

# Trans Mountain ULC

Please see the attached form for comments from Trans Mountain.

Although Trans Mountain ULC (Trans Mountain) is not a marine transporter of oil it has been a long-standing supporter of marine safety in the shared waters of the Salish Sea and appreciates an opportunity to provide feedback and share studies and reports to inform the *Puget Sound Vessel Safety Report*.

As such we have identified a collection of reports for your review and consideration. These reports could be helpful inputs to the following areas identified in the Washington State Department of Ecology (Ecology) Focus Sheet on the *Vessel Traffic Safety Report*:

- Emerging trends in vessel traffic.
- Transport of bitumen and diluted bitumen.
- An emergency response system for Haro Strait, Boundary Pass, and Rosario Strait.
- Situations where oils may submerge or sink.
- Tug escorts for oil tankers, ATBs, and other towed waterborne vessels, including requirements in California and Alaska.
- Requirements for tug escorts, including manning and pilotage needs.
- The differences between locations and navigational requirements for vessels transporting petroleum.
- Situations where oils may submerge or sink.

## **Outcomes of the Trans Mountain Marine Development Program**

### *Emerging Trends in vessel traffic*

Currently, there is a significant amount of commercial shipping activity in the Salish Sea, and whether it is bunker fuel or cargo oil, the risk of oil spills exists in the region. Tanker traffic in the Salish Sea is shared between several users besides Trans Mountain and includes tankers transporting crude oil from Alaska and overseas to Puget Sound oil refineries.

The expansion of the existing Trans Mountain pipeline system, known as the Trans Mountain Expansion Project (TMEP or "Project"), will grow the pipeline system capacity from 300,000 barrels per day (bpd) currently to 890,000 bpd capacity post-expansion. The Project has been designed to accommodate delivery of up to 630,000 bpd at Westridge Marine Terminal (Westridge); increasing potential vessel calls at the terminal from approximately five Aframax class tankers per month to up to 34 Aframax tankers per month post-expansion. The size of tankers calling at Westridge will not change with the largest tankers remaining Aframax vessels. These vessels will continue to use the well-established commercial shipping route between Vancouver Harbour and the Pacific Ocean through the Salish Sea. Only a portion of the focus area will be traversed by these vessels.

TMEP's contribution to the overall large commercial vessel traffic will continue to remain low in the future. Of the approximately 6,000 large commercial vessel calls annually at ports in the Salish Sea (Canada and United States), the proportion of TMEP-related tankers in the region is expected to increase from 1.1% currently to 6.6% in future; therefore, remaining a small proportion of the overall commercial vessel traffic in the Salish Sea.<sup>1</sup> With the project in service, TMEP-related tankers will constitute about 50% of all cargo oil vessel traffic.

Trans Mountain's approach to marine development related to TMEP is based upon principles of expansion within the existing regime and informed by a geographically risk-based review of the Project's impacts.

In addition to the studies and assessment undertaken by Trans Mountain for TMEP, the Government of Canada Ministry of Transport's Tanker Safety Expert Panel produced two reports and included three risk assessments<sup>2</sup>. As well, the Government of Canada is committed to spending \$1.5-billion on an Oceans Protection Plan (OPP), which represents a comprehensive plan for the Pacific, Atlantic and Arctic oceans (<https://www.tc.gc.ca/eng/oceans-protection-plan.html>) (Accessed May 22, 2018). The OPP, in addition to addressing tanker and fuel spills includes funding to create a more advanced marine-safety system, restore ocean ecosystems and develop new methods and research into oil spill cleanup methods.

More information on the risk assessment and associated studies is available in the Resources section of this submission.

### *Emergency Response*

Trans Mountain is taking major and significant steps to prevent oil spills due to crude oil marine transportation related to its current and future operations. There have been no oil spills from tankers associated with Trans Mountain during the over 60 years that the pipeline and Westridge Marine Terminal have been in existence. As well, we are not aware of any oil spills from tankers in Vancouver.

Jurisdiction in case of a marine oil spill response in Canada lies with the Government of Canada which has detailed its thorough approach to spill response planning and oversight in their response to the BC Government Policy Intentions Paper for Engagement: Phase Two Enhancements to Spill Management in British Columbia: <http://www.tc.gc.ca/eng/mediaroom/our-response-bc-policy-intentions-paper-activities-spill-management.html#understanding> (accessed May 2, 2018).

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<sup>1</sup> TMEP Final Argument (NEB Filing ID [A4W6L8](#)), Exhibit B018-20 – V8A 1.4.2.7 TO T4.1.1.1 MAR TRANS ASSESS (December 17, 2013) (NEB Filing ID [A3S4X4](#)), 8A-69.

<sup>2</sup> <https://www.tc.gc.ca/eng/tankersafetyexpertpanel/menu.htm>

In the case of any spill, response time is critical. A rapid response means the spilled product has less time to spread to a wider area and to weather, ultimately making the cleanup process more efficient and more predictable.

Although there is an established oil spill response regime in Canada, including the Salish Sea, response will be further improved through implementation of an enhanced oil spill response regime that Trans Mountain is funding as part of TMEP; details can be found in the TMEP NEB Facilities Application, Application Volume 8C, TERMPOLE Reports, TR 8C-12 S12 (NEB Filing ID [A3S519](#)), Review of Trans Mountain Expansion Project Future Oil Spill Response Approach Plan Recommendations on Bases and Equipment).

Proposed response enhancements are based on the results of risk assessment, product testing, oil spill modelling and engagement. The enhanced regime would create an increased response area for the Salish Sea and Strait of Juan de Fuca where Western Canada Marine Response Corporation (WCMRC) will implement the enhancements that will double response capacity while cutting in half the delivery time of existing planning standards. It includes establishment of new bases along the shipping route (some bases will be within the Ecology focus area). WCMRC is the designated response organization for the west coast of Canada, certified by Transport Canada. The enhanced regime is required to be in place in advance of project tanker operations as per NEB Condition of Approval No. 133 (Marine Shipping-related Commitments). Details of the timing and implementation of the new response regime are available in NEB Condition 91 report filed in June 2017 (NEB Filing ID [A84433](#)).

#### *Diluted Bitumen*

Studies and research by government, industry and academia continue to improve knowledge about the fate and behaviour of diluted bitumen (dilbit) in the marine environment. Whereas, there have been various opinions expressed on dilbit, there is a large body of work currently that highlights that dilbit is a single-phase crude oil that will float upon discharge to water and if spilled in a marine environment behaves similarly to most medium to heavy crude oils. Tests and research has shown that it will remain floating in the marine environment for many days, thus providing ample opportunity for response organizations to respond efficiently to the spill using a variety of skimmer systems that are already available in the region with response organizations in Canada and the United States. This has been demonstrated for up to 10 days of weathering in tank tests.

The Government of Canada is heavily invested in the research of fate and behavior of dilbit and other heavy oils. As cited in [their submission to the Province of BC spill response policy intentions paper](#), federal scientists in Canada have published or presented over sixty papers on dilbit science in peer-reviewed fora since 2012.

Information and links to studies about dilbit behaviour are available on the Trans Mountain website: <https://www.transmountain.com/diluted-bitumen-information>.

*Risk Controls Including Enhanced Tug Escort*

Mitigation of risks is an essential consideration for the TMEP, both in terms of avoiding accidents and reducing their consequences should they occur. The existing tanker safety regime is based on local experience and international best practices and is well established and tested in this region. The regime is comprehensive, well established, and has proven to be effective. In 2013, Trans Mountain engaged DNV, a respected and recognized global expert in this field, to conduct a navigation risk assessment (Volume 8C TERMPOL 3.15 (Filing IDs [A3S5F4](#), [A3S5F6](#), [A3S5F8](#)), which included a quantitative risk assessment. This assessment was subsequently reviewed by Transport Canada under TERMPOL and by the National Energy Board of Canada. In their assessment DNV analyzed a variety of risk controls which are already implemented, including double hull tankers, as well as potential new risk controls. DNV noted that although the sailing route has a well-established navigational safety regime and is not heavily trafficked compared to other oil terminal sailing routes in the world, as part of TMEP Trans Mountain plans to implement further enhancements to the already high standard risk reducing measures in place. In the report, DNV opined that “implementing extra risk controls (as is being proposed by the Project) raises the level of care and safety in the study area to well above globally accepted shipping standards. At the same time, Trans Mountain is proposing significant improvements to the oil spill response regime for the area”. DNV calculated the likelihood of a credible worst-case cargo oil spill in the region from a tanker associated with the TMEP will be once in 2,841 years. Given the continued steady improvement in marine safety globally, the improvements that will result from TMEP and those proposed under the OPP for the region, it may be reasonable to consider that the frequency of a credible worst-case cargo oil spill will be less.

Trans Mountain has identified a list of marine risk controls for laden Project tankers, (Table 1) below, including enhancements such as additional pilotage along the shipping route, extended tug escort and working with marine pilots and bridge crew to enhance situational awareness of tankers.

Laden tankers over 40,000 tonnes DWT are already required to have a tethered escort tug through Boundary Pass and Haro Strait. As proposed by Trans Mountain and now required by NEB Condition 133, Trans Mountain will extend tug escort of laden Project tankers for the entire outbound shipping route, i.e., from Westridge to Buoy J (the western entrance to the Strait of Juan de Fuca, near the 12-nautical mile limit of Canada’s territorial sea). These tugs will ensure on-time and on-site support for a laden tanker should it become disabled for any reason.

Together the existing and new risk control measures will ensure the likelihood of a cargo oil spill post-TMEP remains similar to what it is today. Although TMEP-related tankers will constitute about 50% of all active oil cargo carrying vessels in the region, the likelihood of a spill from a TMEP tanker will be far less compared to other oil cargo carrying vessels active in this region. Please refer to Trans Mountain Response to NEB IR TERMPOL Rpt and Outstanding Filings Table A-8 (NewCase 1c) (NEB Filing ID [A4G3U5](#)).

**Table 1**  
**Risk-reducing Measures Relevant to Trans Mountain Tankers in Transit**

Risk Reducing measure	Exists or proposed	Summary of requirements
Modern Double hull tanker	Exists	Second hull reduces probability of oil outflow in case of a collision or grounding.
Class Society survey and maintenance standards	Exists	Regular surveys and inspections ensure adequate maintenance standards are maintained onboard
Industry oversight (vetting)	Exists	SIRE <sup>3</sup> vetting inspections occur every 6 months
Tanker Acceptance Standard	Exists	A dynamic risk management tool used by Trans Mountain that encourages best practices
Port State Control	Exists	Inspections by authorities in foreign ports; in Canada by Transport Canada
Trained seafarers onboard	Exists	All mariners required to carry certification issued by the vessel's flag authority under the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW). Training on vessel operations, both normal and contingencies. Ability to work as a team and reduce human error (e.g. Bridge Team Management)
Global rules and regulations (International Maritime Organization - IMO)	Exists	Strong regime across the world.
Rules and regulations - Transport Canada, Canadian Coast Guard (CCG)/ Marine Communications and Traffic Services (MCTS), Pacific Pilotage Authority (PPA)	Exists	National and local standards. Inspections in Canadian ports.
Port of Vancouver Rules and regulations	Exists	Regulate the movement and workings of vessels in port.
International Rules for the Prevention of Collisions at Sea (ColRegs)	Exists	Applicable to all vessels (large and small).
VTS (Vessel Traffic Service)	Exists	Monitoring and oversight of traffic movements across the entire regime. Cooperatively managed by CCG/MCTS and US Coast Guard (USCG)
Traffic Separation Scheme (TSS)	Exists	Separates incoming and leaving traffic to reduce possible collisions between large vessels
Pilotage Regulations	Exists	Compulsory Pilotage Areas – Between Westridge and Victoria Pilot Station
Navigation equipment (Radar, AIS)	Exists	Compulsory carriage of navigation equipment such as radar and AIS.
ECDIS/ ENC	Exists	Government issued charts, e.g. CHS. All tankers carry electronic and paper charts.
Pilotage and Personal Pilotage Unit (PPU) - 2 pilots for laden tankers, 1 in ballast	Exists / Proposed to extend to Race Rocks	Laden tankers carry 2 pilots, one who provides direction the other as oversight. TM proposes to extend pilot disembarkation position to vicinity of Race Rocks.

<sup>3</sup> The Ship Inspection Report Programme (SIRE) is a safety initiative introduced by Oil Companies International Marine Forum (OCIMF): <https://www.ocimf.org/sire/about-sire/> (Accessed May 2, 2018)

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Tethered tugs Non-tethered tugs	Exists/ Proposed to extend over entire shipping route	Current tug escort to be expanded to cover entire shipping route between Westridge and J Buoy (close to the limit of Canada's territorial sea (12 nm)) This is also a requirement related to NEB Condition 133 (Marine Shipping-related Commitments)
Special Operating Area traffic transit rules at Turn Point	Exists	Oversight of CCG/MCTS
Enhanced Situational Awareness	Exists, but will be further strengthened	Pilots, tankers, tugs, VTS
Shipping passage through Burrard Inlet Central Harbour	New	Will ensure vessels have clear pathways to follow near Westridge marine terminal to avoid conflict with berthed tankers.

The above is only a sample of the entire suite of current and additional risk reducing measures. Please also review: the *TERMPOL Review Process Report on the Trans Mountain Expansion Project* (November 2014) and the TMEP TERMPOL filings in Volume 8C of the NEB Facilities application, found in the Resources section of this submission. The economic impact of tug escort requirements under the Pacific Pilotage Authority requirements through Boundary Pass and Haro Strait is significant for laden tankers over 40,000 tonnes DWT and is expected to increase for Trans Mountain tankers in the future due to the proposed increase in tug service through the Juan de Fuca Strait. Costs related to current and future service may be requested from the two major Canadian tug service providers in the region, Seaspan Marine and SAAM Smit.

Where Trans Mountain exercises control, Trans Mountain will ensure the risk controls are in place and standards are met. Trans Mountain is not an owner or operator of tankers and will work collaboratively with other stakeholders as described above to ensure that the risk reducing measures are met on an ongoing basis. Trans Mountain would draw attention to the benefits of VTS in the region that has been assessed by DNV<sup>4</sup>.

With reference to the determination of suitable tug capacity to respond to a disabled laden Aframax tanker in the Juan de Fuca Strait, Trans Mountain has been advised by a highly reputable local tug expert, Robert Allan Limited, in developing a "tug matrix." The tug matrix determines escort tug criteria based upon the range in tanker sizes (up to Aframax class vessels) and variability in environmental conditions along the shipping route throughout the course of a year. Details of the timing and implementation of the expanded tug service is available in NEB Condition 91 report filed in June 2017 (NEB Filing ID [A84433](https://apps.neb-one.gc.ca/REGDOCS/File/Download/2499183)). Trans Mountain engaged with British Columbia Coast Pilots, tug operators and maritime regulators such as Transport Canada and the Pacific Pilotage Authority about operating processes relevant to the additional escort tugs.

<sup>4</sup> <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2499183>



Also, Ecology may be aware that as part of OPP, the Government of Canada has issued a request for proposal (RFP)<sup>5</sup> for two Emergency Towing Vessels (ETV) on a Time Charter basis that are expected to be deployed on the BC coast. The addition of ETVs will further improve the availability of highly capable tugs in the region.

### *Conclusion*

Trans Mountain appreciates the opportunity to provide input and feedback to Ecology on further improvements to the already robust marine safety regime of the portion of the focus area (San Juan archipelago and connected waterways, Haro Strait, Boundary Pass, and the waters south of Admiralty Inlet) that it has familiarity with, and hopes that examples of current and future proposed risk mitigation measures that have been provided are useful to Ecology's deliberations in its report.

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<sup>5</sup> <https://buyandsell.gc.ca/procurement-data/tender-notice/PW-MB-003-26699>



## Resources

Government of Canada response to the BC Government Policy Intentions Paper for Engagement: Phase Two Enhancements to Spill Management in British Columbia: <http://www.tc.gc.ca/eng/mediaroom/our-response-bc-policy-intentions-paper-activities-spill-management.html#understanding> (accessed May 2, 2018)

Citizens' Guide to Tanker Safety & Spill Response – Resource Works  
<http://www.resourceworks.com/tanker-safety-guide>

NEB Recommendation Report – Trans Mountain Expansion Project (NEB Filing ID A77045) - <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2969681> (Accessed May 21, 2018)

- NEB Conditions of Approval – Appendix 3
  - No. 133 (Marine Shipping-related Commitments)

TMEP Filings in compliance with NEB Conditions of Approval:

- NEB Condition 91 report, (June 2017. (NEB Filing ID [A84433](https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/open/2393795)): <https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/open/2393795> (Accessed May 21, 2018)

B254-5 - Trans\_Mountain\_Follow-Up\_Response\_to\_Province\_BC\_F-IR\_No.\_1.1.50a-Attachment1 (NEB Filing ID A4A2Z7)

- DNV – *Trans Mountain Expansion Project: Evaluation of VTS Capabilities for Termopol 3.15* (August 2014) <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2499183> (Accessed May 21, 2018)
  - B254-6 - Trans\_Mountain\_Follow-Up\_Response\_to\_Province\_BC\_F-IR\_No.\_1.1.50a-Attachment2 (NEB Filing ID A4A2Z8) *Appendix A - Quantification of VTS Effects* <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2499184> (Accessed May 21, 2018)

Table A-8 of Trans Mountain Response to NEB IR TERMPOL Rpt and Outstanding Filings (NEB Filing ID A4G3U5) Filed January 2, 2015.

- <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2585081> (Accessed May 22, 2018)

*TERMPOL Review Process Report on the Trans Mountain Expansion Project* (November 2014)

- NEB Filing ID [A64923](https://apps.neb-one.gc.ca/REGDOCS/Item/View/2584386): TP 15287 TERMPOL Review Process Report on the Trans Mountain Expansion Project <https://apps.neb-one.gc.ca/REGDOCS/Item/View/2584386> (Accessed May 21, 2018)

Trans Mountain Final Argument (NEB Filing ID A4W6L8)

- <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2887518> (Accessed May 21, 2018)

Trans Mountain ULC Facilities Application to the National Energy Board for the Trans Mountain Expansion Project (December 2013)

- Volume 8 A – Marine Transportation
  - V8A 1.4.2.7 TO T4.1.1.1 MAR TRANS ASSESS (December 17, 2013) (NEB Filing ID [A3S4X4](#) ), 8A-69.
    - <https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/open/2393145> (Accessed May 21, 2018)
- Volume 8 C - TERMPOL Reports
  - B020 - Trans Mountain Pipeline ULC - Trans Mountain Expansion Project Volume 8C Part 1 (NEB Filing ID [A56023](#)) <https://apps.neb-one.gc.ca/REGDOCS/Item/View/2393677> (Accessed May 21, 2018)
    - TR-8C-1 - TERMPOL 3.1 – Introduction
    - TR-8C-2 - TERMPOL 3.2 – Origin, Destination & Marine Traffic Volume Survey
    - TR-8C-3 - TERMPOL 3.3 – Fishery Resources Survey
    - TR-8C-4 - TERMPOL 3.6 – Special Underkeel Clearance Survey
    - TR-8C-5 - TERMPOL 3.7 – Transit Time & Delay Survey
    - TR-8C-6 - TERMPOL 3.8 – Casualty Data Survey
    - TR-8C-7 - TERMPOL 3.9 – Ship Specifications
    - TR-8C-8 - TERMPOL 3.10 – Site Plans and Technical Data
    - TR-8C-9 - TERMPOL 3.11 – Cargo Transfer and Transshipment Systems
    - TR-8C-10 - TERMPOL 3.5 & 3.12 – Route Analysis & Anchorage Elements
    - TR-8C-11 - TERMPOL 3.13 – Berth Procedures and Provisions
  - B021 - Trans Mountain Pipeline ULC - Trans Mountain Expansion Project Volume 8C Part 2 (NEB Filing ID [A56029](#)) <https://apps.neb-one.gc.ca/REGDOCS/Item/View/2393359> (Accessed May 21, 2018)
    - TR-8C-12 - TERMPOL 3.15 – *General Risk Analysis and Intended Methods of Reducing Risks*, November 2013. NEB Filing IDs:
      - Part 1 - [A3S5F4](#): <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2393360> (Accessed May 21, 2018)
      - Part 2 - [A3S5F6](#): <https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/open/2393696> (Accessed May 21, 2018)
      - Part 3 - [A3S5F8](#): <https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/open/2393795> (Accessed May 21, 2018)
    - TR 8C-12 S3: *An Evaluation of Local Escort and Rescue Tug Capabilities in Juan de Fuca Strait NEB*, November 2013. (NEB Filing ID - [A3S5GO](#)) <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2393971> (Accessed May 21, 2018)

- B022 - Trans Mountain Pipeline ULC - Trans Mountain Expansion Project Volume 8C Part 3 (A56026) <https://apps.neb-one.gc.ca/REGDOCS/Item/View/2393350> (Accessed May 21, 2018)
- B023 - Trans Mountain Pipeline ULC - Trans Mountain Expansion Project Volume 8C Part 4 (A56027) <https://apps.neb-one.gc.ca/REGDOCS/Item/View/2393254> (Accessed May 21, 2018)
- B024 - Trans Mountain Pipeline ULC - Trans Mountain Expansion Project Volume 8C Part 5 ([A56030](#))
  - TR 8C-12 S12 (NEB Filing ID [A3S519](#)) *Review of Trans Mountain Expansion Project Future Oil Spill Response Approach Plan Recommendations on Bases and Equipment*, December 2013. <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2393632> (Accessed May 21, 2018)
    - TR-8C-13 - TERMPOL 3.16 & 3.17 – Port Information and Terminal Operations Manual
    - TR-8C-15 - TERMPOL 3.18 – Contingency Planning
    - TR-8C-16 - TERMPOL 3.19 – Oil Handling Facilities Requirements
- TERMPOL SUPPORTING DOCUMENTS AND REFERENCE MATERIALS

Supporting Document	Section in Volume 8C
S1: Det Norske Veritas (2013). Marine Traffic (2012) relevant to Trans Mountain Expansion Project	TR-8C-2
S2: EBA (2013). Meteorological and Oceanographic Data Relevant to the Proposed Trans Mountain Expansion Project	TR-8C-10
S3: Robert Allan Ltd (2013.) An Evaluation of Local Escort and Rescue Tug Capabilities in Juan de Fuca Strait	TR-8C-12
S4: Ausenco (2013). Analysis of Second Narrows Transits	TR-8C-5
S5: EBA (2013). Westridge Marine Terminal 2013 Interim Meteorological Report	TR-8C-8
S6: EBA (2013). Oceanographic Observations at Trans Mountain's Westridge Marine Terminal	TR-8C-8
S7: Witt O'Brien's, Polaris Applied Sciences, and Western Canada Marine Response Corporation (2013). A Study of Fate and Behaviour of Diluted Bitumen Oils on Marine Water Dilbit experiments, Gainford, Alberta	TR-8C-12
S8: Polaris Applied Sciences, Inc. (2013). A Comparison of the Properties of Diluted Bitumen Crudes with other Oils	TR-8C-12
S9: EBA (2013). Modeling the Fate and Behaviour of Marine Oil Spills for the Trans Mountain Expansion Project	TR-8C-12
S9a. Modelling the Fate and Behaviour of Marine Oil Spills for the Trans Mountain Expansion Project - Appendix E	TR-8C-12
S10: EBA (2013). Modeling the Fate and Behaviour of Marine Oil Spills for the Trans Mountain Expansion Project (Summary Report)	TR-8C-12
S11: Coastal & Ocean Resources (2013). Methods of Estimating Shoreline Oil Retention	TR-8C-12

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S12: WCMRC (2013). Future Oil Spill Response Approach Plan, Trans Mountain Expansion Project	TR-8C-12
S13: EBA, WCMRC (2013). Trans Mountain Expansion Project Oil Spill Response Simulation Study, Arachne Reef & Westridge Marine Terminal	TR-8C-12
S14: Det Norske Veritas (2013). Technical Note - Aframax Characteristics	TR-8C-12
S15: E3 Environmental (2013). Central Burrard Inlet - Westridge Terminal Pre-Spill SCAT Project Brief Oct, 2013.	TR-8C-15