



energy pathways

KINDER MORGAN
CANADA INC.

The Role of Kinder Morgan Canada's Fraser Valley Facilities

Moving product, regardless of whether it's water or oil, through a pipeline is a relatively straightforward process. Pumps at the beginning and at intervals along the pipeline move the product while valves can be opened or closed directing the product to its final destination.

The beautiful Fraser Valley region of BC is home to several important facilities on our Trans Mountain pipeline system. The Trans Mountain Pipeline originates in Edmonton, Alberta, and terminates in Burnaby, British Columbia. Approximately 120 km of the 1150-km Trans Mountain Pipeline threads its way through the Valley. Four pump stations at Hope, Wahleach, Sumas (Abbotsford) and Port Kells (Surrey) ensure that the product continues to move along the pipeline. The Sumas Terminal, which contains six tanks, is located on the Sumas Mountain. From the Sumas Terminal, crude oil begins its swing south through another Kinder Morgan pipeline, the Puget Sound Pipeline. This 110-km pipeline directs product to refineries in Anacortes and Ferndale where it is refined to make products such as jet fuel to supply airports like the Abbotsford International Airport.

Pipelines are the safest and most efficient means of transporting petroleum products. The alternatives to pipelines are often tanker trucks, but it would take approximately one tanker truck every minute around the clock to supply the same amount of product as supplied by the Trans Mountain Pipeline. Transporting product through a pipeline ensures that there is less exposure to the many hazards of the 'road.' However, pipelines must be treated respectfully and taken seriously. The biggest threat to a pipeline is third-party damage (other parties

working near the pipeline and striking it). For this reason, it is very important for pipeline companies, government, regulators and those living and working near pipelines to know the location of pipelines and how to work safely near them.

On the following pages, we share information about how we care for our pipeline facilities and some of the things we do to ensure others know where our pipelines are located. We'll look at how we can all work safely around them, and finally, how to protect yourself and others in the unlikely event of an emergency.



Our People

Meet Stephen Hansen, District Supervisor of Sumas Region

What sorts of duties does your role involve?

My role is to manage the mechanical, electrical and instrumentation issues for the pipeline and stations from the Burnaby Terminal to the old Coquihalla tollbooth. This area includes the Sumas Terminal and Pump Station, the Port Kells Pump Station and Waleach Pump Station, and the Hope Pump Station and Hope Relief Tanks.

How do you manage such a large area?

I have an excellent core group of staff strategically located at various stations in the Fraser Valley. We've increased our employees in the Fraser Valley and generally retain local staff for the stations, which gives us a much faster time to investigate problems or respond to incidents.

What do you enjoy most about your job?

I enjoy the enormous challenges I'm presented with daily. There's

not a day that goes by when I don't learn something new. I'm constantly dealing with the mix of disciplines – mechanical, electrical and instrumentation – and have a high learning curve to climb on a regular basis.

Are there any other challenges in your job?

Dealing with the different types of people I encounter daily is a huge but rewarding challenge. The key is to work with their interests and concerns while addressing ongoing initiatives of KMC. There's always a lot of work to be done.

How did you end up supervising an important section of Kinder Morgan Canada's pipeline from aspirations of becoming a chef?

I took an early interest in cooking and wanted to become a chef. But one day BCIT came to my high school and when I heard them speak about various programs that involved computers, a switch flipped

and I decided to pursue electrical technology. I continue to dabble in cooking, but my job is so challenging and rewarding that I'm not sure cooking could have been the same. I basically fell into something that works for me.



Patrolling the Pipeline



Fraser Valley neighbours may have noticed the helicopter fly-overs that KMC uses for its aerial pipeline inspections. The patrols are looking for anything that could compromise the safety of the pipeline including approaching work crews or equipment, ground settling or washouts, landslides or rockslides, or any other changes that may have occurred since the last inspection.

Helicopters are used instead of fixed-wing aircraft because they can fly slowly and if there's a serious concern about activity on the ground, they have the ability to land quickly almost anywhere. There are usually two people on board, a pilot and an observer. The helicopter has special permission to fly at an altitude of 152.4 metres (500ft).

The patrol notes the location of anything unusual on a flight map, takes its GPS coordinates and may take a photo. If there is evidence that the situation requires immediate attention, the patrol radios in their report or,

in extreme cases, lands the helicopter in order to take preventative action.

Helicopter patrols are supplemented by ground patrols, which are also done in urban areas on a regular basis either by driving or walking. Ground patrols can take a closer look and patrol at different intervals from the helicopter, which means more eyes and ears looking out for your safety.

Integrity Management: for Safety's Sake!

Keeping our employees, our communities and the environment safe is our number one priority. Integrity Management is what we call our program to ensure safe pipeline operations.

Our Integrity Management Program consists of high- and low-tech tools and systems to monitor, analyze and take corrective action as the pipeline operates. Our technicians receive in-depth and ongoing training to ensure they have current information as technology evolves. The following are some parts of our Integrity Management Program:

Monitoring System

We use a Supervisory Control and Data Acquisition (SCADA) system to monitor equipment installed along the pipeline. This equipment measures pressure, flows and other factors. SCADA monitors the equipment 24/7 from the control centre in Edmonton and notifies operators if there is a potential problem with any monitor along the pipeline.

Pipeline Inspection

We conduct internal inspections of the pipeline at regular intervals using tools called 'Pigs' (pipeline inspection gauges). Pigs are loaded into the pipeline at the desired start point and travel along with the product. Different Pigs serve different purposes.

A high-tech Smart Pig collects information about the physical status of the pipe such as metal loss, dents or corrosion. Abnormalities may be inspected (by exposing the pipe during an 'anomaly dig') and repaired.

Another type of Pig is a Cleaning Pig. About once a month, the Cleaning Pig scrapes any waxy buildup (a natural occurrence in petroleum pipeline transportation) from the inside of the pipe.

Pigs take about two weeks to travel the entire length of the pipeline.

Vegetation Management

Cleared rights-of-way (ROW) signal to the public that a buried pipeline exists, ensure visibility for safety patrols and quick access for response in the unlikely event of a

pipeline problem. KMC usually mows grass or low growing vegetation annually in cooperation with the landowner. If a ROW is landscaped by a landowner, the landowner is usually responsible for the appropriate use and maintenance of the area. Where it's needed, we will also work with landowners to remove vegetation that has been allowed to grow beyond a safe size or height.



The overall objective is to ensure that the pipeline remains safe through ensuring the equipment is operating as it should, the public is aware of the general vicinity of our facilities, and we have access to complete surveillance, repairs or emergency response.

Pipeline Safety Tips for Our Neighbours:

Leak Recognition and Response

Although rare, pipeline incidents can be dangerous. They require caution and immediate action. There are three signs of pipeline leaks: smell, sight and sound.

Smell



The smell of petroleum can be a signal that there is a problem with the pipeline. Some products may smell like gasoline or diesel fuel; others may smell like sulphur or rotten eggs.

Sight



A small leak may moisten the ground in the immediate vicinity of the pipeline; a large leak could cause a puddle to form on the

ground. A leak may be black or yellow-brown in colour, or transparent, like gasoline.

Sound



A leak could sound like a hissing or roaring sound coming from the pipeline.

What to do if a leak occurs

- » Leave the area on foot in an upwind direction, moving uphill if possible.
- » Don't touch or go near any liquid that looks like a leak, vapour cloud or frosted ground along the pipeline.
- » Don't attempt to operate the pipeline valves.
- » Don't smoke, light a match or

create a potential source of ignition. Extinguish anything that is lit, like a cigarette.

- » Don't turn on or off the lights, radios, cell-phones, or any appliances powered by electricity, batteries or natural gas.
- » Don't start or turn off your vehicle and do not drive into the area where you suspect a leak.
- » Warn others to stay away from the area.
- » As soon as you are out of the danger area, call 911 and Kinder Morgan at (888) 876-6711.

Remember pipeline incidents are rare, but the consequences are significant so it pays to be prepared.



Utility Bootcamps: Aboriginal Students Gain Hands-on Experience

KMC is committed to working with Aboriginal communities in the spirit of cooperation and shared responsibility, building and sustaining effective relationships with Aboriginal communities. To support this commitment, we have developed a number of principles to guide our daily work including the principle of 'supporting fair and equal access to employment and business opportunities for Aboriginal communities where we operate.'

Recognizing the challenges and issues facing Aboriginal populations in

accessing trades and apprenticeship opportunities, KMC has joined a group of other like-minded industry partners in forming the BC Utilities Aboriginal Training Initiative (BCUATI). The purpose of the BCUATI is to advance their respective corporate Aboriginal Relations objectives, and provide an opportunity for member companies to share information about potential employment and contracting opportunities and best practices. One of the key initiatives of this group is support for Band-led 'utility bootcamps.'

To date BCUATI has supported two bootcamps. The bootcamps give students a brief look at utility experience in a hands-on environment over the course of one or several weeks. From this experience, students can assess whether they would like to pursue further training in trades and apprentices; and gain some

specific practical training that may assist them in obtaining employment in other industries as well.

We were pleased to offer the Seabird Island Band/Sto:lo Nation members a tour of our Sumas Pump Station and Terminal Facility during their bootcamp last winter. The tour provided the students with an appreciation of how a petroleum transportation company operates and the skills and aptitude required to work for a utility.

BCUATI is currently planning additional bootcamps in other regions of common utility interest.

Energy Pipeline Operator of the Year

Kinder Morgan Canada was honoured as a leader in the pipeline industry at the 7th International Pipeline Conference in Calgary with the 2008 Energy Pipeline Operator of the Year Award.

The award recognizes Kinder Morgan for effectively integrating technology, personnel, safety and regulations in its pipeline operations, and considers the company's reputation for technical and fiscal responsibility, active participation in the development of pipeline standards, codes, research and technical integration.



Contact us

We would like to hear from you! If you have a story idea, comments or questions about our publication, please contact:

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