard is CSA Z662 – Oil and Gas Pipeline Systems, which sets out the technical standards for the design, construction, operation, and maintenance of Canada’s oil and gas pipelines, and is the mandatory starting point for pipelines in Alberta.</p> <p>CSA Z662 contains provisions for addressing system integrity, with the 2003 S1-05 edition introducing Annex N: “Guidelines for pipeline system integrity management programs”. This non-mandatory annex is enforced as mandatory in Energy Resources Conservation Board (ERCB) Directive 077 in Alberta. Therefore, the AER requires pipeline licensees to develop, implement, and document for all of their pipelines a pipeline integrity management program that complies with the latest edition of CSA Z662, Annex N.</p> <p>The AER requires that the leak detection requirements contained in Annex E of CSA Z662 be mandatory for liquid hydrocarbon pipelines.</p> <p>If a failure occurs on any portion of a licensed pipeline, that failure is reportable and made mandatory through the <i>Pipeline Act</i> (Part 6, Section 35).</p>

<p>Maintenance and testing</p>	<p>The AER requires companies to develop and implement integrity management programs to identify, manage, monitor, and address any potential hazard associated with each individual pipeline.</p> <p>Companies must have management systems to design, construct, operate and maintain pipelines.</p> <p>Pipeline integrity is the primary responsibility of a pipeline licensee. The AER requires companies to take a system-wide integrated approach to keeping their pipeline in sound operating condition.</p> <p>As part of the risk assessment process, the pipeline licensee determines the type and frequency of the physical condition (integrity) assessments of the pipeline.</p>
<p>Inspections and audits</p>	<p>The AER's pipeline-inspection program considers pipeline fluid characteristics, location, line size, failure history, and the company's compliance history. Pipelines with greater potential risks are given a higher inspection priority.</p> <p>The AER conducts comprehensive incident investigations after serious incidents occur to determine the cause of a pipeline failure and what can be done to prevent a similar situation in the future.</p> <p>The AER performs proactive random inspections and uses a system of inspections based on a prioritization model called "OSI".</p> <p>The "OSI" system takes into account a variety of factors that help determine the necessary frequency to inspect a particular facility.</p> <ul style="list-style-type: none"> • "O" stands for "operator history" – this is the company's history of complying with AER regulations. If an operator has a poor track record, the AER will inspect its facilities with greater frequency. • "S" represents "site sensitivity" – this is where the AER takes into account the location of the facility. If it is located near a heavily populated area or a wetland, it becomes an inspection priority. • "I" refers to "inherent risk" – this is where the AER considers the nature of the resource being extracted or transported. For example, high vapor pressure fluids such as propane or ethane would warrant more frequent inspections. <p>Besides prioritizing inspections by the OSI system, the AER inspectors routinely conduct proactive random inspections.</p>

<p>Compliance and spill data</p>	<p>Regulated companies routinely report to the AER. The policy and processes under the AER’s Compliance Assurance Program subject licensees to a series of internal audits, reporting, and accountability processes. This Program uses a risk matrix and compliance categories for administering and tracking enforcement and identifying licensees that are persistently noncompliant in their asset integrity processes and emergency management programs. The predetermined risk of each AER requirement then determines the response process as detailed in Directive 019: Compliance Assurance.</p> <p>The AER publishes a comprehensive annual compliance report for all AER compliance categories. Incident reports, which may contain specific noncompliance and related enforcement action information, are also published.</p> <p>Stakeholders may also contact licensees regarding specific compliance information.</p> <p>If a licensee does not release the information, stakeholders may use the <i>Freedom of Information and Protection of Privacy Act</i> process to request the information.</p>
<p>Orders, penalties and fines</p>	<p>The AER has a range of enforcement options to ensure compliance, including administrative penalties, tickets and warning letters, enforcement and environmental protection orders, and prosecution.</p> <p>The AER has the power to order an individual or company to pay an administrative penalty if it does not comply with energy resource legislation or approvals, including regional plans under the <i>Alberta Land Stewardship Act</i>. Penalties need to be issued within two years after the date on which the incident occurred or the date on which the incident first came to the notice of the AER – whichever is later.</p> <p>The maximum penalties for a person who is guilty of offence under the <i>Pipeline Act</i> are \$500,000 for corporations and \$50,000 for individuals. Parties are not considered guilty of an offence under the Act if they took all reasonable steps, on a balance of probabilities, to prevent the offence.</p> <p>If a company is incapable of implementing its emergency response plan, the AER can deny a licence application, shut-in facilities, or suspend licences until the company demonstrates otherwise.</p>

Preparedness Response and Recovery

<p>Emergency management program</p>	<p>Emergency preparedness and response includes all activities done prior to an emergency so that designated personnel are ready and able to respond quickly and appropriately, as well as those activities that take place during the incident. This includes activities such as identifying hazards, preparing and maintaining emergency response plans and response procedures, ensuring that the emergency response plans identify sufficient resources and equipment for use by response personnel during an emergency, and designating response personnel and ensuring that they are suitably equipped to carry out their duties through training, drills, and exercises.</p> <p>The AER requires all license holders to have an emergency management program. These programs are to include hazard analyses, risk assessments, mitigation and prevention planning, training, and emergency response planning in proportion to the risks involved in their operations. Reviews and updates of these programs are to be conducted at least annually.</p> <p>The AER’s Directive 71 Emergency Preparedness and Response Requirements for the Upstream Petroleum Industry requires companies to have in place comprehensive emergency response plans.</p> <p>Emergency response plans define the actions a company will take should a failure occur. This includes identifying the detailed roles and responsibilities of all responders and how the company will work with appropriate local and provincial government agencies.</p> <p>These plans do not need to be site specific. Instead, the emergency response plans must address a liquid spill onto land or water from any well, pipeline or facility. The plan must include purchasing spill clean-up equipment and conducting annual exercises.</p> <p>Site-specific emergency response plans are not required for every drilling, production, or pipeline operation in the province. When a site-specific emergency response plan is not required, a corporate-level emergency response plan is used by the licensee to handle emergency events.</p>
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<p>Response standards</p>	<p>The AER requires the licensee to take immediate steps to stop the source of release and contain and clean up the spill (Pipeline Rules Section 77). The AER does have a series of requirements that must be followed upon a spill being detected: the licensee must verbally report to the AER immediately, and the industry operator must notify the landowner of any release that occurs off-lease, migrates off-lease or occurs on an easement or right-of-way.</p> <p>The Field Operations branch deals with response to leaks and breaks, the internal emergency response plan describes the process and timelines for responding to incidents and performing follow-up investigation.</p> <p>Additionally, Oil Spill Cooperatives maintain spill contingency plans and strategically place OSCARS (Oil Spill Containment and Recovery units) that are enacted immediately after the detection of a spill.</p>
<p>Restoration of environmental and natural resources damages</p>	<p>Alberta Environment and Sustainable Resource Development requires pipeline operators to clean up and remediate the site of any spill. This includes repairing the soil and any wildlife impacted by the spill.</p> <p>Directive 006 requires all licensees to undergo an assessment identifying all potential risks of a spill and the total estimated reclamation cost to reclaim a site. As part of this process, all remediation and surface reclamation issues must be identified and initially evaluated through a phase 1 environmental site assessment.</p> <p>This estimate must be conducted in a manner that meets or exceeds the standards provided in Alberta Environment and Sustainable Resource Development (ESRD) publication T/573: Phase 1 Environmental Site Assessment Guideline for Upstream Oil and Gas Sites.</p>
<p>Geographically specific plans</p>	<p>When pipelines pass through or near populated areas, roads, railways or water bodies, AER regulatory requirements intensify. When pipelines pass through sensitive areas, operators must adhere to additional requirements, including: reducing operating pressure, using thicker-walled pipeline, pipe being buried at greater depths, and increased inspections and surveillance.</p> <p>In some instances, the AER requires the identification of an emergency planning zone (EPZ). An EPZ is a geographical area surrounding a well, pipeline, or facility containing hazardous product that requires specific emergency response planning by the licensee. The development of an EPZ is based on a project-by-project assessment.</p>

	<p>AER regulations require all pipeline companies to belong to an oil spill co-op in each geographic area through which their pipeline is routed, or submit their own spill response plan for their specific local operations to the AER for approval.</p> <p>Oil spill co-ops provide immediate emergency response capabilities in all areas of Alberta through the provision of specialized equipment, infrastructure, and personnel, should a release occur. Funding for spill co-ops comes entirely from industry and is administered through Western Canadian Spill Services.</p>
<p>Response equipment</p>	<p>The AER requires Pipeline companies to have extensive maintenance and repair programs and operate “leak detection systems” to monitor pipeline integrity. The AER requires that the leak detection requirements contained in Annex E of CSA Z662 be mandatory for liquid hydrocarbon pipelines.</p> <p>In the event of an emergency, AER Directive 071 requires pipeline companies to provide a list of emergency equipment (including location, number, and type) of the following:</p> <ul style="list-style-type: none"> • communications equipment for the public safety coordinator, rovers, roadblock and air monitoring personnel, and any others that require it (the licensee is responsible for ensuring that communications equipment is made available to key response personnel); • equipment for roadblock kits (including contents); • ignition equipment that is maintained on site; and • gas monitoring equipment.
<p>Response drills and exercises</p>	<p>The AER requires operators to train emergency response personnel and regularly test their emergency response plans through major “live” exercises and tabletop simulations. The AER’s participation in and awareness of these exercises allows it to assess the knowledge and capability of a pipeline operator to respond should an incident occur.</p> <p>In situations where an operator is unable or unwilling to take the necessary actions during an incident, the AER has the authority and expertise to do so.</p>

<p>Personnel training</p>	<p>The AER requires companies to provide training sessions to ensure that response personnel are competent in emergency response procedures. The licensee is expected to provide ERP training on: the overall plan, roles and responsibilities during an incident, public protection measures used during an emergency, and available communication methods.</p> <p>Licensees are required to belong to oil spill co-ops that provide training and guidance for pipeline operators.</p> <p>If a licensee is unable to implement an emergency response plan the AER has trained staff capable of immediately undertaking this work.</p> <p>Additionally, Cooperatives maintain spill contingency plans and strategically place OSCARS (Oil Spill Containment and Recovery units) that are available to all member companies in the area. They hold annual training exercises and provide educational funding for their membership.</p>
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Liability and Compensation

<p>Comprehensive liability regime</p>	<p>Alberta holds all licensees responsible for spill clean-up and remediation regardless of fault. The AER has an absolute no-fault liability which requires the licensee pay for all costs associated with emergency response, clean-up and restoration.</p> <p>The AER holds all licensees liable for the cost of spill clean-up and remediation regardless of whether the licensee is responsible for a spill or not. Alberta has a system of absolute at fault and no fault liability whereby the licensee must pay all costs required to clean a spill and restore the area.</p> <p>Unlimited liability for clean-up and remediation is addressed under the <i>Pipeline Act</i> Section 36 and Pipeline Rules Section 77. In addition, the <i>Pipeline Act</i> Section 25 deals with liabilities for pipeline abandonments.</p> <p>In the upstream oil and gas industry, an orphan is a well, pipeline, facility or associated site which has been investigated and confirmed as not having any legally responsible or financially able party to deal with its abandonment and reclamation.</p> <p>The Orphan Well Association (OWA) is a not for profit organization unique to the province of Alberta which was created from the work of many genuinely concerned individuals from the oil and gas industry and from the provincial government. It operates under the delegated authority of the AER. The purpose of the OWA is to manage the abandonment and reclamation of upstream oil and gas orphan wells, pipelines, facilities and their associated sites.</p>
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<p>Financial capacity requirements</p>	<p>The AER uses a Licensee Liability Rating (LLR) Program to prevent the costs to suspend, abandon, remediate, and reclaim a well, facility, or pipeline from being borne by the public of Alberta should a licensee become defunct.</p> <p>The LLR system assesses a licensee’s ability to address its suspension, abandonment, remediation, and reclamation liabilities. Under the program, each operator must pay a security deposit if its deemed liabilities exceed its deemed assets.</p> <p>Under Directive 19, if a licensee fails to comply with the requirements of the LLR Program, it could be subject to various AER enforcement provisions, including:</p> <ul style="list-style-type: none"> • non-compliance fees; • partial or full suspension of operations; • suspension and/or cancellation of permit, licence or approval; or • issuance of an Order, which is a legal document that formally orders a specific action or prohibition, including facility closures or abandonments.
<p>Independent financial backstop/fund</p>	<p>Alberta’s Orphan Fund pays the costs to suspend, abandon, remediate, and reclaim a well, facility, or pipeline included in the LLR Program if a licensee or working interest participant becomes defunct.</p> <p>The Orphan Fund is fully funded by licensees in the AER’s LLR Program. A licensee's annual levy is based on its proportionate share of sector liability as determined by the LLR.</p> <p>The Orphan Fund is administered by the Alberta Oil and Gas Orphan Abandonment and Reclamation Association, a non-profit society incorporated under the <i>Societies Act</i> on March 20, 2001.</p> <p>Note the orphan fund does not apply to some transmission pipelines.</p>

Province of British Columbia



BC Oil and Gas

Commission: independent, single-window regulatory agency with responsibilities for overseeing oil and gas operation in British Columbia, including pipeline transportation.

Prevention

<p>Safety culture</p>	<p>Under consideration.</p>
<p>Standards</p>	<p>CSA standards applied to BCOGC-regulated pipelines include Z662-11, Z662, and Z246.1 (Security Management Systems). The standards are updated periodically.</p> <p>The BCOGC serves on the technical committees for these and other standards still under development. For example, Z246.2 (Emergency Preparedness and Response) and Z247 (Damage Prevention).</p>
<p>Maintenance and testing</p>	<p>Based on pipeline standards, product location, size, etc., the BCOGC currently requires companies to periodically test pipelines relative to CSA Z662 standards.</p>
<p>Inspections and audits</p>	<p>The BCOGC conducts pipeline construction inspections and employs a risk-based model for inspecting operational pipelines. The BCOGC conducts periodic audits of Integrity Management Programs (IMP).</p> <p>BC is considering increasing capacity for inspections and audits via funding from industry, and mandatory participation in a Preparedness and Response Organization.</p>
<p>Compliance and spill data</p>	<p>The BCOGC provides quarterly compliance reports on their website, and is considering monthly compliance and enforcement reporting.</p>
<p>Orders, penalties and fines</p>	<p>The BCOGC and MOE have enforcement authorities, which include a host of enforcement options based on significance and severity of the contravention (e.g. orders, tickets, warnings).</p> <p>Penalties of up to \$1.5 million, and/or imprisonment.</p> <p>BC is developing policy on administrative monetary penalties.</p>

Preparedness Response and Recovery

<p>Emergency management program</p>	<p>The BCOGC requires companies to have an emergency management program that anticipates, prevents, manages and mitigates conditions during an emergency that could adversely affect property, the environment, or safety of workers or the public.</p>
<p>Response standards</p>	<p>Operators must notify the BCOGC of an incident immediately.</p> <p>The BCOGC is actively involved in the management of incidents. The BCOGC will issue orders if company response is deemed inadequate.</p> <p>BC is exploring options to implement a variety of response standards, e.g. response times.</p> <p>The BCOGC coordinates post-incident follow-up (e.g. reporting, best practice sharing, communications, investigation).</p>
<p>Restoration of environmental and natural resources damages</p>	<p>The BCOGC requires assessment of wildlife or natural resource impact and development of an BCOGC-approved remediation plan.</p> <p>BC MOE is considering additional measures to ensure a consistent process is in place to assess the level of environmental damage associated with a spill and require a restoration plan to ensure appropriate restoration of environmental and natural resource damage is achieved.</p>
<p>Geographically specific plans</p>	<p>BC is considering requiring area-based planning and geographic response plans that would spell out actions to be taken in the first 24-48 hours, and would be shared across all sectors.</p>
<p>Response equipment</p>	<p>The BCOGC requires equipment and other resources to be developed specifically for the activity in question.</p> <p>BC is considering looking to Preparedness and Response Organizations to maintain an inventory of equipment and ensure equipment is maintained and operational.</p>
<p>Response drills and exercises</p>	<p>The BCOGC requires tabletop exercises and “live” exercises, and participates in and monitors these exercises. The BCOGC conducts its own annual exercises to evaluate incident response and emergency management systems.</p> <p>BC is considering requirements for drills and exercises, including mandatory certification by a “preparedness and response organization.”</p>

Personnel training	<p>The BCOGC requires permit holders to identify resources to be deployed in the event of an incident or spill including staff or other trained personnel (with required knowledge, training and background) who will be responsible for responding to incidents and spills.</p> <p>BC is considering requirements to ensure responders have the appropriate level of training commensurate with their duties.</p>
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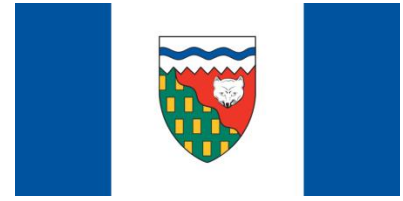
Liability and Compensation

<p>Comprehensive liability regime</p>	<p>Unlimited liability exists for companies found to be at fault or negligent. BC MOE is examining options for defining and implementing liability for the loss of non-use value.</p>
<p>Financial capacity requirements</p>	<p>Under consideration, e.g. implementation of a security deposit style system where financial vehicles are put in place, based on risk factors to ensure financial capacity is available to deal with the possible outcomes of pipeline incidents or spills.</p>
<p>Independent financial backstop/fund</p>	<p>Under consideration</p>

Northwest Territories

As of April 1, 2014, the Government of the Northwest Territories became responsible for management of onshore oil and gas development and regulation in the Northwest Territories.

The National Energy Board will remain the regulator for onshore/offshore oil and gas developments, and regulation in the Inuvialuit Settlement Region (ISR) for the next 20 years.



National Energy Board:

independent federal agency established to regulate international and interprovincial aspects of the oil, gas, and electric utility industries in Canada.

Northwest Territories Recommendations

Safety and security measures for pipelines

- Promote and provide safety training, education, and employment and business opportunities in First Nations communities in the North.
- Partner with Aboriginal governments for ensuring safety and security of the pipeline, and the energy transportation system in the North.
- Regulators/owners/ operators are accountable for safety management and adopting a safe work culture from the initial application through the life cycle of the project.
- Safe production facilities and protection of oil/ gas resources.
- Develop CSA standards required in regulations for construction, operation and maintenance for pipelines and energy transmission in permafrost locations and frozen terrain in the North.
- Ensure a suitable mechanism and standard for periodic system integrity checks, testing, and provision of a supervisory control and data acquisition (SCADA) system for all pipeline and energy transmission/ transportation projects in the North.
- Adopt and comply with superior standards in pipeline operation and maintenance procedures, from the initial application through the life cycle of the project.
- Develop and implement audit management, adopting critical safety standards, practices and regulations,
- Develop guidelines with regards to compliance and enforcement.
- Facilitate safety training, education, employment, and business opportunity planning with Aboriginal governments and communities related to ensuring pipeline safety and security.
- Develop a pipeline disaster management framework and emergency management program in the provinces and territories.
- Allocate adequate funds for pipeline disaster management (pipeline burst/leak/ spill etc.).
- Ensure restoration of the environment and loss recovery (personal, property damage etc.).
- Develop emergency procedures and a communications strategy.
- Provide facts and figures and update information/material regarding pipeline system safety and security in Northern communities.

Annex 3: Pipeline Regulators in Canada

Federal

National Energy Board - www.neb-one.gc.ca

Transportation Safety Board - www.tsb-bst.gc.ca

Provincial / Territorial

British Columbia Oil and Gas Commission - www.bcogc.ca

Yukon Environment of Energy, Mines and Resources, Oil and Gas Branch - www.emr.gov.yk.ca/oilandgas/

Northwest Territories: Office of the Regulator of Oil and Gas Operations -
www.iti.gov.nt.ca/infopage/oil-gas-regulator

Alberta Energy Regulator - www.aer.ca

Saskatchewan Energy and Resources - www.economy.gov.sk.ca

Nunavut Impact Review Board - www.aadnc-aandc.gc.ca/eng/1100100011174/1100100011175

Manitoba Public Utilities Board (natural gas and propane pipelines) - www.pub.gov.mb.ca

Manitoba Petroleum Branch (upstream and midstream oil and gas pipelines) – gov.mb.ca/petroleum

Ontario Energy Board - www.ontarioenergyboard.ca

Régie de l'énergie du Québec - www.regie-energie.qc.ca

Régie du bâtiment du Québec - www.rbq.gouv.qc.ca

Ministère de la Sécurité publique - www.securitepublique.gouv.qc.ca

Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques - www.mddefp.gouv.qc.ca

Ministère de la Justice - www.justice.gouv.qc.ca

Ministère des Forêts, de la Faune et des Parcs - www.mffp.gouv.qc.ca

Société de l'assurance automobile du Québec - www.saaq.gouv.qc.ca

Commission de la santé et de la sécurité du travail - www.csst.qc.ca

Commission de protection du territoire agricole du Québec - www.cptaq.gouv.qc.ca

Sûreté du Québec - www.suretequebec.gouv.qc.ca

Bureau d'audiences publiques sur l'environnement - www.bape.gouv.qc.ca

Info Excavation - www.info-ex.com

Newfoundland and Labrador Board of Commissioners of Public Utilities - www.pub.nf.ca

New Brunswick Energy & Utilities Board - www.nbeub.ca

Nova Scotia Utility & Review Board - www.nsuarb.novascotia.ca

Standards

Canadian Standards Association - www.csagroup.org/ca/en/services/codes-and-standards