2.1 COMMITMENT AND PLANNING

2.1.1 Volume 4A, s. 3.4.3

Reference:

A55999, Application Volume 4A, s. 3.4.3, Burnaby Terminal, p.4A-66

Preamble:

The Project application outlines the proposed layout at the Burnaby Terminal as well as key civil tasks.

Request:

(1) Please advise whether Trans Mountain has investigated whether the expansion of the Burnaby tank farm terminal will have any impact on water mains along Gaglardi Way and Burnaby Mountain Parkway either during normal operation of the tank farm, or in the event of a fire involving one or more storage tanks. If yes, please identify the impacts, and in particular, those that could impact Simon Fraser University (“SFU”), including, but not limited to, water supply and water pressure. If no investigations have been undertaken, will Trans Mountain undertake such an investigation and file a report with the NEB in this Application?

(2) Does the Project include the design and construction of a new water main to fight fires at the Burnaby tank farm and terminal? If not, why not?

(3) If no new water main(s) is to be constructed, what plans does Trans Mountain have to bring in additional water to fight fires at the expanded Burnaby tank farm terminal? Does Trans Mountain expect that water could be diverted from other users, and in particular SFU in the event of a fire at the tank farm?

(4) If a new water main is to be constructed, please provide details regarding the duration of any impact on Gaglardi Way and/or Burnaby Mountain Parkway, to SFU, and Trans Mountain’s plans to mitigate such impacts, and in particular details regarding maintenance of vehicular access to and from SFU, as well as water quality, water supply and water pressure to SFU.

(5) Please identify and provide the decommissioning procedures to be used by Trans Mountain with respect to the removal and/or replacement of an individual tank or for the entire facility? How will accumulations of flammable or combustible vapours be mitigated in a decommissioned tank or line?
Response:

(1) Burnaby Terminal is currently supplied from two water services.

Service A is a 203 mm (8 in.) diameter line that enters the site from Shellmont St. on the south side of the property. This service feeds the operations buildings and can supply auxiliary water for fire-fighting. There is no expected increase in the capacity required for this service related to the Project.

Service B is a 101 mm (4 in.) diameter line that enters the site from Aubrey St. at the NW corner of the property. It provides auxiliary make-up water for the fire-water reservoir. The primary source of make-up water is a tributary of Eagle Creek, although this is not ideal due to seasonal fluctuation in flow.

Please see the response to City of Burnaby IR No. 1.08.05e (Filing ID A3Y2E6, page 213), which discusses Trans Mountain’s intent to seek a new water-line connection from the City of Burnaby. The intent of the new line is to provide a higher capacity and more reliable source of make-up water, such that the expanded reservoir could be actively replenished in the event that a sustained fire-fighting operation uses more water than the reservoir’s capacity.

If the connection is approved, Trans Mountain anticipates that the City of Burnaby will be responsible for installation and commissioning and for minimizing any adverse impact to other water customers. In addition, there are no other water mains crossing the Burnaby Terminal property and Trans Mountain has no other plans for construction outside the existing fence-line. As such, Trans Mountain cannot envision any impact to the Simon Fraser University (SFU) water systems during the construction and normal operation of the expanded Burnaby Terminal.

In the extremely unlikely case of a fire involving one or more of the storage tanks, the first source of water will be the expanded reservoir, which will have enough capacity to support the fire-fighting durations required by the applicable National Fire Protection Association (NFPA) codes. However, if there were a new make-up water connection, it is possible that make-up would begin immediately and continue as long as fire-fighting continued. Ideally, the sustained make-up rate would be commensurate with the maximum water use defined by the total capacity of the fire pumps, perhaps in the range of 40-60 m³/min., if technically feasible. Presumably, the potential impact to SFU and other water customers in this event will be considered in the sizing of the connection, with the overall goal being a balance between extended fire-fighting capability and potential disruption to water supply and water pressure.

Trans Mountain will agree to work directly with the City of Burnaby and SFU in the determination of the appropriate sizing of the new make-up water connection, if the City of Burnaby chooses to consider it. Trans Mountain does not see this design detail being of material interest to the National Energy Board in its determination of public safety.

(2) Refer to response to SFU IR No. 2.1.1.1.
(3) Refer to response to SFU IR No. 2.1.1.1.

(4) Refer to response to SFU IR No. 2.1.1.1. The City of Burnaby has not been willing to engage with Trans Mountain to discuss any of the technical aspects of the proposed expansion of Burnaby Terminal, including a potential new make-up water connection. As such, Trans Mountain has not been able to consider the possible location of connection points, or the logistical complexities associated with them, and cannot provide any details to Simon Fraser University (SFU) at this time. Trans Mountain is willing to work with the City of Burnaby and SFU to minimize the impacts of a new water connection to the extent reasonably practical.

(5) Trans Mountain will comply with the applicable legislative requirements for the cleaning, decommissioning, and removal of an existing storage tank or tank line. For the proposed storage tank removal at Burnaby Terminal (existing Tank 74), Trans Mountain intends to decommission the existing tank and associated infrastructure. Activities will include:

- Pump out any remaining product in the bottom of the tank and drain the tank line piping.
- Clean the tank and purge the tank line piping. A vapour scrubber is typically utilized for tank cleaning in Burnaby to reduce the potential for nuisance odours in adjacent residential areas. Tank line purging is typically done with nitrogen.
- Disconnect and remove the tank line piping, valves, electrical, and instrumentation equipment.
- Cut the tank into manageable sections (for recycling).
- Excavate, cut up, and remove (for recycling, if practical) the tank line piping, to the extent required, assuming that some portions of the tank line may be retained to serve the proposed replacement tank or other existing or proposed new tanks.
- Demolished the secondary containment berms to the extent required to reconfigure them to tie-in with the proposed new containment berm system.

Work that involves potential ignition sources, such as cutting of pipe or tank steel, and any work contemplated in areas where combustible vapours may be present, requires the use of “hot work” procedures, according to Kinder Morgan Canada health and safety management programs. These procedures involve job-specific hazard assessments, continuous monitoring for combustible vapours, and other safety related elements.

Trans Mountain has no plans to decommission Burnaby Terminal, although if such decommissioning were to occur, the activities would be very similar to those described above.
2.1.2 Volume 7, s. 2.1

Reference:

A56025, Application Volume 7, s. 2.1, Measures to Prevent and Mitigate Oil Spills – Pipeline, p. 7-3 to 7-4

Preamble:

The Reference states the commitment of Trans Mountain to the prevention and mitigation of oil spill occurrence.

Request:

(1) Please confirm that Trans Mountain will consult with – and commit to provide information to – SFU with regard to performance and changes in measurable risk. In particular, please confirm that Trans Mountain will advise and commit to provide SFU with comprehensive information detailing specific health and safety risks to the university population, including, but not limited to: air quality, emissions and compounds emitted and safety protocols relating to same.

Response:

(1) Refer to response to SFU IR No. 2.7.04.5 for Trans Mountain’s commitment to open and transparent communication with all stakeholders during Project construction and ongoing operations. As described in this response, Trans Mountain will seek to meet with SFU administration in 2015 as construction planning advances to discuss any interests or concerns SFU might have regarding the design, construction and operations of the proposed Project. At SFU’s request, these conversations may include discussion of mutually agreed-upon communication and notification processes for any changes to health and safety risks for the SFU community.

The response to SFU IR No. 2.5.07.3 describes Trans Mountain’s air emissions monitoring system (AMES) and willingness to share summary data with SFU on request. Trans Mountain operates this AEMS to assist internal decision making as an industry best practice and is not intended to be a source for public ambient air quality data.

The response to SFU IR No. 2.5.02.3 outlines Trans Mountain’s water quality monitoring and notification processes.

Summary of New Commitments:

- At SFU’s request, meetings described in SFU IR No. 2.7.04.5 may include discussion of mutually agreed-upon communication and notification processes for any changes to health and safety risks for the SFU community.
2.1.3 Volume 5A, s. 7.9.3

Reference:

A56004, Application Volume 5A, s. 7.9.3, Accidents and Malfunctions – Potential Effects and Mitigation Measures, p. 7-515

Preamble:

The Reference states that: “Events causing accidents and malfunctions could include pipeline and equipment failure; human error; natural perils such as tornadoes, floods, hurricanes or earthquakes, and terrorism or other criminal activities.”

Request:

(1) In the event there is an accident or malfunction caused by the referenced items, please advise how many personnel Trans Mountain will have available to prevent and respond to damage or fire at the Burnaby Terminal or other pipeline rupture location?

(2) What security measures is Trans Mountain going to have in place at the Burnaby Terminal, other than relying on support from the Burnaby RCMP?

(3) Please advise whether Trans Mountain has considered safety or other protocols and cooperation agreements between Trans Mountain and SFU relating to the construction and operation of the pipeline, as well as the expanded Burnaby tank farm Terminal, and in particular, agreements to specifically address and coordinate responses to major accidents, malfunctions, line breaks, fires, or other significant events? If not, why not? Is Trans Mountain prepared to enter into such protocol and cooperation agreements with SFU? If not, why not?

Response:

(1) Kinder Morgan Canada Inc. (KMC) is the operator of the Trans Mountain Pipeline system (TMPL system).

KMC uses the Incident Command System (ICS) for incident planning, which is adaptable to different emergency scenarios and allows for quick identification of resources, and a method of procurement. It is KMC’s preference to enter into a Unified Command with the municipal, provincial and federal agencies to ensure a safe and thorough response to any emergency.

In the low likelihood of the types of events described in the Preamble, KMC will respond to the emergency with all regionally available resources, while procuring additional resources from outside of the region.

The precise number of KMC personnel available for a specific emergency response cannot be stated without determining the requirements of that response and operational requirements of the pipeline system at the time. There are a total of approximately 65 trained KMC response personnel in BC and 30 in Alberta.
If required, response contractor resources will augment KMC personnel and equipment. KMC has Master Service Agreements (MSA) with a number of emergency response contractors with various skill sets at locations in Western Canada and in the US that can be drawn upon as needed.

(2) The Kinder Morgan Canada Inc. (KMC) security program includes facility security plans, security equipment, 24 hour security personnel as well as additional measures at Burnaby Terminal. Details of the current program and proposed security programs changes are confidential. Neither the RCMP nor or other emergency services supplied by Burnaby are necessary to maintain adequate security at the facility.

(3) Please note, the definition of “cooperation agreement” is not provided within this Information Request. At this point, Trans Mountain will assume the intent of a “cooperation agreement” is to develop an understanding of how Simon Fraser University (SFU) and Trans Mountain will work together, in the unlikely event of an emergency arising from our pipeline/facilities, to ensure the safety of the public, potentially impacted facilities and the environment.

Trans Mountain has considered such protocols and “cooperation agreements” with SFU and welcomes Emergency Management engagement with SFU to develop an appropriate understanding of and framework for such agreements.

Summary of New Commitments:

- Trans Mountain commits to Emergency Management Engagement with Simon Fraser University to develop an appropriate understanding of and framework for such agreements.
2.1.4 Volume 5B, s. 2.1.4

Reference:

A56004, Application Volume 5B, s. 2.1.4, Tank Facilities, p. 2-7 to 2-9

Preamble:

As per above Reference, 14 new storage tanks will be located at the Burnaby Terminal to serve the expanded pipeline. SFU is located on top of Burnaby Mountain where current enrolment exceeds 30,000 students. This is not counting the additional 3,200 residents currently living in the adjacent UniverCity neighbourhood. Current projections of population growth for the UniverCity area indicate a substantial increase in numbers over the next decade.

There are only two access roads that serve SFU, Burnaby Mountain Parkway and Gaglardi Way, both of which pass through a single intersection directly adjacent to Burnaby Terminal. For a variety of operational necessities relating to physical plant operations and safety, as well as ongoing laboratory research activities, 24 hour, 7 day per week access to SFU must be maintained at all times. Due to the proximity and upwind location of the Burnaby Terminal to the main road, there is a high likelihood that access to and from SFU would be compromised during an event at the terminal.

Request:

(1) Does Trans Mountain intend to put any protocols in place with SFU dealing with safety, 24 hour access and risk mitigation which outline the hazards and risks that the Burnaby Terminal poses to SFU, and how will Trans Mountain work with SFU should there be a major event at the Burnaby Terminal? If not, why not?

(2) Has Trans Mountain offered any training or expertise on the evacuation and shelter in place process for SFU and the adjacent University community? If not, will Trans Mountain commit to providing such training and expertise to designated SFU personnel?

Response:

(1) Kinder Morgan Canada Inc. (KMC) has always been committed to working with organizations, both public and private, to ensure there is a mutual understanding how the pipeline and/or operations at facilities could impact those organizations for incorporation in their own emergency response plans (ERPs), when those organizations request assistance. However, KMC is not responsible for the emergency planning of other organizations.

KMC is committed to engaging with external stakeholders where it operates. KMC offers to review ERP’s, educate on its operations, and provide advice on proper response techniques. KMC conducts regular emergency response exercises and equipment deployments that include participation from local emergency responders.

KMC’s Public Awareness Program is designed to promote awareness of KMC’s pipelines in the geographic area, increase knowledge or the regulations and KMC’s
requirements for working near its pipelines, educate first responders on KMC’s emergency preparedness and response activities and protocols, prevent third party damage to KMC’s pipelines, and to enhance public safety. KMC does this through annual mailing programs, presentations, meetings, and participating in industry tradeshows and community events. KMC’s program is continually evolving as we endeavor to meet the changing needs of our stakeholders and regulatory requirements.

The Application, Volume 7, Section 4.8 outlines the process to enhance KMC’s 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).

Refer to the response to SFU IR No. 2.3.20.1 for information on the consultation process for updates to the EMP.

KMC would appreciate the opportunity for continued engagement with Simon Fraser University on issues such as referenced in the Request above, as part of the EMP consultation process.

(2) Yes. Opportunities have been offered to Simon Fraser University (SFU) to learn more about the current operation and Trans Mountain Expansion Project (the Project) and its potential impacts during an emergency to SFU. Refer to the response to SFU IR No. 2.6.8.2 for a description of the consultations associated with the project, SFU IR No. 2.1.6.2 for information in regards to a consultation meeting held about the current operations, and SFU IR No. 2.1.5.1 where Kinder Morgan Canada Inc. (KMC) confirms that SFU will be added to a notification list in the event of an emergency at Burnaby Terminal that may impact SFU.

Summary of New Commitments:

- KMC commits to continued engagement with Simon Fraser University (SFU) on issues such as referenced in the SFU IR No. 2.1.4.1, as part of the EMP consultation process.

- Kinder Morgan Canada Inc. (KMC) confirms that Simon Fraser University (SFU) will be added to a notification list in the event of an emergency at Burnaby Terminal that may impact SFU.
2.1.5 Volume 6B, s. 1.2.3

Reference:

A56013, Application Volume 6B, s. 1.2.3, Emergency Response Plans, p. 1-10

Preamble:

The Reference states that Trans Mountain’s Project construction will address legislative requirements and be based on recognized industry standards of practice. The Reference further states that site-specific Emergency Response Plans (“ERPs”) will address potential construction emergency situations requiring response by Trans Mountain Expansion Project construction resources (as supplied by the Prime Contractors) and Trans Mountain Expansion Resources, or external resources. According to the Reference, site-specific ERPs will follow a detailed procedure, including following notifications in case of emergencies. The reference also states regular audits will be conducted on the site-specific ERPs to confirm effective functioning in case of emergencies.

Request:

(1) Please advise whether Trans Mountain has, as part of any ERP, a requirement that its personnel notify SFU directly in the event of an emergency? If not, why not?

(2) Provide a list of all the parties that will be notified of an emergency including, but not limited to, stakeholders, residential neighbourhoods, regulators, and local governments.

(3) How will the above mentioned parties be notified of an emergency and within what timeframe? If notification method and timeframe are based on the type of emergency, please provide a comprehensive list of emergency scenarios and the contemplated timeframe for notification for each emergency scenario.

Response:

(1) Pipeline safety is Trans Mountain’s number one priority. As stated in Kinder Morgan Canada Inc.’s (KMC) Environment, Health and Safety policy which can be found in Section 4.2.2 in Volume 7 (Filing ID A3S4V5) of the Application: “Every employee is expected to share Kinder Morgan’s commitment to pursue the goal of not harming people, protecting the environment, using material and energy efficiently and promoting best practices...”.

Trans Mountain uses the Incident Command System to respond to emergencies. Under the Incident Command System, the Information Officer is responsible for public notifications in the event of an incident. Public notification priorities are determined based on the type of incident and the impacts it has to the safety of the public. The company will work with local Authorities in the event of an emergency to coordinate response, including immediate notifications as required.
In addition, a Liaison Officer is part of the Incident Command System structure. The Liaison Officer begins notifications to other groups not included in the above notifications. Notifications may include, but are not limited to:

- Additional Liaison Team Members
- Local Emergency Services/Program (if not already notified)
- Affected First Nations communities
- Elected Officials
- Provincial or National Parks (if impacted)
- Health Authorities (if not already notified)
- Provincial Environment Ministry (if not notified by Provincial Emergency Program)
- Logistics Section Chief – begins identification of resources required for the response and ordering supplies and equipment
- Operations Section Chief – begins field operations, containment and clean-up
- Planning Section Chief – begins planning recovery operations and contacting team members required including the Environmental Unit Leader.

Specific communication strategies will depend upon the nature of the incident and would be approved under the Incident Command System. Trans Mountain is committed to timely communications with those that are directly impacted by an emergency event. The methods used for informing the public include door-to-door delivery of information, social media, traditional media, website updates and a phone hotline. The company maintains a standby website that can be activated and populated as needed, the hotline is also ready to go live at the time of an incident. The public is notified about the hotline number via the website, social media and traditional media, along with any information package that may be prepared for distribution to those impacted by an emergency, and/or at open house style events.

At a December 9, 2014 meeting with Simon Fraser University (SFU) representatives to discuss emergency response protocols, it was confirmed that SFU will be added to a notification list in the event of an emergency at Burnaby Terminal that may impact SFU.

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

(2) Refer to response to SFU IR No. 2.1.5.1.

(3) Refer to the response to SFU IR No. 2.1.5.1 for information about how Kinder Morgan Canada (KMC) completes notifications in an emergency.

Specific communication strategies will depend upon the nature of the incident and would be approved under the Incident Command System, as such specific notification timeframes are not defined.
KMC is committed to timely communications with those that are directly impacted by any emergency event. In the unlikely event of a pipeline release, KMC immediately shuts down the pipeline and allows the pressure to dissipate, thus stopping further release of petroleum. When this shut down occurs there are a number of actions occurring at the same time by different individuals to ensure a timely response to the incident. These simultaneous actions are:

- Local emergency services are contacted immediately and trained KMC technicians would be dispatched to the location to help secure the area and commence air monitoring to ensure air quality for those in the immediate vicinity.

- KMC consults with the local authority to determine the best course of action to protect the public.

- Control Centre issues an Emergency Response Line (ERL) notification to the Incident Management Team (IMT). Upon notification the IMT calls the conferencing line to get information about the incident and begin pre-assigned response duties.

- Immediately following the ERL conference call KMC notifies the Transportation Safety Board of Canada (TSB) and the National Energy Board (NEB) though the single TSB emergency telephone number when required. Depending on severity and incident location, various other regulatory agencies (BC Provincial Emergency Program, Federal and Provincial Fisheries agencies, etc.) will also be contacted.

- Information Officer – begins preparing an initial media statement and communication plan.

- Liaison Officer – begins notifications to other groups not included in the above notifications. Notifications may include, but are not limited to:
  - Additional Liaison Team Members
  - Local Emergency Services/Program (if not already notified)
  - Affected First Nations communities
  - Elected Officials
  - Provincial or National Parks (if impacted)
  - Health Authorities (if not already notified)
  - Provincial Environment Ministry (if not notified by Provincial Emergency Program)
  - Logistics Section Chief – begins identification of resources required for the response and ordering supplies and equipment
  - Operations Section Chief – begins field operations, containment and clean-up
  - Planning Section Chief – begins planning recovery operations and contacting team members required including the Environmental Unit Leader.

The Application, Volume 7, Section 4.8 outlines the process to enhance KMC’s existing emergency management programs as they relate to the Trans Mountain Pipeline system to address the needs of TMEP. The final programs will be developed in a manner consistent with the NEB’s draft conditions 42, 52, 53 and 54 (Filing ID A3V8Z8).

Please also see Volume 7, Section 4 (Filing ID A3S4V5) of the Application for a description of KMC’s Emergency Management Program. The emergency response plans are comprehensive in their application regarding hazards and potential emergency
situations on the Trans Mountain Pipeline System which includes checklists for earthquake response.
2.1.6 Volume 7, s. 4.1

Reference:
A56025, Application Volume 7, s. 4.1, Emergency Preparedness and Response - General, p. 7-21

Preamble:
The Reference states that “the Program is embedded within the management system framework provided by the Integrated Loss Management System and the Environment, Health and Safety (EHS) Management System. Key elements of the Program include long-standing regularly reviewed Emergency Response Plans (ERPs), response equipment, and regular desktop training and field deployment exercises, which contribute to a highly trained response staff and response readiness within the organization.”

The referenced ERPs may also include ERP Trans Mountain Pipeline Plan version 03/2013. This document does not indicate the provision or distribution of the plan or any amendments, by any means, to the local authorities through which the current pipeline transects.

Request:

(1) What are the processes, procedures, and methods by which Trans Mountain plans to advise and provide current and valid copies of the ERP to all entities, organizations and agency stakeholders with whom Trans Mountain may need to coordinate its response activities?

(2) On average, the student and faculty population at SFU on a daily basis can range between 30,000 and 35,000 people, in addition to the 3,200 residents living at the UniverCity neighbourhood. Has Trans Mountain identified SFU as an entity and a significant stakeholder with which Trans Mountain must collaborate in effecting response activities within the ERP? If not, why not? Is Trans Mountain prepared to identify SFU as an entity in its ERPs with which Trans Mountain must collaborate? If not, why not?

(3) Trans Mountain has indicated that each ERP Plan is numbered for security purposes. Please confirm that Trans Mountain will provide SFU with a copy of the ERP? If Trans Mountain is not prepared to provide SFU with a copy of the ERP, please explain the basis for such refusal.

Response:

(1) Kinder Morgan Canada (KMC) acknowledges the interest of Intervenors to seek more information about the existing Emergency Management Program (EMP) documents, and reference materials related to the Trans Mountain Pipeline system, which is why KMC filed a redacted copy of the existing Emergency Response Plans publicly. In Ruling No. 50 (Filing ID A4G5I9) the NEB determined that it was “satisfied that sufficient information has been filed from the existing EMP documents to meet the Board’s requirements at this stage in the process.”
It is KMC’s intent to continue to share unredacted versions of the EMP documents with agencies tasked with ensuring public safety. KMC’s EMP is shared, tested and regularly exercised with federal, provincial and local agencies. The EMP meets regulatory requirements and 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.

KMC is willing to provide copies of the EMP documents to local, provincial and federal authorities who satisfy the following conditions:

- The authority has/is willing to participate in consultations with KMC;
- The authority could be called upon to respond to an event associated with the Trans Mountain Pipeline system within their jurisdiction;
- The authority has requested a copy and/or requires a copy by legislation, and
- The authority has signed a confidentiality agreement and/or has a method by which the document can be filed confidentially.

Although the full details of the EMP documents are not appropriate to include as part of public filing, KMC is willing to meet with Simon Fraser University to discuss KMC’s existing and updated EMP documents.

(2) At a December 9, 2014 meeting with Simon Fraser University (SFU) representatives to discuss emergency response protocols, it was confirmed that SFU will be added to Kinder Morgan Canada Inc.’s (KMC) notification list in the event of an emergency at Burnaby Terminal that may impact SFU. Refer to the response to SFU IR No. 2.1.5.1 for more information about notification in the event of an emergency.

KMC has always been committed to working with organizations, both public and private, to ensure there is a mutual understanding how the pipeline and/or operations at facilities could impact those organizations for incorporation in their own emergency response plans (ERP), when those organizations request assistance.

(3) Refer to the responses to SFU IR No. 2.1.6.1 and SFU IR No. 2.6.8.2.

Summary of New Commitments:

- Although the full details of the EMP documents are not appropriate to include as part of public filing, KMC is willing to meet with Simon Fraser University to discuss KMC’s existing and updated EMP documents.
2.1.7 Volume 4B, s. 2.0-4.0

Reference:

A3S1K5, Application Volume 4B, s. 2.0-4.0, Project Design and Execution – Construction

Preamble:

Although the Reference identifies both preliminary and master construction schedules, it does not indicate when these schedules will be provided.

Request:

(1) Please provide a commitment that Trans Mountain and its construction team/contractors will consult with SFU in the development of the construction schedule for construction directly affecting the SFU community, including construction that might limit access to SFU via Gaglardi Way or Burnaby Mountain Parkway, and that SFU will be provided with the construction schedule and updates to same on a timely basis as construction progresses.

Response:

(1) As with all parties affected by the proposed Project, Trans Mountain is committed to continuing open and transparent dialogue with SFU throughout detailed project design, construction and operations to ensure that Trans Mountain’s activities have as little impact as possible on neighbouring residents, businesses and the university.

As stated in Trans Mountain’s Westridge Delivery Line Routing Update, filed as part of Technical and Project Update #4, on December 1, 2014, (Filing ID A4F5D5), Trans Mountain has swapped the proposed and alternative route options between the Burnaby and Westridge Terminals. The proposed corridor is now the drill or tunnel through Burnaby Mountain; the alternative is the Burnaby Mountain Parkway-Hastings-Northcliffe route. If Trans Mountain uses the proposed corridor, it expects traffic and construction disruptions to Simon Fraser University (SFU) to be minimal.

As part of ongoing Phase 5 Engagement continuing in Q2/Q3 2015, Trans Mountain will undertake engagement and communications activities in Project route communities regarding constructions plans, anticipated impacts and effects of construction and mitigation measures to reduce the negative impacts of construction on local communities. Topics such as the management of noise, dust and traffic will be included. As part of these engagement activities, Trans Mountain commits to engaging with SFU on construction schedule and activities including traffic management.

Trans Mountain will also ensure that construction plans including construction schedule and traffic management plans will be communicated with affected stakeholders, including SFU, in a timely manner. Subject to the outcome of the NEB regulatory process, and prior to construction, Trans Mountain will undertake a communications and notification program to ensure local businesses and members of the public are made aware of potential construction impacts including lane restrictions, road closures and
alternate access plans. The Communication and Notification Program will include advertisements, public general notices, area specific information handouts, and local signage as described in the Volume 6B, Environmental Protection Plan (Filing IDs A3S2S3 and A3S2S4)

**Summary of New Commitments:**

- Trans Mountain commits to engaging with SFU on construction schedule and activities including traffic management in Q2 or Q3 of 2015.
- Trans Mountain will ensure that construction plans including construction schedule and traffic management plans will be communicated with SFU in a timely manner.
2.2 COMMITMENT AND PLANNING

2.2.1 Volume 7, s. 4.8

Reference:

i. A3S4V5, Application Volume 7, s. 4.8, Planning and Improvements, PDF p. 64-65


Preamble:

Reference (i) outlines the assumptions used in the oil spill risk assessment, including the 10 minute period of drain down occurring prior to pump shut-down. In Reference (ii), a number of concerns regarding pipeline spills were raised by the BC Ministry of Environment, including, but not limited to, the following:

i. Smaller spills could have a substantial environmental effect and pose a higher risk simply due to being more frequent (paragraph 23);

ii. There appears to be a lack of precise leak detection threshold (paragraph 93);

iii. There appears to be a lack of clarity regarding external leak detection methods (paragraph 96); and

iv. There is an unwillingness to commit to a 10 minute automatic shutdown rule (paragraph 98).

Request:

(1) Given the average number of people that may be on campus and in the surrounding UniverCity, SFU considers that it should have a role in Trans Mountain’s Unified Command structure as it pertains to the Burnaby Terminal. Please explain whether Trans Mountain will:

i. Invite SFU to participate in the Unified Command, or

ii. Fully collaborate with SFU on the development of its Emergency Management Program, including sharing all related current and future emergency management documents with SFU to ensure alignment.

If Trans Mountain is not prepared to include SFU in the Unified Command or to collaborate with SFU in the development of the Emergency Management Program, please provide detailed reasons for Trans Mountain’s position.

(2) Will Trans Mountain make a commitment to immediately notify SFU of a Level 1, 2, or 3 emergency and include SFU representatives in the Unified Command structure? If not, why not?
Response:

(1) As outlined in the response to SFU IR No. 2.1.4.1; Kinder Morgan Canada (KMC) has always been committed to working with organizations, both public and private, to ensure there is a mutual understanding how the pipeline and/or operations at facilities could impact those organizations for incorporation in their own emergency response plans, when those organizations request assistance. However, KMC is not responsible for the emergency planning of other organizations.

Application Volume 7, section 4.3.1 (Filing ID A3S4V5) outlines the Incident Command System (ICS) used by KMC during an emergency event. The directly impacted community is invited to participate in Unified Command. Unified Command is responsible for overall management of the incident directing incident activities, including development and implementation of overall objectives and strategies.

For those communities that do not wish to participate in Unified Command, or are indirectly impacted by the incident, opportunities also exist for participation in the ICS organization in many areas depending on training and expertise. Examples of potential areas of participation include: field response labour, security, site control, environment unit, wildlife unit, logistics, catering, supply businesses, liaison etc. In addition to participation in KMC’s incident command post a member of the KMC Liaison team may be dispatched to an emergency operations centre (EOC) at the request of an organization or municipality that has activated an EOC to deal with the impacts from the emergency originating from Trans Mountain operations.

(2) Refer to the responses to SFU IR No. 2.2.1.1 and SFU IR No. 2.1.5.1.
2.2.2 Volume 3A, s. 1.7.3

Reference:

A55987, Application Volume 3A, s. 1.7.3, Key Topics of Interest of Concern – Lower Mainland/Fraser Valley (Chilliwack to Burnaby), Table 1.7.3, Interests or Concerns – Lower Mainland/Fraser Valley, p.3A-163

Preamble:

The earthquakes/seismic concerns are outlined but no information is provided in terms of potential impacts of the loss or failure of Trans Mountain facilities during a seismic event on adjacent lands and its uses.

Request:

(1) Does Trans Mountain fully accept it is responsible for and liable to compensate and indemnify residents, businesses, and SFU, for all damages including, but not limited to, damage to the environment, in the event of a rupture, failure, fire, or other accident caused by a large seismic event, act of God or third person, or does Trans Mountain intend to qualify any such responsibility?

(2) How will SFU be compensated for any disruptions in services or contamination resulting from an emergency event at the Burnaby Terminal that limits access to the SFU or causes harm to any part of the SFU community?

(3) Explain Trans Mountain’s contingency allowances for evacuation, relocation, and lodging.

Response:

(1) Kinder Morgan Canada Inc. (KMC) cannot speculate as to the different conditions under which costs may arise as a result of an emergency, but can confirm it is responsible for all of its legal liabilities.

(2) Refer to response to SFU IR No. 2.2.2.1.

(3) Kinder Morgan Canada Inc. (KMC) confirms it is responsible for all of its legal liabilities including costs associated with evacuation. KMC will work with the local authority at the evacuation centres to ensure the appropriate information regarding the claims process is disseminated to all evacuees. Trans Mountain will work with individuals affected by a pipeline or terminal incident to provide compensation as quickly and efficiently as possible.
2.2.3 Volume 7, s.2.2

Reference:

A56025, Application Volume 7, s.2.2, Facilities, p.7-4 to 7-6

Preamble:

The reference outlines Trans Mountain’s commitment related to the prevention of oil spill occurrence, and the type of efforts it will make to respond to facility risk potentials.

Request:

(1) Will Trans Mountain ensure full recovery, including clean up, of any environmental impact directly or indirectly caused or created by or as a result of the construction of the expansion project or the operation of the existing and expansion Burnaby Terminal?

Response:

(1) Trans Mountain will remediate the environmental effects of construction and operation of the Project including any oil spill occurrence that it causes during construction, according to the regulations in place and according to any applicable conditions the National Energy Board may place on a Certificate of Public Convenience and Necessity. The Post-Construction Environmental Monitoring Program will evaluate the success of reclamation, identify environmental issues that may have arisen post-construction and coordinate the implementation of any remedial measures that are warranted to address any outstanding or new environmental issues.

Trans Mountain notes that the City of Burnaby asked a similar question regarding full recovery of any impacts in the first round of Information Requests and a response was provided (refer to Trans Mountain’s response to City of Burnaby IR No. 1.13.05f [Filing ID A3Y2E6]). Trans Mountain also notes that the National Energy Board denied the City of Burnaby’s motion to compel a further response from Trans Mountain on this response (Filing ID A4C4H5). Trans Mountain will not be providing further information on this question.
2.2.4 Volume 4A, s. 5.0, s. 2.8.1

Reference:

i. A55999, Application Volume 4A, s. 5.0, Appendix E - Route Maps, Drawing 19731-8013-0038, Sheet 54 of 54

ii. A55999, Application Volume 4A, s. 2.8.1, Pipeline Corridor Selection Objectives, Strategies and Criteria, p. 4A-6 to 4A-8

Preamble:
The Reference (ii) notes that avoiding areas that have significant environmental value or restrictions and consistency with established land use planning were all part of the pipeline corridor selection objectives, strategies and criteria. Looking at the proposed “Line 2” alignment as shown in Appendix 9 (p. 12, Proposed Pipeline Corridor Route Map) it is clear that the alignment would significantly impact the SFU Community Plan Area dedicated within the City of Burnaby’s Official Community Plan and Regional Growth Strategy for conservation of highly valued environmental features and for the development of SFU and the adjacent UniverCity, a mixed-use residential neighbourhood accommodating 3,200 residential units with an expected population of about 10,000.

Request:

(1) Please indicate how SFU and/or the City of Burnaby will be compensated for any expansion constraints or additional costs that SFU may incur as a result of the Project in relation to developing SFU and UniverCity.

Response:

(1) Please note that the preferred alignment has been updated since the original Application (reference (i) above). Please refer to the Project and Technical Update No. 4, Westridge Delivery Pipelines Routing Update (Filing ID A4F5D5), showing a tunnel option from the Burnaby Terminal to Westridge Terminal as the preferred alignment, with the “Streets Option”, still as indicated in Reference (ii) above, as an alternative alignment.

In either case, Trans Mountain believes that the Simon Fraser University (SFU) Community Plan will not be affected by the pipeline expansion project. Trans Mountain understands that further SFU and UniverCity development will be within the existing Ring Road, well outside any easement under consideration for the pipeline. Please note that in the case of the tunnel option, the easement will be a projection of the subterranean alignment on the surface of the mountain, but that no disruption at surface level will occur. Tunnel entry and exit points, as well as facility expansion work will be on existing private property at the two terminals.

Respecting expansion constraints or additional costs to SFU or the City of Burnaby, since Trans Mountain is not anticipating the need for use of SFU lands, no additional costs for expansion or constraints on development are expected. In keeping with its regulatory obligation to minimize impacts to the extent practicable, Trans Mountain
Trans Mountain intends to work with SFU to establish access plans, schedule and pipeline alignments that minimize impacts to their operations to the extent practicable.

Trans Mountains practice is to first minimize any potential damages to the extent practical by using and adapting responsive construction practices. Should temporary disruption caused by construction activities (e.g., lane restrictions, construction congestion, etc.) cause damages to SFU, Trans Mountain would ask that SFU document the damages directly resulting from the construction of TMEP and provide that information to Trans Mountain as referenced in the Trans Mountain response to SFU IR No. 2.5.02.6.

Trans Mountain would welcome the opportunity to consult directly with SFU to discuss the project and construction planning, and to address issues and concerns specific to the Project or future implementation of their Community Plan.
2.2.5 Volume 7, s. 4.8

Reference:

i. A3S4V5, Application Volume 7, s. 4.8, Planning and Improvements, PDF p. 64-65


Preamble:

References refer to the following:

i. The proposed expansion coincides with a heightened public awareness of hazards associated with transportation of petroleum products;

ii. Trans Mountain’s Aboriginal engagement, stakeholder consultation and landowner relations programs identified pipeline safety and emergency response as 2 of the top concerns specific to the TMEP;

iii. The Province of BC’s 5 minimum requirements deemed necessary before supporting heavy oil pipeline projects in BC (including Requirement 3: World-leading practices for land oil spill prevention, response and recovery systems to manage and mitigate the risks and costs of heavy oil pipelines);

iv. In addition to Trans Mountain’s internal review to enhance the Emergency Management Program, external reviews by the BC and Canadian governments are currently also in progress.

Request:

(1) Please confirm that Trans Mountain will compensate SFU for any costs it incurs in developing and responding to drafts of the response plans described above, as well as all additional training costs and the expenses incurred by SFU to implement those plans.

(2) Please indicate the indemnity provisions, including personal injury, business interruption, consequential losses, and extra expenses, that Trans Mountain, including its agents, would be amenable to offering SFU in a multi-year agreement.

(3) Please provide copies of all insurance policies and their respective policy limits on the insurance coverage that Trans Mountain and its agents plan to put in place for the Project, as well the limits of Trans-Mountain’s self-insurance reserves available to financially compensate SFU for any loss, damage or expense SFU may suffer in connection with or as a result of the construction and/or operation of the Project and the expanded facilities..
Response:

(1) Kinder Morgan Canada Inc. (KMC) has always been committed to working with organizations, both public and private, to ensure there is a mutual understanding of how KMC’s pipeline and/or operations at its facilities, could impact those organizations. When requested Trans Mountain is willing and able to review emergency response plans, share information about its operations, and provide advice on proper response techniques however, KMC is not responsible for the emergency planning of other organizations. This is the responsibility of those organizations.

KMC goal is to protect people and the environment. Safety is KMC’s priority. External agencies are invited to, and do, participate in KMC’s regular emergency response exercises, continuing education programs, and consultation meetings. KMC will cover costs associated with instruction delivery, but does not currently cover costs associated with attendance, such as responder wages, benefits and employment costs.

(2) As indicated in Trans Mountain’s response to SFU IR No. 2.2.5.1, Trans Mountain is willing and able to review emergency response plans, share information about its operations, and provide advice on proper response techniques; however, Kinder Morgan Canada (KMC) is not responsible for the emergency planning of other organizations. This is the responsibility of those organizations.

In exceptional circumstances, if there is an accident or malfunction that results in damages to third parties (including Simon Fraser University [SFU]), Trans Mountain is obligated under Section 75 of the National Energy Board Act to cover those damages. For example, in the case of a spill or pipeline rupture, Trans Mountain is responsible for its legal liabilities.

As indicated in Trans Mountain’s response to NEB IR No. 2.002g and NEB IR No. 2.003c (Filing ID A3Z4T9), Trans Mountain is prepared, if required as a conditional of approval, to provide a financial assurance package including accessible cash, insurance and such other financial resources the NEB deems acceptable including the provision of a parental guarantee. The financial assurance package along with estimated cash flow from operations of $2.1 billion over the first 5 years of operations demonstrates Trans Mountain’s ability to address obligation to third parties (including SFU) as they may arise.

As a result of the foregoing information, Trans Mountain expects that a multi-year agreement with SFU as proposed in this information request will not be necessary.

(3) With respect to the request for copies of all insurance policies refer to the response to NEB IR No. 2.002a.2 and 2.002b.3 (Filing ID A3Z4T9).

With respect insurance limits and self-insurance reserves refer to the responses to NEB IR No. 2.002e, 2.002f and 2.002g (Filing ID A3Z4T9).
2.2.6 Volume 4A, s.2.8.1, s.2.8.2.4; Volume 3C, Table 1.4.2

Reference:

i. National Energy Board List of Issues, Issue #3

ii. A3S048, Application Volume 4A, s.2.8.1, Pipeline Corridor Selection Objectives, Strategies and Criteria, PDF p. 34-36

iii. A3S048, Volume Application 4A, s.2.8.2.4. Pipeline Study Corridor, PDF p. 37-38

iv. A3S0V2, Application Volume 3C, Table 1.4.2, British Columbia Issues and Response Summary, PDF p. 53

Preamble:

As per Reference (i), Trans Mountain is considering a pipeline corridor and construction right-of-way along an approximately 5 km stretch of United Boulevard. This same area has seen significant disruption as a result of the Province’s construction of the new Port Mann bridge and the widening of Highway No. 1 between Vancouver and Langley (the “PMH1 Project”). Owners and operators of sales businesses on United Boulevard have reported sales declines of approximately 10-15% during the PMH1 Project. Construction impacted businesses’ transportation, operations, and logistics functions, resulting in a number of businesses closing down and increasing the industrial vacancy rate.

In Reference (ii), Trans Mountain outlines its pipeline corridor evaluation and selection criteria for the proposed and alternative TMEP Line 2 routes. The stated process indicates that Trans Mountain did or will acquire socio-economic data in support of the proposed Line 2 alternative corridors.

In reference (iii) the discussion of detailed corridor assessments indicates that socio-economic assessments may have been conducted in respect of each of the TMEP Line 2 alternatives.

In Reference (iv), Trans Mountain states that “reasonable efforts are made to minimize impact on landowners. Project construction will leverage the latest in building technologies with well-trained, safety-conscious work crews in all areas of construction. Public awareness campaigns will be undertaken to notify local communities when, where, and for how long construction and/or disturbances may take place”.

Request:

(1) Does Trans Mountain have a policy regarding the calculation and payment of business-loss compensation for businesses whose operations are directly affected by TMEP construction, such as through road closures? If not, will Trans Mountain prepare such a policy and file it with the NEB as part of the application record?

(2) How will Trans Mountain compensate SFU for any disruptions in services resulting from construction and/or an emergency event at the Burnaby Terminal that limits access to the University?
Response:

(1) In keeping with its regulatory obligation to minimize impacts to the extent practicable, Trans Mountain intends to work with any directly impacted businesses to establish access plans, schedule and pipeline alignments that minimize impacts to the businesses to the extent practicable. Should businesses experience lost revenue as a direct result of the construction of the Trans Mountain Expansion Project, Trans Mountain would intend to employ ‘actual loss’ compensation for any reductions in revenue caused by the construction and operation of the pipeline. In order to determine ‘actual loss’, Trans Mountain would utilize the services of a finance or accounting professional with expertise in business management. Working with the business, the accountant would assess any net financial impact including lost revenues and associated costs. The accountant would compare revenues and expenses from prior years, examine any other relevant factor which might affect business, and obtain comparative usage and financial information from other similar businesses within the region. Using this information, Trans Mountain, working in conjunction with the business, would determine whether any material reduction in net revenues had occurred. Any compensation for lost revenues would be based upon this assessment.

(2) Refer to the response to SFU IR No. 2.2.6.1.
2.2.7 Volume 5B, s. 6.1.16

Reference:
Volume 5B, s. 6.1.16, Socio-economic setting for facilities, Burnaby Terminal

Preamble:
SFU is concerned about the potential changes to the viewscapes from the SFU campus and community.

Request:

(1) Does Trans Mountain have any plans to compensate SFU for reductions in its property values as a result of changes in the viewscape from the SFU campus and SFU lands?

(2) Please advise whether Trans Mountain will compensate SFU for the reduction in land value and/or development potential of the SFU lands, as a result of the expansion project? If not, why not?

Response:

(1) No, Trans Mountain is not proposing to modify the current use of the Burnaby Terminal from current use, nor will TMEP require any lands additional to the current Burnaby Terminal site. Therefore, Trans Mountain does not foresee any impact on SFU property values.

(2) Refer to the response to SFU IR No. 2.2.7.1.
2.2.8 Volume 1, s. 1.0; Volume 5B, s. 5.5.6.1

Reference:

i. A55987, Application Volume 1, s. 1.0, Application and General Information, p. 1-1 to 1-11

ii. A56004, Application Volume 5B, s. 5.5.6.1, Emergency and Protective Services, p. 5-160

Preamble:

Trans Mountain seems to have assumed in its application that the City of Burnaby would be largely responsible for fire, police, health, and emergency services resulting from accidents, vandalism and/or terrorist activities. No agreements or service contracts for such services, including availability or provision of required equipment and training, appear to have been considered or put in place.

Reference (ii) states that in the event of an unforeseen environmental emergency during construction (e.g. large spill or fire) for which no mitigation measures have been developed, Trans Mountain's ERPs will be followed as noted in Volume 4A and 4C. The said volumes indicate the reliance on local government resources.

Request:

(1) Please provide a review of contingency allowances for purposes of evacuation, relocation, lodging, and recovery of persons that have been displaced due to an incident warranting the evacuation and relocation of nearby persons. In its answer, Trans Mountain should provide a general response to the question, as well as a response specific to SFU students, faculty, and residents of UniverCity.

(2) How will SFU be compensated for any disruptions in services resulting from an emergency event that limits access to the University?

Response:

(1) Kinder Morgan Canada Inc.'s (KMC) approach to issues such as evacuation, restricted access, etc. is the same throughout its network, and would address the Simon Fraser University (SFU) specific situation as it would any other location.

KMC confirms it is responsible for all of its legal liabilities including costs associated with evacuation. KMC will work with the local authority at the evacuation centres to ensure the appropriate information regarding the claims process is disseminated to all evacuees. KMC will work with individuals affected by a pipeline or terminal incident to provide compensation as quickly and efficiently as possible.

(2) Refer to the response to SFU IR No. 2.2.2.1.
2.3 EMERGENCY PLANNING

2.3.01 Volume 7, s. 4.4

Reference:

A56025, Application Volume 7, s. 4.4, Emergency Response Manuals and Reference Materials, p. 7-31

Preamble:

This section outlines the detailed and prescriptive procedures, activities, and checklists pre-established by Trans Mountain to ensure consistent response to emergency response events across TMPL and Terminals.

Request:

(01) How will Trans Mountain manage environmental emergency events?
(02) How will Trans Mountain manage a hazardous materials emergency event?
(03) How will Trans Mountain manage a motor vehicle accident emergency event?
(04) How will Trans Mountain manage a radioactive materials emergency event?
(05) How will Trans Mountain manage an armed intruder emergency event?
(06) How will Trans Mountain manage a distraught person emergency event?
(07) How will Trans Mountain manage a site fatality emergency event?
(08) How will Trans Mountain manage a missing employee emergency event?
(09) How will Trans Mountain manage an injury or medical emergency event?
(10) How will Trans Mountain manage a natural gas failure emergency event?
(11) How will Trans Mountain manage a power supply failure emergency event?
(12) How will Trans Mountain manage an electric power line emergency event?
(13) How will Trans Mountain manage a BLEVE potential emergency event?
(14) How will Trans Mountain manage a loss of supply water emergency event?
(15) How will Trans Mountain manage an earthquake or seismic emergency event?
(16) How will Trans Mountain manage a facility earth destabilization emergency event?
(17) How will Trans Mountain manage an impinging wild land fire emergency event?
(18) Will Trans Mountain commit to include SFU in managing any of the foregoing emergency events that may have an impact on SFU or access to or from SFU?
Response:

(01) The Application, Volume 7, Section 4.3.1 (Filing ID: A3S4V5) outlines the Incident Command System (ICS) response organization and the three-tiered response structure (Table 4.3.1) used by Kinder Morgan Canada Inc. (KMC) to manage all types of emergency events, including those cited by Simon Fraser University in sub-parts 2-17 of this question. All events are managed using ICS which is an internationally recognized management system for incidents that provides for maximum flexibility in varied situations.

(02) Refer to the response to SFU IR No 2.3.01.01. Trans Mountain would manage all emergency events using the ICS response organization and the three-tiered response structure.

(03) Refer to the response to SFU IR No. 2.3.01.01.

(04) Refer to the response to SFU IR No. 2.3.01.01. Trans Mountain would like to note that it does not handle radioactive materials as part of its business.

(05) Refer to the response to SFU IR No. 2.3.01.01.

(06) Refer to the response to SFU IR No. 2.3.01.01.

(07) Refer to the response to SFU IR No. 2.3.01.01.

(08) Refer to the response to SFU IR No. 2.3.01.01.

(09) Refer to the response to SFU IR No. 2.3.01.01.

(10) Refer to the response to SFU IR No. 2.3.01.01.

(11) Refer to the response to SFU IR No. 2.3.01.01.

(12) Refer to the response to SFU IR No. 2.3.01.01.

(13) Refer to the response to SFU IR No. 2.3.01.01.

(14) Refer to the response to SFU IR No. 2.3.01.01.

(15) Refer to the response to SFU IR No. 2.3.01.01.

(16) Refer to the response to SFU IR No. 2.3.01.01.

(17) Refer to the response to SFU IR No. 2.3.01.01.

(18) Refer to the response to SFU IR No. 2.2.1.1.
2.3.02 Volume 7, s. 4.4

Reference:

A56025, Application Volume 7, s. 4.4, Emergency Response Manuals and Reference Materials

Preamble:

This Reference outlines Trans Mountain's emergency response strategies and procedures. For certain events, it is noted that Trans Mountain will be reliant on outside emergency responders to respond to emergencies, including fires. Trans Mountain’s strategy for fire protection is to gain the agreement of the Burnaby Fire Department to change the Department’s responsibilities with regard to hydrocarbon facility events.

Request:

(1) Please indicate what Trans Mountain’s capabilities are for fire suppression at the Burnaby Terminal and indicate if this capability is sufficient to respond to a fire without the assistance of external emergency responders.

Response:

(1) Kinder Morgan Canada Inc. (KMC) is committed to ensuring a prompt and immediate response to any fire event that involves Trans Mountain Pipeline or Facilities to protect the public, employees, environment, and property. KMC understands the City of Burnaby’s current position is that it cannot and will not respond to a hydrocarbon fire event at Trans Mountain Facilities, but will respond to impacts from the event on the surrounding community. In the low likelihood event of a hydrocarbon fire at Burnaby Terminal or Westridge Marine Terminal KMC will respond using on-site trained personnel, and third party responders, if required.

In the response to NEB IR No. 3.093b (Filing ID A4H1V2, PDF page 472), Trans Mountain has also identified that fixed, automated, full-surface fire protection, which was not included in the Facilities Application, has been added to the proposed suite of fire-protection measures to further enhance the overall robustness of the design. This change was made to allow improved full-surface fire-fighting capability on fixed-roof tanks.
2.3.03 Volume 5B, s. 2.1.4

Reference:

A56004, Application Volume 5B, s. 2.1.4, Tank Facilities, Table 2.1-4, Technical Details – Storage Tanks and Associated Facilities at the Edmonton, Sumas and Burnaby Terminals, p. 2-8

Preamble:

The Reference notes that the Burnaby Terminal capacity will increase by 14 tanks (4,020,000 bbl of additional storage capacity), that the nearest residential area is approximately 50m south of the Burnaby Terminal, and that all works are contained within the Trans Mountain Fence Line.

Request:

(1) Has Trans Mountain established a buffer or safety zone around the Burnaby Terminal expansion, in order to improve safety and security for residents in the area and users of Gaglardi Way and Burnaby Mountain Parkway? If yes, please provide details. If not, why not?

Response:

(1) The safety of neighbours, the community and employees is Trans Mountain Pipeline ULC’s (Trans Mountain) top priority. Trans Mountain has considered the location of all proposed tanks relative to its neighbours and has performed extensive risk assessments on the preliminary terminal facility design. The design has not been finalized at this time.

Refer to the response to NEB IR No. 1.98a (Filing ID A3W9H9) for information regarding formal detailed risk assessments completed on the design of the proposed expanded Burnaby Terminal facility.

Refer to the responses to City of Burnaby IR No. 1.1.14a and 1.1.14b (Filing ID A3Y2E6), which describe how the location of the proposed new tanks will result in set-backs greater than those established in the City of Burnaby bylaws for the M7a Marine District 2.
2.3.04 Volume 1, s. 1.0, Volume 5B, s. 5.5.6.1, Volume 6A, s. 8.3

Reference:

i. A55987, Application Volume 1, s. 1.0, Application and General Information, p. 1-1 to 1-11

ii. A56004, Application Volume 5B, s. 5.5.6.1, Emergency and Protective Services, p. 5-160

iii. A56013, Application Volume 6A, s. 8.3, Environmental Emergency Response, p. 8-1

Preamble:

References state that in the event of an unforeseen environmental emergency during construction (e.g. large spill or fire) for which no mitigation measures have been provided or developed, Trans Mountain’s ERPs will be followed as noted in Volume 4A and 4C. The said volumes indicate the reliance on local government resources.

It is unclear if service agreements with the City of Burnaby for the services of police, fire, health and other emergency responders are in place at this time.

Request:

(1) Please provide an analysis of the emergency needs for fire, police, and health services for the existing facility and proposed Project.

(2) Please provide specific and detailed risk management plans including the number of security, fire, and emergency personnel that will be required to be hired, trained, and permanently posted to serve the needs of Burnaby Terminal if no agreement with the City of Burnaby is in place for whatever reason.

(3) If there is no agreement with the City of Burnaby’s fire, police, and emergency services, will the lack of such an agreement affect the effectiveness of response to incidents at the Burnaby Terminal?

(4) Please provide a detailed risk assessment and management report regarding the potential impact to access to/from SFU and to SFU’s water supplies in the event of a major event involving the pipeline or the Burnaby tank farm Terminal.

Response:

(1) The needs for fire, police and health services greatly depend on the type of emergency. An analysis of the exact needs for each type of scenario has not been contemplated by Kinder Morgan Canada Inc. (KMC). KMC is committed to a timely and safe response to any incident and has a proven history of procuring the resources required at the time of the event.

KMC uses the Incident Command System for incident planning, which is adaptable to different emergency scenarios and allows for quick identification of resources, and a
method of procurement. The current planning method calls for the replacement of municipal services with private firms as early as possible, with the approval of Unified Command. It is KMC’s preference to enter into a Unified Command with the municipal, provincial and federal agencies to ensure a safe and thorough response to any emergency. KMC is not aware of any circumstance where a municipality has withheld municipal services such as short-term emergency support to a tax-payer. KMC pays municipal taxes to the City of Burnaby and expects Burnaby to provide 911 services as would any tax payer.

KMC is committed to ensuring a prompt and immediate response to any fire event that involves Trans Mountain Pipeline or Facilities to protect the public, employees, environment, and property. KMC understands the City of Burnaby’s current position is that it cannot and will not respond to a hydrocarbon fire event at Trans Mountain Facilities, but will respond to impacts from the event on the surrounding community. In the low likelihood event of a hydrocarbon fire at Burnaby Terminal or Westridge Marine terminal KMC will respond using on-site trained personnel, and third party responders, if required.

(2) Refer to the response to SFU IR No. 2.3.04.1.

(3) Refer to the response to SFU IR No. 2.3.04.1.

(4) Trans Mountain evaluated potential health and socio-economic effects of credible worst-case and smaller spills from the pipeline and terminals and these results are applicable along the pipeline corridor. The rationale for the risk-based approach adopted by Trans Mountain is provided below to respond to this request and other similar Information Requests about the potential human health and socio-economic effects of credible worst-case and smaller spills.

A description of the risk-based approach used to evaluate the potential effects of pipeline and terminal spills is provided in the introductory comments included in Section 6.0 of Volume 7 (Filing ID A3S4V6). Trans Mountain Pipeline ULC (Trans Mountain) evaluated consequences of credible worst-case spills using a suite of methods patterned on the structured risk assessment approach developed to support the Aleutian Islands Risk Assessment (Transportation Research Board 2008). This included three key elements:

- The first element involved a quantitative risk assessment to define the risk of spills from pipelines, the size of spills that could credibly occur, and credible locations for those incidents.

- The second element involved a qualitative assessment of potential environmental and socio-economic consequences based on evidence from past oil spills and studies. This discussion includes a wide range of spill volumes. Where possible, the information reflected issues identified during public consultation.
Representative onshore spill scenario locations were then selected for more detailed analysis of environmental and human physical health outcomes. Credible worst-case and smaller spill scenarios were then developed for these representative locations along the pipeline corridor. These evaluations relied on the well-established and widely accepted Ecological Risk Assessment (ERA) and Human Health Risk Assessment (HHRA) methods to evaluate the ecological and physical human health outcomes for these hypothetical spill scenarios. A more quantitative approach was not adopted for predicting effects on other socio-economic indicators, including local and regional economies, infrastructure and service demand, recreational use, and community well-being (including Aboriginal health, culture, spiritual and traditional activities). This was because no widely accepted method exists for predicting oil spill socio-economic effects due to the inherent complexity resulting from the role of human interpretation and its influence on individuals’ experiences of social effects and their ability, willingness and confidence to respond to change.

A detailed Risk Assessment and Management of Pipeline and Facility Spills is presented in Volume 7 of the Application (Filing IDs A3S4V5 and A3S4V6). The volume includes all information required by the National Energy Board (NEB) Filing Manual (NEB 2014), NEB Onshore Pipeline Regulations (OPR) (NEB 1999) and Canadian Standards Association (CSA) Z662-11 - Oil and Gas Pipeline Systems (CSA Group 2011). Thus, the level of detail presented is considered appropriate to assist in federal-level decision-making and assessing specific impacts to one particular stakeholder of an incident would not contribute substantively to the NEB’s decision-making process. As such, Trans Mountain has not conducted, and does not intend to conduct, a risk assessment of an un-characterized major event on access to/from Simon Fraser University (SFU) and SFU’s water supplies.

Section 6.3 in Volume 7 (Filing ID A3S4V5) provides a qualitative evaluation of potential effects of small to credible worst-case pipeline spills, including effects on human health, infrastructure and services, and community well-being. This discussion was based on evidence from past spills. It concluded that a worst-case or smaller spill could affect, or increase demands on, local infrastructure and services, but that actual effects would depend on the unique circumstances of a spill.

Regarding emergency response and traffic management, please refer to the responses to Dayson P IR Nos. 1.1.1 and 1.1.2 (Filing ID A3X6C5). The determination of emergency response routes to specific neighbourhoods or areas of a municipality is the responsibility of the municipality and its first responder organizations. Kinder Morgan Canada Inc. (KMC) expects that this will continue to be the case with the Trans Mountain Expansion Project (TMEP). KMC is willing and able to work collaboratively with first response organizations in Burnaby and elsewhere to mitigate any impacts on their operations during TMEP planning, construction and operation.

Regarding water quality, Section 6.3 of Volume 7 (Filing ID A3S4V5) provides the potential human health effects that could result following a spill in an urban environment. Specifically for SFU drinking water supplies, any potential impact in the event of a major
event would be assessed by Trans Mountain, working in coordination with the City of Burnaby and Provincial health authorities, as well as SFU. In response to an emergency, Trans Mountain would first determine a safety zone to protect responders and the public, and would then work with the authorities to identify any potential impact to critical resources. As part of Incident Command, focus is given to the identification of environmental and public receptors, with the establishment of objectives to protect these resources.

References:


2.3.05 Volume 5D2, s. 8.6.8

Reference:

A56011, Application Volume 5D2, s. 8.6.8, Emergency, Protective and Social Services, Social Services, p. 8-70

Preamble:

The reference states that: “generally, community and social services are provided by a combination of local authorities with mandated responsibilities, municipal and band-funded initiatives, non-profit community organizations and private providers. Service providers work closely with health authorities, police, corrections and educational institutions among other organizations. They provide a wide range of services in response to the social, psychological, employment, income and crisis needs.”

Request:

(1) What type of emergency at the Burnaby Terminal could result in the need to evacuate SFU and the university community?

(2) What role will Trans Mountain play in supporting the evacuation efforts?

(3) Please describe specifically the information that would be provided to SFU personnel responsible for planning an evacuation of SFU.

(4) Please describe what assessments Trans Mountain has undertaken in connection with the evacuation of SFU due to an event at the Burnaby Terminal, and whether such assessments have considered how SFU can be evacuated given the likely need of first responders to use Gaglardi Way and/or Burnaby Mountain Parkway to access the Burnaby Terminal.

(5) Please advise what type of situation(s) at the Burnaby Terminal could result in the need to shelter in place at SFU, as well as the expected duration for the provision of such shelter in place?

Response:

(1) Although it is not possible to provide a definitive response as to all the possible types of emergencies at Burnaby Terminal that could result in the need to evacuate Simon Fraser University (SFU) and the UniverCity community, potential events could include a tank fire with associated smoke, a storage tank leak or a pipeline rupture within the terminal, with evaporation and wind transportation of vapours toward SFU and/or UniverCity. These are all very low probability events.

(2) In the event of a leak or fire at the Burnaby Terminal, irrespective of cause, Kinder Morgan Canada Inc. (KMC) would immediately begin to control the source of the release or fire. Local municipal emergency services would be contacted immediately and additional trained KMC technicians would be dispatched to the location to secure the
area and commence air monitoring to ensure air quality for those in the immediate vicinity. KMC would consult with the local municipal authority to determine the best course of action to protect the public. This decision and subsequent actions to evacuate residents are the responsibility of local emergency services. KMC does not have the legislative authority to undertake evacuations, however, it would work with and assist local municipal authorities in any way it could.

(3) Though the temporal context of the question is not clear, Trans Mountain offers the following as a response.

In advance of an emergency event, information provided to Simon Fraser University (SFU) personnel responsible for planning an evacuation of SFU would generally be that contained in the Kinder Morgan Canada Inc. (KMC) Public Awareness Program, which is designed to promote awareness of KMC’s pipelines and facilities in the geographic area, increase knowledge of the regulations and KMC’s requirements for working near its pipelines, educate first responders on KMC’s emergency preparedness and response activities and protocols designed to enhance public safety. Follow up meetings with SFU emergency planners might also provide more specific information about nearby Trans Mountain facilities and operations, products stored and other relevant information.

KMC is committed to continued engagement with SFU to ensure issues such as presented in this Request are discussed and fully understood by SFU. This includes how SFU and KMC will work together in the unlikely event an evacuation is required.

During an active emergency, personnel responsible for planning an evacuation would be provided with the nature of the emergency condition, current air monitoring results and other relevant information including any recommendations or discussions that have occurred or are planned to occur with local first responders such as Burnaby Fire Department or RCMP.

(4) Kinder Morgan Canada (KMC) has always been committed to working with organizations, both public and private, to ensure there is a mutual understanding how the pipeline and/or operations at facilities could impact those organizations for incorporation in their own emergency response plans, when those organizations request assistance. However, KMC is not responsible for the emergency planning of other organizations. KMC has not performed assessments in connection with the evacuation of Simon Fraser University (SFU) in the context of the question.

KMC is committed to engaging with external stakeholders where its pipelines operate. KMC offers to review emergency response plans, educate on its operations, and provide advice on proper response techniques. KMC conducts regular emergency response exercises and equipment deployments that include participation from local emergency responders.

(5) Although it is not possible to provide a definitive response as to all the possible types of emergencies at Burnaby Terminal that could result in the need to shelter in place at Simon Fraser University (SFU), potential events are likely to include a tank fire with
associated smoke, a storage tank leak or a pipeline rupture within the terminal, with evaporation and wind transportation of hazardous or noxious vapours toward SFU. These are all very low probability events. It is also not possible to speculate on the expected duration of shelter in place for any of these types of events. Kinder Morgan Canada (KMC) will work diligently during its normal operations and emergency response activities to minimize impacts and disruptions to its neighbours.
2.3.06 Volume 2, s. 1.2.1.4

Reference:
A55987, Application Volume 2, s. 1.2.1.4, Focused on Safety, p. 2-3

Preamble:
The Reference notes that 60 staff will be located between Hope and Burnaby.

Request:
(1) Will Trans Mountain have sufficient personnel located at the Burnaby Terminal to guarantee public safety if, in the event of an incident, no additional services or personnel are available from City of Burnaby’s fire, safety and emergency services? How many personnel will be located at the Burnaby Terminal on a daily basis?

Response:
(1) Kinder Morgan Canada (KMC) uses the Incident Command System for incident planning which is adaptable to different emergency scenarios and allows for quick identification of resources, and a method of procurement. The current planning method calls for the replacement of municipal services with private firms as early as possible, with the approval of Unified Command. It is KMC’s preference to enter into a Unified Command with the municipal, provincial and federal agencies to ensure a safe and thorough response to any emergency. KMC is not aware of any circumstance where a municipality has withheld municipal services such as short-term emergency support to a tax-payer.

Kinder Morgan Canada Inc. (KMC) is committed to ensuring a prompt and immediate response to any fire event that involves Trans Mountain Pipeline or Facilities to protect the public, employees, environment, and property. KMC understands The City of Burnaby’s current position is that it cannot and will not respond to a hydrocarbon fire event at Trans Mountain Facilities, but will respond to impacts from the event on the surrounding community. In the low likelihood event of a hydrocarbon fire at Burnaby Terminal or Westridge Marine Terminal KMC will respond using on-site trained personnel, and third party responders, if required.
2.3.07 Volume 5B, s. 2.1.4

Reference:

A56004, Application Volume 5B, s. 2.1.4, Tank Facilities, p. 2-7 to 2-9

Preamble:

As per above Reference, 14 new storage tanks will be located at the Burnaby Terminal to serve the expanded pipeline. SFU is located on top of Burnaby Mountain where current enrolment exceeds 30,000 students, not counting an additional 3,200 residents, who are anticipated to grow to 10,000.

There are only two access roads that serve SFU, Burnaby Mountain Parkway and Gaglardi Way, both passing through a single intersection directly adjacent to Burnaby Terminal. Due to the proximity and upwind location of the Burnaby Terminal to the main road, there is a high likelihood SFU would be compromised during an event at the terminal.

Request:

(1) Please provide a detailed assessment of any and all impacts that could be anticipated during a major fire/explosion at the Burnaby Terminal to SFU and residents of UniverCity, including those impacts that could result in disruptions to road access causing a delay or prevention of first response vehicles accessing the SFU community.

(2) What planning has Trans Mountain done relative to the evacuation of the SFU campus given the unique challenges related to access and egress to and from the area? Has Trans Mountain consulted with SFU in connection with this planning? If not, why not?

(3) Has Trans Mountain considered and prepared plans to identify the need for and to facilitate the construction of a secondary emergency egress road to and from the Burnaby Terminal, and to and from SFU? If no, please explain why? If yes, please provide describe and provide any plans prepared to date, as well as any plans that may still need to be developed.

Response:

(1) Trans Mountain has not completed a detailed assessment of all of the potential impacts specific to Simon Fraser University (SFU) and the residents of UniverCity that could be anticipated during a major fire at Burnaby Terminal. However, Trans Mountain has completed assessments for fire scenarios and a variety of hazards at Burnaby Terminal, which are, in some cases, relevant to SFU. Refer to response to NEB IR No. 1.98a (Filing ID A3W9H9). The risk assessments for the proposed new and expanded facilities at Burnaby Terminal are included in NEB IR No. 1.98a - Attachment 3 (Filing ID A3W9S5) and NEB IR No. 1.98a - Attachment 8 (Filing ID A3W9T1). Also refer to responses to SFU IR No. 2.3.13.2 and SFU IR No. 2.4.08.2.

NEB IR No. 1.98a - Attachment 3 (Filing ID A3W9S5) describes a fire risk assessment completed using the Major Industrial Accidents Council of Canada (MIACC), Risk-based
Land Use Planning Guidelines criteria. The assessment presents fire scenarios for the expanded Burnaby Terminal, without consideration of the activation of mitigation measures, such as fire-fighting foam deployment. The risk assessment indicates acceptability under the MIACC criteria, even without mitigation measures. The risk assessment also indicates that SFU and UniverCity, including the roads leading to them, could be impacted by smoke from a major fire. Although the risk of a major fire is extremely low, the potential of smoke will be addressed in the Burnaby Terminal Emergency Response Plan (ERP). Trans Mountain is willing to engage with SFU and the City of Burnaby during the update of the Burnaby Terminal ERP associated with the Project.

The tables in NEB IR No. 1.98a - Attachment 8 (Filing ID A3W9T1) summarize preliminary assessments of the risks of a broader variety of hazards and the effect of various control and mitigation measures, using Trans Mountain’s qualitative risk assessment protocol. These assessments focus mostly on spills and do not address fire in any greater detail that the fire risk assessment. As such they are less relevant to SFU for emergency planning purposes.

(2) Kinder Morgan Canada Inc. (KMC) has always been committed to working with organizations, both public and private, to ensure there is a mutual understanding how the pipeline and/or operations at facilities could impact those organizations for incorporation in their own emergency response plans (ERP) when those organizations request assistance. However, KMC is not responsible for the emergency planning of other organizations. This includes emergency planning concerning evacuation of the Simon Fraser University (SFU) campus given the unique challenges related to access and egress to and from the area.

Personnel from KMC met with SFU officials on December 9, 2014 to begin dialogue on emergency management and other issues of concern related to current operations. KMC is committed to continuing this engagement, including during follow up meetings, discussions surrounding the expansion project.

KMC is committed to engaging with external stakeholders where our pipelines and facilities operate. We offer to review emergency response plans, educate on our operations, and provide advice on proper response techniques. KMC conducts regular emergency response exercises and equipment deployments that include participation from local emergency responders.

(3) Trans Mountain has two operational access / egress roads at Burnaby Terminal and a third egress could easily be created by minor improvements to a former road.

Trans Mountain has not considered or prepared plans to identify the need for or to facilitate the construction of a secondary emergency egress road to or from Simon Fraser University (SFU) for the following reasons:

- Municipal infrastructure is in the City of Burnaby’s jurisdiction
Trans Mountain Response to SFU IR No. 2

- Trans Mountain is proposing to install a robust fire-protection system to significantly reduce the risk of fires associated with the proposed new tanks

- Burnaby Terminal existed prior to the construction of SFU. Presumably, SFU and City of Burnaby planners assessed the potential risks to the campus at the time of site selection, have done so in the intervening years, and have concluded that the current egress is acceptable.

Trans Mountain looks forward to engaging with SFU and the City of Burnaby during the update of the Burnaby Terminal Emergency Response Plan associated with the Project.

Summary of New Commitments:

Personnel from KMC met with SFU officials on December 9, 2014 to begin dialogue on emergency management and other issues of concern related to current operations. KMC is committed to continuing this engagement, including during follow up meetings, discussions surrounding the expansion project.
2.3.08 Volume 7, s. 11.0

Reference:
A56025, Application Volume 7, s. 11.0, Appendix E, Facility Integrity Hazards – Piping, p. E-4

Preamble:
This section provides a listing of the identified hazards with respect to the facilities and pipeline. The facility integrity hazards list for piping identifies a number of events or hazards, and related preventative and mitigative measures.

Request:
(1) How will Trans Mountain prevent, detect, and immediately respond to ensure safeguarding from unauthorized entry for the purposes of civil protest at the Burnaby Terminal?

(2) With respect to the foregoing, will Trans Mountain commit to contacting the Campus Security Department at SFU in the event of any such incident?

Response:
(1) The Kinder Morgan Canada Inc. (KMC) security program includes security plans, employee training, security equipment, 24 hour security personnel as well as additional measures at Burnaby Terminal designed to deter and detect intruders. If an attempt to gain unauthorized entry is detected at the facility KM security personnel will respond and the RCMP will be notified. Details of the current program are confidential.

(2) If an unauthorized entry or civil protest were to occur at Burnaby Terminal, the Burnaby RCMP would be notified. Once the RCMP arrived and made an assessment of the security incident at the Burnaby Terminal facility they would determine if surrounding residents or businesses were affected by the security incident. If the RCMP determined the security incident may cause a disturbance to residents or businesses they would communicate it to the affected areas. All security incidents at the time of occurrence are under investigation and are confidential.
2.3.09 Volume 2, s. 2.3

Reference:

A55987, Application Volume 2, s. 2.3, Terminals, p. 2-25

Preamble:

The Reference notes that an additional 14 tanks are proposed to be located at the Burnaby Terminal.

Request:

(1) What increased safety and public security measures will be provided by Trans Mountain as part of the Burnaby Terminal expansion?

(2) How will the existing buffer areas of trees be protected, enhanced, expanded, and managed under the current proposal to ensure the maximum protection of adjacent residential areas and SFU lands, as well as public safety and security?

Response:

(1) Potential security risks have been taken into account for facilities as part of overall risk assessment and management and meet the regulatory requirements of the National Energy Board (NEB) for the Burnaby Terminal. The requirement for Security Vulnerability Assessments (SVAs) is a component of the Kinder Morgan Canadian Operations Facility Security Plan. The Burnaby Terminal also has a Site-specific Security Plan (SSP). As part of the NEB Draft Condition 37 (Filing ID A3V8Z8), Trans Mountain will confirm with the NEB in writing, 90 days in advance of construction and 90 days prior to the commencement of operation, security programs are in place. SVAs are confidential.

(2) Trans Mountain has no plans to remove, enhance, expand, or manage trees outside the existing Burnaby Terminal fence-line, which is just inside the property line. Some trees within the property will require removal to make room for the proposed new storage tanks and other infrastructure. However, Trans Mountain’s goal is to limit the removal of trees located just inside and along the fence-line, which currently provide a valuable visual screen, to the greatest extent practical.
2.3.10 Volume 4A, s. 3.4

Reference:

A55999, Application Volume 4A, s. 3.4, Facilities Design – Terminals, p. 4A-45

Preamble:

The Reference identifies the new tanks required at various Terminals, suggesting that the number and sizes of new tanks are based on preliminary engineering and that further studies are underway to verify that the same are optimal.

Request:

(1) Please provide information on the final number and sizes of new tanks proposed to be constructed at the Burnaby Terminal.

Response:

(1) Trans Mountain intends to construct 14 new tanks at Burnaby Terminal, ranging in size from 26,230 m³ (165,000 bbl) to 53,620 m³ (335,000 bbl). Additional information is available in Section 3.4.3.4, Volume 4A of the Facilities Application (Filing ID A3S0Y8), in Technical Update No.2, Part 2, Facilities Update, Conceptual Design and Layout of Burnaby Terminal and WMT (Filing ID A4A4D5), and in Technical Update No. 2, Part 2, Facilities Update, Attachment 1.0-1 Proposed Plot Plan of Burnaby Terminal (Filing ID A4A4D6). Trans Mountain has confirmed that all 14 tanks are required to support the expanded operations of Westridge Marine Terminal and that space for more than 14 tanks is not available. There is still some possibility that the sizes and precise locations of the proposed new tanks may change slightly, subject to continuing engineering considerations.
2.3.11 Volume 4A, s. 3.4

Reference:

i. A55999, Application Volume 4A, s. 3.4, Facilities Design – Terminals, p. 47
ii. A55999, Application Volume 4A, s. 3.4, Facilities Design – Terminals, p. 71

Preamble:

Reference (i) states that tank spacing will be in accordance with National Fire Protection Association (NFPA) Standard 30 as well as with the National Alberta and BC fire codes, with spacing between adjacent tanks equal to, or greater than, the sum of their respective diameters divided by four.

However, Reference (ii) states that due to space limitations, storage tanks that will be added at the Burnaby Terminal will share containment areas with other tanks and containment capacity will be provided in accordance with CSA Z662 and the BCFC, specifically 100% of the working volume of the largest tank plus 10% of the working volume of the other tanks that share the common containment area.

Request:

(1) Please set out the precise requirements for tank spacing to be followed by Trans Mountain at the Burnaby Terminal with reference to the standards set out in Reference (i).

(2) Please advise whether Trans Mountain investigated and compared its planned containment size and capacity design with similar facilities globally. If not, why not? If yes, please advise whether Trans Mountain's plan will result in containment areas with less capacity than found in other similar facilities.

(3) Please provide a detailed explanation of the assumptions and basis upon which Trans Mountain determined its planned containment sizing and capacity.

(4) In light of Trans Mountain's plans to share tank containment areas, please advise whether Trans Mountain has done a risk assessment of a significant failure of both tanks in the same containment. If such an assessment was done, what is the risk of such failure? If no such assessment has been done, please explain why an assessment was not done.

(5) Is Trans Mountain prepared to construct containment capacity larger than the minimum described in the Reference (ii) and CSA Z662?

i. If not, why not?

ii. If yes, what additional containment capacity is Trans Mountain prepared to construct at the Burnaby Terminal, especially considering the adjacent residential neighbourhoods and limited road access to and from SFU?
Response:

(1) Refer to the response to City of Burnaby IR No. 1.08.03a (Filing ID A3Y2E6, Page 208).

(2) Trans Mountain has not investigated and compared the secondary containment design for the proposed expansion of Burnaby Terminal with similar facilities globally. Trans Mountain has a statutory obligation to comply with Canadian Standards Association (CSA) Standard Z662, which requires that the capacity of a shared secondary containment area be 110% of the volume of the largest tank within the area. Trans Mountain has voluntarily committed to comply with the British Columbia Fire Code (BCFC), which requires that the capacity of a shared containment area be 100% of the volume of the largest tank plus 10% of the volume of the other tanks within the area. Both of these requirements exceed the requirements of National Fire Protection Association (NFPA) Code 30, which is typically the governing code in the United States. In addition, the available volume within the existing tertiary containment area at Burnaby Terminal, which will be retained in the proposed expansion, is approximately 80,000 m³ (500,000 bbl), increasing the overall containment capacity at Burnaby Terminal. Tertiary containment is not a feature of most pipeline terminal facilities.

(3) Refer to the response to SFU IR No. 2.3.11.2. Trans Mountain selected initial tank diameters and laid out the tanks to optimize the use of the available space at Burnaby Terminal, respecting the National Fire Protection Association (NFPA) Code 30 and the British Columbia Fire Code (BCFC) tank spacing and property line set-back requirements. Tank numbers and capacities were tested through simulation modelling to ensure that the proposed expanded operation of Westridge Marine Terminal could be effectively supported. Trans Mountain assessed the containment capacity requirements of the BCFC, including consideration of shared containment. Three-dimensional topographical and civil design models were used to determine if the required containment capacities could be practically achieved. The process was repeated iteratively, resulting in the currently proposed design. Consideration was also given to the potential extent of secondary containment pool fire radiant heat contours and small adjustments were made to the surface areas and locations of the secondary containment areas.

(4) The codes and standards that address shared secondary containment capacity do not require the consideration of any simultaneous multiple tank failure scenarios, significant or otherwise. As such, Trans Mountain has not completed a quantitative risk assessment of multiple tank failure scenarios at Burnaby Terminal. Trans Mountain does not consider simultaneous multiple tank failure scenarios to be credible. However, there have been numerous information requests which refer directly or indirectly to multiple tank failure scenarios. Refer to the NEB Ruling 33 response to City of Burnaby IR No. 1.08.12a (Filing ID A4D3G2, PDF Page 115) and the responses to NEB IR No. 3.069a, 3.069b, and 3.069c (Filing ID A4H1V2, PDF Pages 416 - 420).

(5) Refer to the responses to SFU IR No. 2.3.11.2 and 2.3.11.3, which describe secondary containment capacity requirements and the iterative steps that Trans Mountain followed to determine the proposed secondary containment capacities for the expansion of
Burnaby Terminal. Trans Mountain is not prepared change its philosophy on secondary containment capacity. However, Trans Mountain notes that there are a number of separate secondary containment areas included in the design of Burnaby Terminal. Canadian Standards Association (CSA) Standard Z662 and the British Columbia Fire Code (BCFC) do not set limits on the number tanks within shared secondary containment areas. In that context, the total secondary containment capacity at Burnaby Terminal far exceeds the requirements of both CSA Z662 and the BCFC (see (ii), below). There is also a tertiary containment area, which is not required by CSA Z662 or BCFC.

i. To effectively support the expanded operation of Westridge Marine Terminal, Trans Mountain requires the number and sizes of tanks identified in the currently proposed layout. Increasing secondary containment capacity would have the effect of reducing the number or the sizes of the tanks, or both.

ii. Although Trans Mountain is not prepared to change its design philosophy, Trans Mountain would like to provide additional information on containment capacity. Based on the preliminary design work completed to date, it is estimated that, after the proposed expansion at Burnaby Terminal is complete, the total secondary containment volume will be approximately 530,000 m$^3$ (3,350,000 bbl), which is more than 60% of the total proposed storage tank capacity (at high working levels) and more than 10 times the capacity (at high working level) of the largest tank. Further, the available volume in the existing tertiary containment area, which will be retained in the expansion, is approximately 80,000 m$^3$ (500,000 bbl), increasing the total containment volume to more than 70% of the total proposed storage tank capacity and nearly 12 times the capacity of the largest tank. Trans Mountain believes that the containment capacity proposed for the expansion at Burnaby Terminal is more than sufficient.

Give the relative topographies and locations of Burnaby Terminal and Simon Fraser University (SFU), Trans Mountain does not see how the secondary containment capacity at Burnaby Terminal relates, in any way, to the limited road access to and from SFU.
2.3.12 Volume 7, s. 2.2

Reference:
A56025, Application Volume 7, s. 2.2, Facilities, p. 7-4

Preamble:
The Reference states that design control measures generally include secondary containment equipped with hydrocarbon detection for all storage tanks.

Request:
(1) Please describe in detail all prevention, response, and mitigation measures Trans Mountain will undertake in order to protect adjacent property, members of the public, and businesses from the impacts and effects if a release into secondary containment were to occur (by air, land or marine).

(2) How will these emergency systems isolate a facility, as defined in this section, from fires such as on-site structure fire or wild land fire?

Response:
(1) Trans Mountain and Kinder Morgan Canada (KMC) integrate safety and spill prevention into design and operations. Trans Mountain follows the legislative requirements that are applicable to the design, construction, and operation of National Energy Board (NEB) regulated pipeline systems (including storage tank terminals and marine terminals) and applies provincial, national, and international guidelines, codes, standards, and approaches, where appropriate.

Section 3.4.3, Volume 4A of the Facilities Application (Filing ID A3S0Y8), in particular Sections 3.4.3.2.1, 3.4.3.7, 3.4.3.10, and 3.4.3.11, describe numerous spill prevention, detection, and mitigation measures that will be included in the design of Burnaby Terminal.

Section 3.4.4, Volume 4A of the Facilities Application (Filing IDs A3S0Y8, A3S0Z1, A3S0Z0, and A3S0Y9), in particular Sections 3.4.4.2.1, 3.4.4.7, 3.4.4.8.1, 3.4.4.11, and 3.4.4.12, describe numerous spill prevention, detection, and mitigation measures that will be included in the design of Westridge Marine Terminal (WMT).

WMT will also be designed, constructed, and operated in accordance with Oil Companies International Marine Forum (OCIMF) recommendations and operated according to the International Oil Tanker and Terminal Safety Guide (ISGOTT). Trans Mountain deploys a containment boom around each tanker during loading to mitigate consequences in the extremely unlikely event of a spill. Trans Mountain does not own or operate the marine vessels calling at WMT; however, the vessels are operated in accordance with Canadian regulations and international regulations and standards, which are described in Section 1.4, Volume 8A of the Facilities Application (Filing IDs A3S4X3 and A3S4X4).
With respect to the prevention of releases to tank secondary containment areas at Burnaby Terminal, the following approaches, as described in Section 3.4, Volume 4A of the Facilities Application (Filing ID A3S0Y8), will be applied. Storage tanks and their associated infrastructure will be designed to meet 1) Canadian Standards Association (CSA) Standard Z662, Oil and Gas Pipeline Systems, 2) American Petroleum Institute (API) Standard 650, Welded Tanks for Oil Storage, and 3) Canadian Council of the Ministers of the Environment (CCME) Standard 1326, Environmental Code of Practices for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products. Tank foundation designs will be based on British Columbia Building Code (BCFC) requirements and local geotechnical conditions. Each tank will be equipped with a radar gauging system, for liquid level measurement, and redundant over-fill protection systems. In addition, piping and equipment within process system secondary containment areas will be designed and protected from overpressure in accordance with CSA Z662.

Seismic design of earthen, concrete, and steel structures, including foundations and marine piles, containment berms, tanks, pipe racks, other support systems, and piping, will be in accordance with the latest editions of the National Building Code of Canada (NBCC), the BCFC, API 650 (Annex E), and other recognized standards and practices, as applicable to the structures and locations.

Spill prevention, detection, and mitigation measures are also the subject of ongoing formalized hazards and operability (HazOp) reviews, which are utilized world-wide for risk control in the development of energy infrastructure. The first of a series of HazOp reviews for Burnaby Terminal and WMT were completed in Q2 and Q4, 2014. These reviews focused on the primary elements of the crude oil process piping. Other HazOp reviews are scheduled for Q2, 2015 to complete the process piping. Additional reviews will be required to assess the fire-protection systems, vapour recovery systems, and other elements, such as emergency response. These will likely occur in Q3 or Q4, 2015. Recommendations from the HazOp reviews will be incorporated into the detailed designs and operating procedures, as appropriate.

Section 8.2, Volume 4C (Filing ID A3S1L1) and Section 2.2, Volume 7 (Filing ID A3S4V5) of the Facilities Application describe the Facility Integrity Management Plan (FIMP) and control measures for terminals. Section 2.2.1, Volume 7 is specific to WMT.

For the operation of the existing pipeline system, KMC has established and implemented an Integrated Safety and Loss Management System (ISLMS) as the basis for ensuring a strong safety culture with an emphasis on continuous improvement. The ISLMS will also apply to the expanded system. Refer to the response to NEB IR Nos. 3.002a-k (Filing ID A4H1V2) for a more detailed description of the ISLMS.

The ISLMS outlines a commitment to establishing, implementing, monitoring, and continuously improving processes and controls to ensure that business is conducted in a safe, environmentally responsible, and sustainable manner. The ISLMS outlines the requirements that will apply to the following protection programs:
Safety, Security, Environmental Protection and Emergency Response;  
Pipeline and Facility Integrity;  
Damage Prevention and Public Awareness;  
Control Centre Operations and Leak Detection;  
Engineering and Major Projects; and,  
Operations and Maintenance.

Spill prevention activities during operations are not stand-alone; rather, they are one focus of the preceding programs.

In the unlikely event of a spill at Burnaby Terminal or WMT, KMC has a robust emergency response program in place to respond. Section 4, Volume 7 of the Facilities Application (Filing ID A3S4V5) outlines emergency management. KMC has a mature Emergency Management Program (EMP), which is based on a combination of regulatory compliance, operational need, industry best practices, and lessons learned through regular exercises and actual incidents. The EMP is embedded within the framework provided by the ISLMS and the Environment, Health and Safety (EHS) Management System. Key elements of the EMP include long-standing and regularly reviewed Emergency Response Plans (ERPs), response equipment, and regular desktop training and field deployment exercises, which contribute to a highly trained response staff and response readiness within KMC. Section 4.8, Volume 7 outlines the process to enhance the existing EMP for the Project. The final EMP will be developed in a manner consistent with the NEB draft conditions related to emergency response (Filing ID A3V8Z8).

Secondary containment, with hydrocarbon detection, is not intended to isolate a facility or part of a facility from an on-site structure fire or a wild-land fire. The purpose of these systems is to contain and detect spills. However, Trans Mountain can offer the following information.

Trans Mountain will provide a motor operated valve (MOV) on each of the proposed new secondary containment drain systems at Burnaby Terminal, in a safe location outside of the secondary containment berm. The MOV will be normally closed; only opened to release collected storm water. The MOV will be operable at the valve or at a local control station positioned beside the access road adjacent to the tank. In the extremely unlikely event of a spill into the secondary containment while storm water is being drained, a hydrocarbon detector located within the secondary containment will automatically cause the MOV to close. Since the hydrocarbon detector located within the secondary containment will automatically cause the MOV to close, any released product will be held within the secondary containment and isolated from other areas of the terminal. Additional information on the Burnaby Terminal emergency shut-down (ESD) system is included in Section 3.4.3.11.1, Volume 4A of the Facilities Application (Filing ID A3S0Y8).

In addition, Trans Mountain intends to install fire-protection systems on or nearby the proposed new tanks, as applicable, that will be designed to address rim seal and full-
surface tank fires as well as releases to secondary containment areas, with foam application by portable foam monitors for odorous and combustible vapour suppression.

Trans Mountain has direct experience with wild-land fires around above ground infrastructure, recently with the Barriere fire in the North Thompson Valley and a fire along the Corridor Pipeline system (formerly owned and operated by a Trans Mountain affiliate) in north-central Alberta. The measures Trans Mountain uses to minimize the risk from wild-land fires and on-site structure fires, typically include set-back from the forest around the perimeter of above ground facilities, construction from non-combustible materials (earth, concrete, and metal), robust designs and maintenance practices, which prevent the generation or accumulation of hazardous vapours, housekeeping to prevent the accumulation of combustible debris, and emergency preparedness management procedures, which include wild-land fire and on-site fire considerations.
2.3.13 Volume 7, s. 3.2.2

Reference:

A56025, Application Volume 7, s. 3.2.2, Secondary Containment and Tank Risk Assessments, p. 7-19

Preamble:

The Reference identifies a boil over tank fire event as a possible hazard scenario. The hazard scenarios related to tank fires and fires resulting from a product release within a containment area are identified through a determination process of risk assessments based on regulations and company direction.

Request:

(1) Please provide a detailed list of circumstances where Trans Mountain or other authorities would be unable to prevent a boil over event from occurring.

(2) Please describe the impacts from a boil over tank fire:
   i. to SFU; and
   ii. for access to Gaglardi Drive and Burnaby Mountain Parkway.

(3) Please describe how Trans Mountain plans to:
   i. mitigate the impacts from a boil over tank fire on SFU and Gaglardi Drive and Burnaby Mountain Parkway; and
   ii. how and when Trans Mountain will compensate persons, businesses, and SFU for damages and expenses incurred as a result of a boil over tank fire, or any other fire.

Response:

(1) The reference to boil over risk in Volume 7 of the Application, quoted in the Preamble, is in the context of hazard identification, prior to control measures being applied. Technically, the circumstances which may result in a boil-over are a large amount of water inside a tank combined with a fire in the tank which burns for a sufficient length of time to heat the water to its boiling point. However, numerous control measures, the primary ones which are discussed below, will be included in the design of the proposed new storage tanks at Burnaby Terminal. As such, Trans Mountain believes that a boil over event is hypothetical and not a credible risk.

All of the proposed new storage tanks at Burnaby Terminal will have water-draw piping, which may be used to remove water if it is deemed necessary as part of the tank water management program. However, the need for active water management (using the water-draw piping) will be diminished for the following reasons:
• All of the tanks will have fixed roofs, which will provide an added barrier (to the floating roof and seals) to prevent rain-water from getting inside the tank.

• All of the tanks will have cone shaped bottoms, sloped down toward a center sump, where the tank inlet / outlet line(s) will terminate. The tanks will also be highly utilized to support Westridge Marine Terminal operations. If a small amount of water settles out of the oil, during the relatively brief period when the tank is inactive, it will be flushed out during the next delivery, preventing further accumulation.

Trans Mountain will employ a number of other prevention, detection, and mitigation control measures to reduce the risk of fires at Burnaby Terminal and their potential impacts. Trans Mountain has outlined many of these measures in the response to NEB IR No. 3.093b (Filing ID A4H1V2, PDF page 469). Trans Mountain has also identified that fixed, automated, full-surface fire protection, which was not included in the Facilities Application, has been added to the proposed suite of fire-protection measures for the new tanks at Burnaby Terminal, to further enhance the overall robustness of the design.

(2) i. Trans Mountain anticipates that in the hypothetical case of a tank fire boil over, Simon Fraser University (SFU) will not be impacted due to the distance between the proposed new storage tanks at Burnaby Terminal and SFU.

ii. Trans Mountain anticipates that in the hypothetical case of a tank fire boil over, depending on which tank is considered, it is possible that access to Gaglardi Drive or Burnaby Mountain Parkway could be temporarily impacted. However, a tank fire boil over is expected to take a significant amount of time to develop, which should provide ample time for the Burnaby Terminal Emergency Response Plan measures to be implemented. Emergency response procedures in such a case may include temporary closure of Gaglardi Drive and / or Burnaby Mountain Parkway. Also refer to the responses to SFU IR No. 2.3.13.1 and SFU IR No. 2.4.08.2.

(3) i. Refer to the response to City Burnaby IR No. 1.12.05a (Filing ID: A3Y2E6), which describes the response and mitigation to prevent a Boil Over incident.

ii. Kinder Morgan Canada Inc. (KMC) confirms it is responsible for all of its legal liabilities including costs associated with evacuation. KMC will work with the local authority at the evacuation centres to ensure the appropriate information regarding the claims process is disseminated to all evacuees. Trans Mountain will work with individuals affected by a pipeline/terminal incident to provide compensation as quickly and efficiently as possible.
2.3.14 Volume 7, s. 4.3.1, s. 6.3.3.3

Reference:

i. A56025, Application Volume 7, s. 4.3.1, Incident Command System, p. 7-27

ii. A56025, Application Volume 7, s. 6.3.3.3, Local Infrastructure and Services, p. 7-91

Preamble:

Reference (i) states that “notification may not be required to regulatory authorities” at level 1, “emergency services may be required (e.g. fire, police, ambulance) at level 2 and 3, and “the Company may request assistance from other Industry, Municipal, or State Agency personnel.”

Reference (ii) states that “in the event of a large spill, demands are likely to be placed on local, municipal, regional and independent emergency responders (fire, police, ambulance, disaster agencies), hospitals, clinics, social service and relief organizations, and local, municipal, regional and federal government officials and staff. […] The engagement and training activities described in Sections 4.5 and 4.7 will confirm roles, responsibilities and the availability of trained personnel, response equipment, and services along the proposed pipeline corridor.”

Request:

(1) Does Trans Mountain have plans prepared to deal with an event should the Burnaby Fire Department or Burnaby RCMP not be able to respond? If not, why not? If yes, what are those plans?

(2) Please confirm that Trans Mountain will specifically notify SFU whenever notification to regulatory authorities is required.

Response:

(1) Refer to the response to SFU IR No. 2.3.4.1.

(2) Refer to the response to SFU IR No. 2.1.5.1.


2.3.15 Volume 7, s. 4.4

Reference:

A56025, Application Volume 7, s. 4.4, Emergency Response Manuals and Reference Materials, p. 7-31

Preamble:

This section outlines the detailed and prescriptive procedures, activities, and check lists pre-established by Trans Mountain to ensure consistent response to emergency response events across Trans Mountain’s Pipeline and Terminals.

Request:

(1) How will Trans Mountain manage an emergency event that requires community notification to ensure early warning and evacuation?

(2) How will Trans Mountain manage a bomb threat emergency event?

(3) In either instance, or any other major event indicated, will Trans Mountain commit to specifically notifying SFU of such an event and assist SFU in responding to and dealing with such an event?

Response:

(1) Refer to the response to SFU IR No. 2.3.1.1.

(2) Refer to the response to SFU IR No. 2.3.1.1.

(3) Refer to the response to SFU IR No. 2.1.5.1.
2.3.16 Volume 7, s. 4.4

Reference:

A56025, Application Volume 7, s. 4.4, Emergency Response Manuals and Reference Materials, p. 7-32

Preamble:

In the event of a product loss of primary containment, allowing the product to weather is a possible response strategy. This type of passive strategy is typically utilized when insufficient resources are available to suppress a vapor release, or when suppressing a vapor release presents an unacceptable level of risk to responders. Spill events that are allowed to weather can expose adjacent facility areas and the community to flammable, combustible and/or toxic airborne vapors.

Request:

(1) For such events at the Burnaby Terminal, please describe all potential impacts from a spill/release that is allowed to weather:

   i. to the SFU community; and
   ii. for access to/from SFU on Gaglardi Drive.

Response:

(1) This response addresses parts i and ii.

   Refer to the responses to City of Burnaby IR No. 1.12.11a and City of Burnaby IR No. 1.12.11f (Filing ID A3Y2E6).
2.3.17 Volume 7, s. 2.2

Reference:

A56025, Application Volume 7, s. 2.2, Facilities, p. 7-5

Preamble:

The Reference states that design control measures will include “site fencing, access control and security systems to prevent unauthorized access.”

Request:

(1) Please indicate how the security system and fencing (at the Burnaby Terminal and along the nearby pipeline) will prevent willful acts of terrorism, vandalism, trespassing or other criminal activities.

(2) Please provide a detailed security and emergency management plan for each potential threat at the Burnaby Terminal and along the pipeline, including the following:

   i. willful acts of terrorism
   ii. bomb threats
   iii. cyber attacks
   iv. sabotage
   v. vandalism
   vi. trespassing
   vii. other criminal activities

(3) For each of the above threats listed in (02), please indicate how Trans Mountain will respond if City of Burnaby emergency responders are not available to assist, including any required changes to the emergency management plans and security design.

(4) Please detail whether and how Trans Mountain will notify SFU of any threat that could impact SFU or access to/from SFU.

Response:

(1) The Kinder Morgan Canada (KMC) security program includes security plans, employee training, security equipment, 24 hour security personnel as well as additional measures at Burnaby Terminal designed to deter and detect willful acts of terrorism, vandalism, trespassing or other criminal activities. The requirements for TMEP will be determined at later date and a security vulnerability assessment will be conducted as per the CSA 246.1 standard and the Kinder Morgan Canadian Corporate Operations Security Plan to determine if additional baseline security measures are required. Details of the current program are confidential.
(2) Kinder Morgan Canada Inc. (KMC) has a security program which includes pipeline and facility security plans, security equipment, 24 hour security personnel as well as other measures at Burnaby Terminal. Details of the current program and proposed security program changes are confidential. The Security program documents contain information which is proprietary and of a sensitive nature, due to security concerns these documents are not publically available.

KMC also has a comprehensive emergency response program which includes training of Company personnel, emergency response equipment and response resources. The program utilizes the incident command system and is scalable based on the severity of the incident resulting from the threats presented in SFU IR No. 2.3.17.2.

The Emergency Management Program (EMP) documents contain information which is proprietary and of a sensitive nature and due to security concerns details of the full program are not publically available. KMC is willing to provide copies of the EMP documents to local, provincial and federal Authorities who satisfy the following conditions:

- The Authority has/is willing to participate in consultations with KMC;
- The Authority could be called upon to respond to an event associated with the Trans Mountain Pipeline system within their jurisdiction;
- The Authority has requested a copy and/or requires a copy by legislation, and
- The Authority has signed a confidentiality agreement and/or has a method by which the document can be filed confidentially.

Although the details of these programs are not appropriate to include as part of public filing, KMC is willing to meet with Simon Fraser University (SFU) in its capacity for emergency planning and response to discuss KMC’s existing programs and changes to address Trans Mountain Expansion Project (TMEP).

KMC acknowledges the interest of Intervenors to seek more information about the existing EMP documents, and reference materials related to the Trans Mountain Pipeline System, which is why KMC filed a redacted copy of the existing Emergency Response Plans publicly. In Ruling No. 50 (Filing ID A4G5I9) the National Energy Board determined that it was “satisfied that sufficient information has been filed from the existing EMP documents to meet the Board’s requirements at this stage in the process.”

The Application, Volume 7, Section 4.8 outlines the process to enhance Kinder Morgan Canada’s (KMC) existing emergency management programs 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 NEB’s draft conditions 42, 52, 53 and 54 (Filing ID A3V8Z8).

(3) The need for fire, police and health services greatly depend on the type of emergency. Kinder Morgan Canada Inc. (KMC) is committed to a timely and safe response to any incident and has a proven history of procuring the resources required at the time of the event.
KMC uses the Incident Command System for incident planning which is adaptable to different emergency scenarios and allows for quick identification of resources, and a method of procurement. The current planning method calls for the replacement of municipal services with private firms as early as possible, with the approval of Unified Command. It is KMC’s preference to enter into a Unified Command with the municipal, provincial and federal agencies to ensure a safe and thorough response to any emergency. In the event that there are competing requirements for emergency response capacity KMC will cooperate with local agencies in the overall response and will seek to augment local resources with those available from outside the affected area.

Kinder Morgan’s existing Emergency Response Program is designed to deal with each one of the above threats. In the Application, Volume 7, Section 4.8 outlines the process to enhance KMC’s existing emergency management programs as they relate to the Trans Mountain Pipeline system to address the need of the Project (Filing ID A3S4V7). The final programs will be developed in a manner consistent with the NEB’s draft conditions related to emergency response.

(4) Refer to the response to SFU IR No. 2.1.5.1.
2.3.18 Volume 7, s. 4.4

Reference:

A56025, Application Volume 7, s. 4.4, Emergency Response Manuals and Reference Material, p. 7-32

Preamble:

This section states “Emergency Response Plans (ERPs) are available for the TMPL (including pump stations), terminals (Edmonton, Kamloops, Sumas, Burnaby) and the Westridge Marine Terminal.” However, references or links are not provided for these ERPs.

Request:

(1) Please provide copies of the ERPs for the Burnaby Terminal and nearby pipeline for SFU’s review.

(2) Will Trans Mountain commit to formally including SFU on the distribution list for all ERPs and ensure that SFU is informed and advised of changes/revisions to the ERPs?

Response:

(1) There is an error in Volume 7, Section 4.8.1.2 (Filing ID A3S4V5) of the Application where it states that Kinder Morgan Canada (KMC) “is willing to provide copies of the emergency response and any other plan that describes what the company does in the event of a spill, upon request by any member of the public that has an interest in the operations of TMPL.” The Emergency Management Program (EMP) documents contain information which is proprietary and of a sensitive nature, and due to security concerns it is not publicly available.

KMC acknowledges the interest of Intervenors to seek more information about the existing EMP documents, and reference materials related to the Trans Mountain Pipeline system, which is why KMC filed a redacted copy of the existing Emergency Response Plans publicly. In Ruling No. 50 (Filing ID A4G5I9) the National Energy Board determined that it was “satisfied that sufficient information has been filed from the existing EMP documents to meet the Board’s requirements at this stage in the process.”

It is KMC’s intent to continue to share unredacted versions of the EMP documents with agencies tasked with ensuring public safety. KMC’s EMP is shared, tested and regularly exercised with federal, provincial and local agencies. The EMP meets regulatory requirements and 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.

KMC is willing to provide copies of the EMP documents to local, provincial and federal authorities who satisfy the following conditions:

- The authority has/is willing to participate in consultations with KMC;
• The authority could be called upon to respond to an event associated with the Trans Mountain Pipeline system within their jurisdiction;
• The authority has requested a copy and/or requires a copy by legislation, and
• The authority has signed a confidentiality agreement and/or has a method by which the document can be filed confidentially.

Refer to the response to SFU IR No. 2.3.20.1 for a description of the consultation process for the updated EMP documents, and refer to the response to SFU IR No. 2.6.8.2 for the commitment to invite Simon Fraser University to participate in the consultation process described in SFU IR No. 2.3.20.1.

(2) Refer to the response to SFU IR No. 2.3.18.1.
2.3.19 Volume 4A

Reference:

A3S0Z5, Volume 4A, Project Design and Execution – Engineering, Appendix D, PDF p. 37

Preamble:

This section demonstrates the motorist roadways affected by the construction associated with the pipeline expansion and related terminals.

Request:

(1) Currently, during peak hours approximately 15,000 vehicles travel to and from SFU daily. Please advise whether and how traffic to Burnaby Mountain could be impacted, including public transit and emergency response vehicles:

   i. during the construction phase?
   
   ii. during the operation phase?

(2) Please advise whether any mitigative plans have been developed to ensure continued access and connectivity to and from SFU for all modes of transportation on Burnaby Mountain. If not, why not?

Response:

(1) i. Refer to responses to SFU IR No. 2.1.07.1, SFU IR No. 2.3.19.2 and SFU IR No. 2.7.05.1.

As stated in Trans Mountain’s Westridge Delivery Line Routing Update, filed as part of Technical and Project Update #4, on December 1, 2014, (Filing ID A4F5D5), Trans Mountain has changed the proposed and alternative route options between the Burnaby and Westridge Terminals. The proposed corridor is now the tunnel through Burnaby Mountain; the alternative is the Burnaby Mountain Parkway-Hastings-Northcliffe route. If Trans Mountain uses the proposed corridor, it expects traffic and construction disruptions to Simon Fraser University (SFU) to be minimal including that of public transit and emergency response vehicles.

As detailed engineering and construction planning are developed, site specific Traffic Control Plans (TCP's) will be developed for the City of Burnaby including those which may indirectly affect traffic to SFU. Traffic management strategies, which may be incorporated into TCP's will include consideration for all modes of travel including bicycle, pedestrian and emergency vehicle traffic.

ii. Traffic impacts are not expected to change from current levels in the City of Burnaby during the operational phase of the Trans Mountain Expansion Project, including that of transit vehicles or emergency response vehicles.
Refer to the response to SFU IR No. 2.1.7.1. As noted, Trans Mountain’s Westridge Delivery Line Routing Update, filed as part of Technical and Project Update #4, on December 1, 2014 (Filing ID A4F5D5) has swapped the proposed and alternative route options between the Burnaby and Westridge Terminals, with the tunnel option now the preferred route. A primary consideration for this routing proposal was as part of mitigative planning to reduce impacts to City of Burnaby transportation and traffic during construction including connectivity to and from Simon Fraser University (SFU) and UniverCity.

As detailed engineering and construction planning are completed, site specific Traffic Control Plans (TCP’s) will be developed for those areas in proximity to SFU such as Gaglardi Way and Lougheed Highway. Traffic management strategies, which may be directly incorporated into TCPs, will include consideration for all modes of travel including transit, bicycle, pedestrian and emergency vehicle traffic.
2.3.20 Volume 7, s.4.8

Reference:

i. A3S4V5, Application Volume 7, s.4.8, Planning and Improvements, PDF p. 64-65


Preamble:

References refer to the following:

i. The proposed expansion coincides with a heightened public awareness of hazards associated with transportation of petroleum products;

ii. Trans Mountain’s Aboriginal engagement, stakeholder consultation and landowner relations programs identified pipeline safety and emergency response as 2 of the top concerns specific to the TMEP;

iii. The Province of BC’s 5 minimum requirements deemed necessary before supporting heavy oil pipeline projects in BC (including Requirement 3: World-leading practices for land oil spill prevention, response and recovery systems to manage and mitigate the risks and costs of heavy oil pipelines);

iv. In addition to Trans Mountain’s internal review to enhance the Emergency Management Program, external reviews by the BC and Canadian governments are currently also in progress.

Request:

(1) Please provide a comprehensive listing of proposed changes to the Trans Mountain ERP for the TMEP as a result of Trans Mountain’s internal review.

Response:

(1) Refer to the response to NEB IR No 1.74 (Filing ID A3W9H8).

Kinder Morgan Canada Inc. (KMC) acknowledges the interest of Intervenors to seek more information about the existing Emergency Management Programs (EMP) documents, and reference materials related to the Trans Mountain Pipeline system (TMPL system) which is why KMC filed a redacted copy of the existing Emergency Response Plans (ERP) publicly (Filing ID A63573). In Ruling No. 50 (Filing ID A4G5I9) the National Energy Board (NEB) determined that it was “satisfied that sufficient information has been filed from the existing EMP documents to meet the Board’s requirements at this stage in the process.”

It is KMC’s intent to continue to share un-redacted versions of the EMP documents with agencies tasked with ensuring public safety. KMC’s EMP is shared, tested and regularly
exercised with federal, provincial and local agencies. The EMP meets regulatory requirements and 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 KMC’s existing EMP as they relate to the Trans Mountain Pipeline system (TMPL system) to address the needs of the Project (Filing ID A3S4V5). The final programs will be developed in a manner consistent with the NEB draft conditions related to emergency response (Filing ID A3V8Z8).

Since the 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 comprehensive changes to the TMEP 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 (CPCN) 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 ERP. 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 ERP 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 TMPL system. Filing of the ERP 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 ERP 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) (NEB OPR). As it does for the existing system, the OPR provides lifecycle regulation for all aspects of the Project operation including requirements for ERPs. KMC must maintain and update the EMP throughout the lifecycle of the expanded TMPL 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 emergencies.
2.3.21 Volume 8A, s. 1.4.2

Reference:

i. A56025, A3S4X3, Application Volume 8A, s. 1.4.2, Roles and Responsibilities for Navigational Safety, Emergency Response and Preparedness, p.47


Preamble:

Reference (i) identifies parties with roles and responsibilities in Navigational Safety, Emergency Response, and Preparedness, but does not describe how these agencies interact during response, or specific standards or benchmarks that must be met to confirm the capacity to fulfill their identified roles.

Reference (ii) discusses the legislated roles and responsibilities of local authorities in emergency management, including in Section 6 (2) the responsibility to maintain an emergency plan and, in Section 13 (1), the powers of local authority in a declared state of local emergency.

Request:

(1) Will SFU be included in Trans Mountain’s Emergency Response Plan? If not, why not?

(2) Please describe which persons/entities/agencies Trans Mountain believes are responsible for coordinating land-based operations (i.e.: evacuations, shelter-in-place orders, securing of perimeters, public notification) and define the organizational structure for emergency response for a spill or incident impacting populated urban areas.

Response:

(1) Yes, refer to the response to SFU IR No. 2.3.20.1 for a description of the consultation process for the updated EMP documents, and refer to the response to SFU IR No. 2.6.8.2 for the commitment to invite Simon Fraser University (SFU) to participate in the consultation process described in SFU IR No. 2.3.20.1, and response to SFU IR No. 2.1.5.1 for the commitment to add notification of SFU to the current emergency response plans.

(2) Utilization of the Incident Command System (ICS) allows industry, response organizations and others to effectively respond in a comprehensive and joint manner during emergencies. Kinder Morgan Canada Inc. (KMC) takes full responsibility for any emergency that results from the Trans Mountain pipeline system and its facilities and prefers to jointly manage such an incident with the local, provincial and federal authorities in the jurisdiction of the emergency using Unified Command.

KMC does not have the legislative authority to order evacuation / shelter-in-place, or conduct the evacuation / shelter-in-place, within a municipality such as Burnaby. It is
therefore the role of local authorities to order evacuation if they deem the public's safety to be at risk (refer to the response to Dennert S IR No. 1.3d; Filing ID A3Y2J5). It is also the responsibility of the local municipality to close roads, redirect traffic, public transit and other transportation related infrastructure.
2.3.22 Volume 8A, s. 5.6.1.2, s. 5.6.1.3.3, s. 5.6.1.1.3

Reference:

i. A56025, A3S5Q3, Volume 8A, s. 5.6.1.2 Human Health, p. 8

ii. A56025, A3S5Q3, Volume 8A, s. 5.6.1.3.3 Local Infrastructure and Services, p.10

Preamble:

Reference (i) states that “in the event of a marine spill, the tanker owner, CCG, WCMRC, and Transport Canada will initiate spill response and notify municipal, provincial, and federal authorities responsible for the protection of public health”. No specific plans or notification protocols have been identified, nor which of the listed organizations is responsible for notifying local authorities.

Reference (i) also states that “evacuation of affected areas will occur if health and safety of the public is threatened”, but Trans Mountain does not include any assessment of the impact of an evacuation on: first responders, the public, vulnerable populations, or local businesses, nor has the viability of evacuating a busy urban environment like SFU been assessed.

Reference (ii) states that “in the event of a spill, demands are likely to be placed on local, municipal, regional, and independent emergency responders”, but that “actual effects would depend on the size and nature of a spill, the number of people potentially affected, and the availability of proper equipment and trained personnel”. Local governments have a responsibility to prepare and plan for risks and hazards. Trans Mountain has not provided information on the potential costs for local municipalities and taxpayers to plan for oil spills, to mitigate impacts, or to recover from potential oil spills.

Request:

(1) Please describe the specific protocols in place to notify local authorities, and specifically SFU, of an incident that could impact public health and safety in the Lower Mainland.

Response:

(1) Refer to response to SFU IR No. 2.1.5.1.
2.3.23 Volume 7, s. 4.1

Reference:
A56025, A3S4V5, Application Volume 7, s. 4.1, General, p. 48

Preamble:
The Reference describes a “mature Emergency Management Program” in place at Kinder Morgan Canada, with figure 4.2.1 showing a hierarchical diagram of emergency management systems and programs, listing several types of plans in place that relate to oil spill emergency response such as Emergency Response Plans, Field Guide Manuals, and Control Point Manuals.

Section 4.2.2.4 describes Kinder Morgan Canada procedures to monitor and measure performance within the EHS Management System, but does not indicate whether the checking and corrective action procedures are reviewed as part of the NEB Emergency Management Program audit.

Request:
(1) Is Trans Mountain willing to add SFU to the list of recipients authorized to receive copies of all Emergency Response Plans, Field Guide Manuals, and Control Point Manuals for existing Kinder Morgan Canada operations? If not, why not?

(2) Are the checking and corrective action procedures reviewed as part of the NEB Emergency Management Program audit? If not, please advise how and when would such procedures be reviewed and updated by Trans Mountain/Kinder Morgan Canada.

Response:
(1) Refer to the response to SFU IR No. 2.3.18.1.

(2) As outlined in Volume 7, Section 4.0 (Filing ID A3S4V5), Kinder Morgan Canada (KMC) has a mature emergency management program that is designed to meet the requirements of the National Energy Board (NEB) Onshore Pipeline Regulations. The NEB provides regulatory oversight of Trans Mountain’s operations and can audit Trans Mountain’s emergency management program at any time. Trans Mountain cannot comment on what the NEB would specifically audit, but cooperates fully with the auditors, providing the NEB with records / documents upon request.
2.3.24 Volume 4C, s. 10.0

Reference:

Volume 4C, s. 10.0, Emergency Preparedness and Response

Preamble:

The Application states "Emergency Response Plans have been developed for the existing TMPL system and will be enhanced and implemented on the expanded TMPL system." SFU is in a unique location on Burnaby Mountain and exposed to some potentially significant social, economic, and health impacts in the event of an accident or an incident. It may not be possible for SFU to adequately assess the level of risk of impact that the institution and community is exposed to until an Emergency Response Plan (specific to SFU) has been provided with adequate detail of roles and responsibilities.

Request:

(1) Will Trans Mountain and Kinder Morgan Canada commit to provide SFU with a draft version of the project-specific Emergency Response Plan, as it pertains to Burnaby Mountain and SFU, and then engage in follow up discussions with SFU to verify the plan’s adequacy with respect to potential impacts to SFU and to protect SFU’s interests?

i. If not, why not?

ii. If yes, can Trans Mountain provide a date specific as to when SFU will receive a draft of the ERP for its review and discussions with Trans Mountain?

Response:

(1) Kinder Morgan Canada Inc. (KMC) acknowledges the interest of Intervenors to seek more information about the existing Emergency Management Program (EMP) documents, and reference materials related to the Trans Mountain Pipeline system (TMPL system) which is why KMC filed a redacted copy of the existing Emergency Response Plans (ERP) publicly (Filing ID A63573). In Ruling No. 50 (Filing ID A4G519) the National Energy Board (NEB) determined that it was “satisfied that sufficient information has been filed from the existing EMP documents to meet the Board’s requirements at this stage in the process.”

It is KMC’s intent to continue to share un-redacted versions of the EMP documents with agencies tasked with ensuring public safety. KMC’s EMP is shared, tested and regularly exercised with federal, provincial and local agencies. The EMP meets regulatory requirements and 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.

- KMC is willing to provide copies of the EMP documents to local, such as SFU, provincial and federal authorities who satisfy the following conditions:
- The authority has/is willing to participate in consultations with KMC;
The authority could be called upon to respond to an event associated with the TMPL system within their jurisdiction;
The authority has requested a copy and/or requires a copy by legislation, and
The authority has signed a confidentiality agreement and/or has a method by which the document can be filed confidentially.

The Application, Volume 7, Section 4.8 outlines the process to enhance KMC’s existing EMP as they relate to the TMPL system to address the needs of the Project (Filing ID A3S4V5). The final programs will be developed in a manner consistent with the NEB draft conditions related to emergency response (Filing ID A3V8Z8).

Since the 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 (Filing ID A3V8Z8).

Following receipt of a Certificate of Public Convenience and Necessity (CPCN) 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 ERPs. 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 ERP 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 TMPL system. Filing of the ERP 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 ERP 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) (NEB 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 TMPL 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.

**Summary of New Commitments:**

- Kinder Morgan Canada acknowledges Simon Fraser University’s interests and concerns about consultation opportunities for the updated Emergency Management Program (EMP) for the Trans Mountain Expansion Project (the Project) and will invite Simon Fraser University to participate in the process described above.
2.4 HAZARD RESPONSE

2.4.01 Volume 7, s. 4.3.1

Reference:

A56025, Application Volume 7, s. 4.3.1, Incident Command System, Table 4.3.1, Three-Tiered Response Structure, p. 7-29

Preamble:

The Reference states that: “notification may not be required to regulatory authorities” at level 1, “emergency services may be required (e.g. fire, police, and ambulance) at level 2 and 3, and “the Company may request assistance from other Industry, Municipal, or State Agency personnel.”

Request:

(1) In the event of an incident at the Burnaby Terminal, how will Trans Mountain respond to fire, security, landslide, and other hazard events?

(2) Does Trans Mountain have, and has it filed as part of this Application, plume and fume dispersion models that indicate which communities would be affected and require evacuation, for all hazards the facilities could pose in all weather conditions (taking into account wind direction and velocity)? If Trans Mountain possesses, but has not filed, such models, please provide copies of such models.

(3) Has Trans Mountain modeled and/or assessed the potential impacts of a major fire at the Burnaby Terminal on the SFU community?
   i. If yes, please provide copies of all models, assessments and recommendations.
   ii. If not, why not?

Response:

(1) Kinder Morgan Canada Inc. (KMC) acknowledges the interest of Intervenors to seek more information about the existing Emergency Management Program (EMP) documents, and reference materials related to the Trans Mountain Pipeline system (TMPL system) which is why KMC filed a redacted copy of the existing Emergency Response Plans (ERP) publicly (Filing ID A63573). In Ruling No. 50 (Filing ID A4G519) the National Energy Board (NEB) determined that it was “satisfied that sufficient information has been filed from the existing EMP documents to meet the Board’s requirements at this stage in the process.”

It is KMC’s intent to continue to share un-redacted versions of the EMP documents with agencies tasked with ensuring public safety. KMC’s EMP is shared, tested and regularly exercised with federal, provincial and local agencies. The EMP meets regulatory requirements and 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.

- KMC is willing to provide copies of the EMP documents to local, such as SFU, provincial and federal authorities who satisfy the following conditions:
  - The authority has/is willing to participate in consultations with KMC;
  - The authority could be called upon to respond to an event associated with the TMPL system within their jurisdiction;
  - The authority has requested a copy and/or requires a copy by legislation, and
  - The authority has signed a confidentiality agreement and/or has a method by which the document can be filed confidentially.

The Application, Volume 7, Section 4.8 outlines the process to enhance KMC’s existing EMP as they relate to the TMPL system to address the needs of the Project (Filing ID A3S4V5). The final programs will be developed in a manner consistent with the NEB draft conditions related to emergency response (Filing ID A3V8Z8).

Since the 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 (Filing ID A3V8Z8).

Following receipt of a Certificate of Public Convenience and Necessity (CPCN) 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 ERPs. 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 ERP 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 TMPL system. Filing of the ERP 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 ERP 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) (NEB 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 TMPL 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.

(2) Trans Mountain has taken into consideration and completed dispersion modelling for normal operations at Burnaby Terminal and Westridge Marine Terminal, both individually and combined. Risk assessments have been carried out for a number of accidental release scenarios (e.g., pipeline spill scenarios and marine spill releases) and all of these studies have been filed with the National Energy Board. Specific scenarios have been modelled to inform engineering design, and based on intervener and regulator input, but may not take into consideration all unique topography of the area, all possible weather patterns, or the uniqueness of a possible accidental release that is needed for dispersion modelling. Trans Mountain recognizes it cannot possibly carry out dispersion modelling for all possible hazards, all possible weather conditions and eventualities.

Trans Mountain has a mature Emergency Management Program as outlined in Section 10.0 of Volume 4C (Filing ID A3S1L1) and Section 4.0 of Volume 7 (Filing ID A3S4V5) of the Application. Trans Mountain has consultants on the KMC emergency response team that can provide plume dispersion modelling in a short period of time. However, in the event of a release, Trans Mountain immediately implements an air monitoring program which would provide site and community air contaminant concentration data to Emergency Services before dispersion modeling results would be available. Air monitoring begins in a downwind direction with priority being the closest unevacuated area where people could be present. The data from the air monitoring equipment is given to the individuals responsible for air quality and human health impacts including the Safety Officer, Local Authority and Unified Command. The data is used to identify if individuals could be at risk for adverse health impacts, and make decisions regarding evacuation and/or shelter in place. Additional information is provided in the Public Health Exposure Plan (Filing ID A3Z2C6).

(3) i. Refer to the response to SFU IR No. 2.3.07.1.

ii. Refer to the response to i) above.

Summary of New Commitments:

- Kinder Morgan Canada acknowledges Simon Fraser University’s interests and concerns about consultation opportunities for the updated Emergency Management Program (EMP) for the Trans Mountain Expansion Project (the Project) and will invite Simon Fraser University to participate in the process described above.
2.4.02 Volume 7, s. 2.2

Reference:
A56025, Application Volume 7, s. 2.2, Facilities, p. 7-4

Preamble:
The Reference states that the Design control measures generally include emergency shutdown systems that isolate a facility in the event of a spill or fire.

Request:
(1) Please describe how these emergency systems will isolate a facility, as defined in this section, from fires such as on-site structure fire or wild land fire.

Response:
(1) The emergency shut-down (ESD) systems are automatically or manually activated to limit potential spill volumes by isolating Burnaby Terminal or Westridge Marine Terminal (WMT) from pipeline flow and / or shutting down pipeline flow. Automatic activation would not be triggered by an on-site structure fire or a wild-land fire, unless fire detectors, which will be installed around pumping equipment, were in proximity to the fire. Emergency shut-down typically includes the immediate stopping of running pumps and / or the closing of valves to achieve isolation as discussed in Section 7.1.5, Volume 4C of the Facilities Application (Filing ID A3S1L1). Additional information on the Burnaby Terminal and WMT ESD systems is included in Section 3.4.3.11.1 (Filing ID A3S0Y8) and Section 3.4.4.12.1 (Filing ID A3S0Y9), Volume 4A of the Facilities Application.
2.4.03 Volume 7, s. 3.2.2

Reference:

A56025, Application Volume 7, s. 3.2.2, Secondary Containment and Tank Risk Assessments, p. 7-19

Preamble:

The Reference identifies a boil over tank fire event as a possible hazard scenario. The hazard scenarios related to tank fires and fires resulting from a product release within a containment area are identified through a determination process of risk assessments based on regulations and company direction.

Request:

(1) What response strategies, tactics and tasks would be utilized by Trans Mountain/Kinder Morgan Canada to mitigate a full surface tank fire prior to presenting boil over event potential?

(2) With respect to the proposed Burnaby tank farm configuration and a boil over event potential, under what emergency support circumstances would the continued operation of all facility functions not be allowed?

(3) Has Trans Mountain assessed the potential impact on SFU’s resources and the SFU community, including but not limited to accessing Gaglardi Way and Burnaby Mountain Parkway, if there is a boil over or rim-seal event?

   i. If yes, please provide copies of all assessments of the potential impacts on SFU’s resources and the SFU/UniverCity community in such an event.

   ii. If not, why not?

Response:

(1) Refer to the response to City Burnaby IR No. 1.12.05a (Filing ID A3Y2E6).

(2) During any emergency situation, including the hypothetical case of a tank boil over, the safety of response personnel and the public would be the number one priority. Any incident would be assessed by response and incident command personnel to determine the safe limits of approach and the zones to be established to restrict access. In keeping with this approach, any facility function that required personnel to access isolation zones would be discontinued. If any other pipeline or facility operation were to be deemed potentially unsafe due to the emergency situation, it would also be discontinued. Isolation and / or removal of oil from piping or tanks might also be considered by emergency response personnel.
(3) Refer to the response to SFU IR No. 2.5.04.1 for a description of the potential impact to SFU and the response to SFU IR No. 2.4.08.3 for a description of the mitigation measures that reduce the risk of a boil over, and rim seal event.
2.4.04 Volume 3A, s. 1.7.3

Reference:

A55987, Application Volume 3A, s. 1.7.3, Key Topics of Interest of Concern – Lower Mainland/Fraser Valley (Chilliwack to Burnaby), Table 1.7.3, Interests or Concerns – Lower Mainland/Fraser Valley, p.3A-163

Preamble:

The earthquakes/seismic concerns are outlined, but no information is provided in terms of potential impacts of the loss or failure of Trans Mountain facilities during a seismic event on adjacent lands and its uses.

Request:

(1) Please provide information regarding Trans Mountain’s capability to provide for the impact of the failure of all or a significant portion of its facility during a large seismic event.

(2) What is the potential impact of a large earthquake (greater than 5.0 on the Richter Scale) on the Burnaby tank farm terminal and pipeline through Burnaby Mountain? What is Trans Mountain’s proposed response plan to respond to these impacts?

(3) What engineering controls and seismic upgrades will be implemented at the proposed Burnaby terminal expansion to prevent and/or mitigate the effects of an earthquake?

Response:

(1) Kinder Morgan Canada Inc. (KMC) plans for credible worst case scenarios, examples of which can be found in the Application, Volume 7, Sections 7 and 8 (Filing ID A3S4V6). Section 2.9.3, Volume 4A of the Application (Filing ID A3S0Y8) briefly describes the principles to be used in the seismic design of the new pipelines and facilities (including pump stations and terminals) proposed as part of the Project. Please see Volume 7, Section 4 for a description of KMC’s Emergency Management Program. The emergency response plans are comprehensive in their application regarding hazards and potential emergency situations on the Trans Mountain Pipeline System and this includes checklists for earthquake response.

KMC uses the Incident Command System for incident planning which is adaptable to different emergency scenarios and allows for quick identification of resources, and a method of procurement. It is KMC’s preference to enter into a Unified Command with stakeholders such as Simon Fraser University (SFU), as well as municipal, provincial and federal agencies to ensure a safe and thorough response to any emergency.

In the low likelihood of such a force majeure event, as identified in the Request above, KMC will respond to the emergency with all regionally available resources, while procuring additional resources from outside of the region. KMC would also endeavor to
coordinate with and assist communities with the overall response to the event, and not just those impacts associated with the Trans Mountain pipeline system.

In addition to KMC response resources (OSCAR trailers, trained personnel), KMC has Master Service Agreement (MSA) contractual relationships with a number of specialised response contractors, throughout BC and Alberta, who KMC can draw upon as needed to accommodate resource needs for the response.

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).

(2) The seismic design of the proposed new storage tanks at Burnaby Terminal, including consideration of sloshing and other effects, will be in accordance with the latest edition of the American Petroleum Institute (API) Standard 650, Welded Tanks for Oil Storage, Annex E, the recognized North American standard. All designs, including seismic considerations, will be undertaken by experienced and competent professional engineers, registered in British Columbia. Geotechnical programs, which will include borehole and other investigative methods to obtain sub-surface data, will be conducted, and the results and recommendations of registered professional engineers and geologists will be used to inform the seismic designs. Trans Mountain will also consider applicable topography and soil conditions in the design of tanks, tank foundations, and containments systems.

Section 2.9.3, Volume 4A (Filing ID A3S0Y8) of the Facilities Application briefly describes the principles to be used in the seismic design of the new pipelines and facilities (including pump stations and terminals) proposed as part of the Project. Refer to Volume 7, Section 4 (Filing ID A3S4V5) for a description of Kinder Morgan Canada Inc.’s (KMC) Emergency Management Program. The emergency response plans are comprehensive in their application regarding hazards and potential emergency situations on the Trans Mountain System which includes checklists for earthquake response. 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).

(3) With respect to the seismic design of the proposed new storage tanks and secondary containment areas at Burnaby Terminal, refer to the response to Craig L IR No. 1.2g (Filing ID A3X6C1, Page 4).

With respect to the existing infrastructure at Burnaby Terminal, Trans Mountain does not upgrade existing facilities in response to new National Building Code (NBC) or other applicable seismic design code requirements. However, individual elements of existing facilities that need to be modified or reconstructed as a direct result of or to facilitate an expansion are typically subject to the latest edition of the NBC or other applicable code
requirements. Trans Mountain manages the integrity of its facilities to protect the safety and security of people and the environment through its Facility Integrity Management Program (FIMP), as outlined in Section 8.2, Volume 4C of the Facilities Application (Filing ID A3S1L1). This program is an element of KMC’s Integrated Safety and Loss Management System (ISLMS).
2.4.05 Volume 5A, s. 7.9.3

Reference:

A56004, Application Volume 5A, s. 7.9.3, Accidents and Malfunctions – Potential Effects and Mitigation Measures, p. 7-515

Preamble:

The Reference states that: “Events causing accidents and malfunctions could include pipeline and equipment failure; human error; natural perils such as tornadoes, floods, hurricanes or earthquakes, and terrorism or other criminal activities.”

Request:

(1) Please provide specific details as to how Trans Mountain will protect the public and specifically, the SFU community from all threats, and in its response, Trans Mountain is specifically requested to address each of:

   i. Earthquake causing pipeline rupture in Burnaby, with reference to each segment of the pipeline in Burnaby;

   ii. Earthquake causing rupture of one or more than one tank at the Burnaby Terminal, and causing rupture of containment berms;

   iii. Earthquake causing damage to the Marine terminal or the loading process, causing a spill;

   iv. Vandalism or Terrorism causing deliberate damage to the tanks at the Burnaby Terminal or to the Marine Terminal, and to ships loading there; and

   v. Other unanticipated accidents causing rupture or failure at the Burnaby Terminal or to the Marine Terminal, and to ships loading there.

(2) In answering question (01), please consider the following scenarios: (1) where an earthquake, terrorism, or other accidents have caused damage elsewhere in Burnaby so that emergency responders are not available; and (2) where a rupture to the pipeline occurs in more than one location simultaneously.

Response:

(1) Kinder Morgan Canada Inc. (KMC) plans for credible worst case scenarios, examples of which can be found in the Application, Volume 7, Sections 7 and 8 (Filing ID A3S4V6). Section 2.9.3, Volume 4A of the Application (Filing ID A3S0Y8) briefly describes the principles to be used in the seismic design of the new pipelines and facilities (including pump stations and terminals) proposed as part of the Project. Refer to Volume 7, Section 4 for a description of KMC’s Emergency Management Program (EMP) (Filing ID A3S4V5). The emergency response plans (ERP) are comprehensive in their application regarding hazards...
and potential emergency situations on the Trans Mountain Pipeline system (TMPL system) and this includes checklists for earthquake response.

The Application, Volume 7, Section 4.8 outlines the process to enhance KMC’s existing EMP as they relate to the TMPL system to address the needs of the Project (Filing ID A3S4V5). The final programs will be developed in a manner consistent with the NEB draft conditions related to emergency response (Filing ID A3V8Z8).

ii. Refer to the response to SFU IR No. 2.4.05.1 (i) above.

iii. Refer to the response to SFU IR No. 2.4.05.1 (i) above.

iv. KMC is committed to a timely and safe response to any incident and has a proven history of procuring the resources required at the time of the event.

KMC uses the Incident Command System (ICS) for incident planning which is adaptable to different emergency scenarios and allows for quick identification of resources, and a method of procurement. It is KMC’s preference to enter into a Unified Command with the municipal, provincial and federal agencies to ensure a safe and thorough response to any emergency.

The air dispersion modeling completed for a credible worst case spill scenario at Westridge Marine Terminal does not appear to suggest a human health threat to Simon Fraser University (SFU). Refer to NEB F-IR 2.024b Attachment 1, Figures 3.1.1. to Figure 3.3.4, PDF Page 5 to 16 (Filing ID A4A1Z9).

v. Refer to the response to SFU IR No. 2.4.05.1 (iv) above.

(2) Trans Mountain Pipeline ULC (Trans Mountain) offers the following response to both scenarios described above:

Safety is Kinder Morgan Canada Inc.’s (KMC) number one priority. As stated in Kinder KMC’s Environment, Health and Safety policy which can be found in Section 4.2.2 in Volume 7 of the application (Filing ID A3S4V5). “Every employee is expected to share Kinder Morgan’s commitment to pursue the goal of not harming people, protecting the environment, using material and energy efficiently and promoting best practices…” As the operator of the existing Trans Mountain pipeline system (TMPL system), KMC will respond as outlined in the response to City Burnaby IR No. 1.07.07d (Filing ID A3Y2E6) using all available resources, in a manner that ensures the safety of the public and personnel.

Refer to Volume 7, Section 4 (Filing ID A3S4V5) for a description of KMC’s Emergency Management Program (EMP). The emergency response plans (ERP) are comprehensive in their application regarding hazards and potential emergency situations on the TMPL system which includes checklists for various emergency events.
KMC uses the Incident Command System (ICS) for incident planning which is adaptable to different emergency scenarios and allows for quick identification of resources, and a method of procurement. It is KMC’s preference to enter into a Unified Command with the municipal, provincial and federal agencies to ensure a safe and thorough response to any emergency.

In the low likelihood of such a force majeure event or events, KMC will respond to the emergency with all regionally available resources, while procuring additional resources from outside of the region. KMC would also endeavor to coordinate with and assist communities with the overall response to the event, and not just those impacts associated with the TMPL system.

Trans Mountain believes that its Application contains appropriate and credible information to allow informed risk-based decision-making.
Reference:
A56004, Application Volume 5B, s. 2.1.4, Tank Facilities, p. 2-7 to 2-9

Preamble:
The Reference notes that an additional 14 tanks are proposed to be located at the Burnaby Terminal to serve the expanded pipeline. SFU is located on top of Burnaby Mountain where current enrolment exceeds 30,000 students. This is not counting an additional 3,200 residents, who are anticipated to grow to 10,000.

The only two access roads that serve SFU, Burnaby Mountain Parkway and Gaglardi Way, both pass through a single intersection directly adjacent to Burnaby Terminal. Due to the proximity and upwind location of the Burnaby Terminal to the main road (to and from SFU), there is a high likelihood SFU would be compromised during an event at the terminal.

Request:
(1) Please provide an assessment using worst-case scenarios should a fire/explosion fully engulf 25%, 50%, 75%, and 100% of the expanded Burnaby Terminal while it was filled to maximum capacity. This assessment should specifically address how the SFU community could potentially be directly or indirectly impacted.

Response:
(1) Refer to the response to SFU IR No. 2.3.07.1. The assessments referred to contemplate fires in individual secondary containment areas and consider the location of the secondary containment areas with respect to exposures, but they do not consider the simultaneous engulfment of multiple secondary containment areas. A three-tank secondary containment area constitutes approximately 12% of the total number of tanks or 18% of the total volume of the tanks.

Trans Mountain does not intend to undertake detailed assessments of all potential impacts specific to Simon Fraser University (SFU) and the residents of UniverCity that could be anticipated for scenarios involving fires engulfing 25%, 50%, 75%, and 100% of Burnaby Terminal, when it is filled to maximum capacity. Given that the secondary containment areas will be on separate terraces, that robust fire protection measures are proposed, and that (as an active terminal, not a long term storage facility) all of the tanks will be filled to maximum capacity on extremely rare occasions, if ever, Trans Mountain does not consider these hypothetical scenarios to be credible. Trans Mountain is of the view that the immensity of the undertaking to complete assessments for these scenarios in sufficient depth and detail to allow meaningful conclusions to be drawn, is far out of proportion to the extremely limited value they would provide. Trans Mountain does not see how incremental assessments of hypothetical and increasingly dramatic scenarios will assist the National Energy Board in their determination of public safety. As such,
Trans Mountain respectfully declines to provide the information requested by Simon Fraser University.
2.4.07 Volume 4A, s. 3.4.3.8.2

Reference:
A55999, Application Volume 4A, s. 3.4.3.8.2, Fire Protection Systems, p. 4A-77

Preamble:
In the event of a product loss of primary containment, allowing the product to weather is a possible response strategy. This type of passive strategy is typically utilized when insufficient resources are available to suppress a vapor release, or when suppressing a vapor release presents an unacceptable level of risk to responders. Spill events that are allowed to weather can expose adjacent facility areas and the community to flammable, combustible and/or toxic airborne vapors.

Request:
(1) Will the proposed fire-protection system have the capacity to manage a multiple tank fire scenario within the Burnaby Terminal site?

Response:
(1) The risk assessment for Burnaby terminal can be found in Attachment 3 (Filing ID A3W9S5) for the response to NEB IR No. 1.98a (Filing ID A3W9H9).

Trans Mountain does not believe a multiple tank fire scenario, or a fully engulfed terminal fire is a credible worst case scenario. The mitigation measures in the fire protection program include prevention, early fire detection and advanced fire suppression systems, as described in the response to SFU IR No. 2.4.08.3 which ensures the continued safety of the facility.

Kinder Morgan Canada Inc. (KMC) is committed to ensuring a prompt and immediate response to any fire event that involves Trans Mountain Pipeline or Facilities to protect the public, employees, environment, and property. KMC understands The City of Burnaby’s current position is that it cannot and will not respond to a hydrocarbon fire event at Trans Mountain Facilities, but will respond to impacts from the event on the surrounding community. In the low likelihood event of a hydrocarbon fire at Burnaby Terminal or Westridge Marine terminal KMC will respond using on-site trained personnel, and third party responders, if required.
2.4.08 Volume 7, s. 3.2.2

Reference:

A56025, Application Volume 7, s. 3.2.2, Secondary Containment and Tank Risk Assessments, p. 7-19

Preamble:

A boil over tank fire event has been identified within this section as a possible hazard scenario. The hazard scenarios associated to tank fires and fires resulting from a product release within a containment area are identified through a determination process of risk assessments based on regulations and company direction.

Request:

(1) Please identify the strategies Trans Mountain/Kinder Morgan will utilize to mitigate a full surface tank fire exhibiting potential and/or condition characteristics that may indicate a boil over event?

(2) Utilizing a 10 times tank diameter model, what areas inside and outside of the facility will be at risk for each tank fire boil over scenario?

(3) If a boil over event was to occur, do the facility response resources have the capability to prevent subsequent tank fires and tank farm fires from occurring?

Response:

(1) Refer to response to SFU IR No. 2.3.13.1, which discusses the tank design and operating conditions that will limit the amount of water that can accumulate in the proposed new storage tanks. The primary response to a full-surface tank fire will be activation of the fixed, automated, full-surface fire-suppression system. The fire-protection system will also provide the capability for responders to apply foam and cooling water from portable cannons. If deemed appropriate by incident command personnel, oil may be transferred from the tank.

(2) Refer to response to SFU IR No. 2.3.13.1. The areas that are within 10 tank diameters of the proposed new storage tanks at Burnaby Terminal are the forested areas to the west, north, and east of the terminal and northern parts of the residential communities to the south of the terminal. The level of risk from a hypothetical tank fire boil over is not defined solely by proximity and must take into account the likelihood of occurrence, considering the prevention, detection, and mitigation measures, as well as the reduction in potential consequences, considering the time available to enact emergency response.

(3) Kinder Morgan Canada Inc. (KMC) is committed to ensuring a prompt and immediate response to any fire event that involves Trans Mountain Pipeline (TMPL) or Facilities to protect the public, employees, environment, and property. KMC understands The City of Burnaby’s current position is that it can not and will not respond to a hydrocarbon fire event at TMPL Facilities, but will respond to impacts from the event on the surrounding...
community. In the low likelihood event of a hydrocarbon fire at Burnaby Terminal or Westridge Marine Terminal, KMC will respond using on-site trained personnel, and third party responders, if required.

KMC believes the mitigation as presented in the response to City of Burnaby IR No. 1.12.05a (Filing ID A3Y2E6) would prevent a boil over event. Copied here for your convenience:

“Kinder Morgan Canada Inc. (KMC) focuses the maintenance program and procedures to prevent the alignment of the conditions that could lead to a full surface fire event, thus reducing the risk of a Boil Over event”.

The prevention strategies in place include:

- An inspection program for the tank roofs which checks seals, pontoons, roof drain conditions, foam dam conditions, and the structural integrity of the roof to ensure the operational integrity of the roof reducing the risk of a roof failure event, thereby reducing the risk of a full surface fire.

- All tanks have a grounding system and bonding shunts to dissipate a lightning strike and/or static electricity to prevent a fire. This system is inspected annually with the tank inspection program.

- A water management program to ensure the water is properly drained from the roof, and the containment area and limiting the amount of free water that can enter the tank from external sources. Additionally the tanks at Burnaby Terminal are active, which means that if there is any free water in the product it is moved along and not permitted to accumulate, thus reducing the potential amount of water within the tank.

- There is an early detection fire system on the tanks which allows KMC to detect an incipient fire, and extinguish using the rim seal fire suppression equipment thus reducing the risk of a full surface fire. The early detection system is monitored 24/7 by the local operators as well as the control centre.

If all mitigation fails for preventing a full surface fire, KMC has all the equipment on-site to extinguish a full surface fire within the industry standard timeline.

In the response to NEB IR No. 3.093b (Filing ID A4H1V2, PDF page 472), Trans Mountain has also identified that fixed, automated, full-surface fire protection, which was not included in the Facilities Application, has been added to the proposed suite of fire-protection measures to further enhance the overall robustness of the design. This change was made to allow improved full-surface fire-fighting capability on fixed-roof tanks, thus further reducing the risk of the alignment of the conditions that would lead to a boil over event.
2.4.09 Volume 4A, s.3.4.3.8.2

Reference:

A55999, Application Volume 4A, s.3.4.3.8.2, Burnaby Terminal - Fire Protection Systems, p.4A-77

Preamble:

The Reference details the planned fire protection system to be used to upgrade existing tanks and build into new tank systems, including information on fire-water systems, foam solution proportioning components, and fixed foam suppression systems.

Request:

(1) Will there be any impact on the water supply or water quality to SFU if there is a major fire at the Burnaby Terminal? If yes, for how long?

Response:

(1) Refer to the response to SFU IR No. 2.1.1.1.
2.4.10 Volume 7, s.2.2

Reference:

A56025, Application Volume 7, s.2.2, Facilities, p.7-4 to 7-6

Preamble:

The reference outlines Trans Mountain’s commitment related to the prevention of oil spill occurrence, and the type of efforts it will make to respond to facility risk potentials.

Request:

(1) Do the specific design decisions that contribute to spill prevention and mitigation account for each of the following, and if so, please explain how the design responds to each:

   i. Unique geographical area of use?
   ii. Risk potential of severe weather event occurrence?
   iii. Risk of severe geological event occurrence?
   iv. Risk of sudden earth-based natural disaster potential?
   v. Proximity of community to fence line?
   vi. Proximity of adjacent hazards or risk potentials within the facility?

(2) What degree of resistivity will the facility maintain to the:

   i. Unique geographical area of use?
   ii. Risk potential of severe weather event occurrence?
   iii. Risk of severe geological event occurrence?
   iv. Risk of sudden earth-based natural disaster potential?
   v. Proximity of community to fence line?
   vi. Proximity of adjacent hazards or risk potentials within the facility?

Response:

(1) Many factors are considered in the design decisions that contribute to spill prevention, detection, and mitigation. Refer to the response to City of Burnaby IR No. 1.13.05c (Filing ID A3Y2E6, PDF page 295). In addition, Trans Mountain can provide additional references and information.

   i. Refer to the responses to SFU IR Nos. 2.3.11.2, 2.3.11.4, 2.3.12.1, and 2.7.08.1, which contain some information and discussion related to geographical aspects. The legislative requirements, codes, and standards on which the designs are
based are intended to be applicable to all geographical areas and inherently or specifically address them.

ii. Refer to the responses to NEB IR No. 3.069a, 3.069b, 3.069c, and 3.076 (Filing ID A4H1V2), as well as NEB IR No. 3.076 - Attachment 3 (Filing ID A4H2E4), which contain some information and discussion related to secondary containment volume requirements and severe precipitation events. Refer to the response to NEB IR No. 2.125b (Filing ID A3Z4T9), which relates to lightning protection. Tank design codes and standards address high winds and snow loads. Stress analysis and material selection considers extreme temperatures.

iii. Refer to the responses to SFU IR No. 2.4.04.3 and City of Burnaby IR No. 1.08.05h (Filing ID A3Y2E6, PDF page 213), which contain some information and discussion related to seismic design. Refer also to the NEB Ruling 33 response to City of Burnaby IR No. 1.08.12a (Filing ID A4D3G2, PDF Page 115), which addresses seismic risk.

iv. Trans Mountain does not believe that there is any potential for sudden earth-based natural disasters, other than earthquakes, addressed in (iii).

v. Refer to the responses to City of Burnaby IR Nos. 1.14.01a and 1.14.01b (Filing ID A3Y2E6, PDF pages 305 and 306), which contain some information and discussion on set-backs.

vi. Trans Mountain does not see a strong relationship between adjacent elements within a facility and the risk of spills. Although extremely rare, if a spill occurs, it is typically caused by the failure of primary containment due to unmitigated overpressure, defective design, fabrication, construction, or installation, poor maintenance, or human error. Trans Mountain relies on legislative requirements, codes, and standards for appropriate separation between adjacent elements within a facility. Trans Mountain also reviews site layout from a risk perspective in hazards & operability (HazOp) reviews and uses the recommendations to inform detailed design.

(2) Trans Mountain does not understand the use of the phrase “degree of resistivity” in the context of this information request and is unable to provide a response. Refer to the response to SFU IR No. 2.4.10.1.
2.4.11 Volume4A-Study Corridor Optimization

Reference:
Revised Trans Mountain Expansion Project corridor route map; Project Overview Burnaby Proposed Trans Mountain Expansion Project, Map Number 201403_MAP_TERA_SK_00540_REV0, April 2014

Preamble:
The Reference states that the new alignment will have “no surface disturbance within Burnaby Mountain Park during construction phase”.

Request:

(1) Please indicate whether Trans Mountain would evacuate citizens at SFU and the UniverCity if there was a pipeline rupture under Burnaby Mountain. If not, why not?

(2) What are the risks to students and faculty of SFU and residents at UniverCity if there was a pipeline rupture under Burnaby Mountain?

(3) What are the risks to access to and from the SFU and UniverCity if there was a pipeline rupture under Burnaby Mountain? Would Gaglardi Way or Burnaby Mountain Parkway ever be closed, and if so, for how long?

Response:

(1) Kinder Morgan Canada Inc. (KMC) has always been committed to working with organizations, both public and private, to ensure there is a mutual understanding how the pipeline and/or operations at facilities could impact those organizations for incorporation in their own emergency response plans (ERP), when those organizations request assistance. However, KMC is not responsible for the emergency planning of other organizations.

KMC is committed to engaging with external stakeholders where our pipelines operate. We offer to review ERP’s, educate on our operations, and provide advice on proper response techniques. KMC conducts regular emergency response exercises and equipment deployments that include participation from local emergency responders.

KMC does not have the legislative authority to undertake an excavation in a municipality such as Burnaby. KMC would however work closely with municipal authorities to ensure the safety of the public and environment.

(2) An overview of human health effects of a crude oil pipeline spill was provided in Section 6.3.2 of Volume 7 of the Application (Filing ID A3S4V6). As outlined in that document, the primary concerns of a spill as they pertain to human health are related to:

- inhaling hydrocarbon vapours released from spilled hydrocarbons;
• direct contact with contaminated soil, or ingesting food that is grown in contaminated soil;
• drinking from a source contaminated by a spill; and
• eating plants or animals contaminated by a spill.

While a risk scenario under Burnaby Mountain is a low likelihood event as discussed following, a human health risk assessment (HHRA) is provided in Surrey Teachers Association IR 1.5a (Filing ID A3X6U0) and IR 1.5a Attachment 1 (Filing ID A3X6U1), which identifies the potential health effects that might be experienced by people under a set of simulated pipeline spill scenarios involving the spillage of oil in Metro Vancouver. For the purpose of the assessment, it was assumed that the breach of the pipeline would be the result of the third-party damage and that released oil from the buried pipeline would flow to ground level providing the opportunity for people located outdoors and downwind of the pool of spilled oil at the time of the breach to be exposed.

The focus of the HHRA was on determining the nature and extent of the potential health effects that could occur among people from short-term inhalation exposure to the chemical vapours released from the surface of the spilled oil during the early stages of the oil spill, before the arrival of first responders and the implementation of these emergency and spill response measures aimed at quickly containing and recovering the spilled oil. Examination of the findings indicates that exposure to the maximum predicted chemical vapour concentrations would not be expected to result in health effects other than mild, transient sensory and/or non-sensory effects. Examples of these effects could include: discomfort, irritability, mild irritation of the eyes, nose and/or throat, mild cough, and symptoms consistent with nominal central nervous system involvement such as mild headache, light headedness, minor vertigo, dizziness, and/or nausea. These effects would likely resolve quickly upon cessation of exposure, with no lingering after-effects. Odours could be apparent to some individuals, especially those with a keen sense of smell, and could contribute to added discomfort and irritability among these people. The absence of any serious adverse health effects from short-term inhalation of the chemical vapours released from the surface of the spilled oil during the early stages of the simulated spill scenarios applies to people in general, including students and faculty of Simon Fraser University and residents at UniverCity. The prospect for even these minor, transient health effects to be experienced by students and faculty of Simon Fraser University and residents at UniverCity would be low due to the depth at which the proposed pipeline would be below Burnaby Mountain and the distance at which these facilities are located from the proposed pipeline corridor.

In the event of a pipeline spill, Trans Mountain would quickly notify appropriate municipal, provincial and federal government authorities as well as local, regional, provincial and/or federal public health authorities of the spill, and coordinated action would be taken to determine the need for and types of measures required to protect people’s health if public health and/or safety were threatened, including measures to reduce the prospect for and/or extent to which people might be exposed to the spilled oil itself and/or chemicals released from the oil, such as notifying the public of the spill, advising the public to avoid the area, securing perimeters and restricting access to the
area. In addition to the implementation of the emergency and spill response measures, if conditions warrant, local, regional, provincial and/or federal authorities could implement controls or issue advisories to protect public health. Examples of such controls include forced evacuation of people if public health and safety are threatened, and/or the issuance of food advisories recommending that local foodstuffs not be consumed until further notice. These measures would further reduce the potential opportunities for exposure of people to the chemicals released during a spill not only via inhalation, but also through secondary pathways on both a short- and long-term basis. Based on the above, the prospect for students and faculty of Simon Fraser University and residents at UniverCity to be exposed as well as the extent to which they might be exposed via these other pathways is considered to be low to very low depending on the pathway involved, and adverse health effects would not be anticipated.

The most effective method of addressing these (and in fact all) adverse consequences associated with an oil spill is to take measures to prevent an oil spill from ever happening. That is why, just as airlines strive to eliminate plane crashes, it is Trans Mountain’s goal to eliminate pipeline spills. As part of its commitment to eliminate incidents, Trans Mountain is undertaking a risk-based design of Line 2 and the new delivery lines.

Risk-based design is a rigorous design approach that goes beyond the minimum requirements of the CSA Z662 code. It is an industry-leading, world class design approach that will enable the design team to identify potential risks along Line 2 and the new delivery lines and to pre-emptively adopt mitigation measures at the design phase to address those risks. These mitigation measures, once incorporated into the final design, will reduce failure likelihood and/or consequence (and hence risk) by targeting risk mitigation strategies directed at the principal drivers of risk that have been identified in the risk assessment.

With specific reference to Burnaby Mountain, Trans Mountain’s plans include extraordinary measures to prevent an oil spill at that location. The Burnaby tunnel represents an innovative design that incorporates design elements to prevent loss of containment. The influence that these measures will have on the potential for loss of containment was summarized in the Risk Update Report for the Westridge Delivery Lines (Filing ID A4F5F5):

as can be seen from a review of Figure 2, there is no outflow for the greater part of the tunnel section. This is deliberate, and reflects the fact that the tunnel will be backfilled with impermeable cement. While this represents an unconventional installation configuration for transmission pipelines, there is ample experience with down-hole (production) applications that supports the assumption that impermeable cement backfill will form an effective barrier to outflow, even when a steel pressure membrane is perforated. The only portion of the tunnel for which this is not assumed to hold true is the section that was identified in the geotechnical review presented in Attachment A as having potential susceptibility to large-scale ground movement associated with a
landslide. Under such a scenario, potential for outflow could still occur, and this is reflected in the chart presented in Figure 2.

As was fully-detailed in the response to NEB IR No. 3.103g (Filing ID A4H1V2),

Operating procedures for the tunnel will include inspection, monitoring, and testing systems that will provide early indication of anomalies and allow for preventative measures to stop a potential leak from the pipeline.

The impermeable concrete/grout backfill will provide a secondary containment system through the length of the tunnel, though as discussed in Trans Mountain response to NEB IR No. 3.110b, the avoidance of cracking in the concrete/grout backfill cannot be guaranteed. However as was indicated in the Risk Update Report for the Westridge Delivery Lines (Filing ID A4F5F5), while concrete backfill represents an unconventional installation configuration for transmission pipelines,(and indeed represents an extraordinary precautionary design detail), there is ample experience with down-hole (production) applications that indicate the effectiveness of impermeable cement as a means of creating a seal in a casing in which the pressure membrane has been breached.

The Quantitative Geohazard Frequency Assessment – Burnaby Mountain (Filing ID A4F5F6) documents a low likelihood large-scale ground movement associated with a landslide. Under such a scenario, and as is indicated by the results of the risk model, this scenario is considered to be low likelihood and there is no design measure (e.g. a liner) that would prevent or contain a release of oil from such an event.

Failure frequency and outflow analysis presented in the Risk Update Report for the Westridge Delivery Lines (Filing ID A4F5F5) is based on the above considerations, and takes into account the fact that the planned inline tool reassessment interval is frequent enough to pre-emptively detect time-dependent volumetric flaws prior to any breach of the steel pressure membrane. As a further level of precaution, Trans Mountain will commit to deploying acoustic leak detection tools on a regular basis to ensure that no pinhole leaks are present. This will address the potential for any loss of containment that would otherwise go unnoticed that might arise from any threat mechanism, including time-dependent threats and manufacturing defects. With respect to other threat mechanisms, while the effectiveness of acoustic leak detection is independent of threat, it is difficult to envision an operations-related failure that would result in an un-noticed leak inside a concrete filled tunnel, and third party damage may be ruled out as a realistic threat under such circumstances.

As outlined the above, the only portion of the tunnel for which loss of containment is considered realistic is the section that was identified in the geotechnical review as having low potential susceptibility to large-scale ground movement associated with a landslide. While the potential has been assessed as low, it is important to note that a landslide of this magnitude would constitute a public hazard in and of itself.
Trans Mountain is not aware of any oil transmission pipeline failures from any threat that have occurred inside a tunnel such as is being proposed beneath Burnaby Mountain, and the added design feature of backfilling with impermeable cement will add a further layer of protection.

References:

Section 6.3.2 of Volume 7 of the Application (Filing ID A3S4V6)

Surrey Teachers Association IR 1.5a (Filing ID A3X6U0) and IR 1.5a Attachment 1 (Filing ID A3X6U1)

Risk Update Report for the Westridge Delivery Lines (Filing ID A4F5F5)

Response to NEB IR No. 3.103g (Filing ID A4H1V2)

Quantitative Geohazard Frequency Assessment – Burnaby Mountain (Filing ID A4F5F6)

Trans Mountain Response to Surrey Teacher IR No. 1.5a (Filing ID A3X6U0)

Human Health Risk Assessment of Pipeline Spill Scenarios Technical Report (Intrinsik Environmental Sciences Inc. June 2014) (Filing ID A3X6U1)

Note: Refer to the response to SFU IR No. 2.5.04.1.
2.4.12 Volume 7, s. 2.1

Reference:

A56025, Application Volume 7, s. 2.1, Measures to Prevent and Mitigate Oil Spills – Pipeline, p. 7-3 to 7-4

Preamble:

The Reference states the commitment of Trans Mountain to the prevention and mitigation of oil spill occurrence.

Request:

(1) Please confirm whether, as well as detail how, specific design decisions that contribute to spill prevention and mitigation account for:

i. The unique geographical area of use?

ii. The risk of severe weather event occurrence?

iii. The risk of severe geological event occurrence?

iv. The risk of sudden earth-based natural disaster potential?

Response:

(1) i) Design decisions that are dependent on unique geographical areas of use include the assessment of terrain stability, the potential for adverse geochemistry, including potential for acid rock drainage and metal leaching, and related to the potential for geohazards based on local topography and hydrology. Terrain stability design decisions are predicated on both the terrain mapping filed with the Application (Filing ID A3S1C5), and on terrain stability field assessments (TSFA) that will be conducted as part of detailed engineering and design. The potential for adverse geochemistry, including potential for acid rock drainage and metal leaching, will likewise continue to be conducted as part of detailed engineering and design. The design decisions related to the potential for geohazards based on local topography and hydrology are discussed below.

    ii) Risk associated to the pipeline as a result of a severe weather event occurrence would include potential for high streamflow and flooding which have the potential to result in hydrotechnical geohazards including bank migration, scour and channel degradation, and avulsion, as well as increase the potential for geotechnical geohazards including landslides, debris flows and other associated earth or rock movements. The potential for impact to the pipeline from these hazards has been provided in Technical Update No.1: Quantitative Geohazard Frequency Assessment (Filing IDs A3Z8G1, A3Z8G2, A3Z8G3, and A3Z8G4) and will continue to be assessed as part of detailed engineering and design up to construction.
As noted in Section 7.10.4 of Volume 5A (Filing ID A3S1R3), changes to climate during operations of the pipeline may manifest in several ways (e.g., in a long-term increase of annual average temperatures or in the increased occurrence of extreme events). Trans Mountain has been operating for 60 years, over which they have encountered a variety of environmental conditions. It is understood that past environmental conditions may not be representative of conditions under future climate change. For example, extreme events that have occurred only every few decades over the last 60 years might occur more frequently or with greater magnitude during future Project operation. Therefore, Trans Mountain will adaptively manage potential residual effects associated with changing climate through the Natural Hazards Management Program. Trans Mountain uses its Natural Hazards Management Program to monitor and protect against damage to the pipeline from unstable slopes or changing river or stream flow conditions. Established in 1998, this program uses a custom database to document inspections and preventative maintenance work at more than 600 sites along the existing TMPL right-of-way and to schedule future inspection frequency based on risk.

Increased snow pack in winter and extended warm temperatures in spring may intensify runoff and alter hydrologic regimes within watercourses, including timing and duration of peak flows. During operations of the Project, it is expected that Trans Mountain will be adaptive in their management of the pipeline and schedule maintenance activities to accommodate local environmental conditions (e.g., conducting activity in riparian areas during periods of low flow and least risk) and implement the appropriate protection measures to suit local environmental conditions thereby reducing the potential environmental effects.

Trans Mountain completed an assessment of the effects of the Project on climate change in Section 7.2.5 of Volume 5A (Filing ID A3S1Q9) and more recently, updated this assessment in Section 6.2 of Marine Air Quality and Greenhouse Gas Marine Transportation Technical Report, Supplemental Report No. 2 (December 2014) (Filing ID A4F5H8). Assuming that operational emissions will not change over the lifetime of the Project, total emissions over 50 years of the Project life would be 3.4 Mt CO2e, which is estimated to result in an increase in the Earth’s global temperature by 1.6 × 10-6 °C. The best estimate of Project effects on overall climate change related to changes in stream flows is ±0.000014% (refer to Table 6.2 of Supplemental Report No. 2 [Filing ID A4F5H8]). As mentioned above, changes in stream flows over Project operations will be managed through the Natural Hazards Management Program.

From a design perspective, recommendations made by the Association of Professional Engineers and Geoscientists of BC (APEGBC, 2012) will be followed to account for the influence of climate change on the predicted magnitude of hydrotechnical hazards, and streamflow time series will be analysed for a temporal trend. If this trend is significant, it will be extrapolated to predict future peak flows and correct the design flow (200-year return period)
accordingly. If this trend is not significant, a 10% increase in the design flow value will be adopted as recommended by APEGBC (2012). Bed scour and bank erosion will be assessed using the corrected flow value.

iii) Section 2.9.3, Volume 4A of the Facilities Application (Filing ID A3S0Y8) briefly describes the principles to be used in the seismic design of the new pipeline proposed as part of the Project. Seismic design of the pipeline will be in accordance with the latest editions of the National Building Code of Canada, the Alberta Building Code, the British Columbia Building Code, and other recognized standards and practices, as applicable to the locations. Seismic design will be undertaken by experienced and competent professional engineers, registered in the province where the pipeline segment or facility is to be located. Geotechnical programs, which will include borehole and other investigative methods to obtain sub-surface data, will be conducted, and the results and recommendations of registered professional engineers and geologists will be used to inform the seismic designs. Fabrication of components, construction, and installation will be rigorously inspected to ensure that the prescribed designs are followed and structural integrity will be verified by testing, as applicable. General information on design and quality verification principles is included in Sections 2.1 through 2.7, Volume 4A (Filing ID A3S0Y8). Numerous other references to design principles and features and quality assurance methods exist throughout Volume 4A and 4B of the Facilities Application. Trans Mountain is highly confident that these approaches will ensure that the new pipelines and facilities will be able to withstand large earthquake scenarios with minimal damage or loss of integrity.

Trans Mountain has designed the proposed trenchless pipeline alignment options to be situated in the undisturbed bedrock below the base of the historic landslide feature forming the northern face of Burnaby Mountain. As discussed in Section 1.5 of the Clague et al. (2015) report (Filing ID A3S1F6):

“There remains the risk of landslides owing to the steepness of the terrain and the evidence of past events; however, it is unlikely that a large slump that might retrogress back from the top of the mountain could occur, even during a large earthquake. We base this opinion on the fact that the slumps on the north side of Mount Burnaby are many thousands of years old; they probably date to the end of the Pleistocene.”

The pipeline is located at the western limit of the historic landslide scarp and approximately 25 m below the historic landslide failure plane.

iv) Refer to response to SFU IR No. 2.4.12.1 part iii.
2.4.13 Volume 5A, s. 7.10.2, Volume 7, s. 3.1.4

Reference:

i. A3S1R0, A56004, Application Volume 5A, s. 7.10.2, Potential Effects and Mitigation Measures, p.28

ii. A56025, A3S4V5, Application Volume 7, s. 3.1.4 Failure Frequency Estimating – Geohazards, p.41


Preamble:

The References note that Trans Mountain is currently working with provincial and municipal agencies to understand their expectations for information and permits regarding the proposed project.

Request:

(1) Please provide contingency plans for responding to pipeline ruptures or incidents as a result of seismically triggered landslides or debris flows.

Response:

(1) Kinder Morgan Canada Inc. (KMC) acknowledges the interest of intervenors to seek more information about the existing emergency management program (EMP) documents, and reference materials related to the Trans Mountain Pipeline System, which is why KMC filed a redacted copy of the existing Emergency Response Plans publicly. In Ruling No. 50 (Filing ID A4G519) the National Energy Board (NEB) determined that it was “satisfied that sufficient information has been filed from the existing EMP documents to meet the Board’s requirements at this stage in the process.”

KMC’ existing Emergency Management Program (EMP) does not contemplate the cause of a release, focusing on the clean up regardless of whether the rupture was caused by an earthquake or other event.

The Application, Volume 7, Section 4.8 outlines the process to enhance KMC’s existing EMPs 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 NEB’s draft conditions related to emergency response (Filing ID A3V8Z8).
2.5 ENVIRONMENTAL IMPACT

2.5.01 Volume 5C10, s. 4.6.4

Reference:

A56012, Application Volume 5C10, s. 4.6.4, Parks and Protected Areas, Figure 4.6.1, Provincially Identified Wildlife Areas and Parks and Protected Areas – Hope to Westridge, p. A-13

Preamble:

The Reference does not indicate that any municipal or regional park references were reviewed, or representatives contacted. It is unclear how Parks and Protected Areas terminology has been defined or what rationale or criteria were used to identify specific Parks and Protected Areas.

There are a number of Parks and Protected Areas on Burnaby Mountain which contain significant wildlife habitats offering both ecological and recreational values, yet they have not been identified or included in the Reference.

Request:

(1) Why are Parks and Protected Areas located along one or more of the proposed pipeline alignments not identified (i.e. the Brunette River Conservation Area, Stoney Creek Ravine Park, Burnaby Mountain Conservation Area, or Burrard Inlet Conservation Area)?

(2) What impacts will construction and operation of the expanded project and Burnaby Terminal have on existing wildlife, as well as on the ecological and recreational value of Burnaby Mountain, including, but not limited to, the Burnaby Mountain Conservation Area? What specific plans does Trans Mountain have to mitigate these impacts?

Response:

(1) At the scale of presentation (1:400,000) on Figure 4.6.1 (Technical Report 5C-10 of Volume 5C, Wildlife Technical Report [TERA Environmental Consultants 2013, Filing ID A3S2R4]), it was not possible to show all parks, therefore, presentation in many cases was limited to provincial parks. Additionally, the digital shape-files of many municipal parks or conservation areas are not publicly available. The following City of Burnaby parks are identified as being crossed by the proposed revised pipeline corridor, based on information from the City of Burnaby online map:

- Brunette River Conservation Area (approximately AK 1174.6 to AK 1176.0);
- Stoney Creek Ravine Park (approximately AK 1176.1 to AK 1176.5);
- Meadowood Park (approximately AK 1179.1 to AK 1179.3);
- Burnaby Mountain Conservation Area (approximately AK W0.6 to AK W2.4); and
- Barnet Marine Park (approximately AK W2.5 to AK W3.3).
Since filing of the Application, alternative route options and construction techniques in the area of Burnaby Mountain have been proposed for the Westridge Delivery Lines that extend from Burnaby Terminal to Westridge Marine Terminal (Technical and Project Update No. 4, Part 1 filed with the National Energy Board (NEB) on December 1, 2014 [Filing ID A4F5D5]). The proposed revised pipeline corridor, which is preferred over the previously proposed pipeline corridor, would use a trenchless construction methodology (i.e., a tunnel) to install the Westridge Delivery Lines. Installing the pipelines through a tunnel would minimize impacts to wildlife and wildlife habitat, as well as the ecological and recreational value of Burnaby Mountain, by reducing the amount of disturbance and habitat loss. Disturbance caused by trenchless methodologies would be restricted to the proposed entry and exit portals for the tunnel, and would avoid disturbance to the Burnaby Mountain Conservation Area. Construction at the entry and exit portals for the tunnel will result in elevated noise levels during this period that may reduce habitat effectiveness for some wildlife species.

Noise management plans that will be developed for the Project construction will incorporate the components of the NEB Draft Conditions No. 29 and 32 (Pipeline Environmental Protection Plan and Horizontal Directional Drilling Noise Management Plan) of the NEB’s Letter – Draft Conditions and Regulatory Oversight (Filing ID A3V8Z8) to limit the effect of noise at sensitive receptors and include a monitoring component to verify effectiveness of controls. The noise management plans for the Project will encompass any elements outlined in the final conditions issued by the NEB. Some of the controls to be considered in urban areas include (but are not limited to):

- Enforce or reduce vehicle speed limits and inform contractor truck drivers and equipment operators that engine retarder braking in urban areas is prohibited.
- Provide drive through access for vehicle to limit use of back-up alarms.
- Investigate use of ambient adjustable back-up alarms, which emit at lower intensity in quiet areas.
- Maintain equipment in good working condition and in accordance with manufacturer guidelines.
- Maintain noise suppression equipment on all construction machinery and vehicles in good order.
- Enclose noisy equipment and use baffles or barriers, where and when feasible, to limit the transmission of noise beyond the construction site.
- Use only the size and power of tools necessary limit noise from power tool operations. Locate stationary equipment, such as compressors and generators away from noise receptors.

The Burnaby Terminal is an existing terminal, and proposed activities at the terminal are located within the existing boundary on previously disturbed industrial lands (Section 6.0 of Volume 5A [Filing ID A3S1Q6]).
Further discussion of potential impacts on the ecological and recreational value of parks and protected areas is provided in the response to City of Burnaby IR No. 1.01.15a (Filing ID A3Y2E6). Mitigation measures to reduce effects from a human use perspective are provided in Table 7.2.4-2, Section 7.2.4 of Volume 5B (Filing ID A3S1S7), and mitigation measures to reduce effects on wildlife and wildlife habitat are provided in Table 7.2.10-3 of Section 7.2.10 of Volume 5A (Filing ID A3S1Q9).
2.5.02 Volume 4A, s. 3.4.3

Reference:

A55999, Application Volume 4A, s. 3.4.3, Burnaby Terminal, p.4A-66

Preamble:

The Reference outlines the proposed layout at the Burnaby Terminal and related major civil tasks.

Request:

1. Is Trans Mountain conducting baseline pre-expansion surface and ground water monitoring? If yes, at which locations? If not, why not?

2. Please provide baseline data for the classification, flows, and quality of watercourses which traverse through the Burnaby Terminal site.

3. How frequently will ongoing water quality monitoring be conducted once the proposed expansion is operational? Please confirm that these results will be shared with SFU.

4. What is Trans Mountain’s current understanding of the hydrology on Burnaby Mountain? Will there be any impact to SFU’s water sources as a result of the expansion project construction and/or operation?

5. What is the potential for disruption of SFU’s water systems? How will any potential disruptions be mitigated by Trans Mountain?

6. In the event a disruption impacts SFU’s water systems, will Trans Mountain compensate SFU for any costs it incurs as a result of such disruption?

Response:

1. Trans Mountain Pipeline ULC (Trans Mountain) has established groundwater monitoring programs at selected facilities, including the Burnaby facilities to identify impacts to groundwater.

   With respect to surface water, refer to the description of existing conditions related to surface water in the Application, Volume 5A, Table 6.1-16 (Filing ID A3S1Q8). Also refer to the response Trans Mountain provided to the City of Burnaby on August 1, 2014 with respect to the Eagle Creek ISMP (Filing ID A3Z7Z0). Also refer to the responses to SFU IR No. 2.5.02.2 and 2.5.20.1.

2. Supplemental fish and fish habitat investigations were completed during 2014 for all watercourses located within Burnaby Terminal (including tributaries to Silver Creek). Results of the 2014 supplemental fish and fish habitat assessments, including baseline data for classification, flows and water quality, are provided in Appendix A1 (Supplemental Watercourse Crossing Summary Table) and Appendices B1 and C1 (Fish-Bearing and Nonfish-Bearing Atlas, respectively) of the Supplemental Fisheries
Baseline data was also collected and filed with the Application for one intermittent watercourse flowing out of the Burnaby Terminal; Unnamed Tributary to Eagle Creek (BC-785a), as defined in Technical Report 5C-7 in Volume 5C, Fisheries (British Columbia) Technical Report (Filing IDs A3S2C2 and A3S2G2). Since the watercourse was dry at the time sampling was conducted during August 2013, no water quality parameters (e.g., turbidity, conductivity, temperature, pH) could be taken. The watercourse was classified as seasonal (S5) with a max / mean channel width of 3.63 m / 3.17 m and mean bank height of 0.26 m. Additional information and site photos for watercourse BC-785a are provided in Technical Report 5C-7 in Volume 5C, Fisheries (British Columbia) Technical Report, specifically Section 5.7.1 (Filing ID A3S2C2) and appendices A (Filing ID A3S2C2) and C (Filing ID A3S2G2).

The frequency of water quality monitoring at the Trans Mountain Pipeline ULC (Trans Mountain) Burnaby Terminal is currently semi-annual. This frequency will be re-assessed once the proposed expansion is operational. Trans Mountain is required to provide results to landowners whose property has been contaminated or has the potential to become contaminated (NEB 2011). If Simon Fraser University (SFU) property is contaminated due to operations at the Burnaby Terminal or has the potential to become contaminated by migration of contaminants from the Burnaby Terminal, the groundwater monitoring results will be provided to SFU.

Trans Mountain’s commitment to open and transparent dialogue with landowners, residents and stakeholders continues throughout the life of our operations. Examples of Trans Mountain’s operations engagement activities include: regular newsletters, website updates, toll free phone line and email address and the option for annual briefings with Trans Mountain operations staff. Trans Mountain is also a regular participant in the Stony Creek Environment Committee Working Group of which SFU is also a member. This working group has historically been a good vehicle for raising and addressing topics of common interest to local stakeholders. Finally, Trans Mountain staff will continue to be available during operations to meet with SFU regarding areas of interest or concern as they arise.

Reference:


Trans Mountain Pipeline ULC (Trans Mountain) has over 60 years of experience operating their facilities on Burnaby Mountain. This extensive experience has provided considerable insight and understanding of the hydrological system as it relates to the existing pipeline and terminal operations on Burnaby Mountain. Hydrological studies were also conducted for the Trans Mountain Expansion Project (TMEP) to fill knowledge gaps and provide baseline data regarding the groundwater and surface water conditions within the Project-specific Water Quality and Quantity Local Study Area.
The results of these studies are documented and described in the:

- Groundwater Technical Report 5C-5 of Volume 5C (Filing IDs A3S1U8 and A3S1W4).
- Fisheries (British Columbia) Technical Report 5C-7 (Filing IDs A3S2C1 and A3S2C2) of Volume 5C.
- Supplemental Fisheries (BC) Technical Report (Triton Environmental Consulting 2014) attached to NEB IR No. 3.039a (Filing ID A4H1V2).

Groundwater and surface water conditions related with the proposed tunnel option through Burnaby Mountain have also been documented and described in the Westridge Delivery Pipelines Routing Update in Technical Update No. 4 (Filing ID A4F5D5).

As detailed in the annual Simon Fraser University Drinking Water Quality Monitoring Report, the university’s drinking water is supplied by a Metro Vancouver water main and stored on campus in a water tower on the east end of campus. From there, water is supplied throughout the campus via distribution pipes (Simon Fraser University 2014). Based on this information, Trans Mountain does not anticipate there will be any impacts to SFU's water resources, in terms of the university's water supply and distribution system, resulting from construction or operation of the TMEP.

Reference:


(5) Refer to the response to SFU IR No. 2.1.1.1.

(6) Under National Energy Board Act Section 75, Trans Mountain is responsible for any damage that may result directly from its operations, including construction of the Trans Mountain Expansion Project. Trans Mountain’s practice is to first, minimize any potential impacts or damages to the extent practical by using and adapting responsive construction and operations practices; and second, provide mitigation to reverse or treat any remaining impacts. Should impacts or damages remain, Trans Mountain would provide commensurate compensation for residual damages directly related to and caused by the construction of the pipeline, or operations of the pipeline (including pipeline inspection, maintenance or repair). Should Simon Fraser University (SFU) be of the opinion that the operations related to Trans Mountain have caused them directly related damages as defined in the NEB Act, Trans Mountain would look to the University to provide the company with information and documentation as to the nature and extent of the perceived damages.

That information can be provided to the Manager, Land, Trans Mountain Pipeline. Using the information received, through discussions with SFU, if Trans Mountain determines that the damages resulted from the company’s operations, it will provide any commensurate compensation due to SFU.
2.5.03 Volume 7, s. 2.2

Reference:

A56025, Application Volume 7, s. 2.2, Facilities, p. 7-4

Preamble:

The Reference states that the Design control measures generally include emergency shut down systems that isolate a facility in the event of a spill or fire.

Request:

(1) Please describe how the said emergency systems will isolate a facility, as defined in this section, from fires such as on-site structure fire or wild land fire.

(2) What measures are proposed to ensure a major tank fire at the Burnaby Terminal does not initiate a forest fire on Burnaby Mountain?

(3) What measures are proposed to ensure that a forest fire on Burnaby Mountain does not cause a threat of fire/explosion at the Burnaby Terminal?

Response:

(1) Refer to the response to SFU IR No. 2.4.02.1.

(2) Refer to the response to SFU IR No. 2.4.08.3.

(3) Refer to the response to SFU IR No. 2.4.02.1.
2.5.04 Volume 7, s. 3.2.2

Reference:

A56025, Application Volume 7, s. 3.2.2, Secondary Containment and Tank Risk Assessments, p. 7-19

Preamble:

The Reference identifies the release of toxic smoke plumes as a possible hazard scenario. The hazard scenarios associated to tank fires and fires resulting from a product release within a containment area are identified through a determination process of risk assessments based on regulations and company direction.

Request:

(1) Please describe the impacts from a toxic smoke plume exposure:

   i. to the SFU community,

   ii. on access to/from SFU via Gaglardi Drive and/or Burnaby Mountain Parkway.

Response:

(1) Trans Mountain commissioned risk assessments of the Burnaby Terminal, the Westridge Marine Terminal and the Westridge Marine Terminal Ship Loading expansion which were filed as Attachment 3 (Filing ID A3W9S5), Attachment 4 (Filing ID A3W9S6) and Attachment 5 (Filing IDs A3W9S7 and A3W9S8), respectively, in response to NEB IR No. 1.98a. The risk assessments identified the possible accidents or upset events (including fire related to a major tank spill and fire related to a spill in the boomed area around vessels while loading) for the terminals and the associated consequences. The risk assessments evaluated the potential impact on the nearby areas of a number of “worst-case” scenarios (i.e., hazards) and the probabilities of their occurrence. These assessments and findings will be used to inform the planned enhancements to Trans Mountain’s Emergency Management program and response plan. The assessments were conducted without consideration of mitigation measures, such as the effective implementation of Trans Mountain’s emergency response plan. According to the findings of the risk assessments, the overall risks to the public beyond the Burnaby Terminal and Westridge Marine Terminal property lines posed by the worst-case scenarios at both terminals are deemed to be within the acceptable level of risk criteria as set out by the Major Industrial Accidents Council of Canada.

Trans Mountain (Kinder Morgan Canada Inc. or KMC) has procedures in place to ensure that fires will not occur. As described in Section 8.2 of Volume 4C of the Application (Filing ID A3S1L1), the safety of the facilities in the expanded Trans Mountain Pipeline (TMPL) system will be assured through the enhancement and application of the existing KMC Facility Integrity Management Program (FIMP). The FIMP will be administered by the KMC Technical Services Department and will be implemented with the assistance of the KMC field operations team.
Like the KMC Pipeline Integrity Program, the FIMP has processes for the identification of all integrity hazards that could affect the safe operation of facilities, the assessment for these hazards, and the management of the hazards to prevent and mitigate the impact from releases of petroleum and from petroleum fires. The FIMP includes a continual assessment process that will ensure the completion of all maintenance and testing activities required for the effective operation of all preventative and consequence reduction systems.

Given the many variables and uncertainties surrounding any particular incident, there is no credible way of defining specific effects on the Simon Fraser University community or roadways and other infrastructure. However, KMC’s Incident Command System (ICS) for emergency response is designed to enable effective, efficient incident management through integration of facilities, equipment, personnel, procedures, and communications within a common organizational structure. The ICS enables KMC’s incident managers to identify the key concerns associated with the incident, often under urgent conditions, without sacrificing attention to any component of the response. The use of ICS represents organizational best practices and aligns KMC with the world-wide standard for emergency management.

The ICS was also designed to be flexible in application to the size of an incident, to enable rapid integration of agencies and personnel into a common management structure, and to minimize duplication of effort. The ICS structure outlines clear roles and responsibilities with respect to emergency response and includes a unified command structure for co-ordination with the multiple levels of government; federal, provincial, municipal, and Aboriginal communities, along the TMPL system.

The KMC Emergency Response Program and response organization is based on a three-tiered response structure that was presented in Table 10.2.1, Volume 4C of the Application (Filing ID A3S1L1) (presented below as Table 2.5.04.1-1 for ease of reference). This system relies on a categorization of incidents, wherein each tier is managed by an escalating level of management seniority and authority, with assistance from outside the initial response organization sought on an as-needed basis. KMC’s emergency response procedures provide the flexibility to tailor the nature and size of the response to the specifics of the incident, which allows for rapid adjustments as an incident evolves. Where appropriate, the KMC incident commander will invite the participation of federal, provincial, and local authorities to form a unified command.
### TABLE 2.5.04.1-1

**THREE-TIERED RESPONSE STRUCTURE**

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
<th>Examples</th>
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</table>
| I     | The Company has the capability to manage and control a Level I emergency using company resources available within the area. The District Supervisor will assume the Incident Command position. | • oil spills confined to company property (pipeline pump station, terminal, or ancillary facility)  
• public, contractor, or employee safety not endangered  
• public property not endangered  
• local response handled by District personnel  
• notification may not be required to regulatory authorities  
• little or no media interest |
| II    | The Company has the capability to manage and control a Level II emergency using company resources and expertise, with some assistance from local contractors. The Region Director or designate may assume the Incident Commander position. | • oil has migrated beyond company property, but not into a waterway  
• emergency services may be required (e.g., fire, police, ambulance)  
• public, contractor, or employee safety and/or property may be endangered  
• notification required to regulatory authorities  
• may use a unified command organizational structure in the emergency  
• local media interest |
| III   | The Company may request assistance from other Industry, Municipal, or Provincial Agency personnel to support the response to the incident. The Region Director will assume the Incident Commander position. | • major emergency condition such as:  
- uncontrolled leak  
- spill on a watercourse  
- large fire at an operating facility or office building  
- fatality or serious injury to an employee, contractor, or the public  
- spill of hazardous substances  
• major off-site environmental impact has occurred  
• public, contractor, or employee safety and/or property is endangered  
• emergency services are required (e.g., police, fire, ambulance)  
• notification required to regulatory authorities  
• use of a Unified Command organizational structure in the emergency, as required, to facilitate coordination of company, government and other agency response to the emergency.  
• local, Provincial, and/or National Media interest |

Emergency Response Plans (ERPs) have been developed for the existing TMPL system and will be enhanced and implemented on the expanded TMPL system. These plans detail prescriptive procedures, activities, and checklists to ensure consistent response to incidents with the common objective of protecting company personnel and contractors, the public and public property, and the environment.

The overall ERP provides a generic response to an incident at any location along the TMPL system, whereas the ERPs for terminals are location-specific. All plans have a common structure and format, and address key elements, including:

- responder health and safety;  
- internal and external notifications;  
- spill/site assessments;  
- spill containment and recovery;  
- protection of sensitive areas; and  
- multiple hazards.

Each of the plans also includes detailed information on the ICS, legislative background, and documents the approach to training and exercises. The plans provide comprehensive information and are a ready resource for a safe, consistent, and timely response to an emergency. All ERPs also address general requirements for non-spill incidents such as explosions and fires.
KMC has systems in place to ensure a fire will not occur. However, in the unlikely event that a fire does occur, KMC will provide an effective and rapid response through its existing emergency management systems.

According to the U.S. National Institutes of Health, the burning of crude oil can result in the emission of such chemicals as carbon dioxide, carbon monoxide, lead, nitrogen oxides, particulate matter (e.g., PM_{10} and PM_{2.5}), polycyclic aromatic hydrocarbons and volatile organic compounds. Fires are known to result in high levels of particulate matter. As a result, people exposed to smoke from a fire may experience the health effects commonly associated with particulate matter. The potential for exposure depends on the magnitude and nature of the fire, the location of the fire, the meteorological conditions at the time of the fire, and the time it will take to respond to that fire. According to the Minnesota Department of Health (MDOH) (2007), individuals who are not directly involved with fighting an oil fire or who are not in the immediate vicinity of the fire are unlikely to experience exposures that are medically significant. Rather, such individuals may experience mild, transitory effects, including symptoms such as irritation of the eyes and nose, nasal secretions, tearing, hoarseness and shortness of breath. The MDOH (2007) goes on to state that “any initial or early signs and symptoms should resolve in a few days and complete recovery after a limited period of discomfort is expected”.

Nevertheless, this confirms that fire prevention, preparedness, and effective response activities will continue to be KMC’s primary focus in order to reduce the probability of a fire, and to have adequate emergency response plans and procedures in place that have proven capability to reduce the magnitude and extent of actual effects on people and the environment.

Based on the weight of evidence provided above, the mitigative measures and emergency response plans KMC has in place are believed to be sufficient to prevent or manage fires resulting in a toxic smoke plume that might otherwise impact Simon Fraser University (SFU) and access to/from SFU via Gaglardi Drive and/or Burnaby Mountain Parkway.

Reference:

2.5.05 Volume 7, s.2.2

Reference:

A56025, Application Volume 7, s.2.2, Facilities, p.7-4 to 7-6

Preamble:

The Reference outlines Trans Mountain’s commitment related to the prevention of oil spill occurrence, and the type of efforts it will make to respond to facility risk potentials.

Request:

(1) To what extent will Trans Mountain minimize environmental impacts created, directly or indirectly, by construction or operation of the expanded terminal? Will Trans Mountain commit to the total and complete remediation of all impacts?

(2) What other environmental impacts has Trans Mountain anticipated may occur from construction or operation of the existing and expanded terminals?

(3) What is the study area for biophysical studies for the Burnaby Terminal expansion? Does the study area include SFU property? If not, why not?

(4) If an incident that could affect any environmental element (e.g. air, water, soil, wildlife) was to occur, what is Trans Mountain’s notification process for contacting relevant communities and major stakeholders? Would Trans Mountain specifically contact SFU?

Response:

(1) The Trans Mountain Expansion Project is a proposal to expand the existing Trans Mountain Pipeline (TMPL) System, including the existing terminal facilities. Expanding existing facilities reduces new disturbance, uses existing infrastructure and minimizes environmental effects. This is consistent with good project planning and best environmental practices.

Trans Mountain will reduce environmental impacts associated with construction and operation of the expanded terminals through the implementation of mitigation and reclamation measures provided in Sections 7.5 and 7.6 of Volume 5A (Filing IDs A3S1Q9, A3S1R0) and the Facilities Environmental Protection Plan and Westridge Marine Terminal Environmental Protection Plan of Volumes 6C (Filing IDs A3S2S6, A3S2S7) and 6D (Filing ID A3S2S9), respectively.

Trans Mountain is committed to operating in a manner which minimizes environmental impacts and ensures that the operation of the TMPL system complies with all environmental regulations, applicable permit conditions, and the requirements of the appropriate regulatory authorities.

Operation and maintenance of the expanded TMPL system will be incorporated into Kinder Morgan Canada’s Environment, Health and Safety (EHS) Management System.
to ensure that risk to employees, contractors, the public and the environment is minimized. Additional information on Kinder Morgan Canada’s EHS Management System and other management procedures that will be implemented to reduce potential environmental impacts during operation and maintenance activities at the existing and proposed expanded terminals is provided in Volume 4C (Filing ID A3S1L1).

Trans Mountain notes that the City of Burnaby asked a similar question regarding minimizing environmental impacts in the first round of Information Requests and a response was provided (refer to Trans Mountain’s response to City of Burnaby IR No. 1.13.05h [Filing ID A3Y2E6]). Trans Mountain also notes that the National Energy Board denied the City of Burnaby’s motion to compel a further response from Trans Mountain on this response (Filing ID A4C4H5). Trans Mountain will not be providing further information on this question.

(2) Trans Mountain has assessed a broad range of anticipated potential environmental and socio-economic effects from construction and operation of the terminals. The following list describes some of the potential environmental and socio-economic effects assessed for the Burnaby Terminal and/or Westridge Terminal:

- soil (mixing of topsoil and root zone material; soil compaction, rutting and erosion);
- water quality and quantity (reduction in surface water quality; alteration of natural surface drainage patterns or streamflow);
- increases in air and greenhouse gas emissions and sound levels;
- weed introduction and spread;
- potential effects on wildlife habitat, movement and mortality;
- changes in marine sediment and water quality;
- marine fish (loss of riparian, intertidal and subtidal habitat; decrease in productive capability and injury/mortality of selected marine fish indicator species);
- marine mammals (temporary auditory injury and sensory disturbance of harbour seals or other marine mammals);
- marine birds (change in habitat, sensory disturbance and injury/mortality to selected marine bird indicator species);
- traditional marine resource use (disruption of subsistence activities; disturbance of cultural sites);
- marine-based human occupancy and resource use (disruption to marine access and use patterns; sensory disturbance of marine users; disturbance to marine Aboriginal traditional use areas; and alteration of viewsheds);
- navigation (disruption to navigable waters; concern for safety of marine users); and
human health risk assessments evaluated the potential health risks to people associated with short-term and long-term exposures to the chemical emissions from the additional tanks to be installed at the existing Burnaby Terminal and the expansion of the Westridge Marine Terminal.

The assessments on most of the socio-economic elements (i.e., heritage resources, traditional land and resource use, social and cultural well-being, land-based human occupancy and resource use, infrastructure and services, employment and economy and community health) were conducted considering all the Project components in an integrated manner, as many of the identified effects are experienced in a combined manner and cannot be meaningfully disaggregated by Project component from a community perspective.

For more details on the environmental and socio-economic assessment (ESA) of the potential environmental and socio-economic effects arising from the construction, operations and maintenance of the proposed tanks and associated terminal work, please refer to Section 7.5 of Volumes 5A and 5B (Filing IDs A3S1Q9 and A3S1S7 to A3S1S9). Further information on the ESA for the proposed construction, operations and maintenance at the Westridge Marine Terminal is provided in Section 7.6 of Volumes 5A and 5B (Filing IDs A3S1R0 and A3S1S9), respectively, for biophysical and socio-economic effects. The assessments in Volumes 5A and 5B describe the potential Project-specific and cumulative effects (i.e., impacts), recommended mitigation measures, and anticipated significance of potential residual Project and cumulative effects for the tank facilities and Westridge Marine Terminal during construction, operations and maintenance.

In addition, Trans Mountain has reviewed the information gathered since the Application was filed in December 2013 and summarized the new issues and concerns identified as well as the implications to the conclusions of the ESA in Part 4 – ESA Update of Project and Technical Update No. 4 (Filing ID A4F4Z3). The significance conclusions of the ESA (Volumes 5A and 5B [Filing ID A56004]) remain unchanged for Project-related effects, the Project’s contribution to cumulative effects and total cumulative effects.

(3) The biophysical Environmental and Socio-economic Assessment (ESA) for the proposed tank installation and associated terminal work at the Burnaby Terminal is provided in Section 7.5 of Volume 5A (Filing ID A3S1Q9). The study area of the ESA of the Burnaby Terminal includes the spatial boundaries of those biophysical elements determined to potentially interact with the construction and operations of the proposed tanks (refer to Table 7.5-2 of Section 7.5 of Volume 5A [Filing ID A3S1Q9]). The Local Study Areas (LSAs) and Regional Study Areas (RSAs) of these elements are defined in the applicable subsections of Section 7.2 of Volume 5A (Filing ID A3S1Q9). All of these LSAs and RSAs encompass the Simon Fraser University property, which begins immediately northeast of the existing Burnaby Terminal at the intersection of Burnaby Mountain Parkway, Gaglardi Way and University Drive.

(4) Refer to the responses to SFU IR No. 2.1.5.1 and SFU IR No. 2.1.6.2.
2.5.06 Volume 6B, Appendix B, s. 2.0

Reference:

Volume 6B, Appendix B, s. 2.0, Fire Contingency Plan

Preamble:

The Reference states "The Contractor will develop a Fire Contingency Plan (Volume 4C, Section 5.2.7) and a Fire Prevention Plan (Volume 4C, Section 5.2.8) with minimum guidelines in the TMEP Health and Safety Management Plan (HSMP). This plan will be used in conjunction with the Fire Contingency Plan and the Fire Prevention Plan during all phases of pipeline construction." SFU is concerned that there won't be sufficient attention given to its unique needs when it comes to the emergency planning.

Request:

(1) How will the Fire Contingency Plan mitigate the air quality impacts to the SFU campus and UniverCity in the event of a fire at the Burnaby Terminal?

(2) How will the Health and Safety Management Plan address and mitigate the air quality impacts to the SFU area and UniverCity in the event of a fire at the Burnaby Terminal?

Response:

(1) As noted in the Application, Volume 6B, Appendix B, a Fire Prevention Plan and Fire Contingency Plan (Filing ID A3S2S3) will be developed for construction. It should be noted that Section 2.0 incorrectly references sections 5.2.7 and 5.2.8 of Volume 4C, which should correctly read Volume 4B (Filing ID A3S1K6).

The Fire Contingency Plan will not directly include mitigation of air quality impacts to the SFU campus. It will be a component of construction Emergency Response Planning as noted in Volume 4B Section 5.4.2 (Filing ID A3S1K6). As noted in Section 5.4.2, this planning will be complimentary to the existing Emergency Response Plan (ERP) for Terminals and Tank Farms (Filing ID A4D3F3). Notifications are part of the planning as noted in Section 2 and follow up would be determinant on the specific emergency. Air quality monitoring of surrounding locations would be completed, if necessary, based on potential factors such as the nature of the fire, size, fuel, and wind direction as it relates to populated areas.

Please see SFU IR No. 2.5.07 for further information on Air Quality Monitoring.

(2) The Health and Safety Management Plan will not directly address or mitigate the air quality impacts to SFU and UniverCity in the event of a fire at the Burnaby Terminal. The Emergency Management Plan noted in Volume 4B Section 5.4.2 (Filing ID A3S1K6) as part of the Health and Safety Management Program noted in Volume 4B Section 5.1 (Filing ID A3S1K6) and the Emergency Response Plan (ERP) for Terminals and Tank Farms (Filing ID A4D3F3) addresses notification of the public and air quality monitoring as well as any other potential mitigation requirements.

Please refer to the responses to SFU IR No. 2.5.06.1 and SFU IR No. 2.5.07.
2.5.07 Volume 5C10, s. 4.6.4

Reference:

i. A56006, Application Volume 5C4, s. 5.2.4, Burnaby Terminal, p. 197-238

ii. A56006, Application Volume 5C4, s. 5.2.4, Burnaby Terminal, p. 229-238

Preamble:

Reference (i) states that the estimated total VOC emissions due to Project operations at Burnaby Terminal will increase by approximately 7% over the emissions from existing operations.

Reference (ii) states that post-construction monitoring is not required for Burnaby Terminal as there is a continuous ambient air quality monitoring station that reports hydrogen sulphide (H2S), sulphur dioxide (SO2), and total VOC, wind speed and wind direction.

Request:

1. Is Trans Mountain conducting baseline pre-expansion air quality monitoring and, if so, at what location(s)? Please provide details on the monitoring frequency of all air quality parameters currently monitored at the Burnaby Terminal.

2. Please provide details on recording of the data from the ambient air quality stations located at Burnaby Terminal.

3. How frequent will the ongoing air quality monitoring be once the proposed expansion is operational? Will Trans Mountain provide copies of all monitoring results to SFU? If not, why not?

4. Has air quality impact modeling that takes into consideration the unique weather patterns/conditions experienced on Burnaby Mountain been performed? If not, why not?

5. Please provide details of all mitigation measures to be implemented in the event that the ambient air quality monitoring for specific parameters exceeds the regulatory standards at SFU.

6. Please provide details on the procedures to be used in responding to air quality complaints from residents living near the Burnaby Terminal, and specifically SFU. If SFU receives complaints from concerned community members about air quality on Burnaby Mountain following the expansion, how would Trans Mountain work with SFU to address and/or resolve these concerns?

7. Does Trans Mountain have any plans to install air monitoring equipment at SFU itself? If not, why not?
Response:

(1) As stated in Section 1.2 of Technical Report 5C-4 of Volume 5C, Air Quality and Greenhouse Gas Technical Report (December 2013; Filing ID A3S1U0, referred to in this response as the “2013 Technical Filing”), one objective of the 2013 Technical Report was to “characterize existing (baseline) conditions to gain an understanding of existing air quality along the pipeline corridor and to provide context for the predicted air quality effects”. This baseline pre-expansion air quality assessment and ambient measurements are discussed in Section 4.1 of the 2013 Technical Report (Filing ID A3S1U1).

Trans Mountain currently operates a monitoring station at the Burnaby Terminal (hydrogen sulphide [H₂S], sulphur dioxide [SO₂] and total volatile organic compounds [VOCs]) and has committed to installing an additional monitoring station at the Westridge Marine Terminal. Trans Mountain also provides funding to Metro Vancouver for the operation and reporting of ambient measurements from the Burnaby Burmount station (THC or total hydrocarbon) near the Burnaby Terminal. Both stations provide continuous measurements and the Burnaby Burmount station also samples for speciated VOCs on a six day cycle.

(2) Trans Mountain currently operates an Automated Monitoring System (SAM) unit at the Burnaby Terminal. Please see the response to NEB IR No. 1.35 (Filing ID A3W9H8, PDF page 215 of 421) for details on the SAM unit: technical description and its ability to capture emissions from the proposed new tanks (response to NEB IR No. 1.35b); the methods and schedule of ambient monitoring (response to NEB IR No. 1.35c); and Trans Mountain’s procedures for monitoring station data recording, assessment, and reporting details (response to NEB IR No. 1.35f).

(3) The air emissions monitoring system (AEMS) currently in use at the Trans Mountain Pipeline ULC (Trans Mountain) Burnaby Terminal will remain continuous and in real-time once the proposed expansion is in operation. As with all parties affected by our proposed Project, Trans Mountain is committed to continuing open and transparent dialogue with Simon Fraser University (SFU) throughout detailed project design, construction and operations to ensure that Trans Mountain’s activities have as little impact as possible on neighbouring residents, businesses and institutions. If requested by SFU, Trans Mountain will provide data summaries from the AEMS if there is a specific timeframe of concern in relation to air quality data. Trans Mountain operates this AEMS to assist internal decision making as an industry best practice and is not intended to be a source for public ambient air quality data. Metro Vancouver and the BC Ministry of Environment (MoE) operate an extensive monitoring network throughout the province in order to collect valuable ambient air quality data that is publically available.

(4) The CALPUFF dispersion model, which was used to predict concentrations from emissions released from Burnaby Terminal, has accounted for the unique weather conditions.
patterns on Burnaby Mountain via the following regional information that formed part of the air quality assessment:

- observed hourly meteorological data from the Metro Vancouver surface meteorological data station, Burnaby Mountain T14 (location 49°16'47"N, 122°55'20"W), was incorporated into the CALMET meteorological model;
- additional data from nine other monitoring stations in the vicinity of Burnaby Mountain (for example, Metro Vancouver’s meteorological data station Burmount T22) was also incorporated into the CALMET meteorological model;
- topography in the Air Quality Regional Study Area was included in the CALMET meteorological model; and,
- land use in the Air Quality Regional Study Area was included in the CALMET meteorological model.

Additional information about the CALMET meteorological model and the detailed model plan, which was approved by Metro Vancouver and the British Columbia Ministry of the Environment, is provided in Appendix B of Technical Report 5C-4 of Volume 5C, Air Quality and Greenhouse Gas Technical Report (RWDI December 2013; Filing ID A3S1U3) and Supplemental Air Quality Technical Update No 2 (Filing ID A4A4E3). Appendix D of the Technical Report 5C-4 provides a comparison of key meteorological parameters modelled by the CALMET meteorological model and local observations including wind roses for Burnaby Burmount. There is very good agreement between these wind roses which indicates that the unique weather patterns on Burnaby Mountain have been accounted for.

(5) In the event that a Trans Mountain ambient monitor reads a value exceeding a concentration threshold, an automated email will be sent by the SAM control system to the designated Trans Mountain individuals for thresholds as follows:

- **Hydrogen sulphide** (H₂S): 25 ppb (~35 µg/m³) for 1-minute average (odour detection threshold for 3-minute average is 9 µg/m³);
- **Sulphur dioxide** (SO₂): 170 ppb (450 µg/m³) for 1-hour average (British Columbia Ambient Air Quality Objective); and,
- **Total volatile organic compounds (TVOCs)**: the threshold is not set as there is no regulatory level for total VOCs.

These thresholds are set for emergency response purposes; however, Trans Mountain’s Odour Complaint Investigation and Response Program outlines that ambient air monitoring data, meteorological data and tank activity information are collected for each odour complaint and retained for trending analyses. The data are analyzed to identify specific tanks and/or products that may be causing recurring odours. Further mitigation measures would then be investigated and potentially implemented to reduce the occurrence of nuisance odours. Elevated readings of odours are investigated even when no complaint is filed.
Mitigation measures that could be implemented in response to monitoring data or concerns raised by residents, land users, and Aboriginal groups if feasible include:

- allocating odourous products to alternative tanks;
- replacing tank seals;
- installing domed tank roofs;
- installing portable or fixed air emissions “scrubbers”; and
- installing incinerator or vapour combustion unit or carbon adsorption units.

(6) Refer to response to SFU IR No. 2.5.12.1 for details on procedures of the Trans Mountain Pipeline ULC (Trans Mountain) Odour Complaint Investigation and Response Program. Upon the request of SFU, Trans Mountain would follow up and share investigative results with SFU on specific issues or complaints of concern on a case by case basis.

Trans Mountain’s commitment to open and transparent dialogue with landowners, residents and stakeholders continues throughout the life of our operations. Trans Mountain staff will continue to be available during operations to meet with SFU regarding areas of interest or concern as they arise.

(7) No, Trans Mountain Pipeline ULC (Trans Mountain) currently does not have any plans to install air monitoring equipment at SFU as there has been no identified regulatory need or public request to do so. Trans Mountain’s commitment to open and transparent dialogue with landowners, residents and stakeholders continues throughout the life of our operations. Trans Mountain is open to discussion on a joint venture to collaborate on a future air monitoring system if there is interest from SFU.
2.5.08 Volume 5C4, s. 5.2.4, s.9.3.3

Reference:

i. A56006, Application Volume 5C4, s. 5.2.4, Burnaby Terminal, p. 197

ii. A56006, Application Volume 5C4, s.9.3.3, Post Construction Monitoring, p.229

Preamble:

Reference (i) states that the estimated total VOC emissions due to Project operations at Burnaby Terminal will increase by approximately 7% over the emissions from existing operations. While Nox and SO2 annual project emissions increased by about twice as much as the existing emissions, the Burnaby Terminal currently has continuous ambient stations that report H2S, SO2 and total VOC measurements in addition to wind speed and wind direction. Trans Mountain has access to this data in real-time.

Request:

(1) Please provide Trans Mountain's rationale as to why there were no recommendations for post-construction monitoring given the potential for increase in H2S, SO2, VOCs, and CACs levels.

(2) Please advise whether there will be any monitoring during construction and post-construction operation of H2S, SO2, VOCs and CACs levels at Burnaby Terminal and, specifically at SFU. Please confirm that all monitoring reports and results will be shared with SFU.

Response:

(1) Recommendations for an additional ambient station were not required due to the existing network of stations and a proposed station as described in the following. An Automated Monitoring System (SAM\(^1\)) unit was installed in the northwest corner of the Burnaby Terminal as shown in the Figure 1 of the response to NEB IR No. 1.35a (Filing ID A3W9H8). The SAM unit collects sulphur dioxide (SO\(_2\)), hydrogen sulphide (H\(_2\)S) and total volatile organic compounds (VOCs), wind speed and wind direction data based on 1-minute averages. Odours will therefore be monitored indirectly, though the monitoring of the above contaminants. A new ambient monitoring station will be installed at the Westridge Marine Terminal in 2015 (prior to construction). This new unit will meet the nine requirements of National Energy Board Draft Condition No. 21 – Air Emissions Management Plan for the Westridge Marine Terminal of the NEB’s Letter – Draft Conditions and Regulatory Oversight (Filing ID A3V8Z8). This Condition requires methods and schedule for ambient monitoring of contaminants of potential concern in air including particulate matter, carbon monoxide (CO), nitrogen dioxide (NO\(_2\)), SO\(_2\), H\(_2\)S and VOCs.

\(^1\) Système Automatisé de Monitoring
In addition to the SAM unit installed directly at the Burnaby Terminal and proposed station at Westridge Marine Terminal, there are also Metro Vancouver (MV) and National Air Pollution Surveillance (NAPS) stations in the proximity of the Burnaby Terminal and Westridge Marine Terminal. These stations monitor SO\textsubscript{2}, total reduced sulphur (TRS) and VOCs. Summaries from the MV and NAPS stations, which monitor SO\textsubscript{2}, TRS and VOCs and corresponding methods and schedules are shown in Table 2.5.08.1-1. The distances to the Burnaby and Westridge Marine Terminals are also included.

**TABLE 2.5.08.1-1**

**METRO VANCOUVER AND NATIONAL AIR POLLUTION SURVEILLANCE AIR QUALITY MONITORING STATIONS NEAR BURNABY TERMINAL AND WESTRIDGE MARINE TERMINAL**

<table>
<thead>
<tr>
<th>Station ID</th>
<th>Station Name/Data Source</th>
<th>Longitude, Latitude, Location Relative to the Terminal Centre</th>
<th>Contaminants Monitored(^1)</th>
<th>Schedule</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>26a</td>
<td>Burmount/NAPS (ID 100133)</td>
<td>-122.936, 49.267 500 m southwest of the Burnaby Terminal and 2.7 km southeast of the Westridge Marine Terminal</td>
<td>Volatile organic compounds including benzene, toluene, ethyl benzoene and xylene</td>
<td>Intermittent basis (every sixth day)</td>
<td>Canister</td>
</tr>
<tr>
<td>26b</td>
<td>Burnaby-Burmount/MV (ID T22)</td>
<td>-122.936, 49.267 500 m southwest of the Burnaby Terminal and 2.7 km southeast of the Westridge Marine Terminal</td>
<td>TRS</td>
<td>Continuous Instrumental</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Burnaby-Capitol Hill/MV (ID T23)</td>
<td>-122.986, 49.288 4.5 km northwest of the Burnaby Terminal and 2.2 km west of the Westridge Marine Terminal</td>
<td>SO\textsubscript{2}, TRS</td>
<td>Continuous Instrumental</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Burnaby North Eton</td>
<td>-123.008, 49.288 5.5 km west-northwest of the Burnaby Terminal and 3.7 km west of the Westridge Marine Terminal</td>
<td>SO\textsubscript{2}</td>
<td>Continuous Instrumental</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Burnaby Kensington Park/MV (ID T04)</td>
<td>-122.971, 49.279 3 km northwest of the Burnaby Terminal and 1.4 km southwest of the Westridge Marine Terminal</td>
<td>SO\textsubscript{2}, TRS</td>
<td>Continuous Instrumental</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** 1. SO\textsubscript{2} = sulphur dioxide; TRS = total reduced sulphur (only SO\textsubscript{2}, TRS and volatile organic compounds are shown)

(2) There is a SAM (Système Automatisé de Monitoring) unit on site at Burnaby Terminal. It measures sulphur dioxide (SO\textsubscript{2}), hydrogen sulphide (H\textsubscript{2}S) and volatile organic compounds (VOCs) on site and is located in the NW corner. Refer to the responses to the NEB IR No. 1.35b and c (Filing ID A3W9H8) for more information, including how data are published.
The Metro Vancouver Air Quality Monitoring Station at Burnaby Burmount measures continuous total hydrocarbons (THC), which VOCs are a subset of, and total reduced sulphur (TRS), which H₂S is a subset of, 500 m southwest of the Burnaby Terminal. At Simon Fraser University (SFU), NO₂ and O₃ are currently measured through the Metro Vancouver Station of Burnaby Mountain. Data from Metro Vancouver monitoring stations are publically available online at http://envistaweb.env.gov.bc.ca/.

Observed patterns in meteorology and modelled meteorology reveals that winds at the Burnaby Terminal are predominantly coming from an easterly directions, as shown at the Burnaby Burmount Station in Supplemental Air Quality Technical Report for Technical Update No. 2, Figure A.1 (NEB Filing A4A4E3). Therefore, Simon Fraser University (SFU) is not considered downwind from the Burnaby Terminal for the majority of the time.

Refer to the responses to SFU IRs 2.5.15.2 and 2.5.08.1 for more information.
2.5.09 Volume4B– Revised Project Corridor Route Map

Reference:
Revised Trans Mountain Expansion Project Corridor Route Map; Project Overview Burnaby Proposed Trans Mountain Expansion Project, Map Number 201403_MAP_TERA_SK_00540_REV0, April 2014

Preamble:
The Reference shows a new pipeline route alignment that includes a tunnel going through the Burnaby Mountain Conservation area.

Request:

(1) Please provide additional details on the proposed tunnel through Burnaby Mountain, including, but not limited to:

   i. the depth of tunneling;
   ii. whether tunneling or direct drilling is being considered for the new study corridor and, if so, at what location;
   iii. whether a preliminary feasibility report for the proposed horizontal directional drilling location has been or will be completed, and whether such report will be filed as part of the Application;
   iv. the contingency plan(s) to be followed at the location if the horizontal directional drilling is not successful, and specifically, whether Trans Mountain will excavate the tunnel by blasting;
   v. a horizontal directional drilling execution plan;
   vi. when any horizontal directional drilling technical feasibility study will be available for the study corridor where horizontal directional drilling would be attempted;
   vii. Access road requirements for geotechnical investigation and maintenance surveillance.

(2) If no consultation was undertaken with stakeholders along the new study corridor, why not?

(3) Will access to any part of SFU’s lands be required in connection with the construction of the proposed tunnel? If yes, please explain why has SFU not been consulted? If Trans Mountain does require access to SFU lands, please identify what access is required, as well as when Trans Mountain will consult with SFU with respect to such access?
Response:

(1) Please view the following filing documents related to this request. Should you have further questions Trans Mountain would be happy to facilitate a consultation.

- B290 - Trans Mountain Pipeline ULC - Project and Technical Update No. 4, Part 1 of 2 (Filing ID A64687)
- B291 - Trans Mountain Pipeline ULC - Project and Technical Update No. 4 - Part 2 of 2 (Filing ID A64686)

(2) Refer to the response to SFU IR No. 2.5.17.2.

(3) Trans Mountain does not anticipate requiring access to or use of any Simon Fraser University lands for the Trans Mountain Expansion Project.
2.5.10 Volume 1, s.1.0

Reference:
A55987, Application Volume 1, s.1.0, Application and General Information, p.1-1 to 1-15

Preamble:
There is no rationale or analysis provided to demonstrate why expanding the pipeline in what has become a highly urban area is in the public interest or will bear low risk. Trans Mountain seems to have chosen to expand at the proposed location due to an existing pipeline and facilities from the 1950s when the site was much more rural and undeveloped, without giving consideration to other alternatives.

Request:

(1) What are the impacts on air quality and health in Metro Vancouver’s airshed, and in particular, the SFU community, considering the airshed is already compromised by pollution? 

(2) How would SFU community members be impacted by a large spill at the Burnaby Terminal or a pipeline rupture on Burnaby Mountain? 

(3) What does Trans Mountain's response plan contain in terms of its ability to manage risk borne out of a large spill event at the Burnaby Terminal and/or Burnaby Mountain tunnel? 

Response:

(1) Trans Mountain has conducted several ambient air quality assessments to assess the potential impacts of the Trans Mountain Expansion Project. Please see Supplemental Air Quality Technical Report for Technical Update No. 2 (August 2014) (Filing ID A4A4E3) for the most recent assessment on the engineering design updates at the Burnaby Terminal and the Westridge Marine Terminal.

The conclusions of the updated air quality assessments conducted for the two terminals in 2014 have not changed and they continue to demonstrate an ongoing ability to meet the applicable ambient air quality objectives. The air quality assessments are part of an ongoing and iterative process which informs (and is informed by) the engineering design regarding required specifications for the final design. Trans Mountain considered, and is continuing to consider, different vapour control configurations for the Westridge Marine Terminal and tank design configurations and tank vapour adsorption units (TVAUs) for the Burnaby Terminal. Trans Mountain gathered new information in 2014 and will undertake additional measurements of volatile organic compounds (VOCs) emissions during the tanker loading at the Westridge Marine Terminal for a variety of crude oil products in 2015.

Trans Mountain retained John Zink in 2014 as their preferred vapour control equipment partner. With involvement from CH2M and RWDI, Trans Mountain has directed the
design team to achieve sufficient recovery efficiencies for vapour recovery and vapour combustion units at the Westridge Marine Terminal to in order to meet the applicable ambient air quality objectives. Trans Mountain is committed to meeting the applicable ambient air quality objectives at each terminal and this is the primary criterion for determining tank design and vapour control configurations.

The extent to which Trans Mountain will design to reduce emissions below the applicable ambient air quality objective levels will depend on the value (benefit versus cost) and the practical limitations of the technology. Trans Mountain intends to continue air quality modelling in 2015 to determine tank design and vapour control configurations using an iterative process.

The potential impacts on human health associated with the Project’s routine operations were assessed in a set of screening level human health risk assessments (SLHHRAs) that were filed as part of the Application. These are:

- Screening Level Human Health Risk Assessment of Pipeline and Facilities Technical Report for the Trans Mountain Pipeline ULC Trans Mountain Expansion Project (Intrinsik Environmental Sciences Inc. [Intrinsik] December 2013) (Filing IDs A3S2L1, A3S2L2, A3S2L5 and A3S2L7); and


By convention, the SLHHRAs embraced a high degree of conservatism through the use of assumptions intentionally selected to represent worst-case or near worst-case conditions. Using this approach, any health risks that were identified in the SLHRA were unlikely to be understated, but may have been considerably overstated. In order to permit fuller understanding of the potential health risks, detailed human health risk assessments (HHRAs) focused on the potential impacts on human health from chemical emissions originating from the Westridge Marine Terminal and associated marine vessel traffic were completed. These assessment were based on a more refined and balanced set of assumptions having a higher likelihood of occurrence, or a credible worst-case assessment. The HHRAs are:

- Human Health Risk Assessment of Westridge Marine Terminal Technical Report for the Trans Mountain ULC Trans Mountain Expansion Project (Intrinsik June 2014) (Filing IDs A3Y1F4 and A3Y1F5); and

- Human Health Risk Assessment of Marine Transportation Technical Report for the Trans Mountain Pipeline ULC Trans Mountain Expansion Project (Intrinsik June 2014) (Filing IDs A3Y1F7 and A3Y1F8).

Each of these reports describes the potential human health risks to people associated with short-term and long-term exposures to chemical emissions from the various components of the Project as well as the Project-related marine vessel traffic.
The major findings of the HHRA of the Westridge Marine Terminal are:

- The contribution from the expansion of the Westridge Marine Terminal to the cumulative exposures to the chemicals of potential concern (COPC) is negligible. In the majority of instances, the potential health risks remained unchanged between the assessment cases (i.e., Base Case, Application Case and Cumulative Case), signifying that the expansion of the Westridge Marine Terminal and associated increase in marine vessel traffic will have very little, if any, effect on the Base Case health risks.

- With very few exceptions, non-carcinogenic inhalation risks were predicted to be below the benchmark (or target risk estimate) of 1.0, indicating that estimated short-term and long-term inhalation exposures were less than the health-based guidelines (or exposure limits). Risk estimates less than or equal to 1.0 are associated with a negligible or low health risk, and therefore adverse health effects would not be expected. No exceedances were predicted at any of the discrete (or fixed) locations corresponding to actual households, schools, assisted-living complexes, communities, parks and recreation areas found within the Local Study Area. The only exceedances were predicted for the respiratory irritants mixture at the maximum point of impingement on a short-term basis. These exceedances were determined to be few in number, low in frequency and modest in magnitude. Further examination of the predicted exceedances indicates that the health risks are low, and that adverse health effects are not predicted to occur.

- In all cases, non-carcinogenic risks associated with the various secondary pathways of exposure (i.e., inhalation of dust, food ingestion, and dermal contact) were predicted to be below the benchmark (or target risk estimate) of 0.2, indicating that estimated exposures were less than 20% of the health-based guidelines (or exposure limits). Risk estimates less than or equal to 0.2 are associated with a negligible or low health risk, and therefore adverse health effects would not be expected.

- In all cases, risks for the carcinogens were predicted to be less than one in 100,000 (i.e., one extra cancer case in a population of 100,000 people), indicating that the incremental cancer risks associated with the expansion of the Westridge Marine Terminal and associated increase in marine vessel traffic are deemed to be “essentially negligible”.

The major findings of the HHRA of marine transportation are:

- The contribution from the Project-related marine vessel traffic to the cumulative exposures to the COPC was negligible. In the majority of instances, the potential health risks remained unchanged between the assessment cases (i.e., Base Case, Application Case and Cumulative Case), signifying that the Project-related marine vessel traffic will have very little, if any, effect on the Base Case health risks.
• With very few exceptions, non-carcinogenic inhalation risks were predicted to be below the benchmark of 1.0, indicating that estimated short-term and long-term inhalation exposures were less than the health-based guidelines (or exposure limits). Risk estimates less than or equal to 1.0 are associated with a negligible or low health risk, and therefore adverse health effects would not be expected. Exceedances were predicted for nitrogen dioxide and the respiratory irritants mixture over water and along the coastline of Burrard Inlet on short-term basis only. These exceedances within the Burrard Inlet communities were determined to be few in number, low in frequency and modest in magnitude. Further examination of the predicted exceedances indicates that the health risks are considered low, and that adverse health effects are not predicted to occur.

• In all cases, non-carcinogenic risks associated with the various secondary pathways of exposure (i.e., inhalation of dust, food ingestion, and dermal contact) were predicted to be below the benchmark (or target risk estimate) of 0.2, indicating that estimated exposures were less than 20% of the health-based guidelines (or exposure limits). Risk estimates less than or equal to 0.2 are associated with a negligible or low health risk, and therefore adverse health effects would not be expected.

• In all cases, risks for the carcinogens were predicted to be less than one in 100,000 (i.e., one extra cancer case in a population of 100,000 people), indicating that the incremental cancer risks from the Project-related increase in marine vessel traffic and anticipated marine vessel traffic are deemed to be “essentially negligible”.

(2) Following the 2009 release of crude oil at the Burnaby Terminal, Trans Mountain retained SLR Consulting (Canada) Ltd. to complete a human health risk assessment (HHRA) aimed at evaluating the risk posed to the public from the short-term (or acute) inhalation of the chemical vapours from the spilled oil, and Stantec Consulting Ltd. to conduct a HHRA of the long-term health risks to the nearby residents from multiple pathways of exposure to the chemicals of potential concern associated with the crude oil. The results of the risk assessments indicated that the short-term health risks associated with the inhalation of the chemical vapours released from the spilled oil and the long-term health risks through multiple pathways of exposure to the nearby residents were low.

The HHRA of Pipeline Spill Scenarios Technical Report (Intrinsik Environmental Sciences Inc. June 2014) (Filing ID A3X6U1) provides an assessment of the potential health effects associated with a set of simulated and unmitigated spill scenarios resulting from third-party damage to a pipeline segment within Metro Vancouver. The focus of the assessment was on determining the nature and extent of the potential health effects that could occur among people from short-term inhalation exposure to the chemical vapours released from the surface of the spilled oil during the early stages of the oil spill, before the arrival of first responders and the implementation of these emergency and spill response measures. Examination of the findings of the HHRA indicates that exposure to the maximum chemical vapour concentrations predicted in the simulated and
unmitigated spill scenarios would not be expected to result in health effects other than mild, transient sensory and/or non-sensory effects. Examples of these effects could include: discomfort, irritability, mild irritation of the eyes, nose and/or throat, mild cough, and symptoms consistent with nominal central nervous system involvement such as mild headache, light headedness, minor vertigo, dizziness, and/or nausea. These effects would likely resolve quickly upon cessation of exposure, with no lingering after-effects. Odours could be apparent to some individuals, especially those with a keen sense of smell, and could contribute to added discomfort and irritability among these people. Although minor and transient, these effects would still be annoying and discomforting, indicating the need for and importance of the spill prevention programs described in Volume 7 of the Application (Filing ID A3S4V5).

(3) The question is not clear as to what information is requested. It is assumed that the term ‘manage risk’ in the Request refers to the application of information, procedures and policies to guide Kinder Morgan Canada Inc.’s (KMC) actions resulting in an effective response to potentially harmful conditions arising from an emergency condition.

In the event of a release from its facilities, irrespective of cause, KMC would immediately shut down the pipeline or other source of the release and allow the pressure to dissipate, thus stopping further release of petroleum. Emergency services would also immediately be contacted and trained KMC Technicians would be dispatched to the location to secure the area and commence air monitoring to ensure air quality for those in the immediate vicinity. KMC would consult with the local authority to determine the best course of action to protect the public. This decision and subsequent action to evacuate residents is the responsibility of local emergency services. KMC does not have the legislative authority to undertake evacuations.

KMC is committed to ensuring the safety of our operations. In the case of an incident related to the pipeline or associated facilities, Trans Mountain Pipeline ULC (Trans Mountain) is prepared to respond quickly with detailed emergency procedures and trained professionals as outlined in Section 4.0 of Volume 7. KMC uses the Incident Command System (ICS) to respond to emergencies and would work together in Unified Command with local authorities to determine the best course of action to protect the public and the environment. Each emergency situation would be different and the response would address the specific circumstances presented.

The Application, Volume 7, Section 4.8 outlines the process to enhance KMC’s existing emergency management programs (EMP) as they relate to the Trans Mountain Pipeline system (TMPL 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) draft conditions related to emergency response (Filing ID A3V8Z8).
2.5.11 Volume 7, s. 4.3.1

Reference:

A56025, Application Volume 7, s. 4.3.1, Incident Command System, Table 4.3.1, *Three-Tiered Response Structure*, p. 7-29

Preamble:

The Reference states that: “notification may not be required to regulatory authorities” at level 1, “emergency services may be required (e.g. fire, police, and ambulance) at level 2 and 3, and “the Company may request assistance from other Industry, Municipal, or State Agency personnel.”

Request:

1. Does Trans Mountain have air monitoring devices installed in the adjacent neighbourhoods for early detection/notification of a release? If not, why not?

2. Are there any plans to install monitoring devices in adjacent neighbourhoods, and in particular, at SFU? If not, why not?

Response:

1. Trans Mountain Pipeline ULC (Trans Mountain) does not have air monitoring devices installed in adjacent neighbourhoods. However, Trans Mountain has continuous air emissions monitoring systems (AEMS) located along the fence line of the Burnaby Terminal and Sumas Terminal and will have one installed and operating at the Westridge Marine Terminal by December 2015. Trans Mountain operates the AEMS as a best industry practice in order to monitor and trend for potential improvements and not out of regulatory obligation. Metro Vancouver and the BC Ministry of Environment (MoE) operate an extensive monitoring network throughout the province in order to collect valuable ambient air quality data that is publically available. Siting of scientific equipment outside of Trans Mountain’s operational boundaries raises potential security and logistical concerns associated with installing, maintaining and calibrating this type of system that would need to be addressed prior to considering this option.

In addition to preventing releases from the pipeline system, Trans Mountain has developed and implemented a systematic approach to leak detection. A computational pipeline monitoring (CPM) system is used in combination with other monitoring methods, such as surveillance patrols, regular in-line inspections using smart pigs and smart ball tools (acoustical leak detection technology), Control Centre Operator (CCO) monitoring using the supervisory control and data acquisition (SCADA) system, and scheduled line balance calculations. Information regarding leak detection and response to probable leaks is included in Section 7.1.11, Volume 4C of the Facilities Application (Filing ID A3S1L1).

2. Trans Mountain Pipeline ULC does not have any plans to install monitoring devices in adjacent neighbourhoods. Refer to response to SFU IR No. 2.05.11.1
2.5.12 Volume 4A, s. 3.4.3.4

Reference:

A55999, Application Volume 4A, s. 3.4.3.4, Storage Tanks, p. 4A-75

Preamble:

The Reference describes the internal floating roof tanks with TVAU odor control units as the types of roofs designated for the proposed tanks, however, if it was determined that the tanks will be used for low odor products, then they may be designed as external floating roof tanks without odor control.

Request:

(1) What are Trans Mountain’s odor emissions compliance objectives?

(2) How do the odor emissions objectives that Trans Mountain must comply with compare to other similar tank farm facilities operating in Canada and North America?

(3) Will Trans Mountain commit to not only meeting, but also surpassing the odor emissions objectives, given the population that is in the close vicinity of the tanks?

(4) What are the consequences and impacts if Trans Mountain does not meet its odor emissions objectives?

Response:

(1) As there is no defined regulatory criterion for Trans Mountain Pipeline ULC (Trans Mountain) to achieve for odour emission compliance, Trans Mountain’s odour emissions compliance objectives are to continually study, monitor and trend odourous nuisances in order to comply with the goals set out in the Environment, Health and Safety Policy (Kinder Morgan Canada Inc, 2012). Odour detection and odour recognition thresholds can vary between individuals and is a complex science. Odourous emissions can have detection thresholds below any published air quality criteria; therefore Trans Mountain aims to manage odourous nuisances to its neighbours through a documented Odour Complaint Investigation and Response Program (including a 24 hour telephone number to report odours). A formal procedure is initiated when an odour complaint is received. Trans Mountain employees who respond to odour complaints undergo prescribed training regarding the use of appropriate procedures and equipment outlined in the program’s training module. Trans Mountain’s odour complaint responders are immediately dispatched (on call 24 hours) to the location of the odour complaint with the appropriate air monitoring equipment in order to respond and investigate in a timely manner. Every odour complaint incident is investigated internally by reviewing meteorological data, onsite operations activity, ambient fence line H₂S, VOC and SO₂ levels recorded by 24 hour real time analyzers and any other information applicable to nuisance air quality emissions. The outcome of each odour complaint is used to assist in the management of onsite odours. Compilation of this data allows Trans Mountain to identify potential causes and adjust operations to minimize future odours.
Trans Mountain Response to SFU IR No. 2

Reference:


(2) Trans Mountain Pipeline ULC (Trans Mountain) complies with the local ambient air quality objectives for the regulatory jurisdictions it operates within. Odourous emissions are a property of several of those identified objective compounds, however the levels are usually higher than the odour detection threshold and are based on large time weighted averages (TWA), for example 1-hour or 24-hour, while odours can be detected instantaneously. There has been no agreed upon or endorsed scientific method to quantify odours by any regulatory body Trans Mountain must comply with.

The National Energy Board (NEB) has an expectation that companies under their jurisdiction operate in a manner that is not detrimental to neighbours or affected stakeholders. The NEB also mandates that regulated companies have an Environmental Management Systems (EMS); of which one requirement is to identify and rank the company’s primary environmental aspects and their associated impacts. One of the aspects identified by Trans Mountain is the evaporative loss of hydrocarbons. As odourous emissions are an associated impact of this hydrocarbon loss, Trans Mountain has an obligation to prevent, address, and mitigate odourous emissions. Trans Mountain aims to manage odourous nuisances to it’s neighbours through a documented Odour Complaint Investigation and Response Program. This regulatory framework would be comparable to any tank farm facility regulated by the NEB in Canada that identifies evaporative hydrocarbon loss as an environmental aspect. There aren’t defined odour emission objectives specific to liquid petroleum storage facilities in North America; rather it would be general to the oil and gas industry and corresponding to the local or regional air quality objectives. The Canadian Council of Ministers of the Environment (CCME) Guidelines and in the United States, the American Petroleum Institute (API) Standards have specific documents relating to evaporative losses from liquid petroleum storage but neither have outlined odour thresholds or air quality objectives.

(3) Trans Mountain Pipeline ULC (Trans Mountain) is committed to meeting the requirements of the Environment, Health and Safety Policy (Kinder Morgan Canada Inc, 2012) that is accomplished through the Odour Complaint Investigation and Response Program and various emission reduction measures. There is no quantifiable way to measure odour emission objectives, therefore, Trans Mountain cannot commit to surpassing objectives that are not defined. Refer to response to SFU IR No. 2.5.12.2 for details on the regulatory framework for odour emissions.

Reference:


(4) Refer to response to SFU IR No. 2.5.12.2 for details on the regulatory framework for odour emissions applicable to Trans Mountain Pipeline ULC (Trans Mountain). The
impacts if Trans Mountain was unable to manage its operations in a manner that is not detrimental to neighbours or affected stakeholders could be varied with many potential outcomes which would result in regulatory enforcement. The National Energy Board (NEB) and the BC Ministry of Environment (MoE) each have enforcement strategies that would ensure compliance and determine consequences if Trans Mountain was found to be non-compliant with a requirement. The consequences could vary in severity from monetary fines, to operational stipulations or the right to revoke Trans Mountain's permission to operate. Please forward specific questions to the NEB or MoE for more details on these consequences.
2.5.13 Volume 7, s. 3.2.2

Reference:

A56025, Application Volume 7, s. 3.2.2, Secondary Containment and Tank Risk Assessments, p. 7-19

Preamble:

The Reference recognized a release of toxic smoke plumes as a possible hazard scenario. The hazard scenarios associated to tank fires and fires resulting from a product release within a containment area are identified through a determination process of risk assessments based on regulations and company direction.

Request:

(1) Is it possible that toxic smoke plumes discharging from the facility may occur?
(2) Is it possible that toxic smoke plumes discharging from the facility may continue for a prolonged period?
(3) For what tank farm events would the discharge of toxic smoke plumes from the facility extend for a prolonged period of time?
(4) Please provide a detailed list of circumstances where Trans Mountain or other authorities may determine it would be necessary to allow the prolonged discharge of toxic smoke from the facility or a facility event.
(5) What strategies would be utilized to minimize or suppress the release of toxic smoke plumes?
(6) What are the potential impacts of a toxic smoke plume on the SFU population or residents at UniverCity, and the degree to which those impacts may be exacerbated if the smoke plume continues for a prolonged period of time?

Response:

(1) The reference to toxic smoke plume risk in Volume 7 of the Application, referred to in the Preamble, is in the context of hazard identification, prior to control measures being applied. A smoke plume is also discussed in the Burnaby Terminal fire risk assessment referred to in the response to SFU IR No. 2.3.07.1, also without control measures being applied.

Trans Mountain will employ a number of prevention, detection, and mitigation control measures to reduce the risk of fires at Burnaby Terminal and their potential impacts. Trans Mountain has outlined many of these measures in the response to NEB IR No. 3.093b (Filing ID A4H1V2, PDF page 469). Trans Mountain has also identified that fixed, automated, full-surface fire protection, which was not included in the Facilities
Application, has been added to the proposed suite of fire-protection measures for the new tanks at Burnaby Terminal, to further enhance the overall robustness of the design.

Significant conservatism is discussed in the Burnaby Terminal risk assessment. The suggested 5.2 km emergency response planning radius determined using the ERPG-2 level does not take into account the smoke plume rise, the dilution of SO₂ within the smoke plume, and the concentrations of SO₂ at ground level compared to the concentrations within the smoke plume. The purpose of the smoke assessment was to inform emergency response planning.

Emergency response plans have been developed for the existing pipeline system, including specific facilities, and the plans will be enhanced and implemented in relation to the proposed expansion of Burnaby Terminal and considering the possibility of a smoke plume. In the highly unlikely event of a fire, mitigation measures are expected to prevent a prolonged duration.

(2) Refer to the response to SFU IR No. 2.5.13.1.

(3) Refer to the response to SFU IR No. 2.5.13.1.

(4) Trans Mountain does not consider allowing a hydrocarbon storage tank or pool fire to burn out, an acceptable strategy. Allowing fires to burn out is an industry accepted practice if offensive fire fighting tactics are not an option due to unsafe conditions for responders. Trans Mountain believes early intervention in an incident such as the mitigation described in the response to City of Burnaby IR No. 1.12.05a (Filing ID A3Y2E6) will be sufficient to prevent and/or extinguish incipient fires, and there will not be a prolonged period of burnout.

(5) Refer to the response to SFU IR No. 2.5.13.1.

(6) Refer to the response to SFU IR No. 2.5.04.1. There is a low likelihood of a fire occurring. However, in the unlikely event that a fire does occur, Kinder Morgan Canada Inc. (KMC) will provide an effective and rapid response through its existing emergency management systems. If necessary, KMC will work with the local fire department to ensure that the fire is brought under control and subsequently extinguished as quickly and efficiently as possible to prevent the potential for prolonged exposures to area residents.
2.5.14 Volume 7, s. 4.3.1, s. 6.3.3.3

Reference:

i. A56025, Application Volume 7, s. 4.3.1, Incident Command System, p. 7-27

ii. A56025, Application Volume 7, s. 6.3.3.3, Local Infrastructure & Services, p. 7-91

Preamble:

Reference (i) states that “notification may not be required to regulatory authorities” at level 1, “emergency services may be required (e.g. fire, police, ambulance) at level 2 and 3, and “the Company may request assistance from other Industry, Municipal, or State Agency personnel.”

Reference (ii) states that “in the event of a large spill, demands are likely to be placed on local, municipal, regional and independent emergency responders (fire, police, ambulance, disaster agencies), hospitals, clinics, social service and relief organizations, and local, municipal, regional and federal government officials and staff. […] The engagement and training activities described in Sections 4.5 and 4.7 will confirm roles, responsibilities and the availability of trained personnel, response equipment, and services along the proposed pipeline corridor.”

Request:

(1) Please provide Trans Mountain’s detailed contingency plan(s) for a loss of water event at the Burnaby Terminal and/or at SFU.

(2) Does Trans Mountain have the internal resources to successfully extinguish several tank fires?

(3) What reliance, if any, will Trans Mountain have on SFU to assist in responding to tank fires?

Response:

(1) Kinder Morgan Canada Inc. (KMC) acknowledges the interest of intervenors to seek more information about the existing emergency management program (EMP) documents, and reference materials related to the Trans Mountain Pipeline System, which is why KMC filed a redacted copy of the existing Emergency Response Plans publicly. In Ruling No. 50 (Filing ID A4G519) the National Energy Board (NEB) determined that it was “satisfied that sufficient information has been filed from the existing EMP documents to meet the Board’s requirements at this stage in the process.”

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).
(2) Refer to the response to SFU IR No. 2.4.07.1.

(3) Kinder Morgan Canada Inc. (KMC) expects to work co-operatively with the municipal emergency responders in the unlikely event of an emergency occurring. KMC anticipates working collaboratively with the local first responders through an Incident Command System (ICS) structure to coordinate air monitoring and other activities in the unlikely event the need arises.

KMC does not anticipate the need for Simon Fraser University (SFU) to assist with tank fire suppression activities; however SFU may be required to enact its own emergency response plan if the City of Burnaby determines that shelter-in-place or evacuation is required due to the fire event at the tank farm.
2.5.15 Volume 5C4, s. 3.4.4.2

Reference:

i. A56006, Application Volume 5C4, s. 3.4.4.2, CALPUFF, p. 66

ii. A56006, Application Volume 5C4, 3.4.4.2, CALPUFF, Table 3.26, Point Source Parameters for Marine Vessels Hoteling at Berth

Preamble:

The References outline the overall CALPUFF methodology, but don’t take into account the prevailing wind direction for the area (generally NNE, NE & E), nor the fact that the nearest ammonia station is in south Burnaby along Rumble St. Similarly, an ozone monitoring station at SFU was not suggested.

Request:

(1) Please provide the criteria for the selection of Monitoring Stations for Ozone and Ammonia.

(2) Please advise if the SFU campus was considered as a site for a monitoring station? Please explain if it was not considered, or was considered but was rejected.

Response:

(1) The ambient ozone and ammonia monitoring observations, selected from Metro Vancouver stations and used for the Burnaby and Westridge Marine Terminals Air Quality Regional Study Area, represent all known ozone and ammonia monitoring stations within the model domain, with the exception of Burnaby Mountain. Ozone measurements from Burnaby Mountain were excluded based on recommendations from Environment Canada due to its higher elevation and the potential for it to pick up natural background ozone from aloft, thereby resulting in measured ozone concentrations that may not be representative of the model domain.

(2) The Simon Fraser University (SFU) Campus was not considered as a site for a future ambient air quality station to monitor Project effects. Note that Table 3.26 in Reference (ii) does not present suggestions for future monitoring locations. The table shows existing monitoring stations with observations of ammonia and ozone for the 2011 modelling period, which were needed as input to the RIVAD/ISORROPIA chemical reaction scheme in the CALPUFF model. An important selection criterion was the representativeness of the station observations for the area surrounding the Westridge Marine Terminal.

Metro Vancouver (MV) already operates an ambient air quality monitoring station on Burnaby Mountain at the SFU campus (MV Station T14). The Burnaby Mountain station is located at a higher elevation (360 m above sea level) compared to the Burnaby Terminal and Westridge Marine Terminal. It is designated as a “Special Purpose – Research” station because of its unique location (Metro Vancouver 2012). As further
explained in the response to SFU IR No. 2.5.15.1 of this information request, ozone measurements from Burnaby Mountain may not be representative of the model domain.
2.5.16 Volume 5C4, s. 5.2.4

Reference:

i. A56006, Application Volume 5C4, s. 5.2.4, Burnaby Terminal, p. 197-238

ii. A56006, Application Volume 5C4, s. 5.2.4, Burnaby Terminal, p. 229-238

Preamble:

Reference (i) states that the estimated total VOC emissions due to Project operations at Burnaby Terminal will increase by approximately 7% over the emissions from existing operations.

Reference (ii) states that post-construction monitoring is not required for Burnaby Terminal as there is a continuous ambient air quality monitoring station that reports hydrogen sulphide (H₂S), sulphur dioxide (SO₂), and total VOC, wind speed and wind direction.

Request:

(1) Is there technical information validating that the existing ambient air quality monitoring stations can capture emissions from the proposed new tanks at the Burnaby Terminal, both while operating under normal conditions as well as in the event of a product release or fire? If yes, please provide.

(2) In case of a product release or fire at the Burnaby Terminal, when and how will the exceedences of ambient air quality parameters be used to advise and/or evacuate nearby residents, and specifically, the SFU community?

(3) How frequently will the ongoing air quality monitoring be conducted once the proposed expansion is operational? Please confirm that air quality results will be shared with SFU.

Response:

(1) The location of the Automated Monitoring System (SAM\(^1\)) unit within the boundaries of the Burnaby Terminal was strategically selected based on the air dispersion modelling results conducted by the monitoring equipment provider. The SAM unit was placed in the northwest corner of the facility which is based on the prevailing wind direction condition (wind blowing from east through southeast directions). This location has the best potential to measure elevated concentrations due to the contribution from the existing and proposed storage tanks, which can affect the Burnaby Mountain community, located less than 0.5 km west and northwest of the Burnaby Terminal. A wind rose based on observations at the Metro Vancouver Burnaby Burmount Station is provided as Figure 2.5.16.1-1. The lobes on the wind rose indicate the percentage of time that the wind originates from a given direction.

\(^{1}\) Système Automatisé de Monitoring
For other common wind conditions (northeasterly through east-northeasterly winds), the Metro Vancouver (MV) Burnaby Burmount Station measures continuous total hydrocarbons (THC), total reduced sulphur (TRS) and samples every six days for speciated volatile organic compounds (VOCs). This station is located approximately 500 m southwest of the Burnaby Terminal and would be downwind under these common wind directions. Based on wind observations at the MV Burnaby Burmount Station, one of these two ambient monitoring stations would be downwind of the Burnaby Terminal about 66% of the time.

![Wind rose for the MV Burnaby Burmount monitoring station.](image)

**Figure 2.5.16.1-1:** Wind rose for the MV Burnaby Burmount monitoring station.

The hazard dispersion modelling associated with an accidental product release and fire did not account for wind direction so the predicted contours are not directionally specific.

(2) Trans Mountain Pipeline ULC (Trans Mountain) follows the Incident Command System (ICS) with a Unified Command approach. Local fire, health authorities and regulatory agencies would be called upon to assist in developing an effective air monitoring plan to manage and mitigate the conditions present. In the event of an exceedance of the Acute Exposure Guideline Levels (AEGL) Level 1 thresholds at any sampling point, the air monitoring crew would immediately notify Unified Command where it would be communicated to all participating regulatory agencies. Trans Mountain would consult with the local health authority on the best course of action to protect the public, either shelter-in place or evacuation, in the event that the plume reaches AEGL Level 2 thresholds. If SFU was considered a sensitive receptor and at risk of being exposed to AEGL Level 2 thresholds, the local emergency response services, with the assistance of Trans Mountain would initiate and communicate an evacuation plan.

(3) Refer to the response to SFU IR No. 2.5.07.3.
2.5.17 Volume4B– Revised Project Corridor Route Map

Reference:

Revised Trans Mountain Expansion Project Corridor Route Map; Project Overview Burnaby Proposed Trans Mountain Expansion Project, Map Number 201403_MAP_TERA_SK_00540_REV0, April 2014

Preamble:

Trans Mountain has presented a proposal for a new pipeline route alignment that includes a tunnel through the Burnaby Mountain Conservation area.

Request:

(1) Please provide additional detail on the proposed tunnel through Burnaby Mountain, including:
   i. Requirements of geotechnical investigation and drilling.
   ii. Tunnel alignment and profile.
   iii. Material handling (i.e. handling of spoils).
   iv. Leak detection and procedure for leak repair in this section.
   v. Impact of tunneling activity under Burnaby Mountain Parkway.

(2) Please provide a summary of Trans Mountain’s consultations with potentially affected stakeholders along the new study corridor, and in particular SFU.

(3) Please provide a summary of issues raised during such consultations, including, but not limited to, consultation with SFU, as well as any steps that Trans Mountain will take to address them. If Trans Mountain will not take steps to address stakeholders’ concerns, please explain why.

Response:

(1) Please view the following filing documents related to this request. Should you have further questions Trans Mountain would be happy to facilitate a consultation.

   • B290 - Trans Mountain Pipeline ULC - Project and Technical Update No. 4, Part 1 of 2 (Filing ID A64687)
   • B291 - Trans Mountain Pipeline ULC - Project and Technical Update No. 4 - Part 2 of 2 (Filing ID A64686)

(2) Given the preamble, Trans Mountain assumes that Simon Fraser University’s (SFU) request refers to its proposed pipeline corridor for the Westridge Delivery Pipeline between Burnaby Terminal and Westridge Marine Terminal.
As with all parties affected by the proposed Project, Trans Mountain is committed to continuing open and transparent dialogue with SFU. Since the Trans Mountain Expansion Project was first proposed in May 2012, Trans Mountain has engaged extensively with stakeholders including SFU regarding proposed routing options, including the Westridge Delivery Pipeline corridor in Burnaby.

City of Burnaby IR No. 2.134c documents the timing of pipeline corridor options discussed with stakeholders and feedback received:

In the almost three years since the Trans Mountain Expansion Project was first proposed in the Spring of 2012, Trans Mountain extensively engaged with stakeholders and others about routing options for the Westridge Delivery Pipeline in Burnaby, between Burnaby Terminal at 7815 Shellmont Street and Westridge Marine Terminal at 7065 Bayview Drive. During this time, a ‘streets’ option has always been one of the proposed options. The other option proposed was an option that involved trenchless technology through Burnaby Mountain. However, the trenchless option has evolved through time as follows:

**Partial trenchless:**

- The first pipeline corridor conversations in early 2013 included a ‘partial’ trenchless option through Burnaby Mountain. It was proposed as conventional trenched construction between Burnaby Terminal to an unused section of Burnwood Avenue north of Burnaby Mountain Parkway on Burnaby Mountain, and then it proposed a trenchless corridor from this location to the Kask Brothers cement plant on Barnet Highway through to Westridge Terminal. On December 16, 2013 Trans Mountain filed this in its Facilities Application as an ‘alternate’ corridor. At that time, an option through City of Burnaby ‘streets’ and four private properties in the Northcliffe neighbourhood was its preferred option.

**Horizontal Directional Drill (HDD)/Tunnel**

- In early 2013, Trans Mountain began to discuss with stakeholders a longer trenchless technology that would begin inside Burnaby Terminal and route through the mountain to a location north of Barnet Highway. This technology was subject to confirmation through further study. This option did not require any trenched construction.

- On May 12, 2014, Trans Mountain filed a revised pipeline corridor that proposed routing via HDD or tunnel technology. At this time, the streets option became an ‘alternate’ corridor.

**Tunnel**

- On July 17, 2014, Trans Mountain’s president stated that if the tunnel option were to be selected through Burnaby Mountain, the opportunity existed for Trans Mountain to consider relocating the existing NPS 24 Westridge
Delivery Pipeline to the tunnel through Burnaby Mountain if the Project is approved. Trans Mountain’s proposal to relocate the existing NPS 24 pipeline is not part of the Application before the NEB and would be part of a separate regulatory application.

- Trans Mountain’s current preferred installation method for the Westridge Delivery Pipelines is via a tunnel through Burnaby Mountain. Trans Mountain has selected a tunnel to avoid residential areas and urban infrastructure, to reduce environmental effects during construction and operation, and to minimize risk during operation. Trans Mountain is no longer considering a HDD technology for installation, but it continues to carry as an alternative, the alternative corridor through Burnaby streets. On December 1, 2014 Trans Mountain filed this preference with the NEB (NEB Filing ID A4F5D5), having completed investigation work and feasibility studies on the tunnel and HDD options.

Through discussions with community members as outlined in responses to City Burnaby IR No. 1.03.01c (Filing ID A3Y2E6), and Corcoran K IR No. 1.1.01 (Filing ID A3X6A9), from the Fraser River in to Burnaby, Trans Mountain has determined that a trenchless option through Burnaby Terminal to Westridge Terminal is more preferable than an option to route the pipeline through city streets.

In addition, potential landowners were generally opposed to the route down Hastings and two of these potential landowners indicated they believed there was a better route elsewhere.

Given the strong public interest in this Project in the City of Burnaby, Trans Mountain is requesting that the NEB examine both the proposed revised pipeline corridor using a tunnel option via Burnaby Mountain as well as the proposed revised alternative corridor through Burnaby streets in its public interest determination.

Table 2.134c-1 highlights engagement with, and feedback from local area stakeholders regarding pipeline corridor options for the Westridge Delivery Pipeline. For a complete summary of engagement and communications activities and feedback related to Trans Mountain’s Westridge Delivery Pipeline proposed corridors, please see Technical Update No.4 (Filing ID A4F5D5), filed with the NEB on December 1, 2014.

Key engagement opportunities related to proposed corridors for Westridge Delivery Pipeline included (not an exhaustive list):

**June 26, 2013 Community Interest Workshop: Burnaby**

- Section 1.5.2.28, Volume 3A of the Application (Filing ID A3S0R4) documents the details of a community interest workshop held in Burnaby, BC on June 26, 2013. The
The purpose of this workshop was to seek input to the proposed routing from stakeholders, community groups, and local governments.

April 3, 2014 Community Interest Workshop: Burnaby

- Section 1.5.5 of Technical Update 1, Consultation Update 2, Part 5 (Filing ID A3Z8J2) documents details of a community interest workshop to gather input on modifications to selected and/or alternate proposed routing corridors.

Other Interactions with SFU

- On February 18, 2014 during a telephone conversation with SFU, the option to route under Burnaby Mountain was discussed. At SFU’s request, Trans Mountain emailed a map from the June 26 2013 routing workshop.

- On May 2, 2014 at SFU’s request, Trans Mountain shared a copy of a presentation that showed the routing option under Burnaby Mountain with SFU.

- On October 28, 2014 Trans Mountain provided SFU with a traffic management plan for the geotechnical studies to be completed on Burnaby Mountain in order to comply with the NEB directive. The email confirmed that the environmental, archaeological and geotechnical field investigations were required to determine feasibility of the tunneling option.

Public Engagement opportunities

Information about proposed pipeline corridor alignment through Burnaby has been available to view and for discussion with Trans Mountain representatives at publicly advertised Open Houses in Burnaby on June 27, 2013; September 25, 2013, and April 3, 2014.

Trans Mountain has held two Telephone Townhalls for Burnaby residents where residents could ask questions on September 16, 2014 and December 3, 2014.

Information on the Telephone Townhalls can be found in section 1.2 of Consultation Update 3 (Filing ID A4H1W2). For the first call on September 16, 2014 Trans Mountain provided an invitation by phone to all listed, land-line phone numbers in Burnaby. An automated dial-out at the time of the telephone town hall went out to the same numbers and allowed people to join. Section 1.4.12 of Consultation Update 3 (Filing ID A4H1W2) provides details of the second Telephone Townhall, with a focus on Burnaby Mountain, held on December 3, 2014. For those who were unable or didn't want to attend the calls, full audio recordings of both calls were posted online at blog.transmountain.com

For a summary of Trans Mountain’s engagement efforts related to the Westridge Delivery Line Routing update, please see Project and Technical Update #4 (Filing IDs A64687 and A64686)

For more information, please see the following documents:
Trans Mountain continues to seek stakeholder feedback on how and when they would like to be engaged regarding the Project. As Trans Mountain becomes aware of new groups or individuals, it proactively reaches out to them to determine how best to involve them. Trans Mountain seeks out and engages with stakeholders in a proactive manner. However, it is important for stakeholders to make their interests known to Trans Mountain, in order for Trans Mountain to consider their input.

(3) Section 3.1 of Project and Technical Update #4 (Filing ID A4F5D5) filed with the NEB on December 1, 2014 provides a summary of stakeholder concerns and responses related to the Westridge Delivery Line Routing option.

For a comprehensive overview of Trans Mountain’s consultation efforts, please see the following documents filed with the NEB:

- Volume 3A (Filing ID A55987)
- Consultation Update No. 1 and Errata (Filing ID A59343)
- Consultation Update No 2 (Filing IDs A62087 and A62088)
- Project and Update Filing #4 (Filing IDs A64687 and A64686)
- Consultation Update No. 3 – Part 1, Public Consultation, NEB IR No. 3.005a - Attachment 1 (Filing IDs A4H1W2 and A4H1W3) and Appendices (Filing IDs A4H1W4, A4H1W5, A4H1W6 and A4H1W7).

Also refer to response to SFU IR No. 2.5.17.2.
2.5.18 Volume 6C, s. 8.0, Appendices E-Q

Reference:

i. Volume 6C, s. 8.0, Appendices E-Q, Facility-specific construction mitigation measures


Preamble:

Reference (i) states that "Resource-specific feature locations will be identified within the resource-specific mitigation tables provided in Appendices E to Q", however, the tables for almost all the resource-specific mitigation measures are empty, including those associated with protecting terrain, hydrology, soils, water quality, aquatic resources, vegetation, wetlands, heritage resources, socio-economic, air quality, noise and traditional land use. An Environmental Protection Plan (EP Plan) for the tanks expansion at the Burnaby Terminal should be provided at this stage of approvals.

According to Reference (ii), the NEB may expect a comprehensive EP Plan be filed under the following circumstances:

i. When the applicant does not have up-to-date company manuals on file with the NEB that capture its environmental protection procedures;

ii. If site- or project-specific mitigation or protection measures are provided by the applicant as commitments to avoid or address predicted adverse environmental effects in the application; or

iii. If the application and assessment process is lengthy or complex, and environmental protection measures and commitments are contained in several different places or documents (e.g., responses to information requests).

The NEB Filing Manual also indicates that a draft EP Plan should contain "the resource-specific mitigation to be applied for the project, and the general environmental protection measures for each phase of construction". Currently, the Application does not contain this information and can be considered deficient. The lack of such information significantly limits the ability of affected stakeholders to make informed decisions about the adequacy of the Application.

Request:

(1) Please explain whether Trans Mountain intends to file a draft EP Plan in support of its Application, and if so, when will the EP Plan be filed and made available to Intervenors?

(2) Please explain why the mitigation tables for EP Plans for the facilities are not complete. Please provide all detailed mitigation measures.
(3) If the mitigation measures are not yet defined, please explain why that is the case, and when Trans Mountain will provide definitive mitigation measures, specific to Burnaby Mountain and the Burnaby Terminal.

(4) Once the mitigation measures have been defined and finalized, will Trans Mountain provide them to SFU?
   i. If yes, when?
   ii. If not, please note SFU requires this information to develop a better understanding on how Trans Mountain plans to manage potential impacts of the proposed expansion on the SFU community. SFU will request that the NEB require Trans Mountain file a comprehensive EP Plan if Trans Mountain does not file such a plan or Trans Mountain does not provide SFU with a copy of such plan.

Response:

(1) The Facilities Environmental Protection Plan (EPP) that Trans Mountain filed in support of its Application (Volume 6C; Filing IDs A3S2S6 and A3S2S7) is considered to be draft, as per the specifications provided in the National Energy Board's Filing Manual (2014a). The recommended mitigation measures provided in the body of the Facilities EPP are applicable to the expansion activities proposed for the Burnaby Terminal. Resource specific mitigation measures, as appended to the Facilities EPP, will be provided in the Issued for Construction version of the Facilities EPP.

Trans Mountain will file the Issued for Construction versions of the various EPPs (i.e., Pipeline, Facilities and Westridge Marine Terminal) with the National Energy Board a minimum of 90 days prior to the commencement of construction as per Conditions 29, 30 and 31 that were stipulated in the NEB’s Letter – Draft Conditions and Regulatory Oversight (April 16, 2014) (NEB 2014b).

References:


(2) Some of the mitigation tables in the Facilities Environmental Protection Plan (EPP) that was filed with the Application in December 2013 (Volume 6C; Filing IDs A3S2S6 and A3S2S7) were not complete because the information required to specify facility-specific recommended mitigation measures was not available at that time. Trans Mountain has continued to advance the Project through Preliminary Engineering Design and the commencement of Detailed Engineering Design as well as ongoing environmental and engineering studies and engagement with stakeholders. These studies will continue
throughout the remainder of Detailed Engineering Design and potential mitigation measures for all identified potential impacts will be made available in the Issued for Construction version of the Facilities EPP (refer to the response to SFU IR No. 2.5.18.1).

(3) Refer to responses to SFU IR No. 2.5.18.1 and SFU IR No. 2.5.18.2.

(4) i. Refer to the response to SFU IR No. 2.5.18.1 for the timing for the completion of the Environmental Protection Plans.

ii. As a registered Intervener in Hearing Order OH-0001-2014, SFU is entitled to all non-confidential information that is put on the Record with the National Energy Board. As such, SFU will have access to the Issued for Construction version of the Environmental Protection Plans after they have been filed with the NEB a minimum of 90 days prior to the commencement of construction as per Conditions 29, 30 and 31 that were stipulated in the NEB’s Letter – Draft Conditions and Regulatory Oversight (April 16, 2014) (NEB 2014).

Reference:

2.5.19 Volume 5A, s. 5.4.2.5

Reference:

i. Volume 5A, s. 6.1.16, Environmental Setting for Facilities, Burnaby Terminal (Table 6.1-16)

ii. Volume 5A, s.7.5.4, Effects Assessment – Tank Installation and Operations, Air Emissions

iii. Volume 5A, s.7.2.4, Effects Assessment – Pipeline Construction and Operations, Air Emissions

Preamble:

The References state that, “The Burnaby Mountain Station was not considered since it is located at a higher elevation (360m asl) compared to the rest of the area and data from this station may not be representative of the proposed pipeline corridor.” Burnaby Mountain and SFU are within the Air Quality Regional Study Area and are exposed to air quality effects from activities related to the pipeline and Burnaby Terminal. Considering the large concentration of people at SFU as air quality receptors, there is strong rationale for a careful study of the potential impacts at SFU to ensure confidence in the adequacy of the mitigation, and to support operational monitoring at sensitive locations.

Request:

(1) Does Trans Mountain consider the Burnaby Mountain Station data representative of the baseline air quality for the people at SFU? If not, why not?

(2) Did the air quality modeling for the Burnaby Terminal consider data from Burnaby Mountain? If not, how does this impact and/or limit the predictive power of the conclusions regarding air quality impacts to SFU?

(3) If no air quality data from Burnaby Mountain were considered, how does this impact and/or limit the confidence in the adequacy of air quality mitigation measures at the Burnaby Terminal to prevent air quality effects at SFU?

(4) Since Burnaby Mountain and SFU are within the Air Quality Regional Study Area and will be exposed to air quality effects from construction and operation of the Burnaby Terminal and pipeline, SFU requests that a pre-construction air quality baseline be established at SFU to enable operational monitoring and verification of predictions. Is Trans Mountain prepared to complete the requested baseline study? If not, why not?

Response:

(1) Although the information request may be outside the scope of this proceeding, Trans Mountain offers the following response to the question. The Burnaby Mountain station is located at a higher elevation (360 m above sea level) compared to other stations in the Air Quality Regional Study Area and has been designated as “Special Purpose –
Nitrogen dioxide (NO₂) and ozone (O₃) are measured 23.4 m above ground (Metro Vancouver 2012), which is almost double the height of any other station of the Metro Vancouver (MV) monitoring network. Measurements closer to the ground would be more representative of air contaminant exposure by the general population at SFU to local sources near the ground. However, because of the proximity of Burnaby Mountain station to SFU, it represents similar atmospheric conditions, which may be distinctly different from other MV stations near sea level and, therefore, provides the best available representation of NO₂ and O₃ concentrations at Simon Fraser University.

For the air quality assessment of Burnaby Terminal, ambient background concentrations which were used to represent baseline conditions for the Project, were taken from the MV Burnaby Kensington Park station, not the MV Burnaby Mountain station.

Reference:


(2) Measurements of meteorological data (wind speed, wind direction, and temperature) at Burnaby Mountain were incorporated into the CALMET/CALPUFF models (see Appendix B for the model plan in Technical Report 5C-4 of Volume 5C, Air Quality and Greenhouse Gas Technical Report [December 2013; Filing ID A3S1U3]). Measurements of two air contaminants, nitrogen dioxide (NO₂) and ozone (O₃), were not considered in the modelling or as representative ambient background in the study area.

It was determined that NO₂ and ozone measurements were not representative of the regional background as a whole (as discussed in the responses to SFU IR Nos. 2.5.15.1 and 2.5.19.1), and it was recommended by Environment Canada not to use these measurements in regional background calculations. Instead, regional background concentrations were taken from Metro Vancouver monitoring stations at Kensington Park (for criteria air contaminants and total reduced sulphur) and Burnaby-Burmount (for volatile organic compounds). The exclusion of Burnaby Mountain to estimate background concentrations allowed for a better predictive power of the conclusions of the whole modelling domain.

Measured background NO₂ concentrations are lower on Burnaby Mountain than Kensington Park station (Metro Vancouver 2014a,b). Therefore, NO₂ background concentrations based on Kensington Park station are conservatively high for the Simon Fraser University (SFU) area. Average ozone observations at Burnaby Mountain are substantially higher than at other locations in the study area as expected at the higher elevation, while peak ozone concentrations tend to be similar to other stations near Burnaby Mountain. Higher ozone concentrations are consistent with generally higher observed NO₂–to-NOₓ ratios at the Burnaby Mountain station. However, the Ambient Ratio Method (ARM) used to partition modelled NOₓ into NO₂ and NO is a conservative approach for lower NOₓ concentrations such as those recorded at the Burnaby Mountain Station and modelled near SFU, which mostly fall under the ARM threshold.
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concentration for total conversion \( \text{i.e., all modelled } \text{NO}_x \text{ assumed to be } \text{NO}_2 \text{ under the threshold} \). Adding the 2011 Burnaby Mountain observations to the other 2011 observations would not have significantly affected the ARM curve and total conversion threshold \( \text{if at all} \) and the results would have therefore been the same.

The net effect of using Kensington Park \text{NO}_2 \text{ background and } \text{NO}_2\text{-to-NO}_x \text{ ratios based on the ARM led to a conservative estimate of NO}_2 \text{ concentrations for the area near SFU.}

For ozone, the photochemical model CMAQ was employed to predict incremental changes in ozone concentrations caused by the Project. Due to the slow chemical transformations occurring over large areas, the inclusion of ozone observations from Burnaby Mountain would only have a negligible effect on incremental changes in ozone concentrations.

References:


(3) For reasons outlined in the response to SFU IR No. 2.5.19.2, the impact of not considering Burnaby Mountain observations for ambient background is minimal when considering the changes of air quality in the region and at Simon Fraser University (SFU). Therefore, the confidence in the adequacy of air quality mitigation measures at the Burnaby Terminal to prevent air quality effects at SFU is not affected by the decision to use alternative stations.

(4) Trans Mountain considers there to be adequate monitoring coverage in the Air Quality Regional Study Area and no additional stations are required. Baseline conditions have already been addressed in the air quality assessments that were filed with the National Energy Board.

As noted in the response to SFU IR No. 2.5.19.1, there is an existing Metro Vancouver ambient monitoring station at Simon Fraser University (SFU) called Burnaby Mountain. Although not ideal for the air quality assessment for the Project as the inlet height is 23.4 m above grade, these measurements are still helpful. Secondly, Trans Mountain operates its SAM ambient station in the northwest corner of the Burnaby Terminal and it continuously measures H\text{2S}, SO\text{2} and total hydrocarbons. Finally, there is another Metro Vancouver ambient station called Burmount which is located about 500 m southwest of the Burnaby Terminal which measures volatile organic compounds like benzene and toluene every six days.

Trans Mountain will also conduct ambient air quality monitoring at the Westridge Marine Terminal and emissions source tracking of contaminants of potential concern. Contaminants of potential concern that will be directly measured include particulate
matter (PM$_{10}$ and PM$_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO$_2$), sulphur dioxide (SO$_2$), hydrogen sulphide (H$_2$S) and volatile organic compounds (VOCs).

Trans Mountain considers these three ambient monitoring stations and others operated by Metro Vancouver to provide adequate coverage for the Air Quality Regional Study Area and does not see a need for any additional stations to be installed at SFU. As suggested, these existing and proposed stations would be useful in providing a record of observations that could be used to verify model predictions for existing conditions and any Project-related effects.
2.5.20 Volume 5A, s. 7.5.3

Reference:

i. A3S1Q9, Volume 5A, s. 7.5.3, Water Quality and Quantity, Effects Assessment – Tank Installation and Operations

ii. A3S1Q8, Volume 5A, s. 6.1.16, Environmental Setting for Facilities, Burnaby Terminal (Table 6.1-16)

Preamble:

The References state that:

i. The southwestern corner of the Burnaby Terminal appears to overlie Aquifer #49, a moderately vulnerable aquifer, based on regional mapping (BC MOE 2013a);

ii. Stormwater at the Burnaby Terminal, however, is discharged into the Eagle Creek watershed, which may experience an increase in stormwater discharge as a result of the 14 proposed storage tanks;

iii. The headwaters of Eagle Creek are within the existing property boundaries of the Burnaby Terminal and will be within 30 m of planned work.

The Application includes very little discussion about the potential effects on the hydrology of Eagle Creek from the construction and operations at the Burnaby Terminal. SFU is concerned about the direct impacts of the project on the surface water and groundwater in the Eagle Creek watershed.

Request:

(1) Has Trans Mountain completed any hydrology or water quality baseline data collection in the Eagle Creek watershed to inform:

   i. The design of the terminal expansion?

   ii. The effects assessment on hydrology and stream morphology/stability?

   iii. The effects assessment on stream water quality?

   iv. Mitigation design?

   v. Operational monitoring?

Please provide copies of all reports relating to the above.

(2) Does Trans Mountain plan to monitor Burnaby Mountain and Eagle Creek for potential impacts to the hydrology and water quality of Eagle Creek during and post construction?

   i. If not, why not?
If yes, will Trans Mountain provide a draft monitoring plan to SFU for review and comment prior to finalizing it? If not, why not?

Response:

(1) i. Trans Mountain Pipeline ULC (Trans Mountain) has not undertaken any specific hydrological assessments at the Burnaby Terminal to inform the terminal expansion. As part of ongoing operations, Trans Mountain has and continues to monitor hydrology and water quality within the terminal site. Since expansion activities will be confined to within the existing site, Trans Mountain relied on the years of observations and data collection within the terminal as part of regulatory requirements and permit conditions, to inform expansion design, while ensuring all other applicable engineering and operating and safety codes and standards are followed. The various tributaries of Eagle Creek currently flow through culverts in the lower portion of the Burnaby Terminal; the upper portions of these tributaries will either be rerouted through culverts that join the existing culverts or redirected through new culverts or open channels through the site, whichever is most practical.

ii. As part of fish and fish habitat field surveys, watercourses within the Eagle Creek watershed that are encountered by the proposed pipeline corridor were assessed for hydrology and morphology/stability based on parameters such as channel morphology, substrate composition, bed and bank structure and stability (refer to Fisheries [British Columbia] Technical Report 5-C7 of Volume 5C (Filing IDs A3S2C1 and A3S2C2)) and the Supplemental Fisheries (BC) Technical Report (Triton Environmental Consulting 2014) attached to NEB IR No. 3.039a (Filing ID A4H1V2).

iii. As part of fish and fish habitat field surveys, watercourses within the Eagle Creek watershed that are encountered by the proposed pipeline corridor were assessed for water quality based on parameters such as turbidity, conductivity, temperature and pH. Trans Mountain has not undertaken any specific water quality assessments at the Burnaby Terminal to inform the terminal expansion beyond the work described in response to Simon Fraser University IR No. 2.5.02. As part of ongoing operations, Trans Mountain has and continues to monitor hydrology and water quality within the terminal site in accordance with regulatory requirements and permit conditions.

iv. Mitigation measures for construction of the pipeline within the Eagle Creek watershed and storage tanks at Burnaby Terminal were developed based on the results of the fish and fish habitat field surveys and hydrogeological studies documented and described in the Groundwater Technical Report 5C-5 (Filing IDs A3S1U8 and A3S1W4) and the Fisheries (British Columbia) Technical Report 5C-7 (Filing IDs A3S2C1 and A3S2C2) of Volume 5C. Historical data obtained through Trans Mountain’s operation of the Trans Mountain Pipeline within the Eagle Creek watershed also provided considerable insight into the planning and development of mitigation design strategies.
As stated in Section 3.0 of the Pipeline Environmental Protection Plan (Volume 6B [Filing ID A3S2S3]), in the event that an unforeseen environmental issue arises during construction for which no mitigation measures have been approved, Trans Mountains’ Construction Manager or designate, the Environment Manager and the Environmental Inspector(s) will formulate a plan of action in consultation with the appropriate regulatory authorities. For additional information refer to City of Burnaby IR No. 1.13.05i (Filing ID A3Y2E6).

Furthermore, as indicated in the response to the City of Burnaby IR No. 1.13.05b (Filing ID A3Y2E6), the design features to prevent oil spills at the proposed expanded Burnaby Terminal are described in Section 3.4.3, Volume 4A (Filing ID A3S0Y8) of the Facilities Application. The operations procedures and practices intended to prevent oil spills at the proposed expanded Burnaby Terminal are described in Sections 5.0, 6.0, 7.0, and 8.0, of Volume 4C of the Facilities Application (Filing ID A3S1L1).

v. Operational monitoring of water quality and quantity conditions will be an extension of Trans Mountain’s existing monitoring strategy as per BC Ministry of Environment (MOE) permit conditions and will be augmented in accordance with any changes to BC MOE permit conditions that may result as part of the expansion activities at the Burnaby Terminal.

The management of stormwater release from the tertiary containment pond will be unchanged from the current operation. Although the amount of stormwater discharge is expected to increase as a function of increased disturbance and development at the Burnaby Terminal, the rate of storm water discharge from the existing tertiary containment pond is not expected to be much, if any, greater than existing conditions since discharge rates from the remote impoundment will be controlled to not exceed permitted maximum allowable release rates. Consequently, the level of total suspended solids (TSS) released from the tertiary containment pond is not anticipated to change.

Furthermore, to ensure stormwater quality is not affected by the expanded stormwater conveyance system, stormwater drainage systems and hydrocarbon detection equipment in secondary containment will be inspected and tested regularly in accordance with permit conditions and, therefore, no change in the chemistry (e.g., pH) or level of TSS is anticipated beyond existing conditions.

The potential for increased discharge rates and potential increases in TSS from the stormwater containment pond will be confirmed during the detailed engineering and design phase of the Project.

(2) i. Trans Mountain will monitor the construction footprint at the Burnaby Terminal including the crossing of the unnamed tributary to Eagle Creek for potential impacts to hydrology and water quality. Eagle Creek is not anticipated to be disturbed by the Project (i.e., through proposed terminal expansion or tunnel portal entry), and will not be monitored. Please also refer to the Supplemental
Fisheries (BC) Technical Report (Triton Environmental Consultants Ltd. 2014, submitted in response to NEB IR No. 3.039a; Filing IDs A4H1Z2 to A4H2D0) for updated fish and fish habitat information. Note that the new site reference name for the Unnamed Tributary to Eagle Creek is BC-785a2. Trans Mountain is proposing a tunnel to install the pipelines through Burnaby Mountain, with the entry and exit portals located outside of the Conservation Area. Therefore Trans Mountain will not monitor water within the Burnaby Mountain Conservation Area during construction.

ii. The Trans Mountain procedures for monitoring the construction footprint on the Burnaby Terminal are described in the Facilities Environment Protection Plan, Volume 6C (Filing ID A3S2S6). Accountability to environmental protection is described in Section 1 of Volume 6C.
2.6 GOVERNANCE

2.6.1 Volume 7, s. 4.4

Reference:

A56025, Application Volume 7, s. 4.4, Emergency Response Manuals and Reference Materials, p. 7-32

Preamble:

In the event of a product loss of primary containment, allowing the product to weather is a possible response strategy. This type of passive strategy is typically utilized when insufficient resources are available to suppress a vapor release, or when suppressing a vapor release presents an unacceptable level of risk to responders. Spill events that are allowed to weather can expose adjacent facility areas and the community to flammable, combustible and/or toxic airborne vapors.

Request:

(1) Please provide a detailed and comprehensive list of the resources, facility member skills and organizational functions required to support a tank farm spill/release passive strategy, such as allowing a spill/release to weather, in order to ensure the spill/release event is prevented from escalating or growing in scope or magnitude.

Response:

(1) Kinder Morgan Canada Inc. (KMC) acknowledges the interest of intervenors to seek more information about the existing emergency management program (EMP) documents, and reference materials related to the Trans Mountain Pipeline System, which is why KMC filed a redacted copy of the existing Emergency Response Plans publicly. In Ruling No. 50 (Filing ID A4G519) the National Energy Board (NEB) determined that it was “satisfied that sufficient information has been filed from the existing EMP documents to meet the Board’s requirements at this stage in the process.”

KMC is committed to ensuring a prompt and immediate response to any release / spill that involves Trans Mountain Pipeline or Facilities to protect the public, employees, environment, and property. KMC does not view passive weathering of spilled / released product as an acceptable response tactic.

The Application, Volume 7, Section 4.8 outlines the process to enhance Kinder Morgan Canada’s (KMC) existing EMPs 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 NEB’s draft conditions related to emergency response (Filing ID A3V8Z8).
2.6.2 Volume 7, s.2.2

Reference:
A56025, Application Volume 7, s.2.2, Facilities, p.7-4 to 7-6

Preamble:
The reference outlines Trans Mountain’s commitment related to the prevention of oil spill occurrence, and the type of efforts it will make to respond to facility risk potentials, but it is unclear whether its capabilities satisfy NFPA 600 – Standard on Industrial Fire Brigades’

i. Chapter 5: Industrial Fire Brigades That Perform Incipient Stage Fire Fighting

ii. Chapter 6: Industrial Fire Brigades That Perform Advanced Exterior Fire Fighting Only

iii. Chapter 7: Industrial Fire Brigades That Perform Interior Structural Fire Fighting Only

iv. Chapter 8: Industrial Fire Brigades That Perform Advanced Exterior and Interior Structural Fire Fighting;

or


Request:

(1) Has Trans Mountain developed a comprehensive Emergency Management Program which includes personnel trained, provided and maintained compliant with the current version of NFPA 600 – Standard on Industrial Fire Brigades – Chapters 5-8? If not, why not? If yes, please provide a copy of such program.

(2) Has Trans Mountain developed a comprehensive Emergency Management Program which includes equipment provided and maintained compliant with the current version of NFPA 1911 – Standard for Service Tests of Fire Pump Systems on Fire Apparatus? If not, why not? If yes, please provide a copy of such program.

Response:

(1) No, Kinder Morgan Canada Inc. (KMC) personnel are not trained as firefighters. They are trained in the operation of the equipment on site as well as strategy and tactics for various fires. They are well versed in the Incident Command System (ICS) and are experts in the operation of the site. The response designed for the site is a team approach with responders under a Unified Command Structure.

(2) All fire protection systems on the Trans Mountain pipeline system, operated by Kinder Morgan Canada Inc. (KMC) follow the recommended practices contained in National Fire Protection Association (NFPA) standards referenced in the Alberta and British Columbia Fire Codes.
2.6.3 Volume 2, s. 1.2.1.4

Reference:

A55987, Application Volume 2, s. 1.2.1.4, Focused on Safety, p. 2-3

Preamble:

The Reference notes that 60 staff will be located between Hope and Burnaby.

Request:

(1) What will be the roles and responsibilities of Trans Mountain/Kinder Morgan Canada’s staff located in Burnaby in terms of facility maintenance, safety, security and emergency response for the pipeline, and Burnaby Terminal?

Response:

(1) Operations, maintenance, pipeline protection, pipeline maintenance and pipeline integrity technicians will be based in Burnaby. Operations and maintenance technicians will be responsible for performing maintenance, inspection and field operation tasks on equipment located primarily at Burnaby Terminal although they may also periodically provide assistance to personnel located at other TMPL facilities and at pipeline right of way locations. Examples of these tasks include calibration of instrumentation devices, balancing and repair of rotating equipment, safety equipment checks, lubrication of mechanical equipment, electric motor maintenance, collection of oil samples and inspection of pipes and tanks. Pipeline protection, pipeline maintenance and pipeline integrity technicians will perform tasks both within Burnaby Terminal and along the pipeline right of way that are focused on preventing damage to the pipeline, maintaining the pipeline and right of way, and ensuring the integrity of the pipeline. Examples of these tasks include pipeline right of way inspections, responding to BC One Call notifications, right of way signage maintenance and inspection of pipeline protective coatings. Tasks will be performed following approved procedures which are in place for the existing TMPL system and which will be enhanced where required for the expanded TMPL system prior to commencement of operations. Technicians will also be qualified and competent to safely respond to security and emergency response related events. Management, administrative, engineering and other specialized personnel will also be based at Burnaby and will be responsible for providing supervision, support services and job functions associated with security and emergency response related events.
2.6.4 Volume 7, s. 2.2

Reference:

A56025, Application Volume 7, s. 2.2, Facilities, p. 7-5

Preamble:

The References state that design control measures will include “site fencing, access control and security systems to prevent unauthorized access.”

Request:

1. What security exercises have already been conducted at the Burnaby Terminal? Has only the local operating group been involved?

2. Do the security exercises require the participation of the Burnaby RCMP?

3. Do the security exercises, and in particular, any exercises that contemplate fires, release of toxic emissions, VOCs, CACs, or road closures require the participation of representatives from SFU? If not, why not?

4. What security protocols, security measures, and mitigation strategies are in place for the pipeline(s) and the Burnaby Terminal?

Response:

1. Although the information requested is not within the scope of this proceeding and not relevant to the NEB’s List of Issues, Trans Mountain Pipeline ULC offers the following response to your question.

   Burnaby Terminal is required to conduct a yearly security exercise. Over the past five years potential security events and real incidents have been exercised. The participation in the exercises or events includes Kinder Morgan Canada Inc. appointed staff, security personnel and Lower Mainland District RCMP and Burnaby RCMP.

2. The Burnaby RCMP are invited to participate in the security exercises.

3. Burnaby Terminal security exercises only require Kinder Morgan appointed staff, Burnaby RCMP and security personnel with security clearance. SFU representatives would not be required to attend as the representatives do not have security clearance. The security exercise relies on information from the Burnaby Terminal site security plan to conduct the exercise and the details of the plan are confidential.

   All other exercises that contemplate fires, release of toxic emissions, VOCs, CACs, or road closures would utilize the Incident Command System for incident planning which is adaptable to different emergency scenarios and allows for quick identification of resources, and a method of procurement. It is KMC’s preference to enter into a Unified Command with the municipal, provincial and federal agencies to ensure a safe and
thorough response to any emergency. SFU representatives would not be required to attend as there is no role in the Incident Command System for the representative.

(4) The Kinder Morgan Canada Inc. (KMC) security program includes security plans, employee training, security management personnel, contract security experts, security equipment, security guards, as well as other measures at KMC facilities. Details of the security program are confidential.
2.6.5 Volume 7, s.2.2

Reference:

A56025, Application Volume 7, s.2.2, Facilities, p.7-4 to 7-6

Preamble:

The reference outlines Trans Mountain’s commitment related to the prevention of oil spill occurrence, and the type of efforts it will make to respond to facility risk potentials.

Request:

(1) Has Trans Mountain developed a comprehensive Emergency Management Program which includes equipment provided and maintained compliant with the current version of NFPA 1971 – Standard on Protective Ensemble for Structural Fire Fighting? If yes, please provide details. If not, why not?

(2) Has Trans Mountain developed a comprehensive Emergency Management Program which includes equipment provided and maintained compliant with the current version of NFPA 1976 – Standard on Protective Ensemble for Proximity Fire Fighting? If yes, please provide details. If not, why not?

(3) Has Trans Mountain developed a comprehensive Emergency Management Program which includes equipment provided and maintained compliant with the current version of NFPA 1981 – Standard on Open Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services? If yes, please provide details. If not, why not?

(4) Has Trans Mountain developed a comprehensive Emergency Management Program which includes equipment provided and maintained compliant with the current version of NFPA 1982 – Standard on Personal Alert Safety Systems (PASS)? If yes, please provide details. If not, why not?

(5) Has Trans Mountain developed a comprehensive Emergency Management Program which includes training provided and maintained compliant with the current version of NFPA 1403 – Standard on Live Fire Training Evolutions? If yes, please provide details. If not, why not?

(6) Has Trans Mountain developed a comprehensive Emergency Management Program which includes compliance with the current version of NFPA 1500 – Standard on Fire Department Occupational Safety and Health Program? If yes, please provide details. If not, why not?

(7) Has Trans Mountain developed a comprehensive Emergency Management Program which includes personnel provided and maintained compliant with the current version of NFPA 1002 – Standard on Protective Ensemble for Proximity Fire Fighting? If yes, please provide details. If not, why not?
Response:

(1) No, Kinder Morgan Canada Inc. (KMC) personnel are not trained as firefighters. They are trained in the operation of the equipment on site as well as strategy and tactics for various fires. They are well versed in the Incident Command System (ICS) and are experts in the operation of the site. The response designed for the site is a team approach with responders under a Unified Command Structure.

(2) No, Kinder Morgan Canada Inc. (KMC) personnel are not trained as firefighters. They are trained in the operation of the equipment on site as well as strategy and tactics for various fires. They are well versed in the Incident Command System (ICS) and are experts in the operation of the site. The response designed for the site is a team approach with responders under a Unified Command Structure.

(3) No, Kinder Morgan Canada Inc. (KMC) personnel are not trained as firefighters. They are trained in the operation of the equipment on site as well as strategy and tactics for various fires. They are well versed in the Incident Command System (ICS) and are experts in the operation of the site. The response designed for the site is a team approach with responders under a Unified Command Structure.

(4) No, Kinder Morgan Canada Inc. (KMC) personnel are not trained as firefighters. They are trained in the operation of the equipment on site as well as strategy and tactics for various fires. They are well versed in the Incident Command System (ICS) and are experts in the operation of the site. The response designed for the site is a team approach with responders under a Unified Command Structure.

(5) No, Kinder Morgan Canada Inc. (KMC) personnel are not trained as firefighters. They are trained in the operation of the equipment on site as well as strategy and tactics for various fires. They are well versed in the Incident Command System (ICS) and are experts in the operation of the site. The response designed for the site is a team approach with responders under a Unified Command Structure.

(6) No, Kinder Morgan Canada Inc. (KMC) personnel are not trained as firefighters. They are trained in the operation of the equipment on site as well as strategy and tactics for various fires. They are well versed in the Incident Command System (ICS) and are experts in the operation of the site. The response designed for the site is a team approach with responders under a Unified Command Structure.

(7) No, Kinder Morgan Canada Inc. (KMC) personnel are not trained as firefighters. They are trained in the operation of the equipment on site as well as strategy and tactics for various fires. They are well versed in the Incident Command System (ICS) and are experts in the operation of the site. The response designed for the site is a team approach with responders under a Unified Command Structure.
2.6.6 Volume 6B, s. 3.0

Reference:

A56013, Application Volume 6B, s. 3.0, Environmental Compliance, p. 3-1 to 3-7

Preamble:

The Reference outlines environmental compliance topics, and more specifically, non-compliances and resolution section item 40-43 outline the site notification procedure, individual responsibilities, documenting and in-house reporting time frame. Although a reference is made to a corrective action plan, no resolution-related discussion was included.

Request:

(1) Provide a detailed process on how Trans Mountain plans to resolve any of the non-compliances, and in particular, any non-compliances (directly or indirectly) related to/affecting SFU.

Response:

(1) Trans Mountain has a process for the resolution of non-compliances that may occur during construction of the proposed pipeline and associated facilities. This is in response to an Information Request (IR) made by The City of Burnaby in IR No. 1.38.07a (Filing ID A3Y2E6):

“Events that are deemed to be non-compliant with approval conditions and/or commitments that have been made by Trans Mountain will be addressed by taking into account the conditions leading up to and during the time the non-compliant event occurred. A corrective plan that considers the Decision Making Criteria specified in Section 3.0 of Volume 6B will be prepared to address the situation.

An Environmental Compliance Plan will be prepared prior to the start of construction (Section 5.3 of Volume 6A). Communication with regulators regarding non-compliance matters and their resolution is a function of the Environmental Compliance Manager (see Table 3.3-1 and Section 7.3 of Volume 6A).

Incidents of non-compliance will be resolved by Trans Mountain through the application of the processes described in the Pipeline Environmental Protection Plan (Volume 6B). The Roles and Responsibilities (Section 1.2 of Volume 6B) define the reporting and accountability structure for Project Management; how the requirements of Environmental Compliance are communicated and applied is described in Section 3.0 of Volume 6B. During construction, the Contractor(s) will plan activities using the Environmental Alignment Sheets (Volume 6E) and following the General Pipeline Construction Mitigation Measures (Section 7.0 of Volume 6B). The Contingency Plans (Appendix B of Volume 6B) describe measures to be taken by the Contractor(s) in the event of a discovery or a change in conditions. Under certain conditions, actions include stopping construction while mitigation/resolution is planned and applied, before resuming standard construction activities. The Management Plans (Appendix C of Volume 6B)
provide procedures that will be applied during construction as identified conditions are encountered. Environmental and Activity Inspection will monitor the Contractor’s application of all processes for compliance. When Contractor activities do not meet standards of compliance, Inspectors will halt the activity and discuss with the Contractor the mitigation methods and changes in practises that will be used to resolve the issues and allow resumption of activities and conditions that meet compliance parameters.

In an extreme or unplanned event, caused by natural conditions, or construction malfunction, or a combination of both, the Contractor will implement the Emergency Response Plan (ERP) (Section 1.2.3 of Volume 6B) and immediately notify the Management Team. These events might include extreme erosion, forest fires, major material spill, soil handling etc. Disturbance caused by an unplanned event will require resolution through the development of site specific Mitigation and Reclamation Plans further to the ERP and Contingency Plans. The effected site and measure of disturbance will be assessed by the Management Team, Resources Specialists, and interested third-parties. A Mitigation/Reclamation Plan will be developed in consideration of environmental resources and values that will, or could, be affected by implementation of the Plan. This process is described in Change Management (see the Pipeline Environmental Protection Plan, Section 3.0, points 46 to 49). Incidents and degrees of non-compliance will be reported by Environmental and Activity Inspection. The Project Management Team, which includes the Environmental Compliance Manager, will track incidents and status of resolution of non-compliance incidents and events. Trans Mountain will implement a Post-Construction Environmental Monitoring Program (see Volume 6A) where outstanding environmental issues and conditions will be monitored and assessed, and remedial measures planned and implemented for required corrective actions and resolution.”

If SFU was to be directly or indirectly affected by a non-compliant event, Trans Mountain would communicate the event to SFU using the processes described in the ERP and in Notification of Interested Parties (see the Pipeline Environmental Protection Plan, Section 4 of Volume 6B [Filing ID A3S2S3]).
2.6.7 Volume 7, s. 2.0

Reference:

A56025, Application Volume 7, s. 2.0, Measures To Prevent And Mitigate Oil Spills, p. 7-3

Preamble:

The Reference lists the measures available to prevent and mitigate spills from new pipelines and facilities, outlying key aspects of the Trans Mountain Integrity Management Programs.

Request:

(1) How often are those training/awareness programs delivered to ensure that the responders remain current and prepared for the unique challenges associated with pipeline incidents?

(2) What protocols are in place to ensure any threat received by Trans Mountain to their facility is promptly communicated to the applicable law enforcement agencies?

Response:

(1) As described in Section 4.5 and Section 4.6 of Volume 7 (Filing ID A3S4V5), Kinder Morgan Canada Inc. (KMC) maintains a network of response resources which includes internal and external equipment and properly trained personnel. A rigorous training and response exercise program is in place for all operations and head office staff that ranges from detailed equipment deployment drills to full ICS management and organization training and deployment. On average KMC conducts 20-25 exercises and trainings per year.

Refer to the responses to NEB IR No. 1.69a and 1.69b (Filing ID A3W9H8) for the list of exercises (table top, worst case, and deployment). The additional events that make up the remainder of the average include classroom training on various topics which includes but is not limited to: Incident Command Training, Incident Safe Approach, Fire Systems Trainings, external training, specialized equipment training, jet boat operation, security systems training, Hazardous Waste Operations and Emergency Response, and course refresher training.

(2) The Kinder Morgan Canada Inc. (KMC) security program includes security plans, employee training, security management personnel, contract security experts, security equipment and security guards at KMC facilities. Any threats received by Trans Mountain are reportable to the Facility Security Officer (FSO). The FSO or Operations Supervisor is required to contact the RCMP as written in the Burnaby Terminal site security plan. Details of the security program are confidential.
2.6.8 Volume 7 – Risk Assessment & Management of Pipeline & Facility Spills

Reference:

i. A3S4V5, Application Volume 7, Risk Assessment & Management of Pipeline & Facility Spills, PDF Page 52 of 84

ii. A3S4V5, Application Volume 7, Risk Assessment & Management of Pipeline & Facility Spills, PDF Page 59 of 84

Preamble:

Reference (i) states that “Kinder Morgan has systems in place that prepare for emergencies and procedures that coordinate our response plans with emergency response organizations in the communities where we operate.”

Reference (ii) states that “Emergency Response Plans (ERPs) are available for the TMPL (including pump stations), terminals (Edmonton, Kamloops, Sumas, and Burnaby) and the Westridge Terminal. These plans detail prescriptive procedures, activities, and check-lists to ensure consistent responses to an incident across the pipeline with the common objective of protecting public and company personnel, the environment, and company and public property.”

SFU requires clear information of how Trans Mountain and Kinder Morgan's response plans have been coordinated with plans and services of other agencies. SFU requires information regarding the developed ERPs and how local government and community policies and integration have been addressed in those Response Plans.

Request:

(1) Please explain what role communities such as SFU have in the development or deployment of Trans Mountain ERPs and how are local knowledge and values integrated into these plans?

(2) Given that SFU (and neighbouring UniverCity) is a large community in and of itself, please confirm that SFU representatives will have a role in assisting Trans Mountain and Kinder Morgan Canada in developing and implementing ERPs.

(3) What commitments, actions and timelines can Trans Mountain and Kinder Morgan Canada make to SFU to include SFU as a major stakeholder in all future projects/proposals/hearings involving the Burnaby Terminal?

(4) In what ways will Trans Mountain and/or Kinder Morgan Canada commit to SFU to ensure their respective operational and corporate divisions are kept continuously informed on projects that hold potential to affect each other's operations and infringe on corporate identities/reputation?
Response:

(1) Refer to the response to SFU IR No. 2.3.20.1, which details the Emergency Management Program consultation process.

(2) Kinder Morgan Canada Inc. (KMC) is committed to working with Simon Fraser University (SFU) with respect to the proposed Trans Mountain Expansion Project and current operations to ensure the safety of the public that live and work near KMC facilities. KMC has had ongoing dialogue with SFU prior to and since the Project was announced in 2012.

KMC acknowledges that SFU has expressed an interest in the KMC emergency management program given its unique location and single point of access for the university and community on Burnaby Mountain. As an important neighbour and given that the City of Burnaby declined to participate in the proposed Trans Mountain Expansion Project Emergency Management Stakeholder Workshop (EMSW) Part 2, Trans Mountain invited SFU to participate in its Part 2 EMSW. Part 2 was planned to meet stakeholder interest in reviewing desktop scenarios that explored a local sequence of events and local resources requirements in the event of an incident in a community. Part 2 EMSW also provided Trans Mountain the opportunity to use its Emergency Management Plans in practice, and to develop a working relationship with pertinent stakeholders involved in initial emergency response.

Although SFU declined to participate in a discussion based on the proposed Project, it expressed interest in discussing a scenario based on existing operations. On December 9, 2014 Trans Mountain met with SFU to review a desktop scenario that explored a local sequence of events and local resources requirements in the event of an incident with current operations at Burnaby Terminal.

Also refer to the response to SFU IR No. 2.3.20.1 in which the KMC Emergency Management Program consultation process is discussed. Refer also to the response to SFU IR No. 2.1.6.2.

(3) Refer to the responses to SFU IR No. 2.7.04.5 and SFU IR No. 2.6.8.4.

Section 1.3 of Consultation Update 3 (refer to NEB IR No. 3.005a – Attachment 1, Filing ID A4H1W2) filed with the National Energy Board (NEB) on February 3, 2015 describes ongoing engagement for the proposed Trans Mountain Expansion Project; timeframe May 1, 2014 to December 31, 2014. Trans Mountain expects SFU will continue to be involved and commits to involving SFU in its engagement.

Despite the regulatory review underway, Trans Mountain has committed from the beginning of the process that engagement will be ongoing so that key stakeholders can continue to receive information and provide feedback as plans develop. This would extend to any future projects, proposals, and hearings involving Burnaby Terminal.

(4) As stated in the response to SFU IR No. 2.7.04.5, Trans Mountain is committed to continuing its open and transparent dialogue with Simon Fraser University (SFU)
throughout detailed project design, construction and operations to ensure that Trans Mountain’s activities have as little impact as possible on neighbouring residents, businesses and institutions. In keeping with this commitment, Trans Mountain will seek to meet with SFU administration in 2015 to discuss how best to keep its respective operational and corporate divisions informed regarding potential Project impacts.

Kinder Morgan Canada has appreciated its ongoing dialogue with SFU through a variety of forums and welcomes the opportunity to meet with SFU should it have specific questions or concerns.

Summary of New Commitments:

- Kinder Morgan Canada (KMC) acknowledges Simon Fraser University’s (SFU’s) interests and concerns about consultation opportunities for the updated Emergency Management Program (EMP) for the Trans Mountain Expansion Project and will invite SFU to participate in the process described in SFU IR No. 2.6.8.2.
2.7 SOCIAL IMPACT

2.7.01 Volume 5B, s. 7.2.8

Reference:

A56004, Application Volume 5B, s. 7.2.8, Community Health, p. 7-198

Preamble:

This Reference states that, from a community perspective, it is not meaningful to discuss the potential health effects of each Project component on a stand-alone basis. SFU has very specific and special concerns related to the expansion project.

Request:

1. Please provide a justification for why the project, under Public Safety, has not specifically considered the health effects and impacts on the SFU community related to the potential for a major catastrophic event (e.g. an explosion on the scale of the explosion in Lac Megantic, 2013) to occur at either the Burnaby Terminal or Westridge Marine Terminal, or both.

2. Has a risk assessment been performed to determine how smoke plumes from a tank fire at the Burnaby Terminal location will impact human health and the air quality at SFU? If not, why not? If yes, please provide a copy of the risk assessment and all mitigative measures considered as well as those to be implemented, by Trans Mountain/Kinder Morgan Canada.

Response:

1. Section 7.2.8 Community Health of Volume 5B (Filing ID A3S1S7) presents a discussion of the community health (including public safety) effects that are linked to normal Project construction and operations activities and scenarios. Accidents and malfunctions, including the potential for a catastrophic event, are discussed within Section 7.9 of Volume 5B (Accidents and Malfunctions). This is stated in the Community Health Indicator – Public Safety section of the Community Health Assessment: “Aspects of public safety related to potential accidents and malfunctions are discussed in Section 7.9”.

Additionally, Trans Mountain commissioned risk assessments of the Burnaby Terminal, the Westridge Marine Terminal and the Westridge Marine Terminal Ship Loading expansion which were filed as Attachment 3 (Filing ID A3W9S5), Attachment 4 (Filing ID A3W9S6) and Attachment 5 (Filing IDs A3W9S7 and A3W9S8), respectively, in response to NEB IR No. 1.98a. These risk assessments identified the possible accidents or upset events, including fire and explosion related to a major tank spill or a spill during vessel loading operations, as well as the associated consequences. The potential impact of a number of “worst-case” scenarios (i.e., hazards) and the probabilities of their occurrence were evaluated for the nearby areas. The results of these assessments will
be used to inform the planned enhancements to the Emergency Management program and response plan.

It is important to note that these risk assessments were conducted without consideration of mitigation measures, such as the effective implementation of Trans Mountain’s emergency response plan. Even still, the findings of these risk assessments reveal that the overall risks to the public beyond the Burnaby Terminal and Westridge Marine Terminal property lines posed by the credible worst-case scenarios at the Burnaby Terminal and Westridge Marine Terminal are deemed to be within the acceptable level of risk criteria set out by the Major Industrial Accidents Council of Canada. Given the many variables and uncertainties surrounding any particular incident, there is no credible way of defining specific effects on the Simon Fraser University community. The response to Simon Fraser University IR No. 2.5.04.1 provides a description of the emergency response management system that would be adopted in the unlikely event of an incident that affects Simon Fraser University. The response to SFU IR No. 2.5.10.2 discusses potential spill-related health effects relevant to Simon Fraser University and other locations within Metro Vancouver.

(2) Trans Mountain commissioned a risk assessment of the Burnaby Terminal, which was filed as Attachment 3 in response to NEB IR No. 1.98a (Filing ID A3W9S5). The risk assessment identified the possible accidents or upset events (including fire related to a major tank spill) at the Burnaby Terminal and the associated consequences. The risk assessment evaluated the potential impact to the neighbouring areas of a number of “worst-case” scenarios (i.e., hazards) and the probabilities of their occurrence. The findings of the risk assessment will be used to inform the planned enhancements to Trans Mountain’s Emergency Management Program and Response Plan. The risk assessment was conducted without consideration of mitigation measures, such as the effective implementation of Trans Mountain’s emergency response plan. According to the findings of the risk assessment, the overall risks to the public posed by the worst-case scenarios at the Burnaby Terminal are deemed to be within the acceptable level of risk criteria as set out by the Major Industrial Accidents Council of Canada.

Refer to the response to SFU IR No. 2.5.04.1 for additional information on emergency response measures that would be implemented in the event of an incident.
2.7.02 Volume 5B, s. 2.1.4

Reference:

i. A56004, Application Volume 5B, s. 2.1.4, Tank Facilities, p. 2-7 to 2-9

ii. Trans Mountain’s response to the City of Burnaby (#177) IR No.1, dated May 8, 2014

Preamble:

As per Reference (i), 14 new storage tanks will be located at the Burnaby Terminal to serve the expanded pipeline. SFU is located on top of Burnaby Mountain where current enrolment exceeds 30,000 students. This is not counting an additional 3,200 residents, who are anticipated to grow to 10,000.

The only two access roads that serve SFU, Burnaby Mountain Parkway and Gaglardi Way, both pass through a single intersection directly adjacent to Burnaby Terminal. Due to the proximity and upwind location of the Burnaby Terminal to the main road (to and from SFU), there is a high likelihood SFU would be compromised during an event at the terminal.

As stated in Reference (ii), “there will be approximately 80m between proposed tank #78 and the edge of Gaglardi Way. There will be approximately 95m between proposed tank #91 and the edge of Burnaby Mountain Parkway.” Considering the close proximity of tanks #78 and #91 to the Gaglardi/Burnaby Mountain Parkway intersection, access to/from SFU could be seriously impacted and perhaps eliminated by an emergency event at the Burnaby Terminal.

Request:

(1) Please outline in detail what plans or alternatives Trans Mountain proposes if a major fire/explosion at the Burnaby Terminal requires the extended closure of the intersection of Burnaby Mountain Parkway and Gaglardi Way. This assessment should provide what measures would be taken by Trans Mountain in order to maintain access to/from SFU and UniverCity, and how Trans Mountain would provide personnel to do so.

(2) How will Trans Mountain work with SFU and the City of Burnaby to ensure access to SFU by emergency vehicles is maintained during an emergency event at the Burnaby Terminal?

(3) Given that there are no first response agencies on Burnaby Mountain and that there is limited ingress/egress points to the campus, what activities or incidents at the Burnaby Terminal could result in disruptions to road access causing a delay or prevention of first response vehicles accessing the SFU community?

Response:

(1) Kinder Morgan Canada Inc.’s (KMC) goal is to protect people and the environment. Safety is its priority.
KMC has always been committed to working with organizations, such as SFU, to ensure there is a mutual understanding how the pipeline and/or operations at facilities could impact those organizations for incorporation into their own emergency response plans, when those organizations request assistance. KMC is committed to engaging with external stakeholders, such as Simon Fraser University (SFU), where KMC pipelines operate offering to review emergency response plans, educate on its operations, and provide advice on proper response techniques. KMC conducts regular emergency response exercises and equipment deployments that include participation from local emergency responders.

KMC is not responsible for the emergency planning of other organizations, such as SFU. In the unlikely event that the incident, as noted in SFU’s request, occurs, traffic management / road access is the responsibility of SFU. However, as noted, KMC will work with and assist SFU.

(2) Kinder Morgan Canada (KMC) does not have the authority to close roads, redirect traffic, public transit and other transportation related infrastructure, nor does it have the authority to order evacuation, and/or conduct the evacuation of residents, schools, daycares, hospitals, businesses, parks, recreation facilities, and other public/private places.

KMC takes full responsibility for any emergency that results from the Trans Mountain Pipeline system and its facilities and plans to jointly manage such an incident with the local, provincial and federal authorities in the jurisdiction of the emergency using Unified Command. Due to the dynamic nature of emergencies KMC cannot predict how access will be managed, nor how long a closure could be. KMC would expect the continued access to SFU to be managed through the Incident Command System under the direction of Unified Command, and that any such closure would be of a limited duration ensuring the continued safety of the university community.

(3) Refer to the responses to SFU IR No. 2.7.2.2 and SFU IR No. 2.5.04.1.
2.7.03 Volume 5C3, s. 5.4.12

Reference:

A56006, Application Volume 5C3, s. 5.4.12, Burnaby Terminal, p.100-101

Preamble:

The Reference confirms that the Burnaby Terminal expansion will include, but not be limited to, the addition of 14 new tanks and onsite access roads, new scraper facilities, and power upgrades from BC Hydro, without indicating the exact number of new structures to be built on site.

The Reference indicates a noise management plan will be created and implemented prior to construction to ensure 24-hour construction required for completion of terminal upgrades is also dealt with. The Reference does not, however, explain why the said 24-hour construction would be necessary for Project completion.

Request:

(1) Please provide information on the elements which will be included in the Trans Mountain noise management plans pertaining to construction work done in Burnaby, and in particular, on Burnaby Mountain.

Response:

(1) Construction planning for the Project is currently in progress and as a result, exact details at specific locations cannot be estimated. Development of the Noise Management Plan requires that construction planning be sufficiently advanced so that the types and sizes of equipment for each construction stage plus preliminary activity schedules be known. The plan will then be developed to identify specific receptor locations or areas along the pipeline route, or specific activities, which require additional controls and include a list of requirements for specific affected locations. The maximum noise levels that may be generated by various pipeline construction activities provided in Figure 7.2.6-1 of Volume 5A (Filing ID A3S1Q9) of the Application are estimates based on typical pipeline construction practice. Specific activity sound levels will be updated as part of determining the appropriate mitigation plans.

Noise management plans that will be developed for the Project construction will incorporate the components of the National Energy Board (NEB) Draft Condition No. 29 (Pipeline Environmental Protection Plan) and 32 (Horizontal Directional Drilling Noise Management Plan) of the NEB’s Letter – Draft Conditions and Regulatory Oversight (April 16, 2014) (NEB 2014; Filing ID A3V8Z8) to limit the effect of noise at sensitive receptors and include a monitoring component to verify effectiveness of controls.
Specific construction activities relative to the Project in the City of Burnaby, including the Westridge Delivery Lines through Burnaby Mountain Conservation Area, that a Noise Management Plan would address may include:

- clearing of vegetation or topsoil;
- access road construction;
- equipment or material storage areas;
- material deliveries and project traffic on public roads;
- earthworks (excavation or material placement/compaction);
- tunneling;
- pile driving;
- building of structures or placement of equipment; and
- site clean-up and revegetation.

The noise management plans for the Project will encompass any elements outlined in the final conditions issued by the NEB.

Reference:

2.7.04 Volume 4A, s. 2.8.1

Reference:

A55999, Application Volume 4A, s. 2.8.1, Pipeline Corridor Selection Objectives, Strategies and Criteria, p. 4A-6 to 4A-8

Preamble:

The Reference notes that avoiding areas that have significant environmental value or restrictions and consistency with established land use planning were all part of the pipeline corridor selection objectives, strategies and criteria. Looking at the proposed “Line 2” alignment as shown in Appendix 9 (p. 12, Proposed Pipeline Corridor Route Map) it is clear that the alignment would significantly impact the SFU Community Plan Area dedicated within the City of Burnaby’s Official Community Plan and Regional Growth Strategy for conservation of highly valued environmental features and for the development of SFU and the adjacent UniverCity, a mixed-use residential neighbourhood accommodating 3,200 residential units with an expected population of about 10,000.

Request:

(1) Please provide information on the construction impacts to municipal and regional traffic along Gaglardi Way and Burnaby Mountain Parkway as a major arterial route, including all mitigative measures proposed by Trans Mountain or to be imposed on construction crews.

(2) Please provide information on how the proposed pipeline alignment through the City of Burnaby impacts schools and parks in the SFU Community Plan during construction and operation of the pipeline.

(3) Considering that during peak hours approximately 15,000 vehicles travel to and from SFU, how will traffic to Burnaby Mountain be impacted, including public transit and emergency response vehicle access, during the construction phase? What plans have been developed to ensure continued access and connectivity for all modes of transportation?

(4) How will SFU community members be impacted by the construction of the proposed tunnel through Burnaby Mountain?

(5) How will Kinder Morgan Canada/Trans Mountain communicate directly with SFU during construction and operations?

Response:

(1) Refer to the response to City Burnaby IR No. 1.43.01b (Filing ID A3Y2E6).

(2) The proposed revised pipeline corridor does not cross the boundaries of the Simon Fraser University (SFU) Official Community Plan (OCP). As such, no potential effects are anticipated on land within the SFU OCP during construction and operations.
(3) Refer to the responses to SFU IR No. 2.1.7.1 and SFU IR No. 2.3.19.2.

(4) An environmental and socio-economic assessment (ESA) of the proposed revised pipeline corridor of the Westridge Delivery Lines between the Burnaby Terminal and the Westridge Marine Terminal is provided in Part 1, Section 5.0 of Technical Update No. 4 (Filing ID A4F5D5). Please also refer to the Human Occupancy and Resource Use (HORU) Update – Proposed Revised Pipeline Corridor, Burnaby to Westridge Delivery Line Segment (Filing ID A3Z8J0) for an update on the HORU element associated with the Burnaby to Westridge delivery line segment of the proposed revised corridor (i.e., the segment where tunnelling of Burnaby Mountain is proposed).

The anticipated socio-economic effects as they pertain to the Simon Fraser University (SFU) community members are captured in the Socio-economic Assessment presented in Section 7.0 of Volume 5B (Filing IDs A3S1S7 to A3S1S9). For each potential effect, it is noted which could occur within the Metro Vancouver Region (Regional Study Area) generally and which ones are anticipated to be specific to the Footprint or Local Study Area (as defined for each socio-economic element under consideration), thus identifying where unique effects may occur in communities in which the Project is physically located. The conclusions and the significance evaluations of the socio-economic assessment presented in the Application remain unchanged given the re-routing proposed through Burnaby Mountain.

Please also refer to the responses to City of Burnaby IR Nos. 1.03.02a and 1.03.03a (Filing ID A3Y2E6) regarding the approach taken in the socio-economic assessment. Trans Mountain notes that on July 4, 2014 the City of Burnaby filed a notice of motion with the National Energy Board (NEB) stating that Trans Mountain Pipeline ULC’s response to City of Burnaby IR Nos. 1.03.02a and 1.03.03a were inadequate (Letter – Response to City of Burnaby Notice of Motion [Filing ID A3Z1K9] and Attachment Table [Filing ID A3Z1Q0]). The motion was denied by the NEB.

(5) As with all parties affected by our proposed Project, Trans Mountain is committed to continuing open and transparent dialogue with Simon Fraser University (SFU) throughout detailed project design, construction and operations to ensure that Trans Mountain’s activities have as little impact as possible on neighbouring residents, businesses and institutions. In keeping with this commitment, Trans Mountain will seek to meet with SFU administration in 2015 as construction planning advances to discuss any interests or concerns SFU might have regarding the design, construction and operations of the proposed Project.

Subject to the outcome of the NEB regulatory process, and prior to construction, Trans Mountain will undertake a communications and notification program to ensure local businesses and members of the public are made aware of potential construction impacts including lane restrictions, road closures and alternate access plans. The Communication and Notification Program will include advertisements, public general notices, area specific information handouts, and local signage as described in the Volume 6B, Environmental Protection Plan (Filing ID A3S2S3 and A3S2S4). A toll free phone line and email address will be set up to handle enquiries and concerns from
neighbouring businesses, residents and institutions during construction. Should significant construction-related concerns arise, Trans Mountain will be available to meet with individuals and organizations to address specific concerns as needed. Refer to NEB IR No. 1.15a (Filing ID A3W9H8) for additional information.

Trans Mountain’s commitment to open and transparent dialogue with landowners, residents and stakeholders continues throughout the life of our operations. Examples of Trans Mountain’s operations engagement activities include: regular newsletters, website updates, toll free phone line and email address and the option for annual briefings with Trans Mountain operations staff. Trans Mountain is also a regular participant in the Stony Creek Environment Committee Working Group of which SFU is also a member. This working group has historically been a good vehicle for raising and addressing topics of common interest to local stakeholders. Finally, Trans Mountain will continue to be available during operations to meet with SFU regarding areas of interest or concern as they arise.
2.7.05 Volume 5B, s.5.5.1.5

Reference:

A56004, Application Volume 5B, s.5.5.1.5, Transportation Infrastructure – Metro Vancouver Region, p.5-137

Preamble:

The Reference states that the proposed pipeline corridor crosses several transit routes including the Express Bus Service to SFU and UniverCity.

There is no inventory or analysis regarding the impact of the Project to the transportation infrastructure including transit routes, cycle and pedestrian routes, roads and streets, and SkyTrain.

Request:

1. Please provide an inventory of all City of Burnaby transportation and transit infrastructure – including transit routes, cycle and pedestrian routes, roads and streets, and the SkyTrain – that would be impacted by the project.

2. Considering that during peak hours, approximately 15,000 vehicles travel to and from SFU, how will traffic to Burnaby Mountain be impacted, including public transit and emergency response vehicle access, during the construction phase? What plans have been developed to ensure continued access and connectivity for all modes of transportation?

Response:

1. Refer to the response to SFU IR No. 2.1.7.1 and SFU IR No. 2.3.19.2.

   The table below provides an inventory of City of Burnaby roadways that are crossed or parallel to the preferred pipeline alignment for the Trans Mountain Expansion Project (TMEP). The inventory also denotes other associated travel use such as bicycle paths or sidewalks or similar foot pathways and the use of these travel corridors for public transit. Trans Mountain proposes to use trenchless crossing construction techniques such as Horizontal Directional Drilling (HDD) or tunneling when crossing the roads in the table to mitigate direct impacts to motor vehicles, transit vehicles, emergency vehicles, bicycles and foot traffic.

   Where construction parallels the roadway with no direct construction in the roadway, a Traffic and Access Control Management Plans (TACMPs) will be developed to minimize potential impacts to motor vehicles, transit, bicycles, and foot traffic. Site specific TACMPs will be developed for the TMEP for the City of Burnaby as detailed engineering and construction planning is developed. TACMPs will include engineered, Traffic Control Plans (TCPs) to address all direct and indirect impacts to the roadways inventoried in the table and will be in consultation with affected stakeholders such as SFU or local businesses in addition to municipal representatives.
Not included in the inventory, are roadways that may be used for construction vehicle traffic. Detailed engineering and Construction Planning requires further development to determine routing and construction traffic volumes. It is not anticipated at this time that construction traffic volumes will significantly impact roadway, transit, or pedestrian use by the public.

<table>
<thead>
<tr>
<th>City of Burnaby Infrastructure</th>
<th>Burnaby infrastructure crossed by Trans Mountain Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Street / Road</td>
</tr>
<tr>
<td>Highway 1</td>
<td>No</td>
</tr>
<tr>
<td>North Road</td>
<td>Yes</td>
</tr>
<tr>
<td>Government Street</td>
<td>Yes</td>
</tr>
<tr>
<td>Lougheed Highway</td>
<td>Yes</td>
</tr>
<tr>
<td>Gaglardi Way</td>
<td>Yes</td>
</tr>
<tr>
<td>Eastlake Drive</td>
<td>Yes</td>
</tr>
<tr>
<td>Production Way</td>
<td>Yes</td>
</tr>
<tr>
<td>Underhill Ave</td>
<td>Yes</td>
</tr>
<tr>
<td>Broadway</td>
<td>Yes</td>
</tr>
<tr>
<td>Shellmont Street</td>
<td>Yes</td>
</tr>
<tr>
<td>Burnaby Mountain Parkway</td>
<td>No</td>
</tr>
<tr>
<td>Centennial Way</td>
<td>No</td>
</tr>
<tr>
<td>Barnet Hwy</td>
<td>No</td>
</tr>
</tbody>
</table>

(2) This question appears to be the same as SFU IR No. 2.7.04.3. Refer to the responses to SFU IR No. 2.1.7.1 and SFU IR No. 2.3.19.2.
2.7.06 Volume 5B, s.5.5.5

Reference:
A56004, Application Volume 5B, s.5.5.5, Educational Services, p.5-158

Preamble:
The Reference acknowledges SFU and other academic institutions in the area, but there is no discussion of impacts.

Request:
(1) Please provide a comprehensive analysis of how SFU could be impacted by the Project.

Response:
(1) Please refer to the response to City of Burnaby IR No. 1.06.08a (Filing ID A3Y2E6), which is a response to this same question. Trans Mountain Pipeline ULC notes that on July 4, 2014, the City of Burnaby filed a notice of motion with the National Energy Board (NEB) stating that Trans Mountain’s response to City of Burnaby IR No. 1.06.08a was inadequate (Letter – Response to City of Burnaby Notice of Motion [Filing ID A3Z1K9] and Attachment Table [Filing ID A3Z1Q0]). The motion was denied by the NEB.
2.7.07 Volume 5B, s. 2.1.4

Reference:

A56004, Application Volume 5B, s. 2.1.4, Tank Facilities, p. 2-7 to 2-9

Preamble:

As per above Reference, 14 new storage tanks will be located at the Burnaby Terminal to serve the expanded pipeline. SFU is located on top of Burnaby Mountain where current enrolment exceeds 30,000 students. This is not counting an additional 3,200 residents, who are anticipated to grow to 10,000.

The only two access roads that serve SFU, Burnaby Mountain Parkway and Gaglardi Drive, both pass through a single intersection directly adjacent to Burnaby Terminal. Due to the proximity and upwind location of the Burnaby Terminal to the main road (to and from SFU), there is a high likelihood SFU would be compromised during an event at the terminal.

Request:

(1) Please explain why the proposal to expand heavy industrial uses in this location is appropriate, given the extensive residential and University populations immediately adjacent to and above the proposed expanded tank farm, and those proposed in the regional community plans.

Response:

(1) The proposed expansion of Burnaby Terminal and Westridge Marine Terminal (WMT) are expansions of existing industrial facilities. The expansion of Burnaby Terminal will be entirely within the footprint of the existing site and the expansion of WMT will be entirely within the east-west (shoreline) extent of the existing site. Furthermore, the expansion of WMT is compatible with the existing industrial uses within Port Metro Vancouver.

As discussed in the responses to City of Burnaby IR No. 1.14.01a and IR No. 1.14.01b (Filing ID A3Y2E6), Trans Mountain believes that the City of Burnaby planning principles, including the zoning of neighbourhoods with respect to industrial and residential uses and the set backs established in the City of Burnaby bylaws are intended to ensure the compatibility of industrial and residential uses. This belief is consistent with the conclusions of the risk assessments referred to in the responses to SFU IR No. 2.3.07 and SFU IR No. 2.4.01.3. Trans Mountain is not aware of any plans for additional community development south and west of Burnaby Terminal and understands that the areas to north and east of Burnaby Terminal are part of the Burnaby Mountain Conservation Area, with the exception of the south-west corner of the SFU Enclave. Trans Mountain is not aware of any plans for additional community development to the east and west of WMT.

Trans Mountain recognizes that working in an urban environment requires greater attention to the potential effects on people due to construction, including consideration of
traffic and access management, noise management, and preventing, minimizing or mitigating impacts to existing residential, commercial, and recreational/community use areas. Volume 5B of the Application, in particular Sections 7.2.3, 7.2.4, 7.2.5, 7.2.7, and 7.2.8 (Filing ID A3S1S7), describes and characterizes the potential effects of the Project on people in proximity to Project activity, including key mitigation measures. The Socio-Economic Management Plan in Appendix C of Volume 6B (Filing ID A3S2S3) summarizes the socio-economic mitigation measures that will reduce effects on the human environment, many of which are focused on managing and reducing effects in an urban environment.

Further, and as described in the Socio-Economic Management Plan in Appendix C of Volume 6B, Trans Mountain will develop and implement an issues tracking process to monitor and respond to Project-related socio-economic issues and opportunities that emerge during construction and reclamation. This is a unique construction-phase measure, and is a direct reflection of the many urbanized environments crossed by or in proximity to the Project. As suggested in National Energy Board (NEB) Draft Condition 11 as outlined in the NEB’s Letter – Draft Conditions and Regulatory Oversight (April 16, 2014) (Filing ID A3V8Z8), this will be called a Socio-Economic Effects Monitoring Program. Please refer to the response to NEB IR No. 1.17d.6 (Filing ID A3W9H8).
Reference:

A55987, Application Volume 2, s. 2.3, Terminals, p. 2-25

Preamble:

The Reference notes that an additional 14 tanks are proposed to be located at the Burnaby Terminal.

Request:

(1) Did design and tank location criteria include maximizing the protection of adjacent residential uses and SFU?

Response:

(1) The proposed expansion of Burnaby Terminal was conceptually designed to meet the applicable legislative requirements, which have been established and tested over time to provide for an appropriate balance of efficient land use, various types of development, and protection of the public.

Trans Mountain believes that the City of Burnaby community planning principles, including the zoning of neighborhoods with respect to industrial, residential, and institutional land uses, and the set-backs established in the City of Burnaby bylaws, are primarily intended to protect the safety of the public. As discussed in the response to City Burnaby IR No. 1.14.01a (Filing ID A3Y2E6), the location of the proposed new tanks will result in set-backs greater than those established in the City of Burnaby bylaws for the M7a Marine District 2. In addition, set-backs will meet or exceed the requirements of National Fire Protection Association (NFPA) Code 30.

As discussed in the response to SFU IR No. 2.3.07.1, Trans Mountain has completed a fire risk assessment using the Major Industrial Accidents Council of Canada (MIACC), Risk-based Land Use Planning Guidelines criteria. The assessment presents fire scenarios for the expanded Burnaby Terminal, without consideration of the activation of mitigation measures, such as fire-fighting foam deployment. The risk assessment indicates acceptability under the MIACC criteria, even without mitigation measures.

In addition, as described in Section 3.4.3, Volume 4A (Filing ID A3S0Y8) of the Facilities Application, SFU IR No. 2.3.12.1, and NEB IR No. 3.093b (Filing ID A4H1V2, PDF page 469), Trans Mountain will incorporate numerous safety features into the design of the proposed additional facilities at Burnaby Terminal, some of which exceed the requirements of the applicable legislation.

As discussed in Volume 4C (Filing ID A3S1L1) and Volume 7 (A3S4V5-A3S4V6) of the Facilities Application, and SFU IR No. 2.3.12.1, Trans Mountain has, and will continue to develop and enhance, robust operations, maintenance, and emergency preparedness
and response programs and procedures, which are intended to ensure the safety of operations.
2.7.09 Volume 5C3, s. 5.4.12

Reference:

A56006, Application Volume 5C3, s. 5.4.12, Burnaby Terminal, p.100-101

Preamble:

The Reference confirms that the Burnaby Terminal expansion will include, but not be limited to, the addition of 14 new tanks and onsite access roads, new scraper facilities, and power upgrades from BC Hydro, without indicating the exact number of new structures to be built on site.

Request:

(1) Please provide detailed information on what structures will be included as part of the expansion project; please define the meaning of the wording “but not limited to” and what additional changes are considered.

(2) There is a high pressure gas line running on the opposite side of Burnaby Mountain Parkway feeding SFU. What is the possibility of disruption?

(3) There is a high voltage Hydro transmission line running east-west just north of the Burnaby tank farm site. This line feeds SFU and UniverCity, as well as many other customers. What is the possibility of disruption of service to SFU and UniverCity if fire were to escape the Burnaby Terminal (particularly in dry weather)?

Response:

(1) The Reference provides a very high level description of the proposed expansion of Burnaby Terminal as background information for the predicted noise levels resulting from construction activities. The noise assessment technical report was not intended to provide a detailed summary of structures included in the proposed expansion of Burnaby Terminal, which is why the terminology “but not limited to” was used. Major structures and infrastructure to be included in the proposed expansion of Burnaby Terminal generally include the items listed below.

- 14 new storage tanks.
- Secondary containment areas for the new storage tanks.
- Partial remote impoundment (secondary containment) area.
- Intermediate storm-water retention area.
- Storm-water drainage piping systems.
- Access roads.
- Valve manifolds.
- Booster pumps.
- Above ground tank and interconnecting piping systems on structural steel supports.
- Below ground pipeline, tank, and interconnecting piping systems.
• Receiving traps on the incoming pipelines and sending traps on the outgoing Westridge Marine Terminal delivery pipelines.
• Fire protection system building.
• Fire-water piping.
• Tank vapor adsorption unit (TVAU) odour control equipment.
• Electrical service buildings.
• Variable frequency drive (VFD) building.

Additional information on the various structures and infrastructure included in the proposed scope of the expansion of Burnaby Terminal is provided in Section 3.4.3, Volume 4A of the Facilities Application (Filing ID A3S0Y8) and in the Technical Update No. 2, Part 2, Facilities Update (Filing ID A4A4D5).

(2) All new infrastructure associated with the proposed expansion of Burnaby Terminal will be within the existing fence line, with the possible exception of a new water connection. As such, Trans Mountain cannot envision disruption to the high pressure gas line feeding Simon Fraser University.

(3) Trans Mountain anticipates that in the highly unlikely event of a storage tank fire or a storage tank release (which extends to the entire surface of a secondary containment area) combined with a secondary containment pool fire, the power supply line to Simon Fraser University (SFU) and UniverCity, located on the west side of Burnaby Terminal, will not be impacted. The John Zink Hamworthy Combustion Handbook indicates “A radiation level of 25 kW/m² (7900 Btu/h-ft²) is capable of auto-ignition of trees if the exposure duration is long enough”. Based on the layout of the storage tanks and the risk assessment work completed to date, the existing treed area on the west side of the terminal, adjacent to the power supply line, is beyond the distance that could experience radiant heat levels of 25 kW/m².

However, Trans Mountain notes there is also an existing power supply line to Burnaby Terminal that parallels the north terminal boundary. Trans Mountain will evaluate this power supply line for potential impact from fire extension and will take measures to either protect or relocate the power supply line if it is determined to be at risk.

The level of risk from a hypothetical storage tank or secondary containment fire is not defined solely by proximity and must take into account the likelihood of occurrence, considering the prevention, detection, and mitigation measures, as well as the reduction in potential consequences, considering the time available to enact emergency response. Trans Mountain will employ a number of prevention, detection, and mitigation control measures to reduce the risk of fires at Burnaby Terminal and their potential impacts. Trans Mountain has outlined many of these measures in the response to NEB IR No. 3.093b (Filing ID A4H1V2, PDF page 469).

Reference:

2.7.10 Volume 7, s. 4.4

Reference:

A56025, Application Volume 7, s. 4.4, Emergency Response Manuals and Reference Materials, p. 7-32

Preamble:

The Reference states that for safety reasons, in the event of an uncontrolled fire (from either single or multiple tanks), it may be necessary to allow for a tank farm fire to burn itself out, even though such fires have been known to last for 4 days or longer.

Request:

1. Please describe all impacts from a prolonged period of burnout:
   i. for SFU,
   ii. for access to Gaglardi Drive and/or Burnaby Mountain Parkway.

2. How will a rim-seal fire in proposed tank #78 impact access to SFU?

3. What measures are proposed to ensure a major tank fire at the Burnaby Terminal does not initiate a forest fire on Burnaby Mountain?

4. In the event of multiple tank fires at Burnaby Terminal, what is Trans Mountain's response plan? Does Trans Mountain have the internal resources to successfully extinguish several tank fires and what reliance, if any, will Trans Mountain have on the City of Burnaby or SFU to assist?

5. In the event of a tank fire at the Burnaby Terminal, when would a decision be made to let the fire burn itself out vs. attempting to extinguish it?

6. If closure of the Gaglardi/ Burnaby Mountain Parkway intersection is required due to the proximity of a tank fire at the Burnaby Terminal, what is the anticipated timeframe for safely extinguishing the fire?

Response:

1. The reference to toxic smoke plume risk in Volume 7 of the Application, referred to in the Preamble, is in the context of hazard identification, prior to control measures being applied. As described in the response to City Burnaby IR No. 1.12.06 and numerous other responses to the City of Burnaby (Filing ID A3Y2E6), Trans Mountain will employ a number of prevention, detection, and mitigation control measures to reduce the risk of fires at Burnaby Terminal and their potential impacts. In the response to NEB IR No. 3.093b (Filing ID A4H1V2), Trans Mountain has also identified that fixed, automated, full-surface fire protection, which was not included in the Facilities Application, has been added to the proposed suite of fire-protection measures for the proposed new tanks at Burnaby Terminal to further enhance the overall robustness of the design.
Emergency response plans have been developed for the existing pipeline system, including specific facilities, and the plans will be enhanced and implemented in relation to the proposed expansion of Burnaby Terminal and considering the possibility of a smoke plume.

(2) The tanks at the Burnaby Tank Farm currently have and will continue to have early detection systems, and rim-seal fire suppression systems. Kinder Morgan Canada Inc. believes that early detection and activation of the fire suppression systems will limit any impact including access to Simon Fraser University in the event of a rim-seal fire. For a description of the potential impacts from a fire event refer to the response to SFU IR No. 2.5.04.1.

(3) Refer to the response to SFU IR No. 2.4.08.3.

(4) Refer to the response to SFU IR No. 2.4.07.1.

(5) Trans Mountain does not consider allowing a hydrocarbon storage tank to burn out, an acceptable strategy. Allowing fires to burn out is an industry accepted practice if offensive fire fighting tactics are not an option due to unsafe conditions for responders. Trans Mountain believes early intervention in an incident such as the mitigation described in the response to City of Burnaby IR No. 1.12.05a (Filing ID A3Y2E6) will be sufficient to prevent and/or extinguish incipient fires, and there will not be a prolonged period of burnout. The decision to let a fire burn itself out would be made by Unified Command based upon the situation and safety of the responders and the public.

(6) Refer to the response to SFU IR No. 2.5.04.1.
2.7.11 Volume 4A, s. 5.0, s. 2.8.1

Reference:

A55999, Application Volume 4A, s. 2.8.1, Pipeline Corridor Selection Objectives, Strategies and Criteria, p. 4A-6 to 4A-8

Preamble:

The Reference notes that avoiding areas that have significant environmental value or restrictions and consistency with established land use planning were all part of the pipeline corridor selection objectives, strategies and criteria. Looking at the proposed “Line 2” alignment as shown in Appendix 9 (p. 12, Proposed Pipeline Corridor Route Map) it is clear that the alignment would significantly impact the SFU Community Plan Area dedicated within the City of Burnaby’s Official Community Plan and Regional Growth Strategy for conservation of highly valued environmental features and for the development of SFU and the adjacent UniverCity, a mixed-use residential neighbourhood accommodating 3,200 residential units with an expected population of about 10,000.

Request:

(1) Please address how Trans Mountain’s proposal would constrain or restrict the City of Burnaby and Metro Vancouver’s ability to install underground utilities (Water Main, Sanitary Main, and Storm Main) to serve the future needs of SFU and UniverCity within the restricted Lougheed Highway right-of-way. Would there be any impact on Gaglardi Way or the Burnaby Mountain Parkway?

(2) Please advise whether the construction and traffic management plans relating to pipeline installation along Gaglardi Way and Burnaby Mountain Parkway has considered these routes being a designated emergency evacuation route. Please confirm that these routes will stay open to all traffic throughout the entire construction phase of the project.

(3) Please explain how Trans Mountain’s proposal could constrain development of SFU and its lands, and UniverCity? In considering its response to this question, Trans Mountain is reminded that SFU’s lands extend down the mountain to just north of the Burnaby Mountain Parkway.

(4) Has Trans Mountain considered and assessed the impacts, if any, on the future construction of the proposed Translink gondola to serve SFU and UniverCity? Please identify any and all impacts on this gondola and how Trans Mountain will mitigate such impacts. Please identify whether the proposed routing of the Translink gondola will need to be changed.

(5) How will SFU community members be impacted by the construction of the proposed tunnel through Burnaby Mountain?
Response:

(1) Please note that current proposed corridor has been updated significantly to that referenced. Refer to Technical Update 2 (Filing ID A3Z8G0) for updated alignment maps, including relocation of the majority of the Lougheed Highway section southward and re-routing of delivery lines from Burnaby to Westridge Terminals via a tunnel through Burnaby Mountain.

Impacts to future underground utilities serving SFU and UniverCity will be minimized as a result of these changes, specifically to the areas in question: approximately 500m east and north of the Gaglardi Way/Lougheed Hwy intersection and within the easement of the tunnel crossing well under the Burnaby Mountain Parkway.

As is the case for any existing utility or facility, proximity agreements will be necessary to ensure safe vertical and horizontal separations are maintained with future installations, both in these areas and including in proximity to the existing Burnaby Terminal. This is industry standard practice and it is the same condition by which Trans Mountain is currently following with respect to the design of its new pipeline in relation to existing infrastructure owned by the City of Burnaby and Metro Vancouver.

Trans Mountain is committed to working with stakeholders to minimize disruption, as is practically achievable, to future works to the extent they are known and communicated. Trans Mountain would welcome the opportunity to engage with SFU through the detailed design and engineering phase to this end.

(2) Refer to the response to SFU IR No. 2.1.7.1

For installation of the pipeline to the West of Gaglardi Way (North of Lougheed Hwy and South of Eastlake Dr.), it can be confirmed that the designation of this roadway, as an emergency evacuation route will be considered in construction and traffic management plans. Planning will include maintenance of two way traffic at all times. Until detailed engineering and construction planning have progressed, anticipated, minor impacts to Gaglardi Way traffic due to pipeline construction is yet to be determined but will be addressed within an engineered, Traffic Control Plan (TCP) as required.

If the tunnel option under Burnaby Mountain is approved, as the preferred route between Burnaby Terminal and the Westridge Facility, there will be minimal to no impact from construction of the Project to Burnaby Mountain Parkway traffic as it pertains to emergency evacuation. Burnaby Mountain Parkway is anticipated to remain open to all traffic during construction using this pipeline route.

In the event the route along Burnaby Mountain Parkway is used for construction, as the alternate route between Burnaby Terminal and the Westridge Facility, it can be confirmed that the designation of Burnaby Mountain Parkway and Gaglardi Way, as emergency evacuation routes, will be considered in construction and traffic management plans. Every effort will be made to maintain access to emergency evacuation routes through the course of construction using engineered TCPs. TCPs for this construction
route will not be completed until detailed engineering and construction planning, as required, is further developed.

Trans Mountain remains committed to consultation with Simon Fraser University pertaining to traffic management and construction planning.

(3) Trans Mountain does not anticipate that the proposed pipeline will place any new restrictions on Simon Fraser University's (SFU’s) land with respect to current development plans, as shown by the “OCP Illustration 1 – Land Use” design available on SFU’s website. The proposed pipeline will be in excess of 300 m away from the closest point of the development, with the alignment beyond the existing tank storage area in a tunnel through Burnaby Mountain.

Trans Mountain would be pleased to discuss this matter further if desired through their Stakeholder Engagement group.

(4) Based on Burnaby Mountain Gondola Transit Business Case Report, as published by CH2M Hill in 2011 for Translink, Trans Mountain does not foresee any impact to the proposed gondola. Refer to Exhibit 2-20 (following, excerpt from p. 41), which shows the preferred alignment of the proposed gondola with the crossing point of the preferred pipeline alignment indicated. The pipeline is a singular crossing point along the gondola alignment so designing the configuration of gondola support towers to avoid conflict will be achieved through Detailed Engineering and Design.
(5) Refer to the response to SFU IR No. 2.7.04.4.
2.7.12 Volume 4A, Table 5.1.14

Reference:

i. A3SIA4, Application Volume 4A, Project Design and Execution - Engineering, Appendix E-1 Proposed line 2 Pipeline Corridor Route Maps - British Columbia (Maps), Appendix E-1, Sheet Map 53 of 54;


Preamble:

The References identify the proposed Line 2 corridor but fail to show its location in relation to current property and highway/road boundaries, nor do they allow for determining the area or degree of likely encroachment.

Trans Mountain disclosed that Line 2 pipeline segments generally require a construction right-of-way of 45m, but that Trans Mountain decided to study and apply for a wider corridor (150m) so as to provide flexibility for minor alignment adjustments during the detailed engineering and design phases.

Request:

(1) Please provide a detailed map (of at least 1:1000) identifying the proposed line and construction impacts on Gaglardi Way, Burnaby Mountain Parkway, and University Drive.

(2) How long would Trans Mountain expect construction impacts to continue? Please detail what steps Trans Mountain will take, or direct its contractors to take, to mitigate these impacts.

Response:

(1) Trans Mountain is still in the process of refining its spatial property data and pipeline centerline within the routing corridor filed with the National Energy Board. Detailed survey, engineering and design are currently scheduled for completion in early 2016, as such, the level of detail requested is not yet available. The 45 m construction right-of-way as referenced above is the construction footprint in rural areas when the new Line 2 is situated in parallel with the existing Line 1. This is not the case in the City of Burnaby, as it does not parallel the existing Line 1 and also recognizing the urban nature of the alignment. Trans Mountain will minimize its construction footprint to no more than 20 m wide, 10 m permanent and 10 m typical additional temporary workspace throughout the area in question. Areas at trenchless entry and exits points require additional temporary workspace.

Trans Mountain will also work diligently to limit construction impacts on the three roads listed, including no excavations of the roadways themselves. Below is Trans Mountains
current planning with respect to these roads (refer to NEB Filing ID A4A4D4 for the latest corridor maps):

**Gaglardi Way, AK1176.8** – Install the pipeline using trenchless techniques through the intersection with the Lougheed Hwy. Then follow the top of the embankment on the west side of Gaglardi north until Eastlake Dr, AK 1177.4.

**Burnaby Mountain Parkway AKb000.7** – Trans Mountain intended construction across this road is via a tunnel. The tunnels depth under this road is in excess of 60m. No disruption to the road is expected.

**University Drive** – Trans Mountain pipeline corridor is more than 300m from this road. No disruption to the road is expected.

(2) An updated Master Project Schedule was submitted on December 1, 2014 as part of Technical Update 4 (Filing ID A4F5A8). A detailed Construction schedule that outlines construction phases/periods for specific locations has not been developed at this stage as no Contractor has been appointed to the Project.

Please refer to Sections 7.0 and 8.0 of the Environmental and Socio-Economic Assessment (ESA) provided in the Application (Volumes 5A and 5B; Filing IDs A3S1L2 and A3S1R4) for a full assessment of potential residual and cumulative biophysical and socio-economic effects associated with the Trans Mountain Expansion Project. The potential effects were identified by Trans Mountain through consultation with federal, provincial and municipal government representatives, Aboriginal groups, landowners and other interested stakeholders. The assessments of the potential residual and cumulative effects include a discussion of the anticipated duration of the cause of the identified effects as well as the time it is anticipated for the effect to be reversed following construction.

Recommended mitigation measures that Trans Mountain and its contractors will implement to avoid or reduce the magnitude of the identified effects are also provided in Volumes 5A and 5B. Trans Mountain has also prepared Environmental Protection Plans for the Project, which are provided in Volumes 6B, 6C and 6D of the Application (Filing IDs A3S2S3, A3S2S6 and A3S2S9).

Trans Mountain remains committed to ongoing stakeholder engagement to further optimize alignments and construction planning.
2.7.13 Volume 5B, s. 6.1.16, 7.0

Reference:
Volume 5B, s. 6.1.16, Socio-economic setting for facilities, Burnaby Terminal

Preamble:
SFU is concerned about the potentially significant impacts caused by disruptions to access for all modes of transportation.

Request:

(1) Is it Trans Mountain’s intention to prepare, or have its construction contractor prepare, a construction Traffic Management Plan for Burnaby Mountain that specifically addresses traffic management procedures regarding access to and from SFU?

   i. If not, why not?

   ii. If yes, will Trans Mountain commit to meeting and providing SFU with a copy of the Traffic Management Plan to enable SFU to better understand the impact of the Project on its students, faculty, and residents wanting to travel to and from SFU and UniverCity? When will this document be made available to SFU?

Response:

(1) Refer to the response to SFU IR No. 2.1.7.1.

   i. In the event Trans Mountain uses the preferred pipeline corridor (Tunnel Option) traffic and construction disruptions to Simon Fraser University (SFU) are expected to be minimal and would likely not necessitate an SFU specific Traffic Management Plan. A Traffic Management Plan would still be produced under this scenario for the City of Burnaby including specific, engineered Traffic Control Plans for roads such as Gaglardi Way and the Lougheed Hwy, and which would be shared with SFU through ongoing consultation.

   ii. In the event Trans Mountain uses the alternative Burnaby Mountain Parkway-Hastings-Northcliffe route, Trans Mountain will commit to producing an SFU specific Traffic Management Plan and sharing it so that SFU is better able to understand the impacts on its students, faculty and residents during their travel to and from SFU and UniverCity. The document would be available prior to the start of construction after the Regulatory process is complete and a decision on the granting of the Certificate of Public Convenience and Necessity has been made, and prior to construction.
2.7.14 Volume 5B, s. 6.1.16

Reference:

Volume 5B, s. 6.1.16, Socio-economic setting for facilities, Burnaby Terminal

Preamble:

SFU is concerned about the potential changes to the viewscapes from the SFU campus and community.

Request:

(1) What will be the visual impact to SFU from the proposed Burnaby terminal expansion considering the height and proximity of the new tank locations to the Gaglardi/Burnaby Mountain Parkway intersection?

(2) Will a visual impact assessment be conducted to illustrate the changes from different viewpoints at SFU? If not, why not?

Response:

(1) The assessment of aesthetic attributes, including alteration of viewsheds, is provided in Section 7.2.4 of Volume 5B (Filing ID A3S1S7). Simon Fraser University (SFU) is located in the Human Occupancy and Resource Use (HORU) Local Study Area (LSA) and Regional Study Area (RSA).

The potential residual effects related to the HORU LSA and RSA and which are pertinent to the Burnaby Terminal are identified as:

- Sensory disturbance for aboriginal and non-Aboriginal local residents and land users (from nuisance air emissions, noise and construction-related visual effects) during construction and site-specific maintenance. Visual effects such as equipment, areas of land disturbance, and the activity of construction workers will be visible to nearby land users during periods of construction and site-specific maintenance.

- Alteration of viewsheds. New tanks will be constructed within the boundaries of the Burnaby Terminal. These tanks will be located proximate to existing tanks. The Burnaby Terminal is located in a populated area, and the new tanks will be visible from numerous locations in surrounding areas. However, new tanks will be visually similar with the existing tanks and will be in a pre-existing disturbed industrial area.

(2) The viewshed modelling analysis (VMA) was conducted with respect to five key Trans Mountain Expansion Project (TMEM, or the Project) locations with proposed new or changed above ground facilities, including the Burnaby Terminal (refer to Technical Report 5D-5, Visual Modelling Analysis Technical Report in Volume 5D (Filing IDs A3S2K2, A3S2K4, and A3S2K6). The photographs for the visual models were taken from ground-level on public lands in areas that met the study criteria surrounding the five facilities. Several locations on public lands were identified for the acquisition of
photographs for modelling near the Burnaby Terminal. During the field assessment, some locations were removed from the list of potential observation viewpoints (OVs) since the visibility of the Burnaby Terminal was not as high or as clear at some locations as was initially assumed. Visibility was occasionally obstructed by vegetation and/or infrastructure. Points on the Simon Fraser University (SFU) campus were considered for the VMA and areas on and near SFU were visited between May 21 and May 24, 2013 as part of the exploration of OVs for the VMA. At the time of the visit, no location on ground level (in which the existing Burnaby Terminal is visible) was identified.

Trans Mountain Pipeline ULC (Trans Mountain) does not intend to conduct viewshed modelling from OVs on the SFU campus as part of information to be filed with the National Energy Board, as there are possibly infinite OVs that could be modelled in the Burnaby and Metro Vancouver community and a selection that provides sufficient context to support federal-level decision-making are included in the filing in the Technical Report 5D-5, Visual Modelling Analysis Technical Report in Volume 5D (Filing IDs A3S2K2, A3S2K4, and A3S2K6).

As with all parties affected by the proposed Project, Trans Mountain is committed to continuing open and transparent dialogue with SFU throughout detailed project design, construction and operations to ensure that Trans Mountain's activities have as little impact as possible on neighbouring residents, businesses and institutions. In keeping with this commitment, Trans Mountain would be pleased to meet with SFU administration at any time to discuss interests or concerns SFU might have regarding the design, construction and operations of the proposed Project.