

**TRANSCANADA KEYSTONE PIPELINE, LP  
KEYSTONE XL PIPELINE PROJECT  
PRESIDENTIAL PERMIT APPLICATION  
EXHIBIT A**

## EXPERIENCE

TransCanada has designed, constructed and operated pipelines in virtually every type of topography of the world and have been North America's pre-eminent operator of pipelines since the 1950s when operations commenced on the high-capacity, transmission pipeline system connecting western Canadian supplies to eastern markets. Today, we operate one of the largest, most sophisticated, remotely-controlled pipeline networks in the world with a solid reputation for safety and reliability. Through almost 50 years of domestic experience and approximately 20 years of international experience, TransCanada has succeeded in the discontinuous permafrost of northern Alberta, the jungles of Malaysia, the prairies of southern Saskatchewan, the mountains of Chile, and the muskeg and bedrock of northern Ontario.

As a result of this widespread experience, and including our learning's from operations, our North American pipeline network has developed into an extremely safe, reliable and cost-effective asset. We have attained this status by applying not only established industry knowledge but also some innovative processes and technology. For example:

- We have implemented reliability-based methodologies into our design;
- We use risk models to validate design criteria and to set maintenance priorities;
- We utilize GIS technology to support our engineering and operations processes;
- We have installed industry-leading high strength steels into our mainlines; and
- We have made mechanized welding the standard in large-diameter pipeline construction and we have developed and applied ultrasonic testing techniques which support the installation of our high-grade steels.

Another specific area in which we have developed unique expertise is that of corrosion management. This allows us not only to operate safely and cost-effectively over the long term but to construct pipelines in new frontiers as well:

- We have proven experience in protecting our pipelines in areas where no commercial power is available. We operate a significant length of pipelines in such areas, particularly in northern Alberta. As a result, we have years of expertise in both the use of sacrificial anodes for transmission applications and in powering our cathodic protection systems with local, unattended sources such as thermo-electric generators;
- We are exploring new technologies, including fuel cells, to provide additional options for remote power generation; and
- We have decades of experience with the performance of pipeline coatings in cold climates and have done significant research in this area.

TransCanada owns and operates one of the largest and most sophisticated gas pipeline systems in the world. It collects gas from one of North America's most extensive and cost-competitive basins, the Western Canadian Sedimentary Basin, through a network of pipelines which connects over 1,000 receipt points. On the Alberta system we ship gas for well over 300 customers under approximately 36,000 firm and interruptible contracts. From here, our high-capacity mainlines feed local consumers, as well as the major markets of eastern Canada and the northeast, central and western regions of the United States. Our GTN system crossing from British Columbia into Idaho and running through Washington and Oregon to Northern California, serves the Pacific Northwest while our ANR system connects supply areas in Oklahoma and Texas with the high demand areas of the U.S Northeast. Our current oil system crosses the Canada/U.S border supplying Alberta oil to Patoka and Cushing markets.

We are a leader with respect to operationally-efficient and cost-effective gas transmission companies in North America while continuing to grow and optimize our oil business:

- Our oil and gas systems are designed for remote operation;
- We have specialized software which constantly analyses flow situations and monitors for abnormalities;
- We maintain our system with a risk-based, quantitative process that pinpoints our areas of greatest exposure and allows us to set our maintenance priorities;
- We are one of the world's largest operators of aero-derivative turbines outside the aircraft industry;
- We generate electricity from some of our compressor stations and have branched into the renewable power generation with our wind and solar projects.
- We have a reputation for bringing new technology to our industry. From high-strength steels to new maintenance processes, we have a history of making new technology work.

Our operational excellence has generated important bottom-line benefits for our customers:

- Our extensive market coverage provides our customers with a wide range of business options as to where they can deliver their product;
- The large customer base that we have built allows us to offer a comprehensive and flexible menu of services and pricing. Shippers can choose to contract for dedicated capacity or occasional capacity. They can select short-term as well as long-term services. On our gas systems they can park gas on our system or they can borrow gas from it and they have options for storing their gas or changing title during shipment; and
- Our customers can be very confident about security of throughput. We operate our system remotely. Our risk-based maintenance processes, unique to our industry, focus on value, availability and reliability.

- Independent benchmarking studies show that, in a number of key measures, TransCanada's operational performance is "Best in Class."

TransCanada's operation and maintenance activities are governed by over 1000 specific procedures that promote safety, environmental protection and efficiency in the operation of the pipeline. These procedures are known as TransCanada Operating Procedures (TOPs). TOPs are developed and revised in conjunction with our pipeline and plant maintenance plans, safety and environmental protection programs, and in response to legislated requirements and best practices in all applicable regulatory jurisdictions in which we operate.

TOPs are maintained electronically and are accessible at all locations across the organization. Electronic links with our state-of-the-art computerized maintenance management system allows for efficient access to TOPs for field technicians at the same time as they are reviewing and issuing maintenance work orders. Results and findings from the execution of maintenance tasks are captured and trigger reviews and updates to TOPs, thus facilitating continuous improvement. Finally, a change-management program ensures that legislative amendments that may impact TOPs are communicated, analyzed and incorporated into TOPs when appropriate, and that staff receive timely notifications when TOPs are revised.

The TransCanada pipeline operations control center provides continuous, 24 hours/day, monitoring and control of the company's 36,500 mile gas network and 2150 mile oil network. We have developed a state-of-the-art suite of control and information management tools which direct and monitor the safe and efficient flow of gas and oil across the continent. This package has evolved with the growth of the pipeline network over almost six decades, taking into consideration our learning's from system expansion, industry progression and customer needs.

The key services provided from the Operations Centre include:

- Monitoring and control of the pipeline system and coordination of all activities on the system;
- Accurate receipt and delivery of all nominated volumes through optimum system operation; and
- A central role in emergency preparedness and response.

Overall system planning, outage coordination and general control center support is provided by our Operations Planning groups. More specifically, the following functions are carried out:

- Planning and coordination of outages from the very short term to one year into the future;
- Handling of unplanned outages;
- Simulation and hydraulic analyses of the pipeline network;

- Planning for capacity as well as the allocation of that capacity to customers; and
- Development and implementation of operating strategies.

The entire TransCanada transmission network is operated through a highly advanced SCADA system. The system has a superior record of availability and, in addition, is fully backed up with a remote hot standby contingency facility. It has significant built-in excess capacity and is readily expandable. Numerous end devices and protocols can be supported. We offer secure, remote views of our systems and data through a variety of telecommunications links including satellite, data radio, frame delay, dial-up and leased line. Update rates of one second can be handled.

TransCanada recognizes the rapidly changing landscape of the pipeline transportation industry. We make ongoing efforts through training and new technologies to assist in the effective and safe operation of the pipeline.

A recent innovation that we have developed provides high-level advisory information intended to complement the SCADA system. The resulting “Advisory System” is based upon capturing a Controller’s knowledge and importing it into an expert system that is integrated in real-time with SCADA. The Advisory System continually exercises this knowledge, seeking and identifying possible causes for irregular hydraulic conditions and presents its conclusions through a web-enabled user interface. In this way, Control Centers are provided with early notification of operational anomalies so that decisions can be made either to acknowledge or remedy the situation quickly.

## **ASSET MANAGEMENT**

TransCanada, Operations and Engineering, has developed an Asset Management System (AMS). It is a scalable and integrated approach in decision-making and enabling assets to meet performance requirements. It targets TransCanada’s objectives related to cost, availability, efficiency, quality, regulatory, safety and environmental expectations. The operations and maintenance strategies/plans will be aligned with existing TransCanada world class maintenance management philosophies.

On its 36,500 mile gas pipeline and 2150 mile oil system, TransCanada has an exemplary record of safety, compliance and reliability. This is the direct result of our Facility and Pipe Integrity Management Program, processes and documentation that support its implementation.

### **Facilities Integrity Management Program**

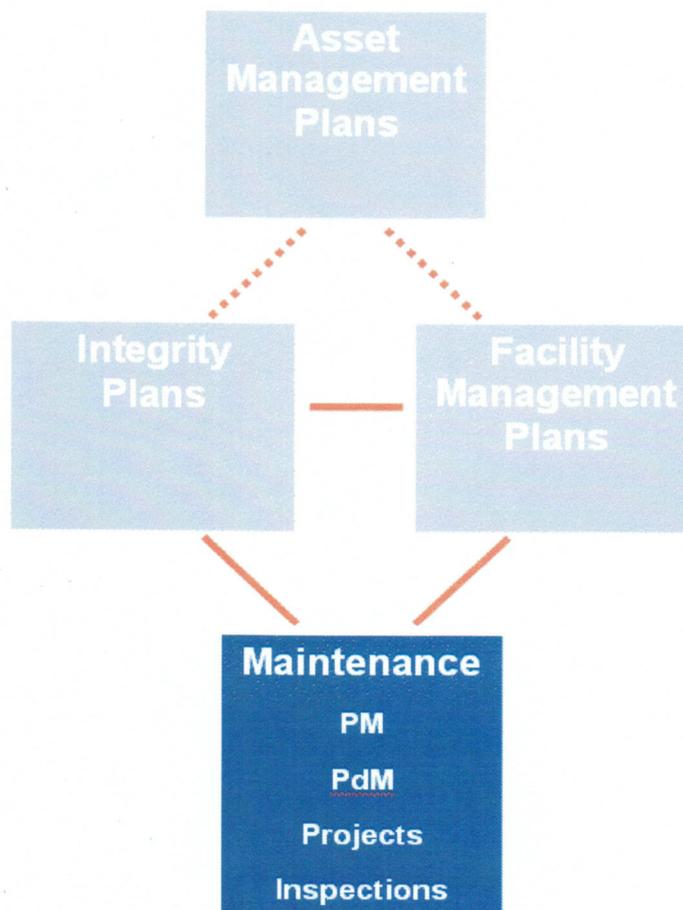
The Facilities Integrity Program strives to achieve the following goals:

- Zero safety impacts to the public and TransCanada employees
- Compliance with regulatory requirements
- Optimal equipment performance at optimal costs to achieve the business requirements as outlined
- Minimal impact on the environment

This is achieved through development, implementation and alignment between our Asset Management Plans, Integrity Plans and Facility Management Plans (See Diagram below). This program utilizes the expertise of our field, engineering and commercial partners to optimize equipment reliability/availability and industry leading preventative and predictive maintenance. Additional work is defined by our integrity plans utilizing integrated risk assessment to identify inspection frequencies, engineered solutions or optimize maintenance practices.

In alignment with our facilities integrity management program TransCanada applies an integrated approach with other programs such as the pipeline integrity management program where there may be contributing factors from a facility (compressor station or pump station) which may increase our risk to the pipeline.

TransCanada's facility integrity plans and associated procedures that are currently applied to the Keystone pipeline system would be reviewed and modified to ensure alignment and compliance to any additional integrity requirements that arise from a Presidential Permit.



## **Pipe Integrity Management Program**

The Pipe Integrity Management Program strives to achieve the following goals:

- zero safety impact to the public and TransCanada employees
- zero pipe failures
- compliance with regulatory requirements, including special conditions, special permit and waiver requirements
- minimal impact on the environment
- favourable public and regulatory perception
- maximum service availability
- lowest lifecycle costs

The policy is implemented through various Integrity Management Programs (IMP) that integrate TransCanada's expertise and processes with the applicable jurisdictional regulatory requirements. These programs utilize state-of-practice advanced inspection and mitigation technologies applied within a comprehensive risk-based methodology. Risk assessment is used to identify potential integrity threats. This, in turn, initiates appropriate inspection/mitigation activities, while results from advanced inspections for known or suspected integrity threats are used to develop specific integrity maintenance activities.

To ensure good management of corrosion issues, we involve our corrosion experts from the first stages of design, not just during the operations phase of a pipeline.

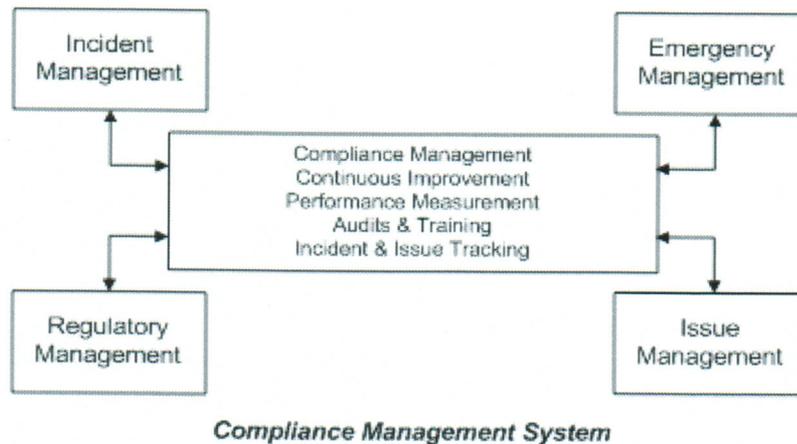
In alignment with our policy, TransCanada applies a holistic oversight of integrity addressing all relevant threats across the entire pipeline system, however specific consideration and prioritization is given to locations where a release could impact population centers and environmental sensitive areas, defined as High Consequence Areas within federal Pipeline Safety Regulations. The program is further refined through consideration of special conditions specific to the particular pipeline system or portions thereof.

TransCanada's Hazardous Liquid Pipelines IMP and associated procedures that are currently applied to the Keystone pipeline system, would be reviewed and modified if required to ensure alignment and enforcement of any additional integrity requirements that arise from a Presidential Permit.

## **Compliance Management**

TransCanada's management systems ensure that design; construction, operation and maintenance activities at Company assets are conducted in accordance with applicable standards, codes and legislative requirements. In addition, these systems provide effective tools and processes for responding to and managing any incidents that occur, whether

field-based or corporate in nature and from minor to emergency in magnitude, with the outcome of protecting health, safety and the environment, preserving system integrity and satisfying all stakeholder requirements for information, including those of our regulators. As illustrated in the diagram below, the cornerstones of our compliance management process are the *Incident Management System*, the *Emergency Management System*, the *Issue Management System* and the *Regulatory Management System*.



Each system fulfills a distinct role and purpose in managing compliance and these are described in the following sections. However, at the same time, they all share certain common characteristics as follows:

- The systems have been developed in accordance with a management system model that emphasizes the development of comprehensive documentation, the provision of effective technical support and training, regular performance measurement and compliance audits, and a focus on operational excellence and continuous improvement;
- The systems are scalable, meaning that they can be integrated easily into new business ventures and environments (e.g., power);
- The systems include reviews with TransCanada’s legal department to ensure that system outcomes are legally consistent and appropriate; and
- The systems extensively utilize our Incident & Issue Tracking tool, which won a “Best in Class” Award from the Canadian Energy Pipeline Association (CEPA) in 2001.

### **Regulatory Management**

TransCanada monitors legislation for any regulatory change that may have the potential to impact TransCanada’s operation in Canada, the United States and Mexico. TransCanada focuses on legislative change and changes in industry best practices that

may necessitate a revision to, or the creation of, one or more TransCanada policies, engineering standards, specifications, operating procedures, task packages and programs. The process is designed to ensure appropriate reviews, approvals, procedures, training and documentation are completed for changes that are not considered “replacement in kind.”

## **INCIDENT MANAGEMENT SYSTEM**

The purpose of the Incident Management System is to ensure that TransCanada satisfies its health, safety and environmental commitment to meet or exceed all applicable laws and regulations by applying a systematic, timely process for anticipating, preventing and managing unplanned or unforeseen events which result or may result in undesirable consequences for the Company, its personnel and / or stakeholders.

The IMS encompasses the following three (3) processes designed to address the unique conditions and responses required with an Incident in accordance with its risk profile and ultimate origin or source (non-operational, operational).

1. Incident & Issue Management process The purpose of TransCanada's Incident & Issue Management Process (IMP) is to ensure incident and issue response/identification, notification/initial documentation, investigation/initial response, documentation/implementation, follow-up/evaluation and sharing of learning is completed in a uniform, thorough and timely manner to promote continuous improvement and to help prevent recurrence of a similar incident.
2. Emergency Management TransCanada's Emergency Management System applies to all aspects of preparedness and response, but in particular means doing whatever is practicable to ensure the safety and security of the public, regardless of the cause of the company's emergency or assignment of fault. The purpose of the system is to protect the health, safety or welfare of people, or to limit damage to property, company operations and the environment. A critical component of Emergency Management is Business Continuity. TransCanada's Business Continuity Program is structured to ensure that each business area clearly understands the impact to their business processes from a resource disruption perspective and to assist in the identification of appropriate mitigation strategies. This program has been designed to help effectively manage incidents in a way that ensures an enterprise approach to problem solving, and to be flexible and scalable, ensuring continuous alignment with TransCanada business direction and strategies.
3. Crisis Management Crisis Management is set up to effectively deal with the challenges of: a possible extortion attempt, kidnapping, hostage taking, crisis involving a bomb or bomb threat, fatal aircraft accident, pipeline catastrophe, natural disasters, civil disturbances, sabotage events, or any other incident of a similar magnitude. Such incidents generally differ from those of a regional or localized basis, because of their wide-ranging impact and influence. Resolutions normally require more than a routine coordinated operations approach. For these reasons the Crisis

Management Team has been appointed to provide corporate leadership, to ensure an organized team response is mounted as the situation dictates, and to assume responsibility in looking after the best interests of TransCanada and its employees.

### **Emergency Management System**

TransCanada's *Emergency Management System* is an integrated system of procedures and plans that ensures an efficient and effective response to emergency situations at all Company natural gas transmission, natural gas storage, oil transmission and power generation facilities. The *Emergency Management System* details the procedures and accountabilities associated with the activation, notification and response phases of an emergency and in addition, facilitate preparedness.

TransCanada has a comprehensive emergency response program that is applied to any facility operated by our Company. As part of the program, an Emergency Response Plan ("ERP") will be developed 6 months prior to commencing new pipeline operations and submitted to the pipeline safety regulators for approval. TransCanada will consult with local officials to ensure coordination with local and state offices of emergency services as the Plan is further developed. TransCanada will also conduct training for internal and external responders and outreach with Emergency Responders to ensure alignment in the need for response to a pipeline emergency.

The overall strategy behind the ERP is to manage risks and to ensure that TransCanada is able and prepared to address any potential consequences in the event of an emergency including a release. TransCanada will have internal personnel, contractors and equipment situated in strategic locations along the pipeline route to facilitate an immediate and safe response to an emergency. The ERP would be designed to establish appropriate response and mitigation measures based upon worst-case discharge volumes. The ERP would outline the following:

- Measures to protect the health and safety of responders and the public
- Internal and external notification procedures including to emergency services, government/regulatory agencies and contractors
- Initial and sustained response actions
- Response equipment and personnel resources
- Environmental Sensitivities and High Consequence Areas
- Tactical control points
- Training requirements
- Maintenance requirements

- Other regulatory required elements

TransCanada plays a prominent and leading role in emergency management within the industry. We chaired the Pipeline Safety and Emergency Response Conference which was held in Calgary in the fall of 2001. We currently hold the position of Vice Chair of the Emergency Management Committee of the Canadian Energy Pipeline Association (CEPA). As well, we are an active member of the technical review committee for CAN/CSA Z731 (“Emergency Planning for Industry standard”).