TRANSMOUNTAIN

EMERGENCY RESPONSE PROGRAM SUMMARY

PROPOSED TRANS MOUNTAIN EXPANSION PROJECT

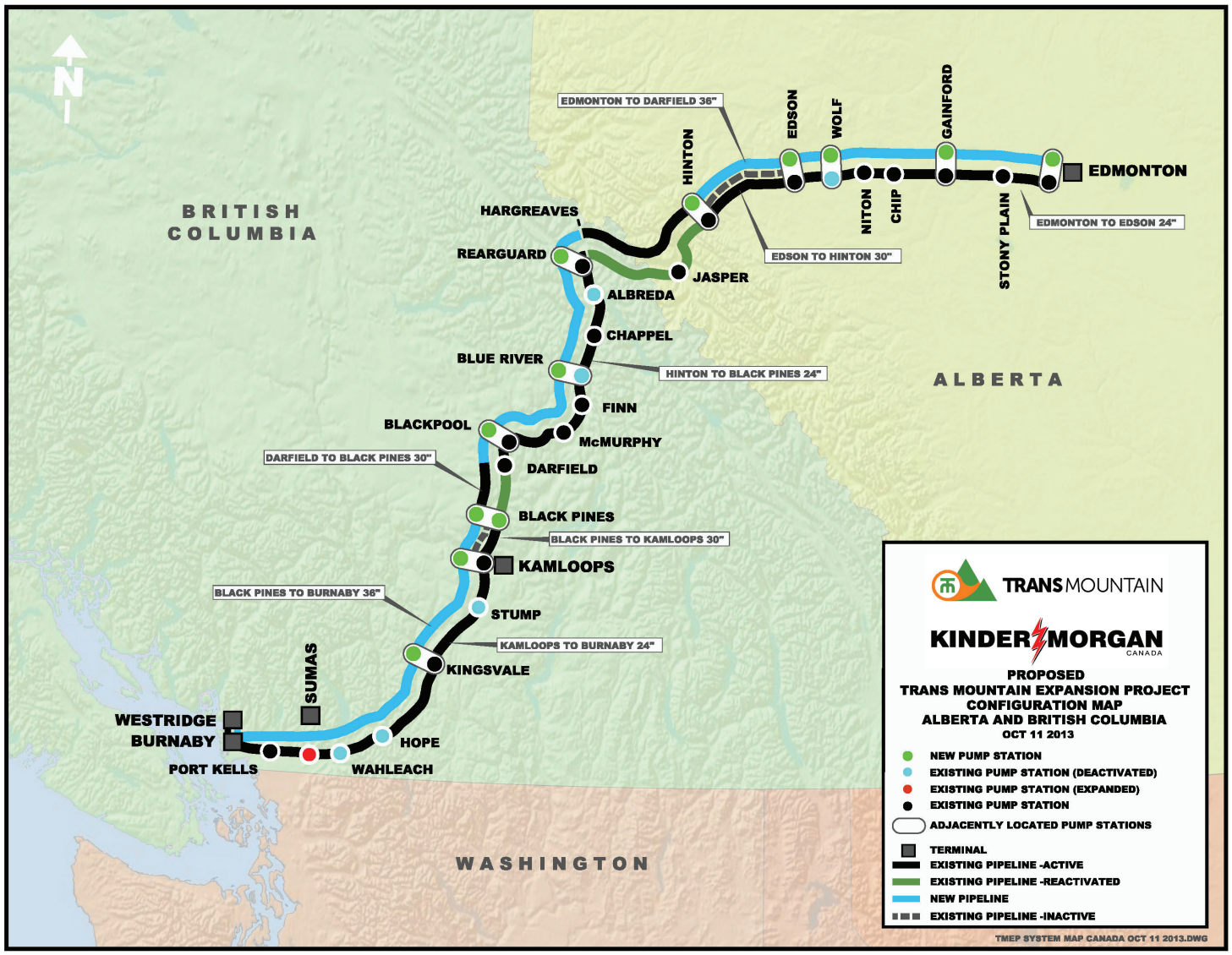
December 4, 2013

KINDER MORGAN CANADA

TRANSMOUNTAIN

TRANS MOUNTAIN PIPELINE SYSTEM

The Trans Mountain Pipeline, in operation since 1953, is the only pipeline system in Canada that transports both crude oil and refined products to the West Coast. Spanning 1,150 kilometres, the pipeline moves product from Edmonton to the central BC region, the Metro Vancouver area and the Puget Sound area in Washington State, as well as to other markets such as California, the US Gulf Coast and overseas through the Westridge Marine Terminal in Burnaby.



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The Trans Mountain pipeline transports crude oil, refined and semi-refined products together in the same line. This process, known as “batching,” means that a series of products can follow one another through the pipeline in a “batch train.”

The pipeline varies in diameter from 24 inches to 36 inches and carries a wide variety of product from heavy crude oil to lighter refined products such as gasoline and diesel. The originating terminal in Edmonton has 19 storage tanks with a total capacity of more than 2.5 million barrels of storage. Other intermediate stations also have some tankage for system flexibility with Burnaby being the next largest at 13 tanks allowing about 1.6 million barrels of storage. The scale of these facilities underlines the important role this system plays in providing energy to British Columbia and Washington State.

Emergency Management Response System Introduction

Trans Mountain is committed to being prepared for emergencies across the system. The most important aspect of this preparedness is to prevent an emergency from occurring at all. The company has a number of programs in place to prevent problems including community and contractor awareness programs, pipeline integrity verification programs and regular surveillance of activity near the right-of-way (ROW). Trans Mountain also has 24-hour monitoring by dedicated control centre operators backed by leak detection programs.

However, if a pipeline leak or other emergency should occur, Trans Mountain is prepared to react quickly and effectively. This summary outlines the basic standards and training procedures that Trans Mountain regularly undertakes to use in the event of an emergency.

Trans Mountain uses the Incident Command System (ICS) to manage incidents. ICS outlines clear roles and responsibilities with respect to emergency response and includes Unified Command for co-ordination with federal, provincial, municipal and Aboriginal agencies. We work closely with local emergency responders and regularly practice table-top and deployment exercises. If an incident were to occur, we can act quickly to protect our employees and the public as well as mitigate any harm to the environment or property.

This system allows each group to focus on its own specific tasks, knowing that others have full responsibility for other work. This prevents multiple groups from trying to accomplish the same task.

The system recognizes that some emergency situations are smaller in magnitude than others and breaks them down into three categories:

Level 1 – Involves moderate public and environmental exposure and can be handled locally
Level 2 – Involves potential issues beyond the resources of local management with significant public and environmental exposure
Level 3 – Requires maximum Trans Mountain and third-party response

Leak Detection

Pipeline leaks can be identified in many different ways but the primary methods are through automated leak detection systems or reports from company personnel and the public. Trans Mountain makes sure that its emergency phone number is highly visible on signage across the system and that land owners know what to do if a line leak is suspected.

Pipeline operating conditions are monitored 24 hours a day, seven days a week by personnel in control centres using a Supervisory Control and Data Acquisition (SCADA) computer system. This electronic surveillance system gathers data such as pipeline pressures, volume and flow rates and the status of pumping equipments and valves. Whenever operating conditions change, an alarm warns the operator on duty and the condition is investigated. Both automated and manual valves are strategically placed along the pipeline system so the pipeline can be shut down immediately and sections can be isolated quickly if necessary.

Visual inspections of the pipeline right-of-way are conducted by air and/or ground on a regular basis. The right-of-way is a narrow strip of land reserved for the pipeline. Above ground marker signs are displayed along the ROW to alert the public and contractors that the pipeline is there.

Safe Response Procedures

In the event of a release that could impact local residents or the environment, Trans Mountain will call 911 to notify and activate local community emergency response organizations. Based on the significance of the event, company personnel will also notify local residents by going door to door, supplemented by periodic press releases.

When releases occur, the company sets up an air monitoring program for the protection of responders and local area residents. In the unlikely event that hydrocarbon vapours reach unsafe concentrations in the community, the local police force will be advised to begin evacuation.

When a pipeline issue occurs, the natural inclination of first responders is to immediately travel to the site to solve the problem. This response can be dangerous and may compound the existing problems. First responders must first assess the situation and make sure that responders and the public are kept safe during the response.

The Trans Mountain Pipeline system contains a number of oil products that need to be understood before a response plan is undertaken. These products vary from light hydrocarbons like gasoline to heavy liquids such as heavy oil and many others in between. Some of these fluids contain small amounts of hydrogen sulphide (H2S) and benzene which can be harmful with exposure. In addition, all pipeline products have a certain level of volatility when exposed to air and potential ignition sources.

The first responder needs to understand these issues and develop an initial health and safety plan before moving into a response mode. This plan should include:

- Initial hazard assessment and potential concerns specific to the site
- Types of safety equipment required for first responders
- Isolation of the spill area from the public and affected parties
- Notification of other parties that may be affected
- Assignment of responsibility for those on site

The initial plan should assume material with high volatility that produces potentially hazardous breathing conditions and is unhealthy for eye or skin contact. This conservative approach is warranted until the actual conditions have been tested. Only those with the appropriate safety equipment and emergency response training should be allowed on (or near) the site.

The initial health and safety plan must be fairly comprehensive with rules for those responding to follow:

- Muster personnel upwind and uphill of the spill area whenever possible
- Vehicles and other potential sources of ignition should be kept well away from the site
- Approach the spill from uphill and upwind if possible
- Only enter the spill area once the initial plan is completed and full safety gear is in place
- Any movement in the restricted zone requires the “buddy system” at all times
- A decontamination site should be established early in the response planning

Any initial response personnel will have to be equipped with the following:

- Standard safety gear such as hard hat, safety boots, safety glasses, work gloves and fire-resistant coveralls
- Respiratory protection which may include carbon filter respirators and/or breathing air tanks
- Vapour monitoring equipment to measure potential explosive atmosphere and air quality

Once the initial on-site inspection of the spill has been completed, a more comprehensive spill response and safety plan can be developed for the area.

Other Hazards

In addition to spills, Trans Mountain personnel must be prepared to deal with a number of other natural hazards that could threaten personnel safety and the integrity of the pipeline system. These hazards include:

- Fire and explosion at facilities
- Natural disasters:
  - Tornadoes
  - Earthquakes
  - Floods
  - Avalanches
  - Forest Fires
- Security incidents:
  - Bomb threat
  - Breach of security

All of these hazards need to be recognized and mitigated where possible by careful operating and maintenance practices. The largest risks are when one of these hazards sets off an uncontrolled release of petroleum products from the system. Generally, the response to these threats involves appropriate initial response from the control centre and local operations personnel who are trained in these situations.

Notification of a hazard usually goes to the control centre from Trans Mountain operations, municipal first responders or the public. This notification starts a process that quickly moves to risk mitigation and on-site verification of a concern. The primary concern is safety of the public and employees, so steps have been developed to address the risks.

If the control centre considers the risks to be great, the pipeline system will be shut down and isolated. In some cases, the problem is isolated from the main operation and can be handled locally. In other cases, a comprehensive evaluation of an area is needed to determine any damage to the pipeline or right-of-way before restarting.

Operations groups across the pipeline system maintain a close working relationship with emergency first responders in their area and work together to prepare for situations that require multiple resources to respond. These key relationships are important when dealing with major problems near the pipeline.

Notifications

Trans Mountain has in place a comprehensive contact list of individuals, municipalities and organizations that might be affected in the event of a spill. This includes regulators such as the Transportation Safety Board and the National Energy Board (NEB).

The first contact for a potential spill is the control centre operator, who manages the pipeline system operation at all times. The operator then implements the Emergency Response Line System which initiates a conference call for company employees to discuss incident information, immediate safety requirements, government and other notifications as well as response actions.

Incident Command Team

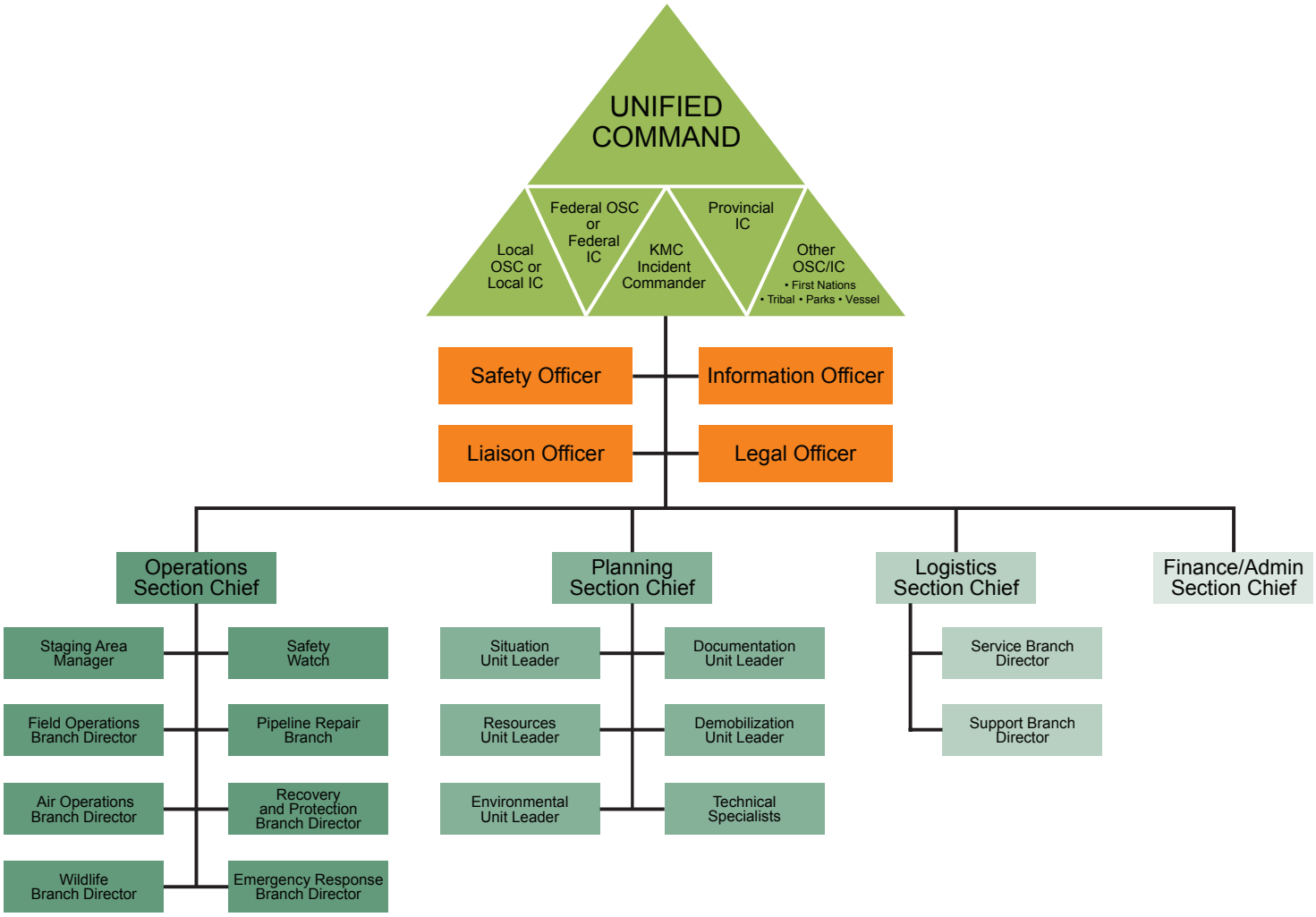
Initial notification of a pipeline spill activates the ICS team. An incident commander is designated early in the process to provide a unified approach to the problem and to make sure that all parties are being guided by a single, responsible individual. Depending on the complexity of the problem, team leaders will be designated for the roles of operations, planning, logistics and finance. In some cases, a Unified Command may be established with government agencies.

Other functions assigned early in the process are safety officer, liaison officer and information officer. The safety officer must establish the initial health and safety plan for the site and identify hazards. This officer will then develop hazard mitigation plans so the response team can engage the spill in a safe manner.

The liaison officer makes sure that all necessary groups are contacted, made aware of the issues and kept up to date as the situation changes. This role of ongoing contact and regular updates is an important part of the success of any emergency response. Trans Mountain's goal is to provide full notification to the regulatory bodies (such as municipalities, fire departments and fisheries) based on their requirements.

The information officer will be the primary contact for all external communications including the public and the media. This person must establish contact and set up a communication plan to make sure these parties have the necessary information about the incident. This includes setting up a media relations centre and providing regular media updates.

Emergency Response Team



Spill and Site Assessment

The assessment of a potential spill site is an important step in developing mitigation plans. This information is needed quickly and must be performed by knowledgeable staff who understand spill response and capabilities. However, it is most important that this assessment is done safely since the number of unknown variables are likely higher than at any other time.

Safety gear and equipment are necessary to protect those performing this task. Site assessment team members wear respirators for all initial assessments and adjust the equipment required based on the initial findings at the site. Team members will not remain in the area if the LEL (lower explosive limit) meter reads more than 10 per cent.

The tasks of the initial assessment team are varied and include:

- Vapour monitoring including wind direction
- Assistance to any potentially injured parties
- Confirmation of spill source if possible
- Isolation of spill source if practical and safe
- Estimation of spill volume, rate and direction of travel
- Redirection or blocking of spill contents if practical and safe
- Assessment of whether spill is reaching water channels or drainage systems

Another potential component of the initial assessment is a shoreline assessment, which is usually done on foot. The assessment team will try to approach any shoreline contamination from the safest area, but will be limited by the terrain and shoreline conditions. Issues such as tides, winds, debris and wildlife may affect the approach to the site. This assessment may be completed later than the original site assessment and the on-water assessment, depending on conditions as they develop. All of these assessments can only be done under safe conditions. If the team detects unsafe conditions, the assessment teams will be pulled back until safe working conditions can be re-established.

Spill Recovery

Spill recovery is usually most effective if it takes place close to the initial spill location. While public risk and other site conditions must be considered, avoiding contamination of intermediate waypoints away from the spill site is required.

Trans Mountain has stationed a number of large truck trailers filled with spill recovery equipment across the system. Called Oil Spill Containment and Recovery (OSCAR) trailers, they contain the protective and recovery equipment required on a spill site.

If required, Trans Mountain can call on a number of highly qualified spill response contractors including the Transport Canada certified Western Canada Marine Spill Response Corporation

Since all oil products are liquids, like water they will seek channels to flow elsewhere. One of the primary goals of the spill recovery team is to control migration away from the spill site.

Emergency response plans include designation of control points along rivers and streams. These control points are pre-determined locations that may be favourable for the recovery of oil in a watercourse, depending on the conditions at the time. These locations usually include:

- Safe working space for emergency response personnel
- Good access for spill recovery equipment
- Slower water speeds to improve recovery effectiveness
- Favourable anchor points to improve boom installation

A significant amount of work goes into designating these locations, mapping the sites and developing specific plans for spill recovery. Trans Mountain crews use these exact locations periodically to prove their effectiveness and train for possible problems.

Oil can be blocked using a number of different techniques, which are taught to crews during training exercises. Often local materials and/or sandbags can be used to develop containment berms. Interceptor trenches can be used to direct free oil to areas so vacuum trucks can evacuate the material. Speed of recovery is a significant factor in the recovery success. Oil that is not recovered quickly can evaporate into the atmosphere or penetrate into the ground.

Inverted weir dam allows clean water to flow from the bottom so floating oil is blocked at the surface

If oil has already entered a local watercourse, the techniques for recovery become more complex. The smaller creeks and streams may accommodate a weir of sand bags with an inverted pipe to allow clean water to bypass while trapping the oil on the surface behind the weir. This will usually only work in areas of low flow and if there is enough room to establish a calm area upstream to allow the oil to stay on the surface.

Techniques used to recover oil vary significantly depending on the recovery location and conditions. Some of the factors that influence the techniques are:

- Water velocity
- Wind conditions
- Turbulence
- Temperature
- Type of material
- Access to site from land
- Boating conditions

Water velocity is important since oil recovery booms are generally more effective in low velocity areas. Teams will use areas of low velocity or back-channels to allow the recovery crews to stabilize and recover oil from the water. Booms are used to redirect surface oil to a central point and allow it to concentrate to improve recovery success with oil skimmers. Often multiple booms will be used for deflection or secondary containment, depending on access and availability.

Multiple deflection booms deflect floating oil towards shore

CONTACT US:

Trans Mountain Expansion Project

Email: info@transmountain.com

Phone: 1.866.514.6700

Website: www.transmountain.com

@TransMtn

2844 Bainbridge Avenue
PO Box 84028 Bainbridge
Burnaby, BC V5A 4T9