Trans Mountain Pipeline ULC
Trans Mountain Expansion Project
NEB Hearing Order OH-001-2014
Responses to Information Request from
Village of Belcarra

2.1 2007 Oil Spill Event: 'Post-Mortem', 'Lessons Learned' & 'Corrective Actions'

Reference:

- Trans Mountain Application, s.1.2.1.7, Environmental Stewardship, p.2-4, A3S0Q8.
- Trans Mountain Application, s.4.1.2, Purpose of the Environmental Assessment, p.8A-92, A3S4X5.
- Trans Mountain Application, Volume 8A – Marine Transportation – Effects Assessment and Spill Scenarios, s.5.5, Oil Spill Preparedness and Response, p.8A-600, A3S4Y6.
- Trans Mountain Application, Volume 8A – Marine Transportation – Effects Assessment and Spill Scenarios, s.5.5.2, Proposed Improvements, p.8A-606, A3S4Y6.
- Trans Mountain Application, Volume 8A – Marine Transportation – Effects Assessment and Spill Scenarios, Table 5.5.3: Proposed Improvements to WCMRC's Emergency Response Capacity, p.8A-608, A3S4Y6.

Preamble:

It is standard practice for companies such as Trans Mountain and Western Canada Marine Response Corporation (WCMRC) to undertake a 'post-mortem' assessment of accidents and incidents such as the 2007 oil spill into Central Burrard Inlet at the Westridge Marine Terminal in order to determine "lessons learned" and identify necessary "corrective actions" in response to the "lessons learned". However, to-date neither Trans Mountain nor WCMRC have publicly shared their 'post-mortem' assessment reports regarding their emergency response to the marine component of the 2007 oil spill incident.

Burrard Inlet is a special place that is home to high-value public assets that include recreation, tourism, fisheries, and sensitive marine habitats. Central Burrard Inlet is surrounded by three parks and three habitat conservation areas: the Burnaby Mountain Conservation Area and Barnet Marine Park located east of WMT on the south shore, the Eastern Burrard Inlet Rockfish Conservation Area located west of WMT on the south shore, Cates Park and Belcarra Regional Park flanking the entrance to Indian Arm directly across from WMT to the north, and the Maplewood Flats Conservation Area is located across from WMT on the north shore of Burrard Inlet.

As the operator of Westridge Marine Terminal that is surrounded by extensive public natural assets and sensitive marine habitat, Trans Mountain has a responsibility to protect those public assets. As a consequence, Trans Mountain has a responsibility to the Canadian public to be completely transparent regarding its actions, decisions, and emergency response planning to

protect those public assets. Accordingly, Trans Mountain also has a responsibility to provide a proper 'post-mortem' assessment of the marine component of the 2007 oil spill incident that includes both 'lessons learned' and necessary 'corrective actions'.

As the designated oil spill 'Response Organization' established under federal legislation, WCMRC has the responsibility for protecting the extensive public natural assets and sensitive marine habitat within Burrard Inlet and on the British Columbia coast. As a direct consequence, WCMRC has a responsibility to the Canadian public to be completely transparent regarding its actions, decisions, and emergency response planning. Accordingly, WCMRC also has a responsibility to provide a proper 'post-mortem' assessment of the marine component of the 2007 oil spill incident that includes both 'lessons learned' and necessary 'corrective actions'.

At the time of the 2007 oil spill, several problems were observed during the emergency response, and a 'post-mortem' assessment of the response would greatly assist in emergency preparedness planning for any future oil spill events. In particular, the following three observed problems should have been identified and addressed by Trans Mountain and WCMRC as part of their 'post-mortem' assessments:

First, WCMRC personnel were prevented from accessing WCMRC emergency response vessels in a timely manner. Rapid deployment of personnel and equipment depends on easy and assured access to Burrard Inlet and WCMRC's response vessels. At the time of the 2007 oil spill incident, personnel had to drive 10-plus minutes to the Suncor dock on Barnet Highway in order to board the response vessel. However, use of the Barnet Highway as the primary access route by WCMRC personnel was prevented due to the pipeline rupture on Barnet Highway. (Barnet Highway is also subject to rush-hour traffic volume slow-downs, traffic stoppage due to vehicle accidents, or other situations that could delay or prevent access by WCMRC personnel.) The 'post-mortem' assessments of the 2007 oil spill event should have identified and addressed this serious deficiency in WCMRC's emergency response plan, and resulted in timely "corrective action".

Second, operational problems were observed with the oil spill containment booms:

- The primary containment booms were difficult to keep 'closed' which resulted in fugitive oil escaping from the booms;
- Oil 'slopped' over the top of the primary containment booms due to wave action; and
- The booms deployed in the intertidal zone did not 'contain' the oil during tidal cycles.

Third, there did not appear to be a clear strategy for responding to the fugitive oil that escaped from the primary containment booms, and there did not appear to be a clear strategy for protecting the sensitive marine habitat of Central Burrard Inlet from the fugitive oil that had escaped from the primary containment booms.

Request:

(a) Please provide both Trans Mountain's and WCMRC's 'post-mortem' assessment reports for the marine component of the 2007 oil spill at the Westridge Marine Terminal (WMT)

that details the issues and problems encountered during the 2007 oil spill, and the subsequent response and clean-up.

(b) Please provide details of the 'lessons learned' by both Trans Mountain and WCMRC from the respective 'post-mortem' assessments of the marine component of the 2007 oil spill at the WMT.

(c) Please provide details of all subsequent corrective actions taken by both Trans Mountain and WCMRC, along with the dates that the corrective actions were taken, in response to the 'lessons learned' from the marine component of the 2007 oil spill at the WMT.

Response:

(a) Although the information requested in this and the following two requests is not within the scope of this proceeding and not relevant to the NEB's List of Issues, Trans Mountain offers the following response to your question.

The release of oil into Burrard Inlet in 2007 was the result of an excavation contractor, employed by a party other than Trans Mountain, puncturing the existing Kinder Morgan Canada pipeline on Inlet Drive. Some of the oil released from this incident travelled overland and reached marine areas of Burrard Inlet via the storm sewer system. The 2007 oil spill incident was caused by a third party and was outside the immediate control of Trans Mountain. Organizational and procedural changes have been carried out as a result of the review of the incident, with a primary focus on communication and awareness.

Applying lessons learned as part of continuous improvement is a critical part of any emergency response. After the 2007 Inlet Drive Oil Spill, several post-incident reviews were completed. However, the full review was conducted by the Transportation Safety Board (TSB) and the National Energy Board (NEB).

Transportation Safety Board (TSB)

The TSB completed a review of the incident, determined findings and summarized safety actions taken. The review is available on the TSB's website at http://www.tsb.gc.ca/eng/rapports-reports/pipeline/2007/p07h0040/p07h0040.pdf.

Please also refer to Province BC F-IR No. 1.1.16b - Attachment 2 (Filing ID A3Z8C4).

National Energy Board (NEB)

In response to this incident, the NEB took the following actions:

1. Sessions were organized for all those who took part in the emergency response and the post-remediation monitoring and clean-up to review the response and to discuss enhancements to future emergency responses.

2. A multi-agency stakeholder group was established with the NEB as lead agency to share information during site remediation work.

3. An audit of Kinder Morgan Canada's (KMC's) integrity programs, including our damage prevention program, took take place in early 2009.

KMC fully participated in these sessions. As the review was led by the NEB, any request for information would need to be directed to the NEB.

Kinder Morgan Canada Inc. (KMC)

KMC completed its own review of the incident. Key outcomes from our review and other important emergency response developments included the implementation of a Pipeline Protection Department, whose sole responsibility is to protect the pipeline and associated facilities.

This department's responsibilities include:

- Public awareness
- Pipeline and associated facilities markings
- Issuing permits for safe work around pipeline and associated facilities
- Responds to BC and AB One Calls
- Aerial and ground patrols

Western Canada Marine Response Corporation (WCMRC)

WCMRC is the marine spill response organization certified by Transport Canada to meet the requirements of the *Canada Shipping Act*. The Act requires that all large vessels and oil handling facilities have an arrangement for spill response as a condition of operating in Canadian waters.

WCMRC also provides response services on contract to KMC, which was the case for the Inlet Drive spill.

WCMRC conducted its own post-incident review following the spill. WCMRC is an independent organization and is not obliged to share the findings of its review with KMC. However, KMC is not aware of any findings that indicate that the booms used during the 2007 event were inappropriate for the water or shoreline conditions. While some oil eluded capture early in the response primarily because of the nature and diversity of the pathways and some oil did escape the booms during operation, aerial photographs taken during the response show that the booms were effective in containing the majority of the oil.

A review of WCMRC's log notes that the Response Organization was contacted at 13:15 with advice that a land oil spill had occurred after an unrelated contractor damaged the pipeline in the public right-of-way. WCMRC was also advised that there could be a water impact through the storm drain system.

WCMRC's network contractor, Island Tug & Barge, was onsite at WMT deploying boom at 14:10. WCMRC was onsite thereafter at 14:20. These response times were well under

the 6-hour statutory response time for a Tier-1 spill and bettered WCMRC's 10-year average response time of 60.4 minutes to Lower Mainland spills.

During the 2007 incident, WCMRC followed an effective, on-water oil spill response systems approach. A systems approach holistically integrates best available technology and best management practices. Selected countermeasures were appropriate for the physical properties of the oil, its fate and behaviour, and the environmental conditions where the release occurred. Well-maintained equipment was deployed by knowledgeable crews who were managed under a formal incident management system comprised of key stakeholders from industry, government and communities. The safety of first responders and other response personnel was upheld and every effort was made to ensure that these personnel were not put at risk. The following mitigation efforts were executed according to generally accepted response standards:

1. Quick arrival at the spill site;

2. Deployment of booms to contain, concentrate and reduce the spreading of spilled oil;

3. Mechanical skimming to recover oil from the surface of the water; and

4. Transfer recovered oil from smaller skimming vessels into sufficient larger units for temporary storage.

The 2007 incident affirmed WCMRC's strategy of having response vessels and equipment caches staged at various geographic areas that currently include eight locations within Burrard Inlet.

Additionally, WCMRC has acknowledged that there is a clear benefit of having an on-water facility linked closely to personnel access and WCMRC is reviewing different options within Burrard Inlet to achieve that end. Finally, in support of the Trans Mountain Expansion Project, WCMRC has proposed a harbour base that would be continuously staffed.

For further information on Western Canada Marine Response Corporation (WCMRC), please contact them directly at their Burnaby facility: 604-294-6001. In addition, please review their website: http://wcmrc.com.

Further Improvements

As part of the work and studies being undertaken for the proposed Trans Mountain Expansion Project, KMC is updating and enhancing the Shoreline Cleanup and Assessment Technique (SCAT) information gathered during the Inlet Drive spill. This information will be incorporated into Trans Mountain's Emergency Response Plans and provided to WCMRC. Both Trans Mountain and WCMRC will use the information in enhancing their Geographic Response plans. Building on existing geographic plans and information maintained by WCMRC, this system will use the area surrounding Belcarra to demonstrate a larger system proposed for the Salish Sea. Use of a dedicated GIS

system is a best practice identified in other jurisdictions. KMC is providing SCAT information and other resources to develop a more effective system in BC.

Section 5.5.2, Table 5.5.3 of Volume 8A of the Application (Filing ID A3S4Y6) provides enhanced planning standards and is based on a report provided by WCRMC included in Volume 8C, TERMPOL Reports, TR 8C-12 S12 – Review of Trans Mountain Expansion Project Future Oil Spill Response Approach Plan Recommendation on Bases and Equipment, Section 3 (Filing ID A3S4Z0).

Further information on exercises, spills, and the lessons learned from those activities is included in NEB IR No. 1.69 and 1.70 (Filing ID A3W9H8). Specific to the request, NEB IR No. 1.70b states the following:

Kinder Morgan Canada Inc. (KMC) investigates all petroleum release incidents on the Trans Mountain Pipeline system. The investigation reports include recommendations to prevent future incidents or improve the Company's incident response. The investigations completed for the seven incidents outlined in the response to question NEB IR No. 1.70a (Filing ID A3W9H8) did not include recommendations specific to the KMC Emergency Response Program. Also, post incident emergency response evaluations completed after some of these incidents included learnings generally related to operational activities that could have prevented the release, and not the response activities that took place. After all events, it was noted that KMC had an appropriate response to each event and was able to procure the staff and resources required to respond to the incident.

A learning that resulted from the Sumas Tank Farm release in 2012 was the need to develop a community air monitoring program to address public health concerns related to emissions from a petroleum release and to identify when evacuation of local residents would be necessary. The Kinder Morgan Air Monitoring Plan for Unplanned Petroleum Release Acute Public Health Risk Related to the Inhalation Pathway was completed in February 2013 and implemented in an exercise the same year. This plan is being incorporated into all emergency response plans in 2014.

The method used to communicate learnings to company or contractor personnel depend on the target audience and include modifications to the training program, safety flashes or other bulletins, or discussion at tailgate or other safety meetings. Examples of changes to company procedures as the result of learnings from the incidents mentioned in NEB IR No. 1.70a (Filing ID A3W9H8) include:

- Issuing Company ID cards issued to all employees and contractors, and procedures for identifying who requires an ID card;
- Modifications to the odour complaint process for investigation and reporting of odours;
- Modification to leak detection systems;
- Enhancement of crossing permits, line marking, line locating and crossing inspection work processes and documentation;

- Enhancing the public awareness management program to cover all aspects of pipeline protection, including the periodic evaluation of the effectiveness of pipeline surveillance practices;
- Updated training for tank inspectors to include procedures for ensuring contractor preparedness for emergencies and assessing hazards on active tanks;
- Studying site drainage paths and ensuring any points of intersection with groundwater drainage systems are isolated;
- Assessing the capacity and permeability of tank bays;
- Updating the winterization procedure for external floating roof drain systems to address system freezing hazard at locations where hazard may only be present on a short term and/or infrequent basis; and
- Development and implementation of a Tank Level Deviation Alarm Standard.

KMC works with emergency planners and emergency responders to maintain relationships and to ensure their awareness of KMC's system, as well as mutual awareness of joint exercises and programs.

The Application, Volume 7, Section 4.8 outlines the process to enhance Kinder Morgan Canada's (KMC) existing emergency management programs (EMP) as they relate to the Trans Mountain Pipeline system to address the needs of the Project (Filing ID A3S4V5). The final programs will be developed in a manner consistent with the National Energy Board's (NEB or Board) draft conditions related to emergency response (Filing ID A3V8Z8).

Since KMC's updated EMP depends upon the final detailed design of the Project, a process which will not be carried out unless the Project receives approval and until KMC has an opportunity to review the conditions of such approval, the updated EMP cannot be provided during the NEB's regulatory review of the Project. However, to ensure affected parties have the opportunity to express concerns and provide input which will inform the updated EMP, KMC will conduct a consultation program as part of developing the updated EMP as described in the NEB draft conditions related to emergency management.

Following receipt of a Certificate of Public Convenience and Necessity for the Project, KMC will file with the NEB a consultation plan related to KMC's EMP review that will include consultation scope, objectives, preliminary lists of regulatory authorities, communities, Aboriginal groups with whom KMC will engage, and a preliminary list of consultation locations and timing, as well as any other information that the NEB requires. The consultation plan will describe the methods that will be used to track commitments made during consultation and to incorporate them into KMC's EMP, including its Emergency Response Plans. As part of this program KMC will periodically file reports with the NEB on progress of its EMP review, including summaries of interested parties consulted and how their comments were considered.

KMC will file with the NEB the revised Emergency Response Plan for the pipeline as part of the approval conditions for the Project. The plan will demonstrate KMC's ability to prepare for, respond to, recover from, and mitigate the potential effects of emergencies of any type related to the Trans Mountain Pipeline system. Filing of the Emergency Response Plan will include, for the NEB's consideration, a final report on the consultation process as well as confirmation that an independent third party has reviewed and assessed the Emergency Response Plan and that KMC has considered and incorporated the comments generated by the independent review and assessment into the plan.

Ultimately, updates to the EMP incorporating feedback from consultation activities must result in an EMP that continues to meet the requirements of the *National Energy Board Onshore Pipelines Regulations* (2013) (OPR). As it does for the existing system, the OPR provides lifecycle regulation for all aspects of the Project operation, including requirements for emergency response programs. KMC must maintain and update the EMP throughout the lifecycle of the expanded Trans Mountain Pipeline System. As well, throughout the life of the expanded system, NEB staff will continue to conduct emergency response exercise evaluations and emergency procedures manual reviews to verify that companies are prepared to anticipate, prevent, manage, and mitigate emergency situations.

(b) Please refer to the response to Village of Belcarra IR No. 2.1a.

(c) Please refer to the response to Village of Belcarra IR No. 2.1a.