

Emergency Response Plan

Puget Sound



Oil Spill Contingency Plan Approval Certificate



The Oil Spill Contingency Plan for

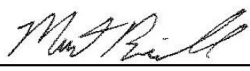
Trans Mountain Pipeline (Puget Sound) LLC

*has been APPROVED pursuant to
Chapter 173-182 Washington Administrative Code
by the*

WASHINGTON STATE
DEPARTMENT OF ECOLOGY

**Spill Prevention, Preparedness, and Response Program
Spill Preparedness Section**

December 13, 2023
Date of Approval



Matt Bissell
Preparedness Section Manager

December 13, 2028
Plan Expiration Date



U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety Administration**

1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

February 2, 2024

Kelly Malinoski
Director, Emergency Management
Trans Mountain Pipeline (Puget Sound) LLC
300 5th Avenue SW, Suite 2700
Calgary, AB, Canada T2P 5J2

Subj: Approval of the Trans Mountain Pipeline (Puget Sound) LLC, Puget Sound Emergency Response Plan

Dear Ms. Malinoski:

The Pipeline and Hazardous Materials Safety Administration (PHMSA) has received and reviewed Trans Mountain Pipeline (Puget Sound) LLC, Puget Sound Emergency Response Plan (Sequence Number: 0587) dated January 2024. We conclude that the plan complies with PHMSA's regulations concerning onshore oil pipelines found at 49 Code of Federal Regulations (CFR) Part 194. Your response plan is approved.

This approval is valid for five years from the date of this letter. If discrepancies are found during PHMSA inspections, or if new or different operating conditions or information would substantially affect the implementation of this plan, you will be required to resubmit a revised plan. See 49 CFR § 194.121(b).

According to the 2016 National Preparedness for Response Program (PREP), "Plan holders are encouraged to notify their PHMSA regional office at least one month in advance of conducting their PREP exercises." Please send your annual PREP exercise schedule to PHMSA.OPA90@dot.gov. When possible, PHMSA will participate and provide feedback on your exercises.

Should you have any questions or concerns, please contact me at (202) 366-4595 or by email at the address listed above. Please include the sequence number and your PHMSA Operator Identification Number on any future correspondence.

Sincerely,

Rick Raksnis

Rick Raksnis, Supervisor
Oil Spill Preparedness Branch
Preparedness, Emergency Support and Security Division
Office of Pipeline Safety

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PLAN IMPLEMENTATION

This is the Emergency Response Plan (Spill Contingency Plan) for the assets operated by Trans Mountain Pipeline (Puget Sound) LLC. These entities are all referred to as "Trans Mountain", "Puget Sound" or "The Company".

This Emergency Response plan will be implemented for any response to any emergency on the Trans Mountain Pipeline (TMPL), or its associated facilities in the Puget Sound operating area either real or simulated. If another plan is deemed more appropriate to the situation the decision to use such plan will be first approved by the state and federal on-scene coordinators along with the incident commander from Trans Mountain.

PLAN MAINTENANCE

Responsibility

Single point accountability for the Trans Mountain (Puget Sound Emergency Response Plan development and maintenance rests with the Manager, Emergency Management. This accountability is for:

- Ensuring the systems (ICS) and response structure are in place and able to meet the requirements set out in the Plan, and
- Ensuring a minimum annual review of the Plan takes place. If no plan changes are needed a letter will be sent to the WDOE and PHMSA confirming the existing plan is still accurate as per WAC 173-182-140. If updates are required, then amended pages will be submitted to the WDOE for review and approval.
- Ensuring that the plan is resubmitted in full every 5 years from the last approval date as required by 49 CFR §194.121(a) (2). The Plan will be distributed to WDOE and PHMSA for review and approval.
- Annually reviewing all Letters of Intent (LOI) and Primary Response Contractor (PRC) contracts to ensure no lapse in coverage exists and documenting the review of contracts and letters of intent.

Manual holders are responsible for:

- Keeping their copies current and ensuring that all revisions are appropriately filed
- Studying all new material issued and incorporating it into their work practice
- Suggesting changes to correct existing material and contributing new text material to improve the quality of the manual

PLAN REVISIONS

Initiating Revisions

All requests for change must be made through the Manager, Emergency Management using the Revision Request Form located in this section of the manual.

Revision Distribution

Plan revisions are issued with an Acknowledgement of Receipt Form and a brief description of the changes itemized by chapter. The Acknowledgment of Receipt form must be signed and returned to the Emergency Management Group as specified. Revisions to the Distribution List will be maintained in a secure Trans Mountain (electronic location) and will be distributed to confidential manual holders only.

All other revisions will be distributed to manual holders in a timely manner. A revised date is shown at the bottom of each updated or new page. The original revision date of the manual is 07/2018. All revisions will be tracked on the Control Sheet.

Revisions after a Release or an Exercise

In the event that Trans Mountain. experiences a release (worst case or otherwise), or conducts an exercise or training session, the effectiveness of the plan will be evaluated and updated to include any learnings as necessary. The review of the plan may include a debrief with WDOE and/or PHMSA and/or other responding agencies, if appropriate especially when significant plan updates are identified, or significant lessons can be recorded and implemented. The changes will be submitted to U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) and Washington Department of Ecology (WDOE) within 30 days.

Changes in Operating Conditions

If a new or different operating condition or information would substantially affect the implementation of the plan, Trans Mountain. will modify the plan to address such a change, and within 30 days of making such a change, submit the change to PHMSA and WDOE, in addition to a 24-Hour notice of such changes occurring.

If at any point there is a permanent or temporary change in the personnel or response equipment described in this ERP, Trans Mountain will notify WDOE in writing within 24 hours of the change and provide a schedule for the prompt return of the plan to full operational status and a proposal for any backfill to compensate for the temporary significant changes. Changes that are considered significant include:

- the loss of equipment that results in being out of compliance with the planning standard either due to transfer out-of-region for spill response, or great than 10% of equipment is moved from its current location (boom, recovery and storage);
- a change or permanent loss of response personnel including initial response personnel, command and general staff, the binding agreement signer;
- changes to the type of oil handled, storage capacity, handling transporting or processing of products;
- change in equipment ownership if used to satisfy planning standards; or
- modification or discontinuation of any mutual aid, letter of intent or contract agreement.

Notes: If the proposed change to the plan is to be made permanent, Trans Mountain will have 30 days from notification to distribute the amended pages of this ERP for review and approval by WDOE. If WDOE finds that the ERP no longer meets approval criteria, WDOE may place conditions on approval or disapprove the ERP.

The resulting changes to the plan will also be submitted to PHMSA within 30 days of the change occurring.

REVISION REQUEST FORM

Requested by:	Date:
Dept/ Agency:	Phone No.:
Revision Type: <input type="checkbox"/> Addition <input type="checkbox"/> Deletion <input type="checkbox"/> Correction	
Manual Section:	Page:
Revision (attach separate sheet if necessary):	
Signature of Requestor:	
Send to: Manager, Emergency Management Trans Mountain Pipeline (Puget Sound) LLC. 2700-300 - 5 th Avenue S.W. Calgary, AB T2P 5J2 Canada Fax: (403) 514-6401	

To be completed by Manager, Emergency Management	
Date Received:	Comments:
Date Reviewed:	
Issued as Revision: Y/ N	
If No, reason for Rejection:	
Signature Manager, Emergency Management	

CONTROL SHEET

The control sheet will record revisions and updates to the plan. The log sheet will identify the section amended including date, and verification of notification to WDOE and PHMSA and the person who made the changes and the purpose of the changes, where applicable.

Revision Number	Date of Revision	Change(s)	Name
1	July 2018	Drafted new Contingency Plan to reflect correct legal entity of Trans Mountain Pipeline (Puget Sound) LLC	KM
2	September 2018	Added Conditional Approval of plan to beginning of manual and included information required by WDOE within 7 days of September 24, 2018 in Section 2, removed confidential appendix, added Trans Mountain Logo.	KM
3	November 2018	Updated manual to include additional information required by WDOE Pipeline Contingency Plan Review Checklist.	KM
4	December 2019	Updated references to Emergency Response Line (ERL) throughout the manual to reflect the new internal notification system, Trans Mountain Alert System (TAS). Updated Section 2.6 Trans Mountain Contacts Addition of new Qualified Individuals listed in Section 7.3. Updated Section 19.0 Certification signatures.	KM
5	June 2020	Addition of Washington State Police 24-hour number (non 911), addition of updated Credit for Oil Recovery & Recovered Oil Data Form to Section 4.12, addition of updated PRC Letters of Intent to Section 19.5	KM
6	December 2020	Updates to include applicable rulemaking changes under WAC 173-182 Oil Spill Contingency Plan Rule. Minor wording changes in Section 4.8 Response Tactics for Non-Floating Oil, 13.0 Wildlife Care, 16.0 Regulatory Background, Section 19.5 Contracts/Letters of Intent.	KM
7	January 2021	Update to NRC Environmental Services 24-hour number	KM
8	May 2021	Revisions and updates to address additional information required to align with WDOE Contingency Plan Review Checklist. The following Sections received revisions – Section 2.5.1 – Incident Management Team Mobilization, 4.8 – Non-Floating Oil, 4.10.7 – Cleanup Techniques – Dispersants, 5.1.4 – Eelgrass, 7.6 – Trans Mountain Products Summary, 8.0 – Incident Management, 10.7 – Shoreline Cleanup Planning Standards, 13.0 – Wildlife Care, Section 16.2 Washington State Regulations	KM

Revision Number	Date of Revision	Change(s)	Name
9	June 2021	Revisions to Section 2.8.4 & 2.9.5 to include new telephone number for WDOE Northwest Regional Office, updated verbiage to Section 5.1 – Protection of Sensitive Areas to include reference to water column and benthic species at risk, Section 10.6.2 – Washington State Geographic Response Plan URL links updated to the Oil Spill 101 website.	KM
10	September 2021	Revised wording within Section 19.5 – PRC Contracts/Letters of Intent to align with WAC 173-182.	KM
11	November 2021	Full Plan Approval and Certificate issued by Washington State Department of Ecology. Section 13.5.2.3 – updated IOSA contact information. Annual plan review completed.	KM
12	January 2022	Revisions to <i>Section 13.0 – Wildlife Care</i> to align with 24-month phase-in of the oil spill contingency plan rule, WAC 173-182-540(2)(d).	KM
13	August 2023	Scope-update verbage with a reference to the fire pre-plan; Emergency response philosophy response approach updated; Emergency level updated to include media in level 2 & 3; section 1.2 ISHSP updated; section 2.2 diagram updated; section 2.6 TM contacts updated; 2.8.4 WDOE notification of spill volume change added; 2.9.3 updated BC EMCR name; section 2.11 refinery contact information updated; section 2.12 additional ICP locations added; section 3.1.1 safety checklist updated; section 7.1 pipeline overview map updated; section 7.3 list of qualified individuals updated; section 7.7 response zone maps and diagrams updated; section 8.4 response team organization diagram updated; section 8.8 unified command diagram updated; section 9.6.3 addition of supplying WDOE with waste disposal records upon request; section 9.7.7 mobile spill equipment list updated; section 9.7.8 mobile fire equipment list updated; section 10.8 air monitoring plan has been updated (now called Public Health Assessment & Response Plan For Airborne Risk); section 15 Environment, Health and Safety Policy updated; section 17 training elements updated; section 18.2.1 planning spreadsheets updated; section 18.3 worst case discharge map updated; section 19.1 Trans Mountain certification updated; section 19.2 Trans Mountain Binding agreement updated; section 19.5 PRO Contracts/Letters of intent updated.	

DISTRIBUTION

Controlled copies are distributed as below; however the distribution list may change from time to time, a new version of the emergency response plan will not be issued for a revision to the distribution listing.

No.	Issued To
E-Copy	
8000	U.S. Department of Transportation – PHMSA
8001	U.S. Department of Transportation – PHMSA
8002	Department of Ecology, Washington
8003	Whatcom County Emergency Management
8004	Skagit County Emergency Management
8005	Utilities and Transportation Commission
Hardcopy	
8006	Department of Ecology, Washington
8100	Control Centre
8101	Control Centre (back up)
8102	Director, EHS Department
8103	Director, Emergency Management
8104	Director, Western Region
8105	Manager, Emergency Management
8106	EHS Coordinator (Puget Sound)
8107	Western Region Burnaby Office
8108	Sumas Station
8109	Supervisor, Puget Sound
8110	Laurel Station Control Room
8111	Anacortes Control Room
8112	Truck #820
8113	Ferndale
8114	Spare
8115	Spare
8116	Spare
8117	Spare

ACRONYMS

Acronym	Meaning
ADIOS	Automated Data Inquiry for Oil Spills
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
ATV	All-Terrain Vehicle
bbl.	Barrel
C	Centigrade (temperature)
CCG	Canadian Coast Guard
CHS	Canadian Hydrographic Service
cm	Centimetre
cm/s	Centimetre per second
cp	Centipoises
cs (cSt)	Centistokes
decon	Decontamination
DHP	Duty Harbour Pilot
DWT	Deadweight
EHS	Environment, Health and Safety
EMBC	Emergency Management British Columbia
EMT	Emergency Medical Technician
ESI	Environmental Sensitivity Index
F	Fahrenheit (temperature)
FOSET	Fisherman's Oil Spill Emergencies Team
FSA	Forward Staging Area
ft	Feet
GIS	Geographic Information System
gpm	Gallons per Minute
GPS	Global Positioning Satellite
GRT	Gross Registered Tons
H ₂ S	Hydrogen Sulphide
Ha	Hectare
HAZMAT	Hazardous Materials
HAZWOPER	Hazardous Waste Operations and Emergency Response
HF	High Frequency
HFO	Heavy Fuel Oil
HP	Horsepower
HQ	Headquarters
HR	Human Resources
IACS	International Association of Classification Societies
IBRRC	International Bird Rescue and Rehabilitation Centre
IC	Incident Command (Commander)
ICLL	International Convention on Load Lines
ICP	Incident Command Post

Acronym	Meaning
ICS	Incident Command System
IMO	International Maritime Organisation
IMT	Incident Management Team
IPIECA	International Petroleum Industry Environmental Conservation Association
IR	Infra-Red
IRG	Incident Response Guide
IRT	Initial Response Team (Tier 1)
ISF	International Shipping Federation
ISGOTT	International Safety Guide for Oil Tankers and Terminals
ISM	International Management Code for Safe Operations of Ships and for Pollution Prevention
ITOPF	International Tanker Owners Pollution Federation
ITZ	Intertidal Zone
IUCN	International Union for Conservation of Nature and Natural Resources
KBOD	Thousand Barrels of Oil per Day
kg	Kilogram
km	Kilometre
kts	Knots (nautical miles per hour)
kW	Kilowatt
l	Litre
LFO	Light Fuel Oil
LOA	Length Over all
LR	Lloyd's Register of Shipping
m	Metre
m ³	Cubic Meter
m/s	Metres per Second
MARPOL	Marine Pollution (International Convention for the Prevention of Pollution from Ships)
MB	Million Barrels
MCTS	Marine Communications and Traffic Services
MFO	Medium Fuel Oil
MGO	Marine Gas Oil
MHz	Megahertz
min	Minute
mm	Millimetre
MOV	Manually Operated Valve
MSDS	Material Safety Data Sheet
NAPL	Non-Aqueous Phase Liquids
NCP	National Contingency Plan
NEBA	Net Environmental Benefit Analysis
NGL	Natural Gas Liquid
NO ₂	Nitrogen Oxides
NOAA	National Oceanic and Atmospheric Administration (USA)
O ₂	Oxygen

Acronym	Meaning
OEL	Occupational Exposure Limit
OGC	Oil and Gas Commission
OHF	Oil Handling Facility
OPRC	Oil Pollution Preparedness, Response and Co-operation Convention 1990
Ops	Operations
OSC	On-Scene Commander
OSCP	Oil Spill Contingency Plan
OSHA	Occupational Safety and Health Administration (USA)
OSIC	On-Scene Incident Commander (Facility Manager/Designated IRT Supervisor)
OSR	Oil Spill Response
OSRL	Oil Spill Response Limited (UK)
OSRPs	Oil Spill Response Plans
OSRV	Oil Spill Response Vessel
PAHs	Polynuclear Aromatic Hydrocarbons
PC	Personal Computer (IBM based)
PEL	Permissible Exposure Limits
PFD	Personal Flotation Device
PIC	Person in Charge
PM10	Particulate Matter having a diameter less than 10 microns
PPE	Personal Protective Equipment
ppm	Parts per Million
PRC	Primary Response Contractor
psi	Pounds per square inch (pressure)
PVC	Poly Vinyl Chloride
RO	Response Organization
SCAT	Shoreline Clean-up Assessment Team
SCBA	Self-Contained Breathing Apparatus
sec	Second
SO ₂	Sulfur Dioxide
SOLAS	(International Convention for) Safety of Life at Sea
SOS	Shoreline Oiling Summary
SSB	Single Side Band (Radio)
STEL	Short-term Exposure Limit
TLV	Threshold Limit Value
TRS	Tiered Response System
TWA	Time-weighted Average
UHF	Ultra-High Frequency
UK	United Kingdom
USA	United States of America
UV	Ultraviolet
VCR	Videotape Cassette Recorder
VHF	Very High Frequency
VOSS	Vessel of Opportunity Skimming System

Acronym	Meaning
VRP	Vessel Response Plan
VTC	Vessel Traffic Control
VTs	Vessel Traffic Services
WCB	WorkSafe BC
WCMRC	Western Canada Marine Response Corporation
WRSP	Wildlife Response Service Provider

INTRODUCTION

Initial Incident Actions

The initial responder to arrive at a spill site will take some immediate actions to ensure responder safety as well as the public and protect the environment. The initial responder will complete the following tasks, if appropriate and safe to do so while waiting for the Qualified Individual (QI)¹.

1. Ensure the safety of all workers and public in the area of the spill
2. Assess the situation (i.e., incident size, severity, likely impacts)
3. Notify the Control Centre and/or Operations Supervisor/Manager immediately to activate the Trans Mountain Alert System (TAS) as outlined in Section 2 Internal and External Notification.
4. Take appropriate action to mitigate the impacts to life, safety, the environment, and property prior to the arrival of the Qualified Individual (QI)

Note: the initial responder will begin documentation on an ICS 201 form, and/or notes on other paper, or will relay the information to personnel at the Control Centre or to the District Supervisor who will initiate an ICS 201 form. This initial documentation will be kept with all other incident documentation.

How to use this Plan

This Plan is divided into 3 Sections:



Emergency Actions

- 1 Responder Health & Safety
- 2 Alert Others (Internal and External Notifications)
- 3 Spill and Site Assessment
- 4 Spill Containment & Recovery
- 5 Protection of Sensitive Areas
- 6 Multiple Hazards

Support Information

- 7 Site Information
- 8 Incident Management
- 9 Operations/Response Equipment
- 10 Planning
- 11 Logistics
- 12 Finance/Administration
- 13 Wildlife Care
- 14 SDS

Regulatory Information

- 15 Environmental Policy
- 16 Regulatory Background
- 17 Training and Exercises
- 18 Worst Case Calculations
- 19 Certifications

In the event of an incident, Trans Mountain will utilize the Incident Command System (ICS) to ensure a safe, comprehensive and effective response. This Plan includes initial objectives for the first Operational Period of the incident (to be captured on the ICS 201) as well as objectives and strategies for subsequent Operational Periods.

Purpose of the Plan

The purpose of this Plan is to provide guidelines for quick, safe, and effective response to an emergency, in order to protect the public, personnel, environment and company property.

Regulatory Scope of the Plan

This Plan is intended to satisfy the requirements of the Oil Pollution Act of 1990 (OPA 90) and has been prepared in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and applicable Area Contingency Plans (ACP), EPA Region X Regional Contingency Plans. Specifically, this Plan is intended to satisfy The Pipeline Hazardous Material Safety Administration (PHMSA), and the Washington Department of Ecology (WDOE) requirements under Washington Administrative Code (WAC) 173-182.

Scope of the Plan

This Emergency Response Plan (ERP) covers emergencies that originate from TMPL and/or associated stations in Washington State. As part of the Emergency Response Plan maintenance practice, Trans Mountain implements a Hazard Assessment Process in order to generate an all-encompassing hazard inventory list. This list identifies potential emergency conditions that result from hazards associated with TMPL including associated facilities.

Emergency Conditions may be defined as the result of a hazard negatively impacting people, property and/or the environment. Through the evaluation of hazards and their subsequent consequences, the Emergency Management Department develops and maintains plans and procedures to assist in mitigation, planning and response efforts for all real or potential emergencies.

The hazard inventory list is reviewed on an annual basis to ensure that new hazards are identified and evaluated against their potential emergency condition. This assessment is also used to determine if existing plans and procedures continue to meet the response requirements for all identified hazards and their associated risks. The Emergency Management Department maintains the hazard inventory evaluation internally.

This Plan will not cover the tactical response techniques to be implemented for a fire., Detailed response actions including tactical information for fires can be found in the site specific "Fire Pre-Plan".

Plan Implementation

This Emergency Response Plan (ERP) will be implemented for any emergency or drill within Washington State that results from the Trans Mountain Pipeline System. If a different plan is identified as more applicable it may be used if the decision to use an alternate plan is first approved by the state and federal on-scene coordinators.

Emergency Definition

An emergency is defined as any condition that results in or may result in:

- Death or injury requiring hospitalization
- Explosion or fire
- Leak, rupture or spill
- Any significant event such as; earthquake, flood, severe storm or bomb threat that may threaten the Trans Mountain Pipeline System.

Emergency Response Philosophy

On all emergency incidents, Trans Mountain will follow the following basic response approach:

1. Select and Don PPE

- All incident responders must be protected with the PPE appropriate to the hazards present:
 - Approved Fire-Resistant Coveralls
 - Hard Hats (where overhead hazards are present)
 - Gloves
 - Splash Goggles
 - Rubber Steel-Toed Boots
- Also:
 - PPE must be worn properly in order to fully protect responders.
 - Damaged or heavily oiled PPE should be replaced as soon as possible.
 - All responders leaving the Hot Zone must go through a decontamination zone (Warm Zone) to ensure that contamination is not spread into the Cold Zone.

2. Control the Incident Site

- The incident scene must first be controlled to ensure a safe and effective response to any incident:
 - Don't rush in; hazards must first be fully assessed
 - Conduct vapour monitoring and confirm levels (H₂S, LEL levels) are safe as approaching the incident site
 - Establish and maintain an isolation perimeter, with hot, warm and cold zones
 - Establish communications with the Control Center; request information regarding the situation (e.g., alarms, product, pipeline readings, shutdown actions and other relevant information)
 - Establish staging area(s)

3. Size up the Situation

- A site assessment will identify the scope and nature of the incident, as well as any potential hazards to responders:
 - Assess whether visual alarms have been activated
 - Recognize and identify any hazardous materials involved
 - Source of any releases
 - Potential exposures

4. Evaluate the Hazards and Risks

- An assessment must be conducted to evaluate the level of risk to responders and the public:
 - Assess health, physical and chemical hazards
 - Gather technical data (MSDSs, etc.)
 - Conduct vapor monitoring

5. Establish Initial Objectives

- After the potential hazards have been identified, the Incident Commander(s) can establish the initial objectives for the response. Typical initial objectives include:
 - Control the incident Scene
 - Ensure the safety of responders and the public
 - Establish Incident Command Post

6. Manage Information and Coordinate Resources

- It is essential that information flows quickly and freely to all resources to ensure a safe and coordinated response:
 - Expand the ICS as needed, especially if a Unified Command is established
 - Ensure that all (internal and external) notifications are made
 - Conduct briefings
 - Confirm all communications to ensure that they are fully understood and implemented

7. Implement Response Objectives

- Once initial objectives have been established, it will be possible to develop, and implement, strategies and tactics to achieve these objectives. These may be:
 - Offensive (i.e., emergency rescue, firefighting, spill source control)
 - Defensive (i.e., protecting the public, fire control, spill response)
 - Non-intervention (protecting the public)

8. Manage the Incident

- On larger incidents, it will be necessary to operate over a number of Operational Periods. In these cases, it will be necessary to fully-staff the Incident Management Team, especially the Planning Section:
 - Establish Incident Objectives for each Operational Period
 - Conduct Tactics and Planning Meetings
 - Develop and approve Incident Action Plans
 - Conduct Operations Briefings

9. Terminate the Incident Response

- Once the emergency phase of the incident is over, the Incident Commander will stand down the Incident Management Team and ensure that all post-incident activities are completed:
 - Transition to, and conduct the post-emergency phase of the response
 - Conduct an incident debrief
 - Ensure that all incident documentation is completed
 - Ensure that all equipment, PPE and ICP supplies are replenished
 - Transition from Emergency Phase to Project Phase with adequate documentation and continue any required project phase activities, i.e., site remediation, repair to terminal assets.

Emergency Levels

The Trans Mountain Emergency Response Organization is based on a three-tiered response structure. Incidents are identified and categorized into one of the three tiers. Each Tier is managed by an escalating degree of management seniority and authority, and assistance from outside the initial response organization. The standardization of the ICS Structure and Incident Management Process provides the flexibility to tailor the size of the response organization to the specifics of the incident and allows for rapid adjustments as an incident evolves. Where appropriate, the Trans Mountain Incident Commander will invite the participation of Federal, State and local Agencies to form a Unified Command.

Level	Definition	Examples
1	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 Commander position.	<ul style="list-style-type: none"> • Oil spills confined to company property (pipeline station, terminal, or scraper trap) • 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
2	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.	<ul style="list-style-type: none"> • Oil has migrated beyond company property (pipeline station, terminal, or scraper trap) 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
3	The Company may request assistance from other Industry, Municipal, or State Agency personnel to support the response to the incident. The Region Director will assume the Incident Commander position.	<ul style="list-style-type: none"> • Major emergency condition such as: <ul style="list-style-type: none"> ○ 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/state, and/or national media interest

1.0 RESPONDER HEALTH AND SAFETY

It is important to understand that the different crude oils handled pose different hazards when spilled, and/or are on fire, depending on their chemical composition. Therefore, the primary hazards, and the need for vapor monitoring, and the cleanup techniques will depend on the characteristics and volume of crude oil spilled.

Many crude oils (including “sweet” crudes) can emit potentially dangerous levels of H₂S, and most crude oils also contain Benzene. Some crude oils have low flash points, especially during the initial hours after being spilled. In all of these cases, the risk of accidental ignition and/or the inhalation of toxic vapors must be mitigated, and a detailed site assessment (see Section 3) must be completed before on-scene operations are initiated. This assessment will be made by the Safety Officer.

Typically, the risks associated with the concentration of potentially dangerous vapors will diminish with time, due to reduced vapor production as the lighter components volatilize, and vapors disperse. There are exceptions to this however; i.e., in some cases, where crude oil pools into thick layers, a skin may develop on the surface, trapping vapors. Later, if the skin is broken and the oil disturbed, the oil might emit vapors normally associated with freshly spilled oil. The assessment will be made by the Safety Officer. In all cases, the results of the initial site assessment should be used to develop a Safety and Health Plan.

The Initial Site Health & Safety Plan (ISHSP – Section 1.2) should be completed as soon as possible by one of the initial responders and updated as required. When completing the ISHSP some of the information may not apply during the initial stages of the response, but may change within a short period, thereby altering the PPE and/ or other requirements.

The ISHSP:

- Aids the initial responders in assessing hazards related to the incident
- States the required PPE to be used
- Documents important health and safety information
- Serves as an interim "Plan" until the Site Health & Safety Plan (Section 1.3) is developed
- Assigns responsibilities, i.e., completion of the ICS 201 and notification
- Identifies "site set-up" features that may be required
- Authorizes work to be completed (in lieu of a Safe Work Permit)

Upon the completion and delivery of the Site Health & Safety Plan, the Initial Site Health & Safety Plan becomes void.

1.1 Safety Guidelines

1.1.1 Skin Contact

The accidental absorption of toxins through skin/eye contact can be greatly reduced through the wearing of oil-resistant Personal Protective Equipment (PPE). These include:

- Approved Fire-Resistant Coveralls
- Hard Hats (where overhead hazards are present)
- Gloves
- Splash Goggles
- Rubber Steel-Toed Boots

Also:

- PPE must be worn properly in order to fully protect responders.
- Damaged or heavily oiled PPE should be replaced as soon as possible.
- All responders leaving the *Hot Zone* must go through a decontamination zone (*Warm Zone*) to ensure that contamination is not spread into the *Cold Zone*.

1.1.2 Inhalation of Vapors

The need for respiratory protection will be determined by the Safety Officer after a review of the SDS and data retrieved from the initial site assessment (see Section 3 Spill/Site Assessment). If toxic vapor levels are determined to exceed safe working limits (see Section 3.4 Vapour Monitoring Flowchart for details), it might be possible for responders to work while wearing half-face respirators fitted with Organic cartridges or SCBA. In this case, on-going vapor monitoring is essential to ensure that vapor levels do not exceed safe working limits.

1.1.3 Fire/Explosion

All hydrocarbon products are capable of ignition if certain conditions are met. It is important to review the SDS to determine the flash point of the material spilled and to perform vapor monitoring (for LEL). Whenever vapor levels are approaching 10% of the LEL for any spilled product, responders will leave the area immediately. In the event of a fire and response efforts are required the responders will have radiant heat protection.

1.1.4 Other Hazards

There are a number of additional potential hazards faced during spill response including slips, trips and falls, and working around vessels/water and equipment. Special care should be taken when walking on oiled surfaces or shoreline, especially during night-time operations. The Site-Specific Health and Safety Plan shall identify these potential hazards, and they must be clearly communicated to responders.

1.2 Initial Health and Safety Plan

The Initial Health and Safety Plan form follows this section and available on the internal [Emergency Management Toolkit](#) site.

1.3 Health and Safety Plan

The Health and Safety Plan form follows this section and is available on the internal [Emergency Management Toolkit](#) site.

INITIAL SITE HEALTH & SAFETY PLAN

INCIDENT PARTICULARS					
Incident Name:			Date/ Time:		
Pipeline: <input type="checkbox"/> Line 1 <input type="checkbox"/> Line 2 <input type="checkbox"/> Puget			Initial Incident Commander:		Phone #:
Command Post Location:					
Product:	Est. Vol:	m ³ barrels	SDS Available: <input type="checkbox"/> Yes <input type="checkbox"/> No		
ICS 201 Form Initiated: <input type="checkbox"/> Yes <input type="checkbox"/> No			Person Responsible:		
Internal/ External Notifications Made: <input type="checkbox"/> Yes <input type="checkbox"/> No			Person Responsible:		
SITE CHARACTERIZATION					
<input type="checkbox"/> Common ROW Line1/2	<input type="checkbox"/> Diverged ROW Line1/2	<input type="checkbox"/> Storage Facility	<input type="checkbox"/> Berth	<input type="checkbox"/> Water	<input type="checkbox"/> Land
<input type="checkbox"/> Other (please specify)					
SITE SECURITY & ACCESS POINTS					
Description:					
SITE HAZARDS					
<input type="checkbox"/> Fire Explosion	<input type="checkbox"/> Equipment Operations	<input type="checkbox"/> Trenching Excavation	<input type="checkbox"/> Fatigue	<input type="checkbox"/> Slips, Trips, and Falls	
<input type="checkbox"/> Chemicals	<input type="checkbox"/> Motor Vehicles	<input type="checkbox"/> Confined Spaces	<input type="checkbox"/> Heat Stress	<input type="checkbox"/> Restricted Work Area	
<input type="checkbox"/> Electrical	<input type="checkbox"/> Boat Operations	<input type="checkbox"/> UV Radiation	<input type="checkbox"/> Cold Stress	<input type="checkbox"/> Heavy Lifting	
<input type="checkbox"/> Steam/ Hot Water	<input type="checkbox"/> Helicopter Operations	<input type="checkbox"/> Overhead/ Buried Utilities	<input type="checkbox"/> Weather	<input type="checkbox"/> Drum Handling	
<input type="checkbox"/> Noise	<input type="checkbox"/> Shore Line Operations	<input type="checkbox"/> Pumps and Hoses	<input type="checkbox"/> Visibility	<input type="checkbox"/> Plants/Wildlife	
<input type="checkbox"/> Other:					
ATMOSPHERIC MONITORING – INITIAL READING					
O ₂	%	LEL	%	Other (specify):	
H ₂ S	ppm	Benzene	ppm		
NOTE: Additional results to be recorded in 'Emergency Response/ Safety Watch Log'					
CONTROL MEASURES			SITE SETUP		
<input type="checkbox"/> Source of Release Secured			Communications Established <input type="checkbox"/> Yes <input type="checkbox"/> No		
<input type="checkbox"/> Site Secured			Hot Zone Established <input type="checkbox"/> Yes <input type="checkbox"/> No		
<input type="checkbox"/> Valve(s) Closed			Fire Extinguisher Accessible <input type="checkbox"/> Yes <input type="checkbox"/> No		
<input type="checkbox"/> Energy Sources Locked/ Tagged Out			Decontamination Stations Established <input type="checkbox"/> Yes <input type="checkbox"/> No		
<input type="checkbox"/> Facility Shut Down			Illumination Equipment Provided <input type="checkbox"/> Yes <input type="checkbox"/> No		
<input type="checkbox"/> Other:			Medical Surveillance Provided <input type="checkbox"/> Yes <input type="checkbox"/> No		
			Sanitation Facilities Provided <input type="checkbox"/> Yes <input type="checkbox"/> No		
HOT ZONE PPE REQUIREMENTS					
General		Other		Respiratory	
<input type="checkbox"/> Hard Hat	<input type="checkbox"/> Face Shield	<input type="checkbox"/> Rubber boots	<input type="checkbox"/> Leather gloves	<input type="checkbox"/> SABA/ Air Line w/ Esc	
<input type="checkbox"/> FR Clothing	<input type="checkbox"/> Tinted Lens	<input type="checkbox"/> High Vis. Vests	<input type="checkbox"/> Nitrile gloves	<input type="checkbox"/> SCBA to be worn	<input type="checkbox"/> Cartridge Type OV
<input type="checkbox"/> Steel toes	<input type="checkbox"/> Impact Goggles	<input type="checkbox"/> PFD's	<input type="checkbox"/> Rubber gloves	<input type="checkbox"/> SCBA to be avail. #	<input type="checkbox"/> Cartridge Type P(M)-100
<input type="checkbox"/> Safety Glasses	<input type="checkbox"/> Chemical Res. Clothing	<input type="checkbox"/> Safety Harness	<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Air Purifying (full mask)	<input type="checkbox"/> Cartridge Type P(M)-100/OV
<input type="checkbox"/> Turnout Gear		<input type="checkbox"/> FR Rain Gear	<input type="checkbox"/> FR Tyvek	<input type="checkbox"/> Air Purifying (half mask)	
WARM ZONE PPE REQUIREMENTS					
General		Other		Respiratory	
<input type="checkbox"/> Hard Hat	<input type="checkbox"/> Face Shield	<input type="checkbox"/> Rubber boots	<input type="checkbox"/> Leather gloves	<input type="checkbox"/> SABA/ Air Line w/ Esc	
<input type="checkbox"/> FR Clothing	<input type="checkbox"/> Tinted Lens	<input type="checkbox"/> High Vis. Vests	<input type="checkbox"/> Nitrile gloves	<input type="checkbox"/> SCBA to be worn	<input type="checkbox"/> Cartridge Type OV
<input type="checkbox"/> Steel toes	<input type="checkbox"/> Impact Goggles	<input type="checkbox"/> PFD's	<input type="checkbox"/> Rubber gloves	<input type="checkbox"/> SCBA to be avail. #	<input type="checkbox"/> Cartridge Type P(M)-100
<input type="checkbox"/> Safety Glasses	<input type="checkbox"/> Chemical Res. Clothing	<input type="checkbox"/> Safety Harness	<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Air Purifying (full mask)	<input type="checkbox"/> Cartridge Type P(M)-100/OV
		<input type="checkbox"/> FR Rain Gear	<input type="checkbox"/> FR Tyvek	<input type="checkbox"/> Air Purifying (half mask)	
TRAINING AND REVIEW					
Hazwoper Training Records Verified for U.S.A. Operations <input type="checkbox"/> Yes <input type="checkbox"/> No			All Responders have reviewed this Plan <input type="checkbox"/> Yes <input type="checkbox"/> No		
Completed by:					

SITE HEALTH & SAFETY PLAN

This document is intended to facilitate the rapid development of a written site health and safety plan (SHSP) during the emergency and post emergency phases of an incident response. It is intended to address all health & safety aspects for response personnel. SHSPs help mount a rapid response to an oil release, or other type of incident in a safe manner, as well as, provide readily available information to all affected parties.

INCIDENT PARTICULARS					
Incident Name:		Date/ Time:			
Command Post Location:		Site Phone Number:			
Product:		Estimated Volume:		MSDS Available:	<input type="checkbox"/> Yes <input type="checkbox"/> No
ICS 201 Form Initiated:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Person Responsible:			
Internal/ External Notifications Made:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Person Responsible:			
SITE CHARACTERIZATION					
<input type="checkbox"/> Land	<input type="checkbox"/> Water	<input type="checkbox"/> Other (please specify)			
IMPACTED ASSETS					
<input type="checkbox"/> Pipeline	<input type="checkbox"/> Storage Facility	<input type="checkbox"/> Truck	<input type="checkbox"/> Other (please specify)		
WEATHER			WIND		
<input type="checkbox"/> Clear	<input type="checkbox"/> Cloudy	<input type="checkbox"/> Fog	<input type="checkbox"/> Calm (0.5 km/ hr; 0.3 mi./ hr)		
<input type="checkbox"/> Rain	<input type="checkbox"/> Freezing Rain	<input type="checkbox"/> Hail	<input type="checkbox"/> Light (5-15 km/ hr; 3-10 mi./ hr)		
<input type="checkbox"/> Snow	<input type="checkbox"/> Lightning		<input type="checkbox"/> Moderate (15-30 km/ hr; 10-20 mi./ hr)		
			<input type="checkbox"/> Strong (30+ km/ hr; 20+ mi./ hr)		
SITE SECURITY & ACCESS POINTS					
Description:					
SITE HAZARDS					
<input type="checkbox"/> Fire/ Explosion	<input type="checkbox"/> Equipment Operations	<input type="checkbox"/> Trenching/ Excavation	<input type="checkbox"/> Fatigue	<input type="checkbox"/> Slips, Trips, and Falls	
<input type="checkbox"/> Chemicals	<input type="checkbox"/> Motor Vehicles	<input type="checkbox"/> Confined Spaces	<input type="checkbox"/> Heat Stress	<input type="checkbox"/> Restricted Work Area	
<input type="checkbox"/> Electrical	<input type="checkbox"/> Boat Operations	<input type="checkbox"/> UV Radiation	<input type="checkbox"/> Cold Stress	<input type="checkbox"/> Heavy Lifting	
<input type="checkbox"/> Steam/ Hot Water	<input type="checkbox"/> Helicopter Operations	<input type="checkbox"/> Overhead/ Buried Utilities	<input type="checkbox"/> Weather	<input type="checkbox"/> Drum Handling	
<input type="checkbox"/> Noise	<input type="checkbox"/> Shore Line Operations	<input type="checkbox"/> Pumps and Hoses	<input type="checkbox"/> Visibility	<input type="checkbox"/> Plants/ Wildlife	
				<input type="checkbox"/> Other:	
ATMOSPHERIC MONITORING – INITIAL READING					
O ₂	%	LEL	%	Other (specify):	
H ₂ S	ppm	Benzene	ppm		
NOTE: Additional results to be recorded in 'Event/ Safety Watch Log'					
CONTROL MEASURES			SITE SETUP		
<input type="checkbox"/> Source of Release Secured			Communications Established	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Site Secured			Work Zones Established	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Valve(s) Closed			Fire Extinguisher Accessible	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Energy Sources Locked/ Tagged Out			Decontamination Stations Established	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Facility Shut Down			First Aid Stations Established	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Other			Illumination Equipment Provided	<input type="checkbox"/> Yes <input type="checkbox"/> No	
			Medical Surveillance Provided	<input type="checkbox"/> Yes <input type="checkbox"/> No	
			Sanitation Facilities Provided	<input type="checkbox"/> Yes <input type="checkbox"/> No	

SITE HEALTH & SAFETY PLAN

GENERAL SITE REQUIREMENTS

- 1) Personnel entering the site must **Sign-in** at the Field Command Post or designated area, and must **Sign-out** before leaving the site.
- 2) Personnel entering the site for the first time must attend a **Pre-Entry Briefing** at the Field Command Post before they will be permitted site entry. The briefing will cover the Site Health and Safety Plan and the site specific hazards present.
- 3) The spill site has a “No Smoking” policy – Security at the Field Command Post will give directions to the designated “Smoking Area”.
- 4) Cameras and other electronic devices are not permitted on the Site unless approval has been given by the Health and Safety Department
- 5) All Injuries or Unsafe Activities/ Conditions shall be immediately reported to the Work Leader or the Safety Watch.
- 6) Site Emergency – 3 blasts of air horn or megaphone (unless otherwise advised) – all personnel must immediately leave the area and report to the Field Command Post.
- 7) The site will be divided into work zones with access control points. As a minimum, personnel will always work in pairs. Personnel must follow decontamination procedures when exiting the work zones.

THE BUDDY SYSTEM IS MANDATORY FOR EVERYONE ON SITE

HEALTH & SAFETY BRIEFINGS/ MEETINGS

1. All personnel, employees, contractors, and subcontractors shall be provided with an initial site safety briefing to communicate the nature, level and degree of hazards expected on site.
2. Personnel will also receive regular briefings before and after each shift, before making a hot zone level entry, or when significant changes are made in the work procedures or safety plans. These site safety meetings/ briefings shall be held by the on-scene commander or safety watch. At a minimum these meeting will describe the work to be accomplished, discuss safety procedure changes, and note any items which need to be passed to other crews. General safety training topics should also be covered based on points raised in previous meetings and the site health and safety plan attachments.
 - The Tailgate Meeting Form should be utilized for this purpose.

LOCAL SOURCES OF ASSISTANCE

General: When calling emergency responders provide the following information to the responding agency: *(see Emergency Numbers for Ambulance, Fire and Police)*

Type of Emergency:

Incident Location and directions to incident: (e.g. SW25-53-11-W5, Highway 16, South RR 11)

Ambulance	Name:		Telephone:	
Fire Dept.	Name:		Telephone:	
Police Dept.	Name:		Telephone:	
Hospital	Name:		Telephone:	

Directions To Hospital:

Travel Time:

PRODUCT INFORMATION

Hazardous Material (Known or Suspected): The following are the products that could be expected to be in the vicinity of the incident. (Obtain copies of MSDS)

Material:		MSDS Number:		Quantity:	
Material:		MSDS Number:		Quantity:	

SITE HEALTH & SAFETY PLAN

Toxicological Hazards:		
<input type="checkbox"/> Inhalation		
<input type="checkbox"/> Ingestion		
<input type="checkbox"/> Skin		

Substance:	PEL/ TLV:	IDLH:
Substance:	PEL/ TLV:	IDLH:
Substance:	PEL/ TLV:	IDLH:

Future weather conditions that may affect Incident Site:

Job Assignment/ Task	Cold Zone	Warm Zone	Hot Zone
General Labour on Land			
General Labour on Water			
Equipment Operator			
Vac-Truck Operator/ Crew			
Site Assessment/ Investigation			
Boom Deployment/ Maintenance			
Welder			
Corrosion/ Coating			
Wildlife Hazing			
Decon Workers			
Land/ Water Surveillance			
Supervisory Personnel			

Select the appropriate level of PPE for each of the applicable Job Assignment/ Tasks from the following list, as well as, any additional PPE that is required. (e.g. Level C, 7 and 11).

PPE REQUIREMENTS																															
Level A	Level B	Level C	Level D	Additional PPE																											
Not used by Company Employees	SCBA (or Air Line with escape back)	Full/ Half face air purifying respirator	Flame Resistant or normal work clothing	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">1. Hard hat</td> <td style="width: 33%;">10. High Vis vests</td> <td style="width: 33%;">19. SABA/ air lines w/Esc</td> </tr> <tr> <td>2. FR Clothing</td> <td>11. PFD's</td> <td>20. SCBA to be worn</td> </tr> <tr> <td>3. Steel toes</td> <td>12. Safety Harness</td> <td>22. SCBA to be avail. #</td> </tr> <tr> <td>4. Safety Glasses</td> <td>13. FR rain gear</td> <td>23. Air Purifying (full mask)</td> </tr> <tr> <td>5. Face Shield</td> <td>14. Leather Gloves</td> <td>24. Air Purifying (half mask)</td> </tr> <tr> <td>6. Tinted Lens</td> <td>15. Nitrile gloves</td> <td>25. Cartridge Type OV</td> </tr> <tr> <td>7. Splash Goggles</td> <td>16. Rubber Gloves</td> <td>26. Cartridge Type P(M) – 100</td> </tr> <tr> <td>8. Chemical resist. clothing</td> <td>17. Hearing Protection</td> <td>27. Cartridge Type P(M)-100/ OV</td> </tr> <tr> <td>9. Rubber boots</td> <td>18. FR Tyvek</td> <td></td> </tr> </table>	1. Hard hat	10. High Vis vests	19. SABA/ air lines w/Esc	2. FR Clothing	11. PFD's	20. SCBA to be worn	3. Steel toes	12. Safety Harness	22. SCBA to be avail. #	4. Safety Glasses	13. FR rain gear	23. Air Purifying (full mask)	5. Face Shield	14. Leather Gloves	24. Air Purifying (half mask)	6. Tinted Lens	15. Nitrile gloves	25. Cartridge Type OV	7. Splash Goggles	16. Rubber Gloves	26. Cartridge Type P(M) – 100	8. Chemical resist. clothing	17. Hearing Protection	27. Cartridge Type P(M)-100/ OV	9. Rubber boots	18. FR Tyvek	
	1. Hard hat	10. High Vis vests	19. SABA/ air lines w/Esc																												
	2. FR Clothing	11. PFD's	20. SCBA to be worn																												
	3. Steel toes	12. Safety Harness	22. SCBA to be avail. #																												
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6. Tinted Lens	15. Nitrile gloves	25. Cartridge Type OV																													
7. Splash Goggles	16. Rubber Gloves	26. Cartridge Type P(M) – 100																													
8. Chemical resist. clothing	17. Hearing Protection	27. Cartridge Type P(M)-100/ OV																													
9. Rubber boots	18. FR Tyvek																														
Flame Resistant or Coated Tyvex	Flame Resistant or Coated Tyvex	Eye & face protection																													
Chemical resistant steel toe boots	Chemical resistant steel toe boots	Protective footwear																													
Chemical resistant gloves	Chemical resistant or leather gloves	Gloves																													
	Eye protection																														
	Hard hat																														

SITE HEALTH & SAFETY PLAN

WORK ZONES

Control boundaries have been established in the site safety map below according to the following guidelines:

- The **HOT ZONE**, or **EXCLUSION ZONE**, is the area where contamination or product hazards are expected.
- The **WARM ZONE**, or **CONTAMINATION REDUCTION ZONE**, is a transition area between the **HOT ZONE** and the **COLD ZONE**. It is the area where a **DECONTAMINATION** is conducted for personnel and equipment leaving the **HOT ZONE**.
- The **COLD ZONE**, or **SUPPORT ZONE**, is an area adjacent to the **WARM ZONE** that is intended to remain safe and as free of contamination as possible.

SITE DIAGRAM

See Site diagram or Site Map from ICS form 201.

GENERAL DIAGRAM INSTRUCTIONS

1. Site Diagram should include the following:
 - a. Sketch with major feature locations (buildings, drainage paths, roads, etc.)
 - b. Hazardous substance location
 - c. Work zones (exclusion, contamination reduction, support)
 - d. Command center and decontamination area
 - e. Access and access restrictions
 - f. Routes of entry
 - f. Wind direction
 - g. Emergency evacuation routes
 - h. Assembly points
 - i. First aid locations
 - j. Communication system

SITE HEALTH & SAFETY PLAN

CONTINGENCY PLANS

In the event of an emergency (at this incident site) the person first noticing the emergency is to notify other workers in the immediate area. Evacuation must commence at once if the emergency poses any threat to the safety of the workers. Upon receiving notification of an emergency, the individual in charge of the work area is to take appropriate measures to protect human life, the environment (including wildlife) and property.

Escape Routes:

Evacuation Procedures:

Alerting Methods:

Muster Point:

MEDICAL SURVEILLANCE

Special medical monitoring required:

Urinary/ Phenol
 Blood Test
 Chest X-ray
 Other:

Procedure:

Facility to perform medical testing/ monitoring

NAME:
LOCATION:

HAZWOPER (US OPERATIONS ONLY)

Personnel are required to be trained in accordance with 29CFR 1910.120 for the level at which they are performing duties. Personnel approaching the release and performing offensive actions are to meet the Hazardous Materials Technician Level. Personnel working away from the release area performing defensive actions are to be trained at the First Responder – Operational Level.

Site specific training required: In addition to the training requirements above, the following site specific training topics are to be reviewed prior to work on the site:

- Site Hazards (material released, physical hazards, etc.)
- Work areas/ activities identified
- Site Emergency Alerting/ Contingency Plan
- Evacuation Route/ Assembly Areas
- Required PPE
- Obtaining Medical Treatment/ First Aid
- Decontamination procedures

SITE HEALTH & SAFETY PLAN

Other Types of Training:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

INCLUDED ATTACHMENTS:

Amendment form

Tailgate meeting form

- Wild Animals: Ungulates, Reptiles & Insects; ref. H&S Standards Manual Section 4, #417
- Boat operation; ref. H&S Standards Manual Section 6, #603
- Thermal Stress (Cold & Hypothermia); ref. H&S Standards Manual Section 4, #423, #424
- Confined Space Entry; ref. H&S Standards Manual Section 7, #701
- Cranes & Mechanical Lifting Equipment; ref. H&S Standards Manual Section 5, #511
- Manual lifting; ref. H&S Standards Manual Section 5, #523
- Organic Solvents; ref. H&S Standards Manual Section 4, #409
- Hydrogen Sulfide; ref. H&S Standards Manual Section 4, #406
- Helicopter Safety; ref. H&S Standards Manual Section 6, #605
- PPE; ref. H&S Standards Manual Section 5, #527
- Sanitation Requirement; ref. H&S Standards Manual Section 5, #532
- Traffic Safety; ref. H&S Standards Manual Section 6, #609
- Action levels; ref. H&S Standards Manual Section 5, #502
- MSDS
- Medical Monitoring Form
-
-

Note: Air Monitoring Results, and Hot Zone Personnel Tracking is to be documented in the Emergency Response/ Safety Watch Log

PLAN PREPARATION

Prepared by:	Date:	Time:
Signature:		
Prepared by:	Date:	Time:
Signature:		

ALL RESPONSE PERSONNEL ARE TO REVIEW THE SITE HEALTH & SAFETY PLAN

AMENDMENTS TO SITE SPECIFIC HEALTH & SAFETY PLAN

This Site Health and Safety Plan is based on information available at the time of preparation. Unexpected conditions may arise which necessitate changes to this plan. It is important that personal protective measures be thoroughly assessed prior to and during the planned activities. Unplanned activities and/ or changes in the hazard status should initiate a review of major changes in this plan.

Changes in the hazard status or unplanned activities are to be submitted on “Amendments to Site Health and Safety Plan” which is included as Page ___ of this plan.

Amendments must be approved by the Safety Officer prior to implementation of amendment.

All notes, documentation and records must NOT be discarded after their use. Documents are to be submitted to Documentation (Planning Section) for records retention.

SITE HEALTH & SAFETY PLAN

AMENDMENTS TO SITE HEALTH & SAFETY PLAN

Changes in field activities or hazards:

Proposed Amendment:

Proposed By:

Date:

Approved By:

Date:

Amendment
Number

Amendment
Effective Date

Time:

TAILGATE MEETING MINUTES

Location:	Date	MM DD YYYY	Time	HH MM	
Description of work to be performed:					
HAZARD IDENTIFICATION AND SAFETY DISCUSSION <i>(Check and discuss all relevant hazards)</i>					
<input type="checkbox"/> Flammables/ Combustibles/ Explosives	<input type="checkbox"/> Overhead Work/ Suspended Loads/ Chains/ Slings	<input type="checkbox"/> High Noise Levels			
<input type="checkbox"/> Trapped or Stored Pressure/ Energy	<input type="checkbox"/> Falling from Heights	<input type="checkbox"/> Walking/ working surfaces			
<input type="checkbox"/> Hazardous/ Toxic Substances	<input type="checkbox"/> Slips/ trips and falls	<input type="checkbox"/> Insect bites/ bird droppings			
<input type="checkbox"/> Pinch Points/ Moving/ Rotating Equipment	<input type="checkbox"/> Radiation	<input type="checkbox"/> Sharp Edges			
<input type="checkbox"/> Electrical Current	<input type="checkbox"/> Extreme Heat/ Cold	<input type="checkbox"/> Animals			
<input type="checkbox"/> Traffic	<input type="checkbox"/> Exertion/ Heavy Lifting	<input type="checkbox"/> Other			
<input type="checkbox"/> Working in awkward positions	<input type="checkbox"/> Weather (ice, snow, rain)	<input type="checkbox"/> Other			
REQUIRED HAZARD CONTROLS <i>(Check applicable)</i>					
<input type="checkbox"/> Gas Detection (Available & Calibrated)	<input type="checkbox"/> Signage and/ or Barricades Provided	<input type="checkbox"/> Emergency Retrieval Equipment			
<input type="checkbox"/> Mechanical & Electrical Lockout Complete	<input type="checkbox"/> Traffic Control	<input type="checkbox"/> Full Body Harness w/ "D" Ring			
<input type="checkbox"/> Safety Watch	<input type="checkbox"/> Grounding and/ or bonding in place	<input type="checkbox"/> Life Lines & Lanyards			
<input type="checkbox"/> Proper Ventilation	<input type="checkbox"/> MSDS Available & Reviewed	<input type="checkbox"/> 2 Way Radios			
<input type="checkbox"/> Piping/ Vessel Isolated	<input type="checkbox"/> Fire Extinguishers	<input type="checkbox"/> Other			
<input type="checkbox"/> Trained/ Cert. Personnel Available	<input type="checkbox"/> Lighting (Class 1, Div. 1- Explosion Proof)	<input type="checkbox"/> Other			
REQUIRED PERSONAL PROTECTIVE EQUIPMENT <i>(Check applicable)</i>					
General	Other			Respiratory	
<input type="checkbox"/> Hard Hat	<input type="checkbox"/> Face Shield	<input type="checkbox"/> Rubber boots	<input type="checkbox"/> Leather gloves	<input type="checkbox"/> SABA/ Air Line w/ Esc	<input type="checkbox"/> Cartridge Type OV
<input type="checkbox"/> FR Clothing	<input type="checkbox"/> Tinted Lens	<input type="checkbox"/> High Vis. Vests	<input type="checkbox"/> Nitrile gloves	<input type="checkbox"/> SCBA to be worn	<input type="checkbox"/> Cartridge Type P-100
<input type="checkbox"/> Steel toe boots	<input type="checkbox"/> Impact Goggles	<input type="checkbox"/> PFD's	<input type="checkbox"/> Rubber gloves	<input type="checkbox"/> SCBA to be avail. #	<input type="checkbox"/> Cartridge Type P-100/ OV
<input type="checkbox"/> Safety Glasses	<input type="checkbox"/> Chemical Res. Clothing	<input type="checkbox"/> Safety Harness	<input type="checkbox"/> Ear Protection	<input type="checkbox"/> Air Purifying (full mask)	
				<input type="checkbox"/> Air Purifying (half mask)	
ADDITIONAL TOPICS/ HAZARDS & HAZARD CONTROLS – <i>identified and discussed</i>					
EMERGENCY PREPARATION					
<input type="checkbox"/> ERP	<input type="checkbox"/> Muster Areas	<input type="checkbox"/> Communication Equipment	<input type="checkbox"/> Means of Egress	<input type="checkbox"/> Emergency Equipment	
<input type="checkbox"/> Designated First Aid Attendant:			<input type="checkbox"/> First Aid equipment available	<input type="checkbox"/> Other	
JOB INTERRUPTION					
Were additional hazards identified during the work?			<input type="checkbox"/> Yes	<input type="checkbox"/> No	
If yes, list them here:					
Additional Comments:					
Company Meeting Facilitator:					

TAILGATE MEETING MINUTES

Name	Company
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	
20.	
21.	

2.0 INTERNAL AND EXTERNAL NOTIFICATION

Immediate notification is a key element of any emergency response action. The health and safety of employees and the public is paramount and, as a result, immediate notification is essential. This section describes both the internal and external notification processes, and includes the contact information for Trans Mountain resources, and external resources.

2.1 Incident Verification

The first step in many incidents is to confirm that an emergency condition exists. Reports may come from a number of sources including automated detection systems, on-site Trans Mountain or other personnel, and members of the public and/or Emergency Services (Police, Ambulance, and Fire).

2.1.1 *Trans Mountain Personnel Detection*

Trans Mountain employees and contractors conduct routine maintenance and inspection work along TMPL and its associated facilities and the pipeline right-of-way on a regular basis. In the course of this work Trans Mountain employees and contractors may come across the signs of a pipeline release. In the event that a Trans Mountain employee or contractor identifies or suspects that a pipeline release has occurred they are to follow the internal notification procedure as outlined in section 2.4 Internal Notification Procedure of this Emergency Response Plan.

2.1.2 *Member of the Public*

Pipeline releases, both real and/or suspected, may be identified by a member of the public. Signs of a pipeline release may include;

- A strong petroleum odor (like gasoline or diesel fuel)
- Strong sulphur smell (like rotten eggs)
- Dead or discolored vegetation
- Pools of liquid when the rest of the right-of-way is dry
- Petroleum sheen on water
- Unusual hissing or roaring sound

In the event that a member of the public identifies or suspects a release from a Trans Mountain operated facility, they are to call the Emergency Number at **1-888-876-6711**. This number connects directly to Trans Mountain's Control Centre and is monitored on a 24/7 basis.

2.1.3 *Emergency Services*

Emergency Services, including Police, Fire and EMS, may in the course of their duties come across or be dispatched to the scene of a real or potential facility release. In the event that an Emergency Services Agency identifies or suspects a release from a Trans Mountain owned facility, they are to call the Emergency Number at **1-888-876-6711**.

2.1.4 *Automated -Spill Detection*

The pipeline is equipped with pressure and flow monitors, which exercise local control and transmit data to the Control Centre. These systems are set to alarm or shut down on preset deviations of pressure flow.

Engineering Operating Limits establish the alarm thresholds for mainline pressures and flow rates for all operating line segments.

Trans Mountain pipeline system is continuously monitored by four types of protective monitoring systems:

- Distributed Fiber Optic Sensing System
- Real-Time Transient Hydraulic Modelling Leak Detection
- Statistical Pressure Deviation Leak Detection
- Statistical Flow Imbalance Pipeline Leak Detection

In case of an alarm, the Control Centre personnel will take the appropriate actions in accordance with operating procedures. The following is a summary of the operating procedures for automated spill detection:

- SCADA System 10-Second Data Access –monitors and controls pipeline operations with the SCADA system in the Control Centre. The ultimate decision on leak detection lies with the Control Centre.
- Communication Flexibility/Redundancy – the SCADA system acquires data via a satellite network. Satellite communications allow large volumes of data to be transmitted very rapidly both to and from all field locations. Network configuration and transmission protocols provide the flexibility to establish guaranteed delivery transmissions as required. Communication system redundancy provides accurate and reliable data to pipeline operators.
- Parameter Alarms – a parameter alarm is a data value limit (high or low) which can be set by the Control Centre operator to alert upset conditions regardless of whether the Operator is actively monitoring the data point in question.
- Operators are required to establish parameter alarm settings on mainline pressures and flow rates for all operating line segments. In combination with ten-second data acquisition rates, parameter alarms provide near instantaneous notification of potential upset conditions on all operation mainlines.
- Trending – the SCADA system includes a trending facility which graphically displays pressures, temperature, and flow rate data for each mainline pump and oil receiving location on the system. This system can provide valuable insight into operations history and can help the operator proactively address potential upset conditions.
- Tank Gauging with Parameter Alarms – tank gauge data is available to the Control Centre for use by pipeline operators. The systems are gauged automatically by the SCADA computer and the data is made available to the operator on demand. Parameter alarms (see above) are also available for tank levels to ensure no potential tank discharge.
- Training – all operators are compliant with DOT 195 Operator Qualification Requirements.

2.1.5 Automated - Fire Detection

Fire detection at Laurel Station consists of fire wire alarms in the foam dam area on the top of the two tanks. If a fire was to occur along the rim seal of either tank it will melt the wire which then alarms to the Control Centre and Laurel Station. All enclosed buildings on site have fire alarms which also alarm to the Control Centre and Laurel station.

2.1.6 Automated – Intrusion Alarm

All buildings at Laurel Station have intrusion alarms which send a signal to the alarm monitoring company who then begins a callout starting with the on-call person, district supervisor and finally the Control Centre.

2.1.7 Automated/Complaint Detection Verification

If the detection method comes from alarms to the CCO or a member of the public the potential incident must then be visually verified by Trans Mountain personnel. If a leak, fire or other emergency event is

confirmed the on-site operator will inform CCO of the incident and CCO will initiate the internal notification procedure.

2.1.8 Early Detection Methods

Aerial patrol flights will be made at least 26 times a year and will not exceed 21 days apart. The intent of the patrol is to observe the area directly over the pipeline right-of-way for leaks, exposed pipes, washes, missing markers and other unusual conditions. Construction on the right-of-way, or adjacent to the right-of-way is also closely monitored.

Discharge to the land and/or surface waters may also be detected by company personnel at Laurel Station when employees perform daily scheduled inspections of the site. At Anacortes and Ferndale locations, inspections are performed during scheduled deliveries.

Right-of-way marker signs are installed and maintained at road crossings and other noticeable points and provide an emergency telephone number for reporting emergency situations. The company also participates in the “call before you dig” or “One Call” utility notification services which can be contacted to report a leak and determine the owner/operator of the pipeline.

If a notification is made to a local office or pump station, the Trans Mountain representative receiving the call will generally implement the following actions:

- Notify the Control Centre and Regional Office/Qualified Individual
- Dispatch field personnel to the site to confirm a discharge and conduct preliminary assessment
- Notify their immediate supervisor and provide assessment results.

2.1.9 Detection in Adverse Weather

A conservative shutdown time of 15 minutes has been established for calculating worst case discharge this includes time for evaluation and shutdown during adverse weather. Washington Department of Ecology Regulation Chapter 173-182-030, Section (70)(d)(i) which states “At a minimum the total time to detect and shut down the pipeline, must be equal or greater than thirty minutes” the total release time has been adjusted to 30 minutes total from 15 minutes in the above calculation. Line ruptures and tank failures that cause worst case spills in adverse weather conditions would normally be detected and acted upon within 5 minutes. In the event that visual detection cannot occur due to adverse weather, and/or low visibility the pipeline will be shut down for safety until detection can occur. Equipment that may be used in these situations includes vapor detection, and thermal/infrared imagery.

2.1.10 Detection of Spills to Groundwater

In an area where a spill occurs that is not on impermeable ground a contractor will be contacted to assist with the detection and ongoing evaluation of a spill that may impact groundwater. The contacts for the specific contractors can be found in Section 2.10 Primary Response Contractors (PRC).

2.1.11 Shutdown Events

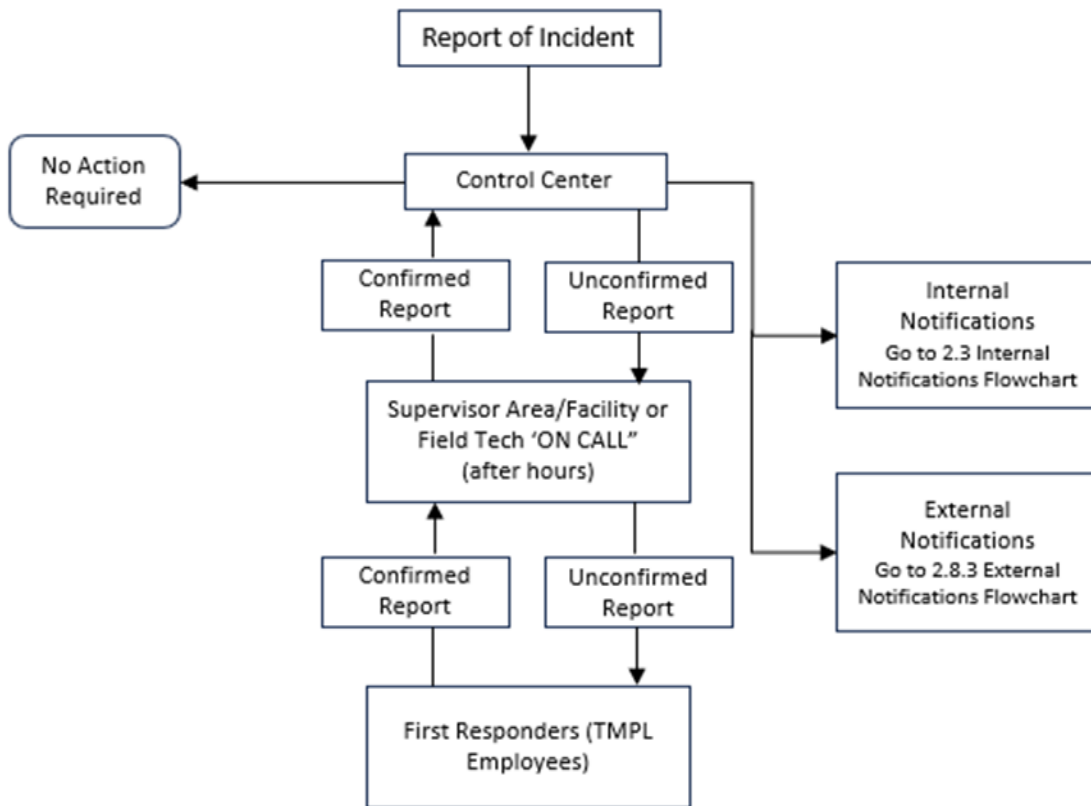
If abnormal conditions exist, the Control Centre will take the appropriate actions to ensure that a release does not occur. If a discharge has occurred, the Control Centre will take actions to limit the magnitude. In either case appropriate actions taken by the Control Centre personnel may include, but are not limited to:

- Shut down affected line segment if there is an indication of a leak
- Isolate line segment
- Depressurize line

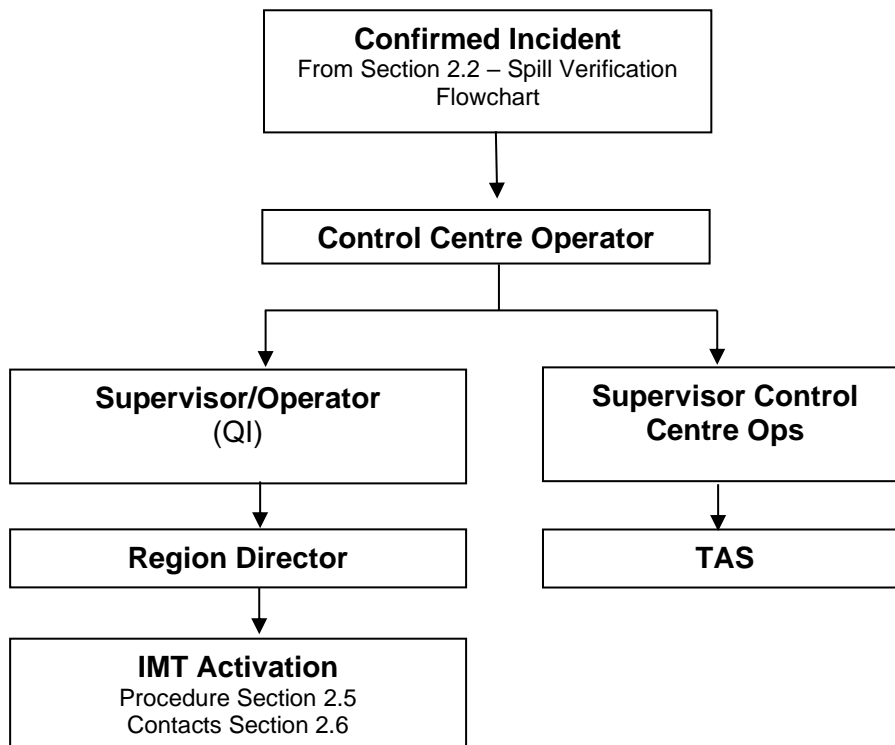
- Start internal and external notifications
- Mobilize additional personnel as required.
-

2.2 Spill Verification Flowchart

The first step in many incidents is to confirm that a spill has actually occurred. Spill reports may come from a number of sources including the public, and First Responders (Police, Fire and Ambulance). Once received the following flowchart shows the direction of communication to verify an incident.



2.3 Internal Notification Flowchart



2.4 Internal Notification Procedure

All spills, regardless of size, must be reported immediately to the Control Center, who will:

- Contact the District Supervisor to verify and Assess the situation
- Determine the Response Level (i.e., Level 1, 2 or 3 - See Introduction for a description of the 3 Response Levels)
- Initiate the notification of company and external personnel

2.4.1 Information to Report

Information about the spill should be as clear, concise, accurate and timely as possible. The minimum information reported, for initial report and update reports, should be:

- Name and Telephone Number of the Caller
- Date and Time of the call
- Name of Pipeline
- Location of the Spill
- Product(s) Spilled
- Estimated Quantity
- Actions Taken To-Date
- Assistance Required
- Injuries
- Weather Conditions
- Reason for discharge (if known)

2.4.2 How to report

- **Call the Control Centre at 1-888-876-6711**

Note: The Control Centre number is monitored 24 hours a day.

2.5 Incident Management Team (IMT) Notification/Activation

Upon being notified of the incident, the CCO Supervisor will issue a TAS. The TAS system is an online tool that delivers an automated group text message to designated Trans Mountain personnel when notification of an emergency or non-emergency event is required. The CCO fills in the Emergency Condition Report and issues a TAS call. Once received the mandatory call in personnel will participate in a conference call to determine next actions, and the IMT members that need further contact/mobilization. An initial IMT will be set up using these individuals. The mandatory callers are as follows:

- Regional Director, affected area
 - The following people are contacted at the discretion of the Regional Director
 - Pipeline Protection Supervisor, affected area
 - Director, External Relations
 - Scheduler, Shipper Services, affected area
- Director, Central Region and Control Centre
- Director, Technical Services
- Field Representative
- EHS, regional contact
- Director, EHS (Calgary)
- Director, Emergency Management
- Legal Representative
- Manager, Emergency Management

If the on-line system is not operational the CCO will begin a manual call down of the above individuals and request they join the conference call. If the conferencing telephone lines are not operational the flow of information will occur via individual telephone calls until an alternate conferencing solution is available.

The following positions, at a minimum, will be assigned during this call:

- Safety Officer
- Information Officer
- Liaison Officer
- Legal Officer
- Security Officer
- Operations Section Chief
- Planning Section Chief
- Logistics Section Chief
- Finance/Administration Section Chief

2.5.1 Incident Management Team Mobilization

Upon conclusion of the TAS Call the local Incident Management Team will establish an initial Incident Command Post at or near the incident location. Initial ICS response positions will be filled using local operations personnel from Puget Sound. Within six hours of the confirmed incident additional IMT staff from Trans Mountain's Sumas District (Lower Mainland of British Columbia, Canada), will arrive in Puget Sound to fill additional ICS roles. Trans Mountain has developed a procedure in conjunction with U.S. Customs and Border Protection to ensure the timely access of response personnel and equipment

through land border crossings. As core IMT members arrive at the site or are assigned, they are responsible for contacting the remaining members of their respective sections/units/groups/division, deemed necessary based on the size and nature of the incident. Additional IMT staff from outside the Lower Mainland Region will begin to arrive in Puget Sound within 12-24 hours of the confirmed incident.

2.6 Trans Mountain Contacts

The IMT is only listed to the Section Chief level, a full listing of IMT members can be obtained from the Manager, Emergency Management. A Section Chief is also classed as a Deputy Section Chief.

Position	Name	Office
Command Staff		
Incident Commander	Hadden, Rob	403-514-6400
Incident Commander	Kanjilal, Bikram	403-514-6400
Incident Commander	Pleadwell, Todd	403-514-6400
Incident Commander	Jahnke, Brian	403-514-6400
Incident Commander	Malinoski, Kelly	403-514-6400
Incident Commander	Faris, Adam	403-514-6400
Incident Commander	Kereliuk, Jamie	403-514-6400
Information Officer	Hobenshield, Lexa	403-514-6400
Information Officer	Loban, Natalie	403-514-6400
Information Officer	Robinson, Jeff	403-514-6400
Information Officer	Breen, Ashley	403-514-6400
Information Officer	Snider, Stephanie	403-514-6400
Legal Officer	Van Wallegam, Rob	403-514-6400
Legal Officer	Thrasher, Kevin	403-514-6400
Liaison Officer	Wade, Rebecca	403-514-6400
Liaison Officer	Malinoski, Kelly	403-514-6400
Liaison Officer	Kereliuk, Jamie	403-514-6400
Liaison Officer	English, Richard	403-514-6400
Safety Officer	Penney, Todd	403-514-6400
Safety Officer	Wilson, Jeremy	403-514-6400
Safety Officer	Inaba, Yuya	403-514-6400
Safety Officer	Chow, Dan	403-514-6400
Safety Officer	Leier, Ryan	403-514-6400
Safety Officer	Turner, Jason	403-514-6400
Security Officer	Lawren Somer	403-514-6400
Operations Section		
Section Chief	Pleadwell, Todd	403-514-6400
Section Chief	Odens, Justin	403-514-6400
Section Chief	Gray, Ryan	403-514-6400
Section Chief	Faris, Adam	403-514-6400
Section Chief	Jahnke, Brian	403-514-6400
Section Chief	MacDonald, Scott	403-514-6400
Section Chief	Kuchuk, Brandyn	403-514-6400
Section Chief	Stelter, Kelvin	403-514-6400

Position	Name	Office
Section Chief	Bennett, Kori	403-514-6400
Section Chief	Wallace, Scott	403-514-6400
Planning Section		
Planning Section Chief	Chan, Rich	403-514-6400
Planning Section Chief	Feser, David	403-514-6400
Planning Section Chief	Greig, Andrew	403-514-6400
Planning Section Chief	Lalli, Raj	403-514-6400
Planning Section Chief	Wade, Rebecca	403-514-6400
Planning Section Chief	Godoy, Vicente	403-514-6400
Planning Section Chief	Malinoski, Kelly	403-514-6400
Logistics Section		
Logistics Section Chief	Lane, Theresa	403-514-6400
Logistics Section Chief	Holmquist, Lisa	403-514-6400
Logistics Section Chief	Pausu, Marianne	403-514-6400
Logistics Section Chief	Harsula, Rita	403-514-6400
Logistics Section Chief	Braaten, Kathy	403-514-6400
Logistics Section Chief	Devuyst, Amanada	403-514-6400
Logistics Section Chief	Gervais, Nancy	403-514-6400
Logistics Section Chief	Couture, Anna-Marie	403-514-6400
Finance Section		
Finance Section Chief	Imola, Delia	403-514-6400
Finance Section Chief	Senio, Lori	403-514-6400
Finance Section Chief	Gutierrez, Monica	403-514-6400
Finance Section Chief	Kutschinski, Maureen	403-514-6400

2.7 Facility Contact Numbers

District	Facility	Phone
Puget Sound	Laurel Station	360-398-1541
	Anacortes Station	360-293-6323
	Burlington Station	360-757-1384
	Ferndale Station	360-380-1945

2.8 External Notification

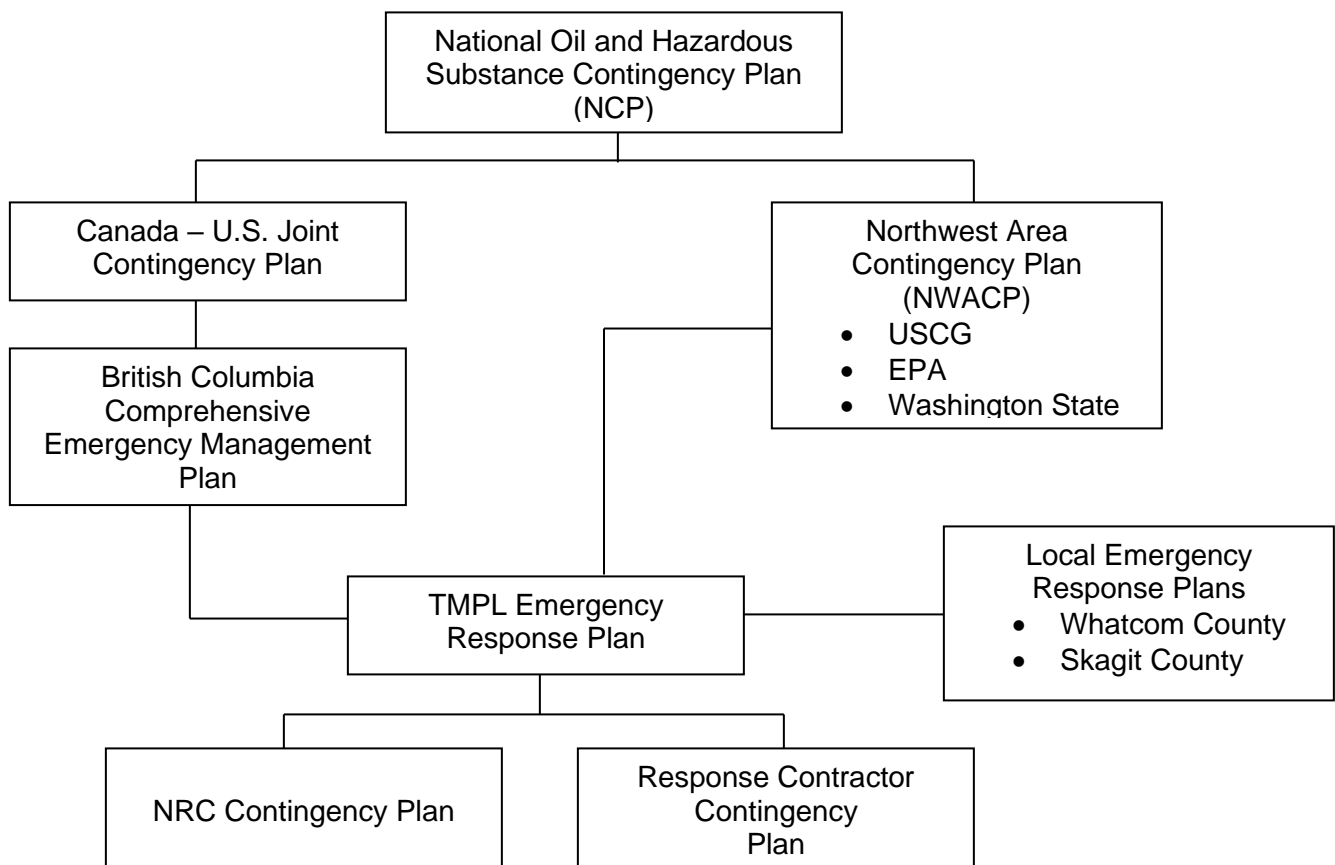
2.8.1 Interface with Other Plans

Trans Mountain will respond to spills from its pipeline system to the best of its ability. In the event of a worst-case spill, Trans Mountain may require assistance, advice or direction from state and federal agencies regarding shoreline protection and cleanup measures. The relationship of the emergency Response Plan to federal, state and local plans is shown on the chart below.

Trans Mountain has a contract with National Response Corporation (NRC), an oil spill primary response contractor in Washington State. The NRC area of operation includes all of the inland water and marine areas that could be impacted by a spill from the pipeline system.

Trans Mountain will rely on NRC to provide response assistance for inland water and marine waters that may be impacted by potential spills from its pipeline system.

British Columbia’s Comprehensive Emergency Management Plan (CEMP) is identified on the following chart due to the possible migration of petroleum from Washington State into Canada should a spill occur from the pipeline system into the Sumas River upstream of the international boundary.



2.8.2 External Notification – Potential Emergency Condition

In the case of a potential emergency condition¹ Washington State Department of Ecology will be contacted as per WAC 173-182-264(2) when any of the following conditions are met:

1. Emergency Shutdown – is an event or situation that could imminently be hazardous to persons, property or the environment. This includes but is not limited to component malfunction or personnel error that could cause a hazard to persons, property or the environment, an operational failure causing a hazardous condition, natural disaster, a terrorist threat, third party damage that could affect pipeline operations, leaks or spills, fires or a response to the activation of an emergency system.
2. Safety Shutdown – is a situation where a pipeline is shut down due to an emergency or abnormal operating condition along a pipeline, or at a terminal, station or other facility. The automated shutdown of a pipeline due to the activation of a protective device in response to an abnormal operating condition is also considered a Safety Shutdown.
3. Odor Complaint – in the event of multiple complaints and/or a single complaint in conjunction with available operating data, the CCO has a reason to suspect a release of product and decides to do a Safety Shutdown of the pipeline and/or station.

WDOE Reporting Line: (800) 258-5990

The on-site supervisor will make contact with the WDOE while investigating the potential spill location(s) prior to the confirmation of an incident to allow WDOE maximum response time possible.

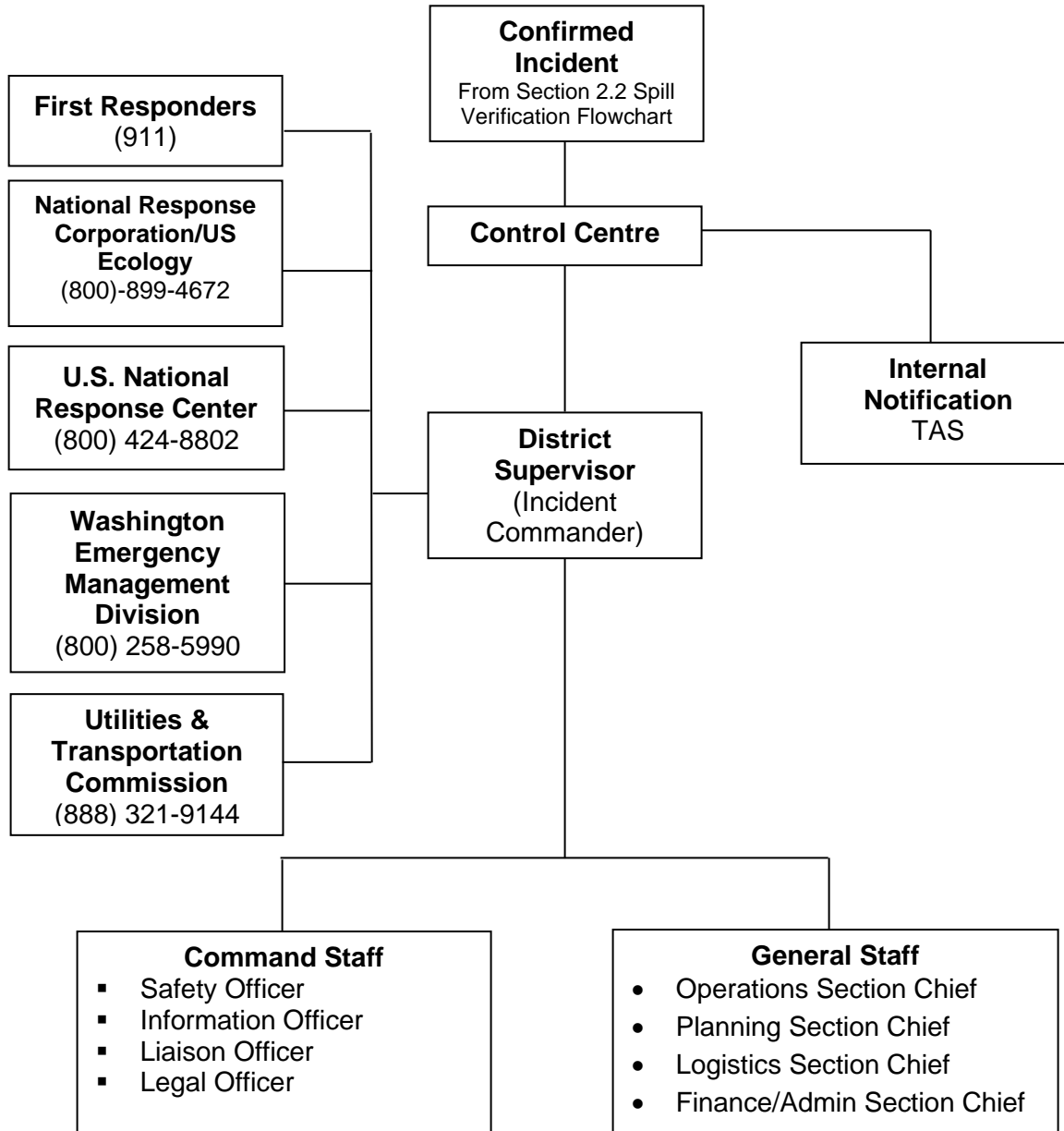
Notes: The CCO has the authority and the responsibility to shut down a pipeline, station, or terminal during an emergency or as a precaution when in his/her judgment, further operation is unsafe. The CCO will not be faulted for shutting down under these conditions.

An Operator or District Supervisor may request a shutdown as the result of local conditions in response to the investigation of a complaint or regular duties where a release or other abnormal operating condition is suspected. The CCO will comply with the request and initiate the Emergency Condition Response Procedures.

¹ A potential emergency can be defined as a spill of unknown volume, unconfirmed and is adjacent to waters of the state or where there is a pathway to waters of the state, and the environmental conditions, such as rain events or known shallow groundwater make impacts to waters of the state likely.

2.8.3 External Notification Flowchart – Confirmed Emergency Condition

In the case of a confirmed or known emergency condition the following chart will be used to identify who is to be contacted upon confirmation of the incident.



2.8.4 Initial Notification Requirements – Confirmed Emergency Condition

	Agency	Reporting Requirements	Comments
District Supervisor/Incident Commander			
1	911 Call Centre (911) or (9911 from a company land line)		The local 911 call centre will be notified of any incident to inform the call centre operators of the problem or potential problem, so they do not allocate additional unneeded resources to the event.
2	NRC/US Ecology 800-899-4672 or 631-224-9141		Primary Response Contractor to assist with equipment and personnel.
District Supervisor/Incident Commander or Designate			
3	U.S. National Response Center (NRC) 1-800-424-8802 (24 Hour Number) (Covers PHMSA, EPA and USCG)	The NRC must be notified as soon as possible (within 1 hour) by telephone of any failure that causes death or injury, results in a fire or explosion, damage exceeds \$50,000 US, pollutes any water body or is significant even though it did not meet the criteria of any other paragraph of this section. A report must also be made for any failure that results in a loss of 5 or more US gallons of hazardous liquid.	Use the form on the following page to make the initial report to ensure all known information is included. Following initial report PHMSA requires the F-7000-1 Accident Report Form to be filed electronically. The form and instructions can be found online http://www.phmsa.dot.gov/pipeline/library/forms PHMSA Requires SDS information to be provided within 6 hours of a liquid release
4	Washington State Emergency Management Division (EMD) 1-800-258-5990 Northwest Regional Office (WDOE) 1-206-594-0000	All spills are required to be reported to EMD and WDOE if it has the potential to impact waters of the state ² except where the confirmed spill ³ is less than 42 Gallons (1 bbl.) which does not/cannot impact waters of the state. WAC 173-182-264. Verbal reporting must be made immediately (within 15 minutes). If spill volumes change significantly from the initial volume reported an update of the spill volume must be made to WDOE.	State and local authorities must be notified immediately if there is a release of hazardous substances under Superfund Regulations in excess of reportable quantities and which could result in exposure of persons outside the boundaries of the facility site. A follow up written notification is required to the LEPC as soon as practical after the release.

² Waters of the State means all lakes, rivers, ponds, streams, inland waters, underground water, salt waters, estuaries, tidal flats, beaches and lands adjoining the seacoast of the state, sewers, and all other surface waters and watercourses within the jurisdiction of the state of Washington. WAC 173-182-030(68)

³ If the volume cannot be confirmed the default is to make a notification.

	Agency	Reporting Requirements	Comments
5	Washington Utilities and Transportation Commission (UTC) 1-888-321-9144	Right-of-Way spills of 5 gallons or greater must be reported to the UTC within 2 hours.	

2.8.5 Emergency Condition Agency Report Form

Name and Address of Company/Oil Handling Facility
Name of Pipeline/Identity of Vessel Involved
Name and Position of On-Scene Commander/Person Responsible for Implementing ER Plan
Date and Time Discharge
Location of Discharge
What is the receiving environment? Land, Water, Wetland, Solid Surface (asphalt, concrete)
Name of Product Involved and associated SDS
Reason for Discharge (i.e., Material Failure, Excavation Damage, Corrosion)
Estimated Volume of Discharge
Weather Conditions On-Scene
Actions Taken or Planned by Persons on Scene ⁴

⁴ Spills to ground in excess of 42 USG (1 bbl.) must be immediately reported as per Section 2.8.4. All spills that impact or threaten waters of the state must, regardless of volume, be reported.

2.9 Other Notifications

2.9.1 Local Governments

Notification of the local government agencies may occur through 911 and on-scene coordination with emergency services. Alternately the impacted communities will be identified based on the location of the incident using the geographic information system mapping applications. Trans Mountain maintains the database of local contacts and will contact affected communities as soon as possible. The Emergency Management Department keeps a database of emergency managers for the communities in which Trans Mountain operates. The Liaison Office will be provided with all local contacts and will conduct notifications as soon as possible.

2.9.2 Indigenous Communities

Notification of Indigenous Communities, including First Nations and Tribes whose traditional territories are affected, occurs through the Indigenous Relations Coordinator as part of the incident Liaison Office. The impacted communities, including traditional territories, will be identified based on the location of the incident using the geographic information system mapping applications. The Company maintains a database of Indigenous Community contacts and will contact affected communities as soon as possible. This includes American Tribes and Canadian Indigenous Communities that may have Traditional Territory on either side of the international border.

2.9.3 Canadian Government Agencies

If the release has the potential to impact the Sumas River and/or is a land spill that has the potential to impact Canadian lands, the Canadian Government Agencies must be notified. This is completed through a one window notification to Emergency Management and Climate Readiness British Columbia (EMCR) at 800-663-3456. Follow-up notifications to Local Governments and Indigenous Communities will follow the same procedures as outlined above.

2.9.4 Additional Government Contacts

Trans Mountain recognizes that in some situations additional Federal, State and Local response agencies may not be required, however the local authorities and/or other potentially impacted agencies may wish to receive additional information regardless of the decision to respond from the State or Federal level. Therefore, Trans Mountain is committed to making additional notification calls, as time allows, and establish conference call solutions to ensure potential responders are aware of the situation. Such communications are termed “coordination calls”.

2.9.4.1 Coordination Calls

An inter-agency coordination call may be arranged by the Liaison Officer to provide an incident briefing, including confirming Unified Command membership and establish an ongoing briefing schedule. The call’s purpose is to:

- Provide a situation update utilizing verified information only (approved situation reports from previous or current operational period):
 - Incident situation: location, magnitude and potential impacts
 - Consequences (actual and potential) including communities affected; consequences could include:
 - Contamination of water (drinking (human, livestock), irrigation, or agricultural watering)
 - Air contamination

- Other actual or potential consequences
 - Initial/ongoing response status including mitigation measures taken
 - Activation (status and level) of the Emergency Response Plan(s)
 - Agencies, stakeholders, and Aboriginal communities who have been notified

2.9.5 Additional Agency/Government Contacts

<i>Agency</i>	<i>Contact</i>
Federal Government – U.S.A.	
US Ecology	(800) 424-8802 (202) 267-2675
Occupational Safety & Health Administration (OSHA)	(800) 321-6742
Poison Center Emergency Contact	(800) 222-1222
United States Coast Guard	(800) 424-8802
Federal Government - Canada	
Canada Energy Regulator (CER)	(403) 807-9473
Transportation Safety Board Occurrence Hotline	(819) 997-7887
Washington State Government	
Washington Call Before You Dig	(800) 424-5555
Washington Department of Natural Resources	(360) 902-1000
Washington Emergency Management Agency, Spill Reporting Line and Burn Permits	(800) 258-5990
Northwest Clean Air Agency	(360) 428-1617
Washington Department of Fish & Wildlife	(360) 534-8233 – 24 Hr. Pager
Washington State Department of Ecology – Northwest Regional Office	(206)-594-0000
Washington State Department of Transportation	(360) 676-2100
Washington State Police	24Hrs. (360) 654-1204 (District Seven)
Provincial Government – British Columbia	
Emergency Management British Columbia (EMBC)	(800) 663-3456
Skagit County	
Skagit County Emergency Management (LEPC)	(360) 416-1850
Skagit County Sheriff Department	(360) 336-3131 (911)
Skagit Valley Hospital Switchboard	(360) 424-4111
Whatcom County	
Whatcom County Sheriff's Office - Division of Emergency Management (LEPC)	(360) 676-6681 (911)

Agency	Contact
St. Joseph's Hospital	(360) 734-5400
Lummi Nation	
Lummi Nation Police Department	(360) 312-2274

2.10 Primary Response Contractors (PRC)

Name/Agency	Services/Personnel	Contact
Washington State Approved - Primary Response Contractors		
US Ecology	<ul style="list-style-type: none"> • Spill Management Teams and Response Supervisors • Equipment Decontamination and Management • Waste Minimization, Management and Disposal • Dispersant and In-situ Burn • Non-Floating Oils • Non-dedicated workboats and operators • Aerial Surveillance • Shoreline Clean-up • Wildlife Rescue and Rehabilitation • Contact NRC for current list of trained individuals. 	24 Hrs. (800) 899-4672 Other: (631) 224-9141
O'Brien's Response Management*	<ul style="list-style-type: none"> • Provides personnel for ICS and expertise currently trained individual lists can be obtained by contacting O'Brien's 	24 Hrs. (985) 781-0804 Other: (281) 320-9796

*Refer to Section 19.5 for Primary Response Contractors letters of intent.

2.11 Oil Company Contacts

Name/Office	Emergency/24-Hour Phone	Description
BP Cherry Point Refinery	(360) 371-1500	The Laurel Station to Ferndale Meter Station and delivers to a BP pipeline that then delivers to the Cherry Point Refinery
Phillips 66 Ferndale Refinery	(360) 384-1011	The Laurel Station to Ferndale Meter Station delivers to the Phillips 66 Ferndale Refinery.
HF Sinclair	(360) 293-0800	The Laurel Station to Anacortes Pipeline delivers to the HF Sinclair Refinery
Marathon Refinery	(360) 293-9119	The Laurel Station to Anacortes Pipeline delivers to the Marathon Refinery

2.12 Incident Command Post Location

Trans Mountain is a private partner in the Whatcom Emergency Joint Coordination Center which will be used for the Incident Command Post for any incident involving TMPL. This location can accommodate the Incident Management Team, contractors, and agency personnel. The Coordination Center has multiple telephone lines already installed, pre-defined setup for ICS Sections, and breakout rooms for Government Agencies, Unified Command meetings, etc. In addition the Silver Reef Resort is a secondary Incident Command Post and is located in Whatcom county.

3.0 SPILL/SITE ASSESSMENT

The primary purpose of a site assessment is to evaluate the presence of risk to both incident responders and the public. However, if it is safe to do so, information about the incident should be gathered as quickly as possible in order to evaluate the situation and develop an initial action plan. It might also be possible for the Site Assessment Team to take measures to reduce possible impacts.

NOTE: Site Assessment Team members should wear all PPE (boots, FR Coveralls, Gloves, Eye Protection, Hard Hat and half-face respirators) while assessing the incident. This may include radiant heat protection.

If vapor levels reach 10% of the LEL, Site Assessment Team members should leave the area immediately

3.1 Site Assessment Guidelines

3.1.1 Safety Checklist

- Conduct vapour monitoring (see 3.4 Vapour Monitoring Flowchart)
- Conduct Pre-Entry Safety Checklist (ISHSP, or HSP)
- Remove all non-intrinsically safe radios, pagers, etc.
- Establish communications with the Control Centre
- Request information regarding the situation (e.g. alarms, product, pipeline reading, shutdown actions and other relevant information)
- Establish communications procedures/schedules
- Don appropriate PPE as per ISHSP or HSP
- Refer to SDS
- Determine wind speed and direction
- Determine current direction
- Approach spill from upwind/up current if possible

3.1.2 Incident Intelligence checklist

- Determine status of any injured personnel
- Determine spill source
- Confirm spilled product (if different, leave the area)
- Determine if source is isolated
- Estimate spill rate and total volume
- Determine if product has or will reach the water
- Determine if product has escaped local containment

3.1.3 Incident Mitigation Checklist

- Evacuate and attend to any injured personnel
- Isolate spill source
- Close all valves

3.2 Vapor Monitoring on Marine Spills

3.2.1 Pre-Assessment Preparation

A trained team should conduct an initial site assessment from land and, if available and spill impacts water, a second team in a workboat should conduct an assessment. If only one team is available, they will be required to make both assessments. The site assessment team(s) should wear appropriate PPE for the initial site assessment unless specifically instructed otherwise by the Incident Commander. The Incident Commander may downgrade the level of PPE required by the site assessment team if the product and amount spilled are known, and a lesser level of PPE is deemed appropriate.

- Calibrate and check battery charge levels on each air monitoring instrument.
- Complete an *Initial Health and Safety Plan*. Conduct the pre-entry briefing, using the completed *Permit to Work Form* and any other relevant documentation. Select and use the *Gas Testing Certificate* that matches the level of respiratory protection in use by the assessment team.
- Ensure that all air monitoring instruments are well secured and protected from weather. Be careful that any "protection" does not cover any of the meters' ports that require continuous airflow.

3.2.2 Site Assessment Procedures

The on-water team should move toward the spill and stop at an upwind location to make final preparations for the assessment. Air monitoring requires accurate position information. A global positioning system (GPS) is the preferred method for determining positions.

Due to the lack of elevation and the rapid spread of the oil on water, the site assessment team may not be able to accurately judge the spill parameters. Lacking any other guidance, the assessment team must make judgments on where the main body of oil may be, and how to approach it. Vapor readings should be taken frequently.

The survey should continue as long as air monitoring instrument readings remain within acceptable limits, with the objective of (a) obtaining readings across the zone and (b) locating a significant accumulation to provide a "worst case" assessment. A safe and effective site assessment will require caution, persistence and field decisions.

As the assessment team moves toward the oil, or its anticipated location, periodic stops will be made to record results. The team leader must take immediate action if at any time the air monitoring instrument readings meet or exceed "evacuation" levels (see Vapor Monitoring Flowchart - Section 3.4). If "evacuation" levels are met or exceeded, move upwind from the spill and halt the assessment. Notify the Incident Commander.

When sufficient representative locations have been recorded, the air-monitoring phase of the initial spill characterization is complete. The identification of physical, environmental, chemical or other hazards will complete the assessment.

3.3 Vapor Monitoring on Land Spills

3.3.1 Site Assessment Procedures

The team should move toward the area and stop at an acceptable location, preferably upwind, to make final preparations for assessment. GPS is the preferred method for determining position of air sampling results ashore.

On shoreline assessments, the team will likely have accurate information or visual sightings of the extent of the oil in the zone. Local geography, access roads, and other features may limit the team's ability to approach the impacted area from upwind. The team must evaluate its options and decide the best

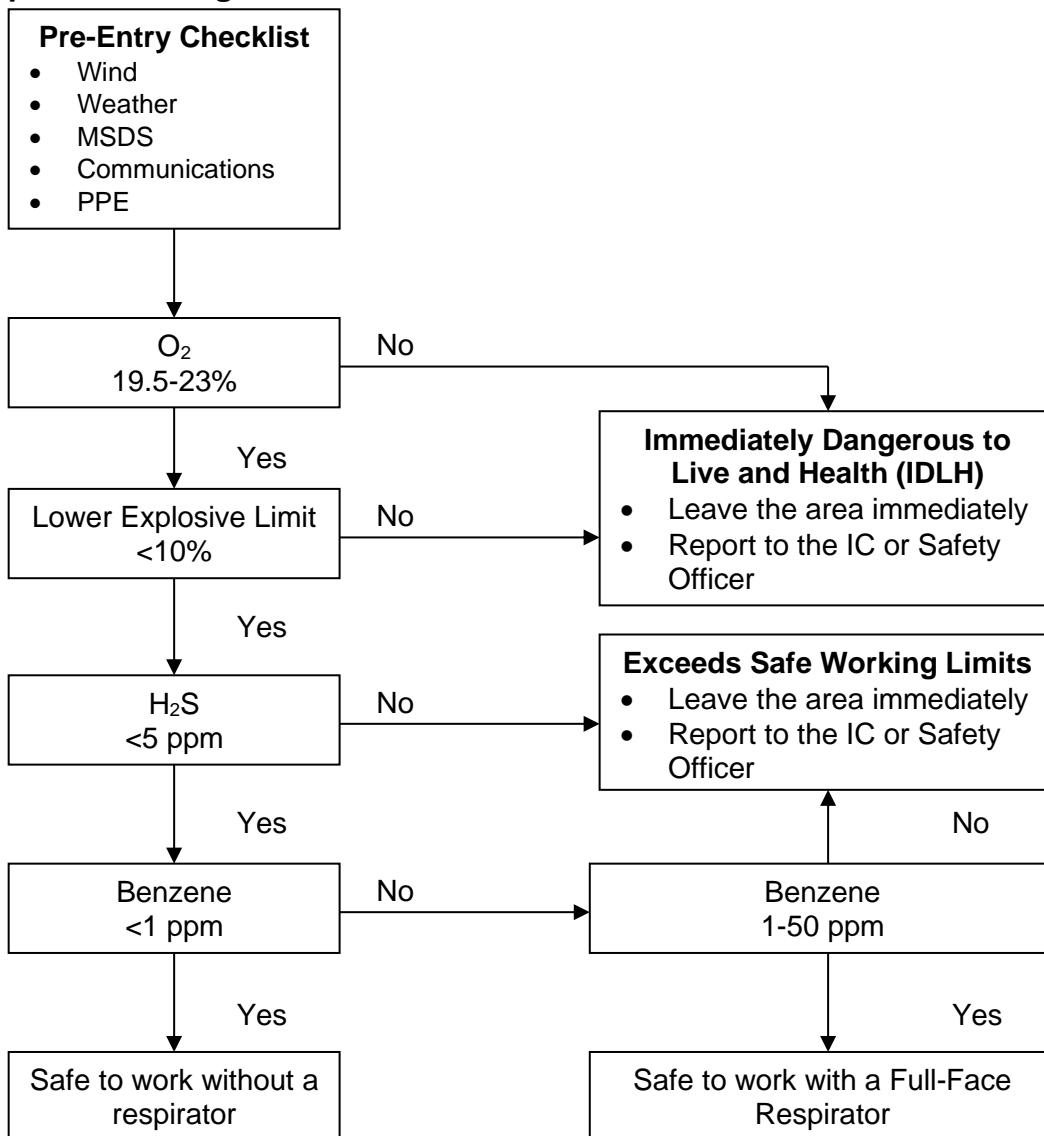
approach route. Frequent reading of air monitoring instruments can ensure the safety of the survey party during the approach. The assessment team leader needs to exercise caution and use controls that will best protect the team.

The survey should continue as long as air monitoring instrument readings remain within acceptable limits, with the objective of (a) obtaining readings across the zone and (b) locating significant accumulation to provide a "worst case" assessment. A safe and effective site assessment will require caution, persistence and field decisions.

The team leader must take immediate action if at any time the air monitoring instrument readings meet or exceed "evacuation" levels. If "evacuation" levels are met or exceeded, move upwind from the spill and halt the assessment. Notify the Incident Commander.

When sufficient representative locations have been recorded, the air-monitoring phase of the initial oil spill characterization is complete. The identification of physical, environmental, or other hazards will complete the assessment.

3.4 Vapor Monitoring Flowchart



3.5 Spill Observation/Assessment/Estimation Factors

3.5.1 Spill Surveillance

The following guideline assists in spill surveillance:

- Surveillance of an oil spill should begin as soon as possible following discovery to enable response personnel to assess spill size, movement, and potential impact locations. Dispatch observers to crossings downstream or down gradient to determine the spill's maximum spread.
- Clouds, shadows, sediment, floating organic matter, submerged sand banks or wind-induced patterns on the water may resemble an oil slick if viewed from a distance.
- Use surface vessels to confirm the presence of any suspected oil slicks (if safe to do so); consider directing the vessels and photographing the vessels from the air, the latter to show their position and size relative to the slick.
- Spill surveillance is best accomplished through the use of helicopters or small planes; helicopters are preferred due to their superior visibility and manoeuvrability.
- All observations should be documented in writing and with photographs and/ or videotapes.
- Describe the approximate dimensions of the oil slick based on available reference points (i.e. vessel, shoreline features and facilities); use the aircraft or vessel to traverse the length and width of the slick while timing each pass; calculate the approximate size and area of the slick by multiplying speed and time.
- Record aerial observations on detailed maps, such as topographic maps.
- In the event of reduced visibility, such as dense fog or cloud cover, boats may be used to patrol the area and document the location and movements of the spill, however, this method may not be safe if the spill involves a highly flammable product.
- Surveillance is required during spill response operations to gauge the effectiveness of response operations; to assist in locating skimmers; and assess the spill size, movement, and impact.

3.5.2 Estimating Spill Trajectories

Oil spill trajectories should be estimated in order to predict direction and speed of the slick movement. Trajectory calculations provide an estimate of where oil slicks may impact shorelines and other sensitive areas, and also provide an estimate of the most effective location in which to mobilize spill response resources for protection, containment and recovery.

Oil spill trajectories can be estimated using vector addition or with computer programs such as CAMEO. Hand calculations typically utilize the following assumptions:

- Oil moves at approximately the same direction and speed as the water currents, unless the winds are strong.
- Wind speed can be multiplied by 0.034 to determine the effect of winds on speed and direction of spill movement.
- The combined effects of winds and currents can be added to estimate spill movement speed and direction.

More sophisticated predictions can be obtained from computer programs. Oil spill trajectory services can be obtained from:

- National Oceanic and Atmospheric Administration (NOAA) through the Federal On-Scene Commander (FOSC)
- Private Consulting Firms

3.5.3 Estimating River/Stream Velocity

Time Required for Stick/Floating Object to go 100 feet (seconds)	Stream Velocity (mph) ¹
136	0.5
68	1.0
45	1.5
34	2.0
27	2.5
23	3.0
19	3.5
17	4.0
15	4.5
14	5.0
11	6.0
10	7.0
9	8.0
8	9.0
7	10.0

Multiply mph x 1.6 to obtain current speed in kilometers per hour (km/ h)

To estimate the total time until recovery can start (in hours):

1. Estimate: the time since the spill occurred
2. Add: the time required to mobilize personnel and equipment to a control point
3. Add: the time to set up

To estimate the distance that the spill has advanced downstream:







1. Take: total time in hours (estimated above)
2. Multiple by: oil slick velocity in mile/ hour

To estimate the location of the front of the oil spill:

1. Determine: location (mile) on stream where spill occurred
2. Subtract: distance (estimate above)
3. To Get: location (mile) of the oil slick when the recovery team is ready

3.5.4 Estimating Spill Volume

If possible the initial assessment should also include an estimate of the volume of oil spilled. Oil volumes can be estimated by multiplying the area of the slick by the average estimated thickness. See below figured for estimating slick thickness.

Appearance	Slick Thickness	Spill Volume
 Barely visible	0.05 μm	50 L/km ²
 Visible as silvery sheen	0.08 μm	80 L/km ²
 First trace of colours	0.15 μm	150 L/km ²
 Bright bands of colour	0.3 μm	300 L/km ²
 Colours begin to turn dull	1 μm	1,000 L/km ²
 Colours are much darker	2 μm	2,000 L/km ²

Early in a spill response, estimation of spill volume is required in order to:

- Report to agencies
- Determine liquid recovery requirements
- Determine personnel and equipment requirements
- Estimate disposal and interim storage requirements.

Some rapid methods to estimate spill size are:

- Transfer operations: Multiply the pumping rate by the elapsed time that the leak was in progress, plus the drainage volume of the line between the two closest valves or isolation points (volume loss = pump rate [bbl./ min] x elapsed time [min] + line contents [bbl.])
- Tank overfills: Elapsed time multiplied by the pumping rate
- Visual assessment of the surface area and thickness (note that this method may yield unreliable results):
 - Interpretation of sheen color varies with different observers
 - Appearance of a slick varies depending upon amount of available sunlight, sea-state/turbulence, and viewing angle
 - Different products may behave differently, depending upon their properties.

3.5.5 Groundwater Spill Assessment

In an area where a spill occurs that is not on impermeable ground a contractor will be used to assist with the detection and ongoing evaluation of a spill that may impact groundwater. The following points describe the general methods to fulfill the goals for the groundwater spill assessment.

- Groundwater assessment will be performed using existing wells if they are in the vicinity of the release and with additional grab sampling via direct-push or other intrusive techniques if the impact is known or suspected of extending beyond the existing monitoring well network.
- If existing wells are not present, then assessment will be performed using grab samples collected via direct-push drill rig or other intrusive methods. Wells will be installed as appropriate to supplement data from grab samples and to collect data to evaluate groundwater flow direction and gradient. Wells will be installed by a well driller licensed in Washington State and installed according to Washington's State Department of Ecology regulations.
- Samples selected for chemical analysis will be submitted to an analytical laboratory license by WDOE. Chemical analysis methods will include methods approved by WDOE or the United States Environmental Protection Agency (USEPA)

4.0 SPILL CONTAINMENT AND RECOVERY

The containment of spilled oil will:

- Reduce the spread of slicks and their impacts beyond the property
- Reduce potential impacts to the surrounding environment
- Reduce potential economic impacts
- Maximize the thickness of floating slicks
- Maximize the effectiveness of mechanical countermeasures (i.e., skimmers and sorbents)

Where safety allows, every effort should be made to limit the quantity of released product into adjacent waterways:

- Conduct site assessment (see Section 3.1)
- Act quickly and carefully
- Activate the Emergency Shut Down (ESD) from the Control Centre
- Stop all pumps
- Close all valves
- Block potential escape points using sorbent booms

4.1 Initial Containment Actions

Initial containment actions will focus on utilizing containment on site in the most effective manner to:

- Prevent the oil from impacting water, thereby reduce the surface area and shoreline to be cleaned
- Concentrate the oil (when safe to do so), making physical recovery more efficient
- Limit the environmental impact to the immediate spill area.

Selection of the appropriate location and method will depend upon

- Length of time since the spill occurred
- Amount and type of spilled material
- Area of coverage
- Environmental factors such as wind speed and direction

4.2 Spill Mitigation Procedures

Failure	Procedure
Failure of Transfer Equipment	<ul style="list-style-type: none"> • Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. • Terminate transfer operations and close block valves. • Drain product into containment areas if possible. • Eliminate sources of vapor cloud ignition by shutting down all engines and motors.
Tank/ Cavern Overfill/ Failure	<ul style="list-style-type: none"> • Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. • Shut down or divert source of incoming flow to tank. • Transfer fluid to another tank with adequate storage capacity (if possible). • Shut down source of vapor cloud ignition by shutting down all engines and motors. • Ensure that dike discharge valves are closed. • Monitor containment area for leaks and potential capacity limitations. • Begin transferring spilled product to another tank as soon as possible.
Piping Rupture/ Leak (under pressure and no pressure)	<ul style="list-style-type: none"> • Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. • Shut down pumps. Close the closest block valves on each side of the rupture. • Drain the line back into contained areas (if possible). Alert nearby personnel of potential safety hazards. • Shut down source of vapor cloud ignition by shutting down all engines and motors. • If piping is leaking and under pressure, then relieve pressure by draining into a containment area or back to a tank (if possible). Then repair line according to established procedures.
Fire/ Explosion	<ul style="list-style-type: none"> • Personnel safety is the first priority. Evacuate nonessential personnel or personnel at risk of injury. • Notify local fire and police departments. • Attempt to extinguish fire if it is in incipient (early) stage. • Shut down transfer or pumping operation. Attempt to divert or stop flow of product to the hazardous area (if it can be done safely). • Eliminate sources of vapor cloud ignition shutting down all engines and motors. • Control fire before taking steps to contain spill.
Manifold Failure	<ul style="list-style-type: none"> • Personnel safety is the first priority. Evacuate nonessential personnel or personnel at high risk. • Terminate transfer operations immediately. • Isolate the damaged area by closing block valves on both sides of the leak/ rupture. • Shut down source of vapor cloud ignition by shutting down all engines and motors. • Drain fluids back into containment areas (if possible).

4.3 Containment Tactics in Land and Small Watercourse

The penetration of oil into soil depends on a number of factors, including: oil viscosity, soil type, wetness, and permeability and ground temperature. Normally, the amount of oil in saturated soil will range from 15-40 liters/m³, however, the amount may exceed 50 liters/m³ in dry soils, i.e., beneath structures. Also, low viscosity products (gasoline, diesel) will tend to penetrate into coarse sediments. In homogenous soils, the deepest penetration will normally be located below pooled oil. In the unlikely event that oil reaches groundwater, the oil will typically move relatively slowly - typically 0.5 to 1 m/day.

Containment can prevent further spreading by concentrating the product to make it more efficient to recovery released oil. The following outlines the containment methods recommended.

4.3.1 Earthen Berm and Bell Hole

An earthen berm and bell hole can be used to contain and/or divert released fluids and fresh water from high consequence areas (HCAs) (E.g. rivers, wetlands etc.). Both techniques can be used in conjunction with each other or on their own and are applicable for all types of released products and volumes.

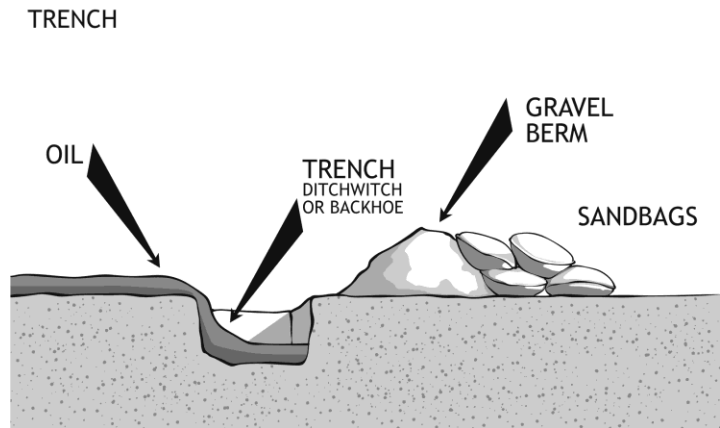
Earthen berm should be construct of a non-porous substance (i.e. clay, wood, poly or metal) and can be built with mechanical (i.e. backhoe) or hand equipment (i.e. shovel). If a non-porous material is unavailable, sandbags and an impermeable liner can be used instead. Vegetation and other porous materials should be removed before constructing berm.

When constructing a bell hole in conjunction with a berm it should be created upslope of the berm to allow for additional fluid storage volumes. The material removed from the bell hole can be used to create the berm on the downslope side. Berms and bell holes can be used to separate areas of high impact from areas of low impact and aid in recovery efforts.

4.3.2 Earthen Trench

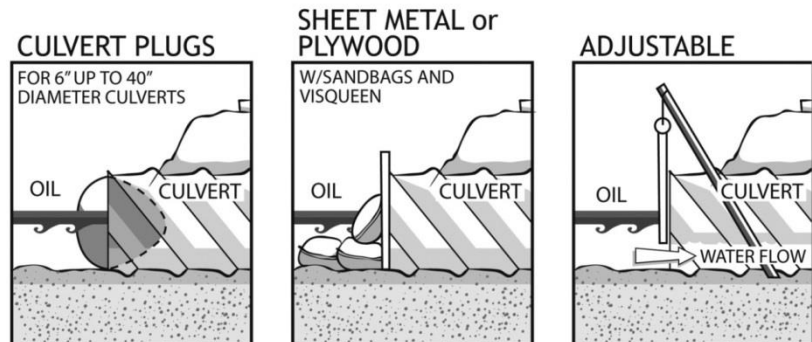
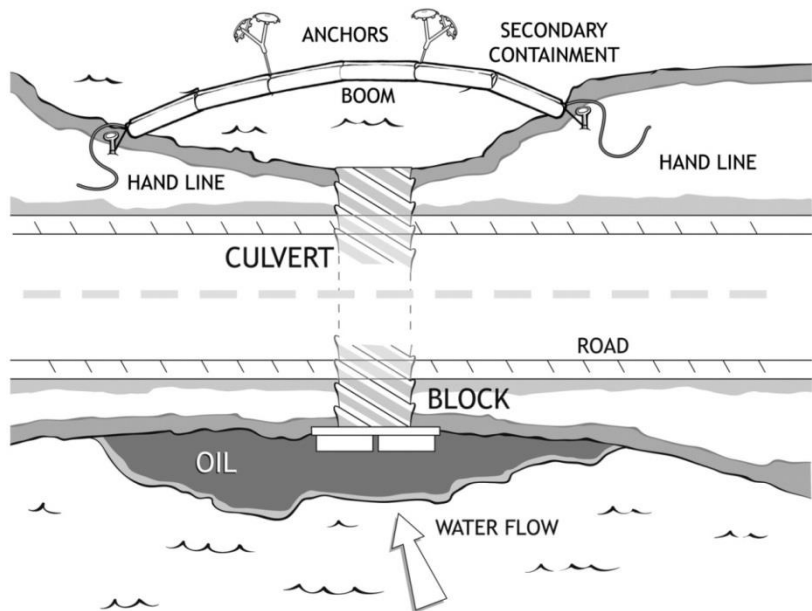
An earthen trench is used to recover and/or divert released fluids and fresh water from high consequence areas (HCAs) (E.g. rivers, wetlands etc.) and can be used to separate areas of high impact from areas of low impact. A trench will require constant monitoring and managing of inflow of water to maintain containment.

An earthen trench can be built in porous or non-porous material and can be built with mechanical (E.g., backhoe) or hand equipment (E.g. shovel). The trench should be built in a solid non-porous base (E.g., clay vs. grass/sand) to help prevent the migration of product. However, if a non-porous material is not available the trench can be constructed and lined with an impermeable substance (I.e. plastic sheeting, hard containment boom skirting etc.). When an earthen trench is constructed in a porous material, there is the potential to push impacts subsurface.



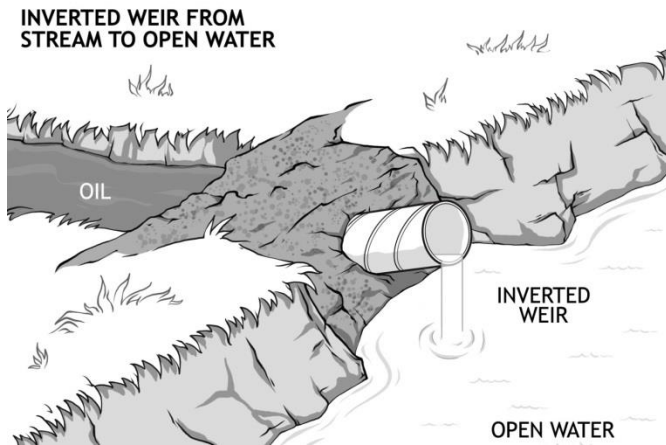
4.3.3 Culvert Block

Blocking a culvert will stop all fluids from traveling through the culvert this will include any water entering the water system as well as any released product. The largest consideration for blocking a culvert is the amount of fluids entering the water system and the amount of storage available upstream of the culvert to allow backflow. If a gated culvert is available this will allow the fresh water to flow underneath and retain the release product upstream of the culvert. A full culvert block should only be utilized if water flow can be managed by pumps in order to maintain a stable water level. When blocking the culvert use an impermeable material (I.e. non-porous material, a culvert plug, sheet metal, clay etc.).



4.3.4 Inverted Weir / Underflow Dam

An inverted weir is designed to stop free product on surface while allowing freshwater to continue to flow downstream. An inverted weir can be used in conjunction with additional containment tactics or it can be used to separate areas of low and high impacts. The inverted weir is made up of two components a berm and a culvert.



The berm can be constructed out of any non-porous substance (E.g. clay, wood, poly or metal) and built with mechanical (E.g. backhoe) or hand equipment (E.g. shovel). If possible, the berm should be keyed into parent material as it provides the highest level of containment.

The culvert or culverts depending on the volume of flow should be designed for the current water flow x 150 percent to withstand any rain and/or melt events. This can be determined based on culvert sizes on engineered roads in the area. The top of the inflow end of the culvert must be lower than the bottom of the discharge end.

4.3.5 Water – Gate Dam

Water – Gate Dams are portable quick installation barriers that allow the depth of water upstream to be regulated. Keeping a consistent water depth ensures released product does not become stranded along the shorelines. Water – Gate Dams can be used in conjunction with additional containment techniques or it can be used to separate areas of low and high impacts. Water - Gate Dams are largely used to increase the water depth to allow additional containment and recovery tactics to be more effective upstream of the dam.

4.3.6 Turner Valley Gate

Turner Valley Gates are rapidly deployed shallow water containment measures. The Turner Valley Gate consists of two components, a stand and a plastic skirt. The stand allows the watercourse to be spanned and supports the plastic skirt. The stand is composed of a material that will support the skirt but also allow water to flow past. The Skirt is composed of an oil resistant plastic skirting typically PVC fabric. The skirting deflects the product to a recovery area. The angle a Watergate is deployed spanning a watercourse is consistent with a typical boom angle. The Turner Valley Gate can be used alone or in conjunction with other containment tactics.



4.3.7 Aquadam / Waterbloc

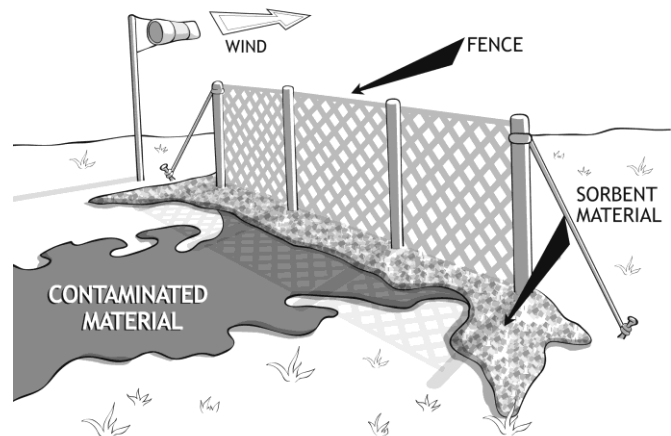


An Aquadam / Waterbloc is a water filled inflatable bladder that impedes fluid movement downstream or downslope where installed. An Aquadam / Waterbloc can be used to contain product, divert freshwater or isolate an area of a waterbody or watercourse. Aquadams / Waterblocs are installed by pumping water into the rubber bladders to inflate the tubes and provide fluid control. Aquadams / Waterblocs come in numerous sizes depending on the application. Aquadams / Water blocks typically come in 50- or 100-foot sections and can be joined together to increase the length if required.

4.3.8 Sorbent Fence

A sorbent fence is a rapidly constructed containment technique. The largest advantage is the sorbent fence can be constructed very quickly with readily available materials. When constructing the sorbent fence it should be constructed from high ground to high ground or in a U shape for the most effective containment. The sorbent materials should be placed along the water’s surface for the entire length of the fence creating a barrier. Once the sorbent material has become saturated they should be removed and replaced with fresh sorbent material. The sorbent fence can be used in conjunction with other containment and recovery tactics.

USE OF SORBENT FENCE



4.4 Containment Tactics in Moving Watercourses

A moving watercourse is typically referred to as a river or stream. The watercourse has a current and is generally within a channel of some type. The amount of current will dictate the type of response option that is most effective.

4.4.1 Watercourse Boom Angle

The correct boom angle is critical for maintaining containment and to continue recovery operations. The slower the current, the greater the boom angle the faster the current, the smaller the boom angle. A tandem anchor set is the preferred method for installing instream hard containment boom.

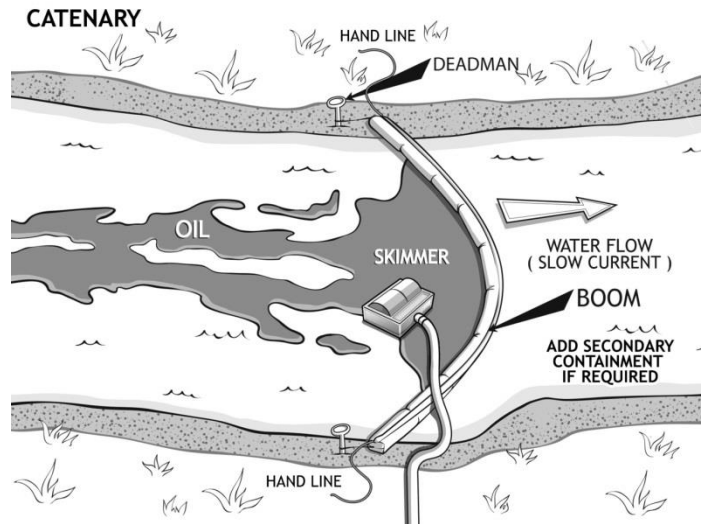
	Current Speed		
	Less than 4 km/hr.	Greater than 4 km/hr.	Frozen Waterbodies
Boom Angle (degrees to current)	30 degrees	10 degrees	15 Degrees

4.4.2 Exclusion Zone

An exclusion zone is characterized as an area you want to protect from being impacted by free product (E.g. sensitive ecosystems, residences, public beach). Boom is placed adjacent to the area and used as either shoreline protection or with instream anchor sets to deflect product from these areas. This tactic is most suited for use in slow to moderate currents and can be used along the banks of a watercourse at multiple high consequence areas. A series of smaller boom sets may be preferable to protect longer continuous sensitive areas as opposed to one large set.

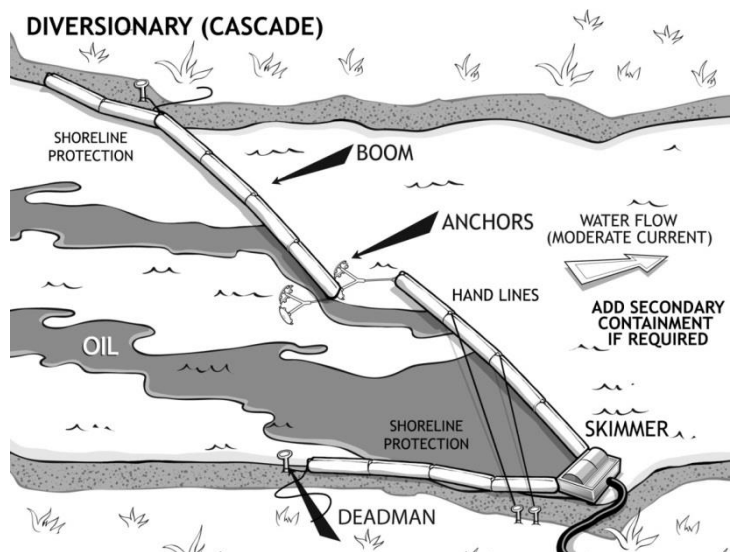
4.4.3 Catenary Boom Deployment

A catenary boom deployment is used in calm water where the channel width does not exceed 15 m. When choosing a deployment location pick area that will protect any identified priority zones (E.g. sensitive areas, areas that have logistical access issues etc.). This technique consists of one (1) hard containment boom length (50 feet) from shoreline to shoreline.



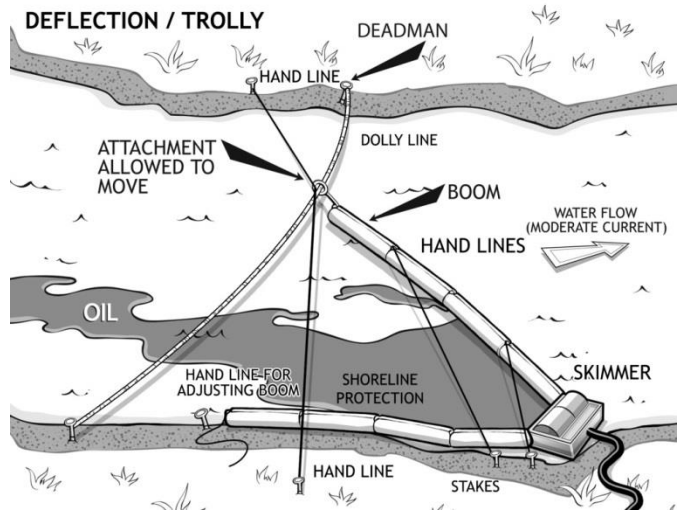
4.4.4 Deflection or Diversion Boom Deployment

A deflection or diversion boom deployment is used to direct product within the watercourse to your recovery area. Other uses also include protection for sensitive in stream structures (E.g. architectural in stream structures, islands) by deflecting the free product away from these areas. This can be achieved by instream anchor sets or through utilization of a boom vane. This tactic can be used in slow, moderate and fast currents.



4.4.5 Trolley Line Deflection

A trolley line is utilized to contain product on the surface of small to medium sized watercourses with moderate to strong currents where bank to bank deployment is not feasible and instream anchors can't be used. The boom angle can be adjusted along the trolley line allowing for a larger or smaller recovery area as required which can be beneficial in watercourses with variable flow speeds or a changing product plume size. This tactic can be used in slow, moderate and fast currents.

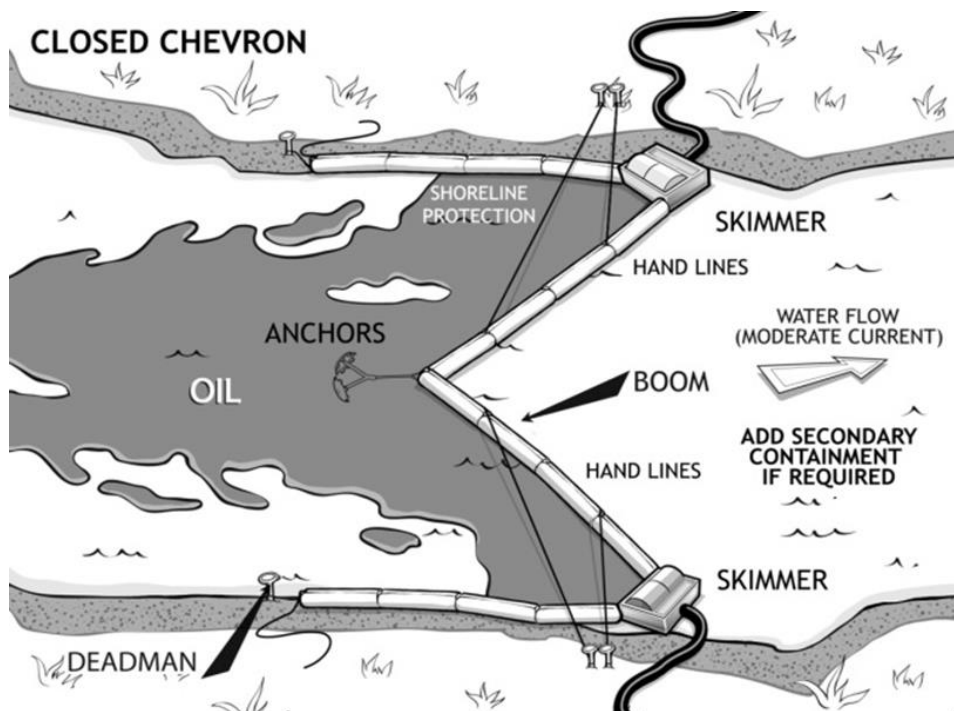


4.4.6 Cascade Boom Deployment

A cascading boom deployment is used to direct product to a recovery point using multiple smaller deflection booms. Cascading boom deployment is used when the flow speed or length of the waterbody is too great for a single boom to span from one bank to the other. Cascading boom deployment also allows for the continued passage of watercrafts within the waterbody. Cascading boom deployments can be achieved with instream anchor sets or through the use of a boom vane. This tactic can be used in slow, moderate and fast currents.

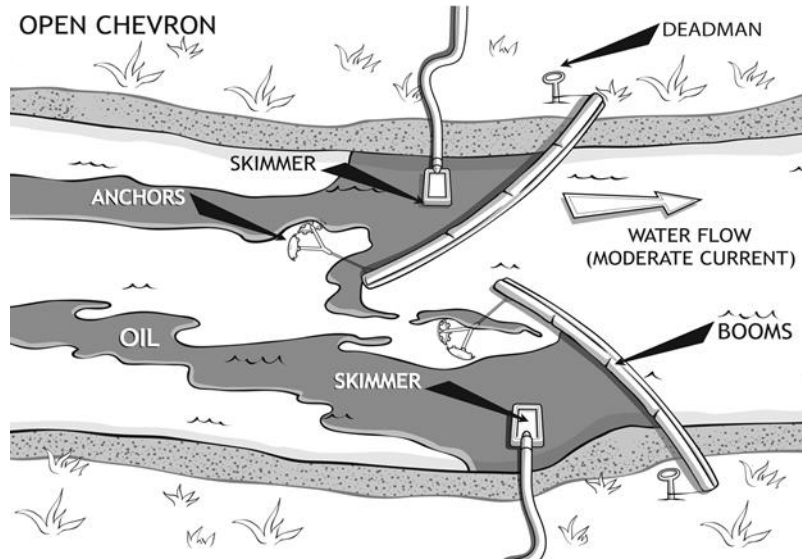
4.4.7 Closed Chevron Boom Deployment

A closed chevron deployment is used when in large straight watercourses when access is available to both banks. Product is contained and directed to both the left and right descending banks to recovery points. Closed chevrons are created off an instream anchor set and limit watercraft traffic as the entire reach of the watercourse is boomed. This tactic can be used in slow, moderate and fast currents.



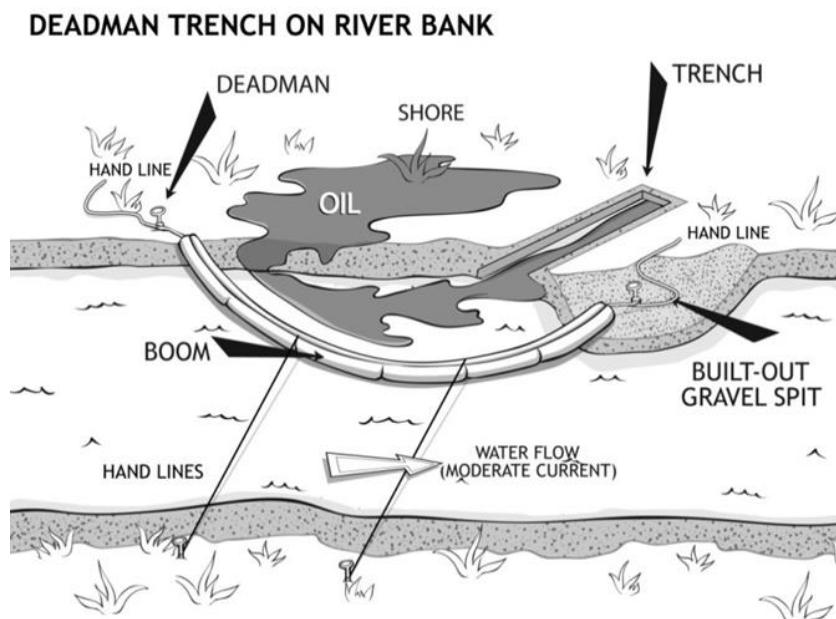
4.4.8 Open Chevron Boom Deployment

An open chevron deployment is similar to a closed chevron in that it's used in large straight watercourses when access is available to both banks; however, it allows you to maintain watercraft passage. Product is contained and directed to both the left and right descending banks to recovery points. Open chevrons are created off two instream anchor sets instead of one.



4.4.9 Deadman Trench

A Deadman Trench is used when a flow speed or product volume is too great for conventional recovery methods to work. Boom is used to deflect product into a trench created at the recovery point allowing for greater retention of released product. Flow speeds within the main body of the watercourse can hinder the effectiveness of mechanical and weir skimmers, a Deadman Trench allows for recovery in near stagnant water conditions greatly increasing skimmer efficiency. This technique requires regulatory approval due to alternation of riverbank / bottom.



4.5 Containment Tactics in Low Current Waterbody

A low current waterbody is generally referred to as a lake or other large body of water, with little to no current at the surface of the water. Hydrocarbon movement occurs in four (4) ways on low current waterbodies:

- Wind driven product movement
- Dispersion of product over the surface of the waterbody
- Watercraft movement and subsequent wave action
- Submersion and/or sinking of product

4.5.1 V-Boom

A V-Boom is utilized in open water where there is negligible flow and the product is located away from the shoreline requiring active oil recovery. A V-Boom is created between three work boats with the two leading boats each pulling a section of boom anchored to a third recovery boat in a triangular formation. The recovery boat located at the apex of the triangle is equipped with a bow mounted skimmer or other method to recover the free product from the surface. A V-Boom configuration allows for the active recovery of product in place rather than waiting for the product to migrate to a shoreline recovery area.



4.5.2 U-Boom

A U-Boom can be created when two workboats pull a section of boom attached to each in a horseshoe pattern or when one boat pulls a section of boom equipped with a Boom Vane to create drag and a horseshoe pattern. This method is effective for actively corralling free product in open water scenarios with negligible flow.

On water recovery can be completed via a bow skimmer equipped work boat or by ferrying the product to shore within the boom to a designated recovery area.



4.6 Winter Response Tactics

Cold weather will have a significant impact on the response. Loss of light ends (weathering) slows down at lower temperatures, which can offset some of the temperature effect on viscosity. The evaporation rate at 41°F is approximately 1/3 of what it is at 86°F. As a result, oils may remain amenable to treatment by recovery or burning for a longer period. Water is at or near its maximum density in near-freezing temperatures. Cold, viscous oil will spread slower providing additional time for response.

Snow can be used to contain oil and as an effective sorbent. Any available snow near a spill can be used by forming snow berms to help contain oil and minimize its spreading prior to removal by mechanical means. When using equipment such as pumps and hoses to remove snow, equipment must be thoroughly dried after use to minimize residual water that can freeze, causing damage or limiting use.

Biological recovery on shorelines may be slower, although many organisms grow well at near-freezing temperatures. Biodegradation is likely to stop if shorelines freeze solid. Also, vulnerable times for key sensitivities typically are shorter than in temperate settings. Therefore, planning protective strategies requires specialized teams, and tactics related to shoreline protection.

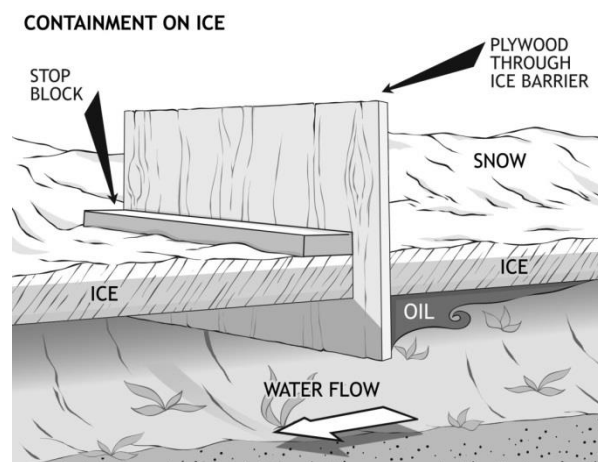
Frozen conditions on waterbodies can serve to facilitate recovery operations by providing a solid working platform over the oil and by creating natural barriers, which can be used to contain and immobilize oil. However, frozen condition can also obstruct recovery operations. Downward-growing ice may quickly encapsulate oil under ice; additionally, there may be many under-ice pockets where oil can accumulate in natural depressions, providing access for recovery. Prior to commencing any activity over a frozen waterbody, the type, strength and thickness of the ice must be established. Refer to the specific Geographic Response Plan for detailed information on calculating type, strength and thickness of the ice.

4.6.1 Ice Slot ('J' slot)

The ice J slot can be used within waterbody's that exhibit flow when product is under the ice. The ice slot is created at an angle to the current (angle dependent on current velocity) resulting in the oil surfacing within the slot and being directed to the recovery area by the current. This tactic is used for accessing, containing and recovery of product underneath ice. An ice evaluation must be completed prior to response activities.

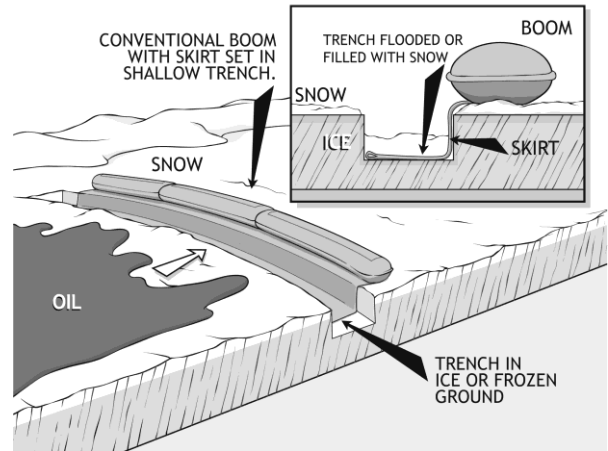
4.6.2 Ice Slot with a Barricade

The ice slot with a barricade is created in the same fashion as the J slot. A barrier is placed within the ice slot to allow for greater retention of free product within the surface water. The barrier is placed within the water profile as to allow for retention of only the surface water and product while permitting the subsurface water to continue unhindered. The Ice Slot with a Barricade is deployed for containment purposes only under ice. An ice evaluation must be completed prior to response activities.



4.6.3 Trench on Ice

An ice trench is the same concept as an earthen trench. Ice trenches are used to contain and recovery free product moving on the surface of a frozen waterbody or in situations where free product is trapped within layers of ice. This tactic is used for accessing and containing product on ice. Ice pits or bell holes can also be advanced for product containment and recovery. Ensure the ice depth is known before installing a trench or bell hole as not to advance the cut below the depth of the ice allowing product into the water below. Ice trenches can be used in conjunction with ice slots if the free product has impacted the flowing water beneath the ice.



4.6.4 Snow Covered Land Response

Response in snow covered environments can be equated to response on earthen material. Use shovels or heavy equipment, such as graders, loaders, bulldozers, or track hoes, to build a berm of either soil or snow to stop the flow of free fluids. Berms should be lined to prevent cross contamination of the berm materials. Snow can be disposed of in solid form or melted and disposed of as a liquid.

4.7 Response Tactics for Shorelines

Trans Mountain will conduct shoreline assessments and clean-up through the appropriate method on a site-specific basis using SCAT teams. The following table is a general summary of shoreline types and potential response tactics. For information regarding planning standards for shoreline cleanup, please refer to Section 10.7.

Type of Shoreline	Recommended Cleanup Activity
Developed (urban) or unforested Land	May require high pressure spraying: <ul style="list-style-type: none"> • To remove oil. • For aesthetic reasons.
Freshwater Flat	<ul style="list-style-type: none"> • These areas require high priority for protection against oil contamination • Minimal disturbance and low-impact cleanup are usually considered because of the likelihood of mixing oil deeper into the sediments during cleanup effort • Passive efforts such as sorbent boom can be used to retain oil as it is naturally removed.
Fresh marsh	<ul style="list-style-type: none"> • Marshes require the highest priority for shoreline protection. • Natural recovery is recommended when: <ul style="list-style-type: none"> ○ a small extent of marsh is affected. ○ as small amount of oil impacts the marsh fringe. • The preferred cleanup method is a combination of low-pressure flushing, sorption, and vacuum pumping performed from boats. • Any cleanup activities should be supervised closely to avoid excessive disturbances of the marsh surface or roots. • Debris may be removed by hand.

Type of Shoreline	Recommended Cleanup Activity
Swamp	<ul style="list-style-type: none"> • Natural recovery and monitoring recommended under light conditions. • Under moderate to heavy accumulations to prevent pollution of the surrounding areas placement sorbent along the fringe swamp forest may be effective under close scientific supervision. • Proper strategic boom placement may be highly effective in trapping large quantities of oil, thus reducing oil impact to interior swamp forests. • Oil trapped by boom can be reclaimed through the use of skimmers and vacuums.

4.8 Non-Floating Oil

4.8.1 Contracted Resources for Non-Floating Oil (NFO) Spills

Trans Mountain has a service agreement with NRC, an approved Primary Response Contractors (PRC) with the State of Washington and the U.S. Coast Guard. NRC has the necessary personnel and equipment (see contractor's PRC application and WRRL as appropriate) capable of responding to an oil spill within the time frames outlined in the table below to meet the regulatory requirement of WAC 173-182-324(2). NRC will aggressively respond to floating oil and will prepare for detection, delineation, and recovery of non-floating oil if necessary. Refer to the Products Summary Table located in Section 7.6 for a list of transported products with the potential to become non-floating.

4.8.1.1 Timetable for NFO Response Resources

Time	Capability
1 hour	<p>Assessment: Trans Mountain will initiate an assessment in consultation with NRC regarding the potential for the spilled oil to submerge or sink. Environmental factors (i.e., density of the receiving water, the chemical properties of the oil released, or other indicators) will be incorporated into the non-floating oil (NFO) assessment to identify the need for personnel and equipment mobilization if it will be needed during the cleanup effort.</p>
6-12 hours	<p>Detection and Delineation: Should the assessment and consultation determine that the oil may become an NFO, the following NRC resources and personnel to detect and delineate the spilled oil could have arrived on scene: side scan sonar, multibeam sonar, laser fluorosensors, induced polarization system, divers, remotely operated vehicles, and/or other methods to locate the oil on the bottom or suspended in the water column. Additionally, containment boom, sorbent boom, silt curtains, or other methods for containing the oil that may remain floating on the surface, or to reduce spreading on the bottom, could have arrived.</p>
12-24 hours	<p>Sampling: NRC resources and personnel necessary to assess the impact of the spilled oil on the environment could have arrived. Both water column and bottom sampling techniques may be employed. Resources that may be used for this purpose include divers from response vessels (shallow water) or remotely operated vehicles. Sorbents on weighted lines, snares, and/or traps may be used to collect samples.</p> <p>Recovery: Additionally, dredges, submersible pumps, sorbents, agitators, or other equipment necessary to recover oil from the bottom and shoreline could have arrived.</p>

4.8.2 Non-Floating Oil Assessment

There are many important ways that a floating oil spill response differs from an NFO spill response, including the personnel, equipment, and tactics that will be used to respond to the spill. Because of these differences, it is important to determine early on whether a spilled product has the potential to sink or submerge.

Within the first hour of the confirmed spill, Trans Mountain personnel, in consultation with NRC, will conduct an initial assessment of the characteristics of the spilled product, and the characteristics of the waterbody it spilled into (using [Attachment A](#) of Section 9412.A2 in the NWACP). If available at the time, Trans Mountain will consult with available response partners including NRC, the Environmental Unit, NOAA SSC, and Trans Mountain Environmental Specialists to determine if there is a potential for the oil to sink or submerge. If the potential exists, then Trans Mountain and NRC will begin to mobilize the equipment and personnel necessary to respond. If there is no immediate threat or observed potential for product to sink or submerge, then Trans Mountain will commit to reevaluating for the potential for product to sink or submerge as the response evolves.

4.8.3 Response Tactics for Non-Floating Oil

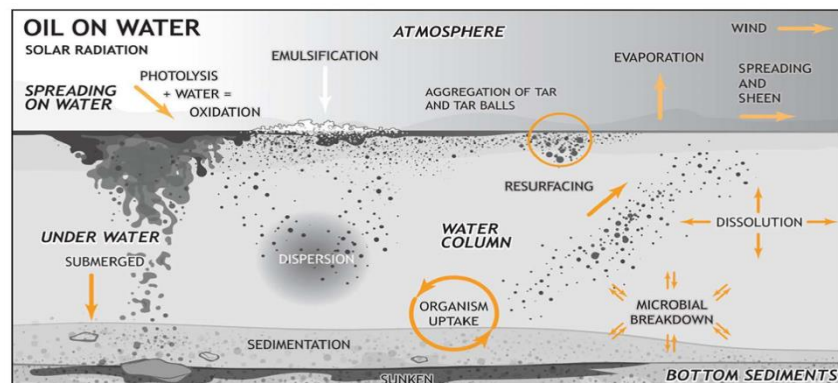
Floating oil describes oil that is on the surface of the water and remains buoyant whereas Non-floating oil describes oil that has been either submerged or sunken. Submerged oil describes any oil that is not floating at or near the surface, and Sunken oil describes oil that sinks to the bottom of the water column due to specific gravity and resides on the bottom of the water body.

Submerged and sunken oil pose detection, containment, and recovery challenges that floating oil does not. Floating oil is readily observable and forms into identifiable plume models that can be anticipated and tracked as well as recovered using conventional techniques. Submerged and sunken oil is not readily observable, due to environmental factors that can contribute to the potential for the product to disappear from one area only to reappear in another. Due to the many challenges posed by submerged and sunken oil, tactics for its containment and recovery cannot be set out in a standardized plan but rather requires the integration of multiple techniques based on the site-specific environmental factors and the specific product released. Trans Mountain will utilize the Northwest Area Contingency Plan (NWACP) Section 9412 – Non-Floating Oil Spill Response Tool in the development of response tactics and detection methods in the development of the workplan for the Incident Action Plan (IAP). Trans Mountain maintains a contract with NRC who will provide the equipment necessary for response to non-floating oil.

4.8.4 Fate and Behavior

When oil is initially released into an aquatic environment a number of processes can affect the behavior and fate of that oil. Oil has the potential to become sunken or submerged if the density is greater than that of the water into which it has been spilled.

There are a number of factors that may increase the density of oil causing it to become sunken or submerged. The evaporation of the lighter components in the oil will increase the density and potentially allow the oil to submerge or sink. The current speed and viscosity of the oil may cause the formation of oil



droplets which then can become non-floating oil. The Oil droplets may interact with suspended sediment or other debris which in turn will sink due to the increased density.

Submerged oil tends to weather at a slower rate than the floating oil and may move within the water column due to changes in water temperature, currents, wave action, changing sedimentation and seasonal flow fluctuations; thus further complicating the recovery efforts of non-floating oils. The ability to track, contain and recover non-floating oil is dependent on the physical and chemical properties of the oil, the properties of the receiving waters and other material dispersed in the water column or bottom of the waterbody.

4.8.5 Non-Floating Oil Risk Assessment

Trans Mountain has evaluated the risk of submerged and sunken oil based on the products shipped, the environmental conditions present in the areas we operate, and the anticipated time it may take for a spilled product to exhibit submerged and sinking behavior. Rapid deployment of on-water recovery is the best strategy to prevent floating oil from becoming sunken or submerged. The operational actions of this philosophy follow the four response principles:

- Control the source of the spill.
- Prevent the released oil from entering a waterbody.
- Contain, intercept, and promptly recover oil from the water surface.
- Remove oil stranded on the shoreline oil before it can be remobilized.

Trans Mountain recognizes that it is vital to match response planning to the risks posed by non-floating oil. Trans Mountain will utilize the Non-Floating Oils Spill Response Tool from the NWACP Section 9412 to assist in the guidance of response actions and the development of the work plan contained in the IAP. In addition, URL links for applicable Geographic Response Plans, annexes of the NWACP, are located in Section 10.6.2.

4.8.6 Sunken and Submerged Oil – Site Assessment/Detection

Site characterization studies will be completed in areas where oil may have become submerged or sink to gather the physical evidence required to establish a plan for recovery. If the area of response is large, hydraulic models may be used to predict the fate and behavior of the spill. The process will differ slightly whether the area of response occurs on freshwater or saltwater as specialists establish oil fate and behavior. Freshwater responses may involve an analysis of the geology of flowing water to establish channel shape, hydraulic gradients, current velocity, sedimentation and impoundments. Flood plain delineation may also be determined the characterization of potential depositional sites. Saltwater responses may use aerial surface surveillance and bathymetric LIDAR to identify bottom contours to predict where submerged and sunken oils may occur.

Once evidence of depositional areas has been established, these locations will be screened, on a priority basis, for positive oil identification. A sample plan may be established to assist with the site characterization. The following actions can be undertaken to determine the horizontal extent of contamination from submerged and sunken oils:

- Manual Assessment – This technique typically involves the use of manual probes to disturb the bottom surface contour in an attempt to release oil blooms and sheens that act as witness marks of sunken oil. Additionally, passive collection with weighted sorbents deployed at depth intervals can be used to identify the presence of migrating submerged oils.
- Mechanical Assessment – The extraction of sediment core samples may be used to quantitatively screen for the presence of oil.

- Assessment by Telemetry – This is a collection of evolving techniques used to delineate, pockets of accumulated oil on the bottom surface profile. Telemetry involves specialists who may employ multi-beam and side scan sonar systems and fluorescence spectroscopy systems to delineate pockets of oil. Simple aerial photographs may also yield telemetric evidence of submerged and sunken oils in shallow waters.
- Remotely Operated Vehicles (ROVs) – ROVs with live video feed and manipulator arms may be used to identify sunken or submerged oil. Although valuable under the right conditions, these vehicles are hampered by waters with poor visibility and swift currents, as well as limitation in their range and field of vision.
- Diver Assessment – There are significant safety evaluations to be made before deploying a diver and the diver should only utilize surface-supplied air. Like the ROV, diver reconnaissance is limited by water clarity, current speed, field of vision and length of tether.

4.8.7 Sunken and Submerged Oil – Work Plan

Prior to implementing techniques to recover submerged and sunken oil, a work plan will be developed and included in the IAP and approved by Unified Command. The work plan will include the following elements at a minimum:

- Compliance with regulatory directives
- Landowner permission to access private property
- Safety evaluation of current flows and varying water levels associated with tides or flood surges
- Ground-truthed identification of staging and temporary waste storage sites
- Development of containment strategies that will typically involve the deployment of a combination of silt curtains, rigid containment booms and sorbent products
- Development of mechanical and passive recovery tactics
- Integration of communication and data logging between Operations and SCAT
- Crew composition and supervisory span of control

4.8.8 Recovery of Sunken and Submerged Oil

Recovery techniques for sunken or submerged oil may involve actions to re-mobilize the product so that it surfaces where skimmers and sorbents can be used to collect it. The bottom profile is disturbed or agitated such that the sediment releases the sunken oil particles. These particles will float to the surface either whole or as sheen. Recovery of submerged oil involves placement of barriers or diversions to attempt to drive the particles to the surface.

Developing a containment and recovery strategy involves the application of standard oil spill countermeasure tactics. Selecting an appropriate method to agitate bottom sediments, however, involves a careful analysis of water depth, bottom debris and sediment depth. Techniques for agitation may include:

- Wading personnel raking the sediment
- Boats dragging sediment-disturbing devices
- Compressed air lances to encourage bottom sediments to release sunken oil particles.
- Dredging
- Divers operating small airlift dredges

4.8.9 Remediation of Sunken and Submerged Oil

The amount of time it takes to remediate a watercourse to its baseline condition after being impacted by submerged or sunken oil will depend on the size and type of product spilled, the type and size of watercourse and the type of sediment or other substrate material impacted. A remediation plan will be

developed with the regulatory bodies in accordance with all environmental legislation. Methods of remediation may include dredging, capping and long-term monitoring and collection programs.

4.8.10 Tools for an NFO Response

The Pacific Northwest response community has developed response resources and tools to support spills from NFOs. Available resources/tools that Trans Mountain and NRC may reference in the event of a spill include:

- [NWACP Section 9412](#)– Non-floating Oils Response Tools
- [Geographic Response Plans](#) (GRP) sections including the Non-floating Oils Response Options and Considerations Tool and the updated Resources at Risk information which details resources in the water column and seafloor at risk from NFO releases
- Additional response resources are located in the Sector Puget Sound Area Contingency Plan
- [uSCAT Technical Reference Manual](#)
- Sunken Oil Detection and Recovery, American Petroleum Institute Technical Reports (1154-1, and 1154-2)

Trans Mountain and NRC will follow the above resource guidelines for detecting, delineating, and recovering non-floating oils, as applicable.

4.9 Response Tactics for Urban Environments

Urban environments pose a challenge to response tactics due to varying surface materials including those that are impermeable such as asphalt and concrete. Initial response tactics should consider if a spill could enter the waste water and/or urban subterranean networks. Possible methods of preventing the spread of a spill include the use of booms, cardboard, plywood, drainage covers, sorbents sandbags and other barriers to contain the spill and prevent entry of product to openings leading to subterranean municipal public works.

4.10 Recovery Tactics

The selection of the recovery method is dependent on the specific location and environmental conditions during the spill, the containment tactic used the characteristics of the product, the interaction of the product with sediments and finally the potential environmental impacts of implementing the recovery techniques particularly in sensitive environments. Wherever possible, spilled oil will be mechanically removed from the environment, using sorbents and/or oil skimmers.

4.10.1 Sorbents

On small spills, sorbent pads should be deployed into the thickest areas of the collected slicks. On heavy oil, the pads should be flipped over to maximize oil recovery. Oil-only pads will water-saturate if left in the water too long. Once pads are oil-soaked, they should be removed using pitch forks, pike poles or debris scoops. Care should be taken when recovering oiled sorbents, i.e., personnel should wear gloves, oil-resistance coveralls and splash goggles.



Sorbent booms can also be used, either to sweep oil within the contained area to increase the oil thickness or they can be positioned, as a liner, inside skirted booms.

Recovered sorbents should be placed in 6 mil poly bags, with the bag weight limited to 25 - 30 lbs. Bags should then be sealed and then double-bagged and placed in lined bins to avoid secondary contamination.

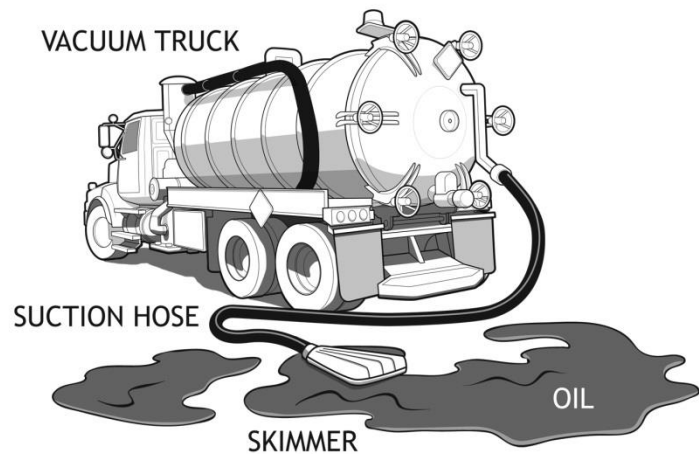


4.10.2 Skimmers

Where pooled oil is concentrated in sufficient quantities, mechanical skimmers should be used. This activity would focus on areas where oil has collected, either in down-wind/current boom pockets or in near-shore boom pockets. Where possible, recovery efforts should be mounted where recovered oil could be stored temporarily on shore.

4.10.3 Vacuum Truck, Gator Vacuum Truck, Port – a – Vac Unit

Vacuum trucks are used to assist in the cleanup and transport of released product and waste material. These trucks are equipped with vacuum pumps and a cylindrical chamber capable of sustaining low internal pressures. Vacuum trucks use 2-4 inch (5-10 cm) diameter hose which is placed slightly below the surface of the oil slick for collection. Depending on the slick thickness and density, a mixture of oil and water will enter the chamber. Positioning the intake end of the hose is critical to minimize the amount of water that is collected.



4.10.4 Recovery Techniques – Removal

Assessing the overall environmental impact must be considered when selecting a removal recovery technique. There are several variables that will influence the removal strategy used during a spill; such as product type and spilled area restrictions. A combination of removal cleanup methods will be used.

Technique	Description	Recommended Equipment	Applicability	Potential Environmental Impacts
Manual Removal	Hand tool (scrapers, wire brushes, shovels, cutting tools, wheel barrows, etc.) are used to scrape oil off surfaces or recover oiled sediments, vegetation, or debris where oil conditions are light or sporadic and/ or access is limited.	<u>Equipment</u> misc. hand tools <u>Personnel</u> 10-20 workers	<ul style="list-style-type: none"> • Can be used on all habitat types • Light to moderate oiling conditions for stranded oil or heavy oils that have formed semi-solid to solid masses • In areas where roosting or birthing animals cannot or should not be disturbed. 	<ul style="list-style-type: none"> • Sediment disturbance and erosion potential.
Mechanical Removal	Mechanical earthmoving equipment is used to remove oiled sediments and debris from heavily impacted areas with suitable access.	<u>Equipment</u> motor grader, backhoe, dump truck elevating scrapers <u>Personnel</u> 2-4 workers plus equipment operators	<ul style="list-style-type: none"> • On land, wherever surface sediments are accessible to heavy equipment • Large amounts of oiled materials. 	<ul style="list-style-type: none"> • Removes upper 5 to 30 cm of sediments.
Sorbent Use	Sorbents are applied manually to oil accumulations, coatings, sheens, etc. to remove and recover the oil.	<u>Equipment</u> misc. hand tools misc. sorbents <u>Personnel</u> 2-10 workers	<ul style="list-style-type: none"> • Can be used on all habitat types • Free-floating oil close to shore or stranded on shore, secondary treatment method after gross oil removal • Sensitive areas where access is restricted. 	<ul style="list-style-type: none"> • Sediment disturbance and erosion potential • Trampling of vegetation and organisms • Foot traffic can work oil deeper into soft sediments.
Vacuum/ Pumps/ Skimmers	Pumps, vacuum trucks, skimmers are used to remove oil accumulations from land or relatively thick floating layers from the water.	<u>Equipment</u> 1-2 50- to 100-bbl vacuum trucks w/ hoses 1-2 nozzle screens or skimmer heads <u>Personnel</u> 2-6 workers plus truck operators	<ul style="list-style-type: none"> • Can be used on all habitat types • Stranded oil on the substrate • Shoreline access points. 	<ul style="list-style-type: none"> • Typically does not remove all oil • Can remove some surface organisms, sediments, and vegetation.

4.10.5 Recovery Techniques - Washing

Washing is often a viable method for removing stranded oil from hard surfaces, like large rocks and seawalls. However, while effective, when used incorrectly washing may drive oil to further contaminate clean areas and triggered additional environmental effects. Because of these considerations, responders need to be very cautious about the situations and habitats in which washing is employed. Washing techniques should normally be combined with an effort to contain and collect the mobilized oil.

Technique	Description	Recommended Equipment	Applicability	Potential Environmental Impacts
Flooding	High volumes of water at low pressure are used to flood the oiled area to float oil off and out of sediments and back into the water or to a containment area where it can be recovered. Frequently used with flushing.	Equipment 1-5 380- to 750-lpm pumping systems 1 100-ft perforated header hose per system 1-2 200-ft containment booms per system 1 oil recovery device per system Personnel 6-8 workers per system	<ul style="list-style-type: none"> All shoreline types except steep intertidal areas Heavily oiled areas where the oil is still fluid and adheres loosely to the substrate Where oil has penetrated into gravel sediments Used with other washing techniques. 	<ul style="list-style-type: none"> Can impact clean down gradient areas Can displace some surface organisms if present Sediments transported into water can affect water quality.
Flushing	Water streams at low to moderate pressure, and possibly elevated temperatures, are used to remove oil from surface or near-surface sediments through agitation and direct contact. Oil is flushed back into the water or a collection point for subsequent recovery. May also be used to flush out oil trapped by shoreline or aquatic vegetation.	Equipment 1-5 189- to 380-lpm/ 689 kpa pumping systems with manifold 1-4 30 m hoses and nozzles per system 1-2 60 m containment booms per system 1 oil recovery device per system Personnel 8-10 workers per system	<ul style="list-style-type: none"> Substrates, riprap, and solid man-made structures Oil stranded onshore Floating oil on shallow intertidal areas. 	<ul style="list-style-type: none"> Can impact clean down gradient areas Will displace many surface organisms if present Sediments transported into water can affect water quality Hot water can be lethal to many organisms Can increase oil penetration depth.
Spot (High Pressure Washing)	High pressure water streams are used to remove oil coatings from hard surfaces in small areas where flushing is ineffective. Oil is directed back into water or collection point for subsequent recovery.	Equipment 1-5 1,200- to 4,000-psi units with hose and spray wand 1-2 30 m containment booms per unit 1 oil recovery device per unit Personnel 2-4 workers per unit	<ul style="list-style-type: none"> Bedrock, man-made structures, and gravel substrates When low-pressure flushing is not effective Directed water jet can remove oil from hard to reach sites. 	<ul style="list-style-type: none"> Will remove most organisms if present Can damage surface being cleaned Can affect clean down gradient or nearby areas.

4.10.6 Recovery Techniques – In-Situ Treatment

When conducted properly, in situ treatment significantly reduces the amount of oil spilled and minimizes the adverse effect of the oil on the environment. Although, in-situ treatment is considered an infrequent recovery method because of widespread concern over atmospheric emissions and uncertainty about its impacts on human and environmental health.

Technique	Description	Recommended Equipment	Applicability	Potential Environmental Impacts
Sediment Tilling	Mechanical equipment or hand tools are used to till lightly to moderately oiled surface sediments to maximize natural degradation processes.	Equipment 1 tractor fitted with tines, dicer, ripper blades, etc. or 1-4 rototillers or 1 set of hand tools Personnel 2-10 workers	<ul style="list-style-type: none"> Any sedimentary substrate that can support heavy equipment Sand and gravel beaches with subsurface oil Where sediment is stained or lightly oiled Where oil is stranded above normal high waterline. 	<ul style="list-style-type: none"> Significant amounts of oil can remain on the shoreline for extended periods of time Disturbs surface sediments and organisms.
In Situ Bioremediation	Fertilizer is applied to lightly to moderately oiled areas to enhance microbial growth and subsequent biodegradation of oil.	Equipment 1-2 fertilizer applicators 1 tilling device if required Personnel 2-4 workers	<ul style="list-style-type: none"> Any shoreline habitat type where nutrients are deficient Moderate to heavily oiled substrates After other techniques have been used to remove free product on lightly oiled shorelines Where other techniques are destructive or ineffective. 	<ul style="list-style-type: none"> Significant amounts of oil can remain on the shoreline for extended periods of time Can disturb surface sediments and organisms.
Log/ Debris Burning	Oiled logs, driftwood, vegetation, and debris are burned to minimize material handling and disposal requirements. Material should be stacked in tall piles and fans used to ensure a hot, clean burn.	Equipment 1 set of fire control equipment 2-4 fans 1 supply of combustion promoter Personnel 2-4 workers	<ul style="list-style-type: none"> On most habitats except dry muddy substrates where heat may impact the biological productivity of the habitat Where heavily oiled items are difficult or impossible to move Many potential applications on ice. 	<ul style="list-style-type: none"> Heat may impact local near-surface organisms Substantial smoke may be generated Heat may impact adjacent vegetation.
Natural Recovery	No action is taken and oil is allowed to degrade naturally.	None required	<ul style="list-style-type: none"> All habitat types When natural removal rates are fast Oiling is light Access is severely restricted or dangerous to cleanup crews When cleanup actions will do more harm than natural removal. 	<ul style="list-style-type: none"> Oil may persist for significant periods of time Remobilized oil or sheens may impact other areas Higher probability of impacting wildlife.

4.10.7 Cleanup Techniques – Dispersants

There are 3 types of dispersant approval zones in RRT Region 10 (which include the Captain of the Port Zone for Sector Puget Sound and for Sector Columbia River), please see Chapter 4000 Section 4610 of the NWACP for details on Dispersant Use Policy.

The use of dispersants will be considered on a case-by-case basis, where applicable, and in alignment with the authorization process identified within Section 9406 of the NWACP - Dispersant Authorization Process and Decision Support Tools.

The typical dispersant use review and authorization process is anticipated to follow the general steps outlined within Part B of Section 9406 - *Typical/Recommended Timing and Work Flow for Dispersant Authorization Process*. Key members for this process may need to be involved remotely, depending upon the timing of the request and deployment schedules. Please note that each spill response is unique, and the exact steps used in this process and their timing may vary between responses. Steps outlined in Part B of Section 9406 are designed to be “good practices” and not necessarily prescriptive.

Special Monitoring of Applied Response Technologies (SMART) are to be used, to the extent possible, for monitoring after the application of dispersants. Special Monitoring of Applied Response Technologies (SMART) is a cooperatively designed monitoring program for dispersants. SMART relies on small, highly mobile teams that collect real-time data using portable, rugged, and easy-to-use instruments during dispersant and in-situ burning operations. Data is channeled to the UC to address critical questions about effectiveness and effects. Monitoring data can assist the UC with decision making for dispersant operations. Please note that appropriately trained responders will be deployed prior to dispersant application.

Dispersant operations must attempt to avoid wildlife. Aerial wildlife surveillance specialist(s) (designated by appropriate Trustee agency(s)) must be available to observe wildlife that should be avoided in the potential dispersant application area and will document any observed impacts. Aerial observers will notify the dispersant team should they observe wildlife that must be avoided. Wildlife observers and wildlife aircraft pilots will attend operational briefings.

Trans Mountain’s approved PRC, NRC, has the capability to conduct dispersant operations once the decision-making process is completed and use of dispersants is approved by Unified Command. Refer to NRC’s PRC Application for detail on their dispersant capability and operation plan.

4.11 Alternative Cleanup Techniques

All non-traditional or alternative cleanup techniques require regulatory approval and a net environmental benefit analysis (NEBA) to be completed. This analysis will consider the specific treatment options appropriate to the response; the potential for successfully implementing those discrete options; the environmental trade-off attached to each technique; and, lastly, the types of treatments that can be authorized within the existing regulatory framework. Although each incident is unique, NEBA will conceptually develop a decision flow chart that asks the questions of:

- What recovery techniques should be executed?
- How long should the existing recovery techniques continue?
- Will certain areas within the response become later candidates for natural attenuation?
- Should sunken oil be left for remedial treatment?
- What is the regulatory process for permitting a remedial treatment?

NOTE: Decanting and In-Situ Burning require regulatory approval.**4.11.1 Decanting**

Large quantities of oily fluids can be generated during an oil spill response. These fluids include the products of skimming and vacuuming operations, and usually contain some amount of water. Oil recovery operations can only continue as long as there is place to store the recovered fluids, as such when the field storage capacity is reached, skimming/recovery operations must then cease until additional storage is available.

Decanting is an option for increasing on-site storage capacity by removing the water once the liquids have separated. Separation may occur through the use of on-site vacuum trucks equipped with separator equipment or by allowing the collected fluids to sit in a quiescent state long enough to separate. The separated water can then be siphoned out back to the collection point thus freeing up storage capacity.

The criteria for decanting are outlined below:

- All equipment intended for use in a decanting operation should be inspected to insure that it contains no harmful chemicals from prior use, and cleaned if necessary;
- All decanting should be done in a designated response area within a collection area, skimmer collection well, recovery belt, weir area, or directly in front of a recovery system
- Vessels or operations employing booms with skimmer in the apex of the boom should decant forward of the skimmer;
- All vessels, motor vehicles and other equipment not equipped with an oil/water separator should allow adequate retention time for oil held in internal or portable tanks before decanting commences
- A containment boom should be deployed around the collection area to minimize potential loss of decanted oil;
- Visual monitoring of the decanting area shall be maintained so that discharge of oil in the decanted water is detected promptly; and
- Records of volumes of oily water processes and oil recovered should be maintained

4.11.2 In-Situ Burning

Burning is an alternative tactic to provide a rapid means to remove oil in the event of a spill from the pipeline or terminal operations. Advantages of in situ burning include rapid removal of oil from the water surface, requirement for less equipment and labor than many other techniques, significant reduction in the amount of material requiring disposal, significant removal of volatile oil components, and may be the only solution possible, such as for oil-in-ice situations and wetlands. Disadvantages of in-situ burning include creation of a smoke plume, residues of the burn may have to be removed, oil must be a sufficient thickness to burn quantitatively; and therefore, may require containment, and danger of the fire spreading to other combustible materials. Potential human health impacts may result from smoke plume and particulate generation so may not be suitable where public exposure will result.

In-situ burning will be considered on a case-by-case basis at the direction and approval of Unified Command. Section 9407 of the NWACP – In-Situ Burning Operations Planning Tool will be utilized to determine if using in-situ burning is the best course of action for spill mitigation. Operational in-situ burning capability is provided by Trans Mountain's approved PRC, NRC. Refer to NRC's PRC Application for detail on in-situ burning capability.

4.12 Credit for Oil Recovery

If oil is spilled into Washington State waters Trans Mountain may receive credit for oil that has been recovered. Please see the following pages with information on how to receive this credit and the process of applying for the credit.

Credit for Oil Recovery

Spill Prevention, Preparedness, and Response Program January 2013

Washington State has responsibilities to assess damages when it's natural, cultural, and public recreational resources are impacted by oil spills to state waters. The Oil Spill Natural Resource Damage Assessment process (WAC 173-183) uses a compensation schedule to calculate the monetary amount of damages a spiller must pay to the state for resource restoration following an oil spill. The process allows for the reduction of the monetary damage amount based on actions of the spiller. This is called Recovery Credit because the reduction (credit) is tied to the amount of oil recovered from the water.

Actions to Reduce the Damages Owed

1. Quickly remove oil from the water
 - 24 hours for non-persistent oil
 - 48 hours for persistent oil
2. Effectively contain oil (using booms, berms, etc.)
3. Keep oil off shorelines
 - If item 1 is the only action taken, reduction is not as great as if all 3 are taken.

Documentation

- Damages will only be reduced if the spiller properly documents their actions and provides data to the Ecology State On-Scene Coordinator.
- The best way to do this is to use Ecology's form number ECY-050-49.
- This form has 5 blocks of information:
 1. General Spill Information
 2. Mechanical/Hand recovery Operations data
 3. Oleophilic Sorbent Material data
 4. Oil Debris data
 5. Signature block
- The spiller is responsible for filling out the form or otherwise providing the required information.
- The State On-Scene Coordinator will verify the accuracy of the data.
- To receive recovery credit, the spiller must allow a representative from Ecology to observe all recovery volume operations, like storage, weighing, squeezing, and sampling.



WHY IT MATTERS

Oil spills are costly to clean up and may have long term impacts to the environment. Although the risk of a catastrophic spill is slight, cumulatively spills of all sizes degrade the quality of state waters. Early action to remove oil from the water can reduce environmental impacts.

RESOURCE DAMAGE ASSESSMENT

In 1989, state lawmakers created the Resource Damage Assessment (RDA) Committee to oversee the protection and restoration of natural resources that are injured by oil spills.

PUBLIC INVOLVEMENT

The public is invited to attend and comment at RDA Committee meetings and pre-assessment screenings. In addition, the RDA Committee and the Coastal Protection Fund (CPF) Steering Committee welcome public comment and suggestions for restoration and enhancement projects.

Special accommodations:

If you need this publication in an alternate format, call the Spills Program at 360-407-7455. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

Spill Prevention, Preparedness, and Response Program

Need for Laboratory Analysis

Some form of documentation is needed to get credit for the following:

- Persistent oil – Material Safety Data Sheet, manifest, or other laboratory data indicating a specific gravity of .80 or greater, or API Gravity of 45 or less. This allows the spiller 48 hours to recover product from the water for credit.
- Oil in the water fraction of skimmed material – minimum of 2 samples from the water fraction of the storage device, analyzed for Percent Oil.
- Oil removed from the water with collected debris – minimum of 2 samples of oiled debris from each collection area, analyzed for Percent Oil.

The spiller and Ecology must agree on the laboratory.

Other Best Management Practices

1. Credit can only be given for sorbents and oiled debris recovered from the water – not from beach clean-up, vessel cleaning, roadway cleaning, etc.
2. Keep recovered sorbents and recovered oiled debris segregated from other clean-up wastes (like oiled Personal Protective Equipment (PPE), garbage, etc.)
3. Keep water content as low as possible by allowing surface water to drain off sorbent material before placing in bags.
4. Place oiled absorbent material in double plastic bags so recovered oil does not leak out or evaporate. Keep bags sealed from rain.
5. Keep track of the time. Material must be removed from the water within 24 hours (non-persistent oils) or 48 hours (persistent oils).
6. Weighing is the easiest and least expensive method for determining the volume of oil recovered in sorbent material. Keep an accurate record of the size and number of each type of sorbent used. The best practice is to have records of the weight and number of clean sorbent material prior to a spill.
7. Do not collect or store recovered oil in tanks or vacuum trucks containing oil from other sources.
8. Oil collected in tanks or vacuum trucks must be allowed to physically separate from any water. The recovered oil volume must be derived using volumetric methods (actually “sticking” the tank). If credit is desired for oil dissolved in the water fraction, 2 water samples must be taken from each tank and analyzed for percent oil by an agreed upon laboratory.



Contact Information

Alison Meyers, 360-407-7114 email: alison.meyers@ecy.wa.gov

Dale Davis, 360-407-6972 email: dale.davis@ecy.wa.gov

Recovered Oil Data Form

ECY050-49a available at: <https://fortress.wa.gov/ecy/publications/SummaryPages/ECY05049.html>



Spill Prevention, Preparedness, and Response Program

WASHINGTON STATE
Department of Ecology
Spill Prevention, Preparedness, and Response Program
Response Section
P.O. Box 47600, Olympia, WA 98504-7600
Office Phone: (360) 407-7455, Fax: (360) 407-7288 or toll free 1-800-664-9184

Recovered Oil Data Form

1. General Spill Information

Spill Date: _____ Spill Time (24 hr clock): _____ Potential Liabile Party (PLP): _____

Clean-up Contractor (if different from PLP) _____

Spill Source _____ Spill Location _____

Oil Common Name (circle): Diesel/Gasoline/Jet Fuel/Kerosene/Lube oil/hydraulic oil/transformer mineral oil/bunker oil/
intermediate fuel oil # _____ /crude oil _____ /asphalt/vegetable oil/other _____

Non-Persistent WAC 173-183-100(25) Persistent WAC 173-183-100(30)

Specific Gravity _____ Specific Gravity _____ (lab data attached yes no)

Report all volumes in gallons

2. Mechanical/Hand Recovery Operations (skimmers, vacuum trucks, barges, other temporary storage devices)

Date & time recovery operations ended for liquids in storage device _____

Recovered water-oil mixture storage device location _____

Storage Device volume before recovery operations (ideal is zero) _____

Storage device contents description _____

Gallons of water _____

Gallons of oil _____

Storage device volume after recovery operations _____

Settling time (duration) _____

Total water volume _____

Total oil volume _____

For settling times less than 12 hours

Depth of oil layer in storage device _____

Storage device dimensions _____

Percent oil content of water fraction _____

Lab data attached from 2 samples of water fraction for each storage device yes no

3. Oleophilic Sorbent Material recovery operations

Date & time used sorbent materials were removed from the water _____

Recovered sorbent material properly handled/stored
(proper segregation, double bagged, sealed from rain)

yes no

Storage Location of spent sorbent material _____

Volumetric Data

Total gallons of water-oil mixture squeezed from material _____

Total water recovered _____

Total oil recovered _____

Gravimetric Data

Total weight of oiled sorbent material _____

Total weight of pre-oiled sorbent material _____

Total weight of oil in sorbent material
(using 25% as water content – unless demonstrated to be different)

Total gallons of oil in sorbent material _____

4. Oiled debris data

Date & time oiled debris was collected from the water's surface _____

Debris collection areas
(List locations - only debris collected from the water's surface)

Oiled debris segregated from other oiled wastes

yes no

Water content minimized

yes no

Percent oil content
(Lab data attached for minimum of 2 samples from each collection area)

yes no

Total weight of oiled debris _____

Total weight of oil in debris _____

Total gallons of oil in debris _____

5. Signature Block

I attest that the above information is accurate to the best of my knowledge _____
PLP or Representative Signature Date

I accept the above information and have made the following determination:

Effective Containment yes no Shoreline contact of spill yes no

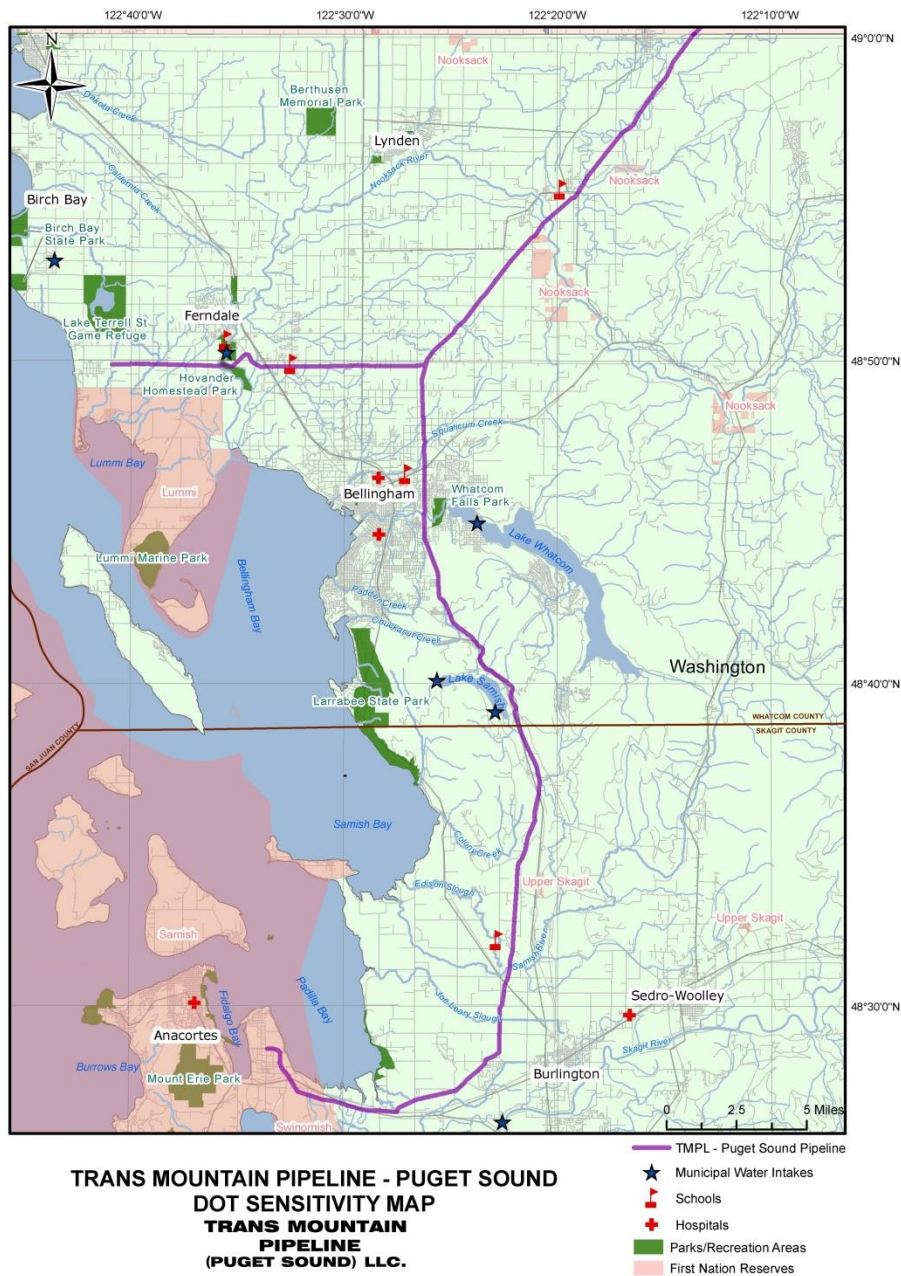
Signature of State On-Scene Coordinator _____ Date _____

This form complies with the requirements of WAC 173-183-870.

For questions regarding this form or the Oil Recovery Credit Process contact:
Dale Davis (360) 407-6972 or Alison Meyers (360) 407-7114

5.0 PROTECTION OF SENSITIVE AREAS

Where safety allows, various techniques can be used to protect sensitive areas. Careful consideration of the oil and shoreline types must be given before decisions are made. This will be done through the Environmental Unit with oversight by Federal and/or State Regulatory Agencies. The following map identifies Department of Transportation sensitivities such as Municipal Water Intakes, Schools, Hospitals, Parks, Recreation Areas and First Nation Reserves.



5.1 Area Description

There are environmentally and economically important sites in the vicinity of this pipeline. During a spill event the presence or absence of cultural resources is determined by the Environmental Unit. Regulatory agencies will assist with the identifying of any cultural resources at risk from spills at the time of a spill event.

The marine and estuarine waters within the San Juan Islands and Puget Sound are among the most biologically rich and sensitive areas of the State of Washington. A wide diversity of shoreline and marine habitats (estuaries, rocks, reefs and islands), abundant food resources and exceptional water quality all contribute to making this area especially valuable to wildlife.

This region contains a number of small to medium-sized seabird nesting colonies, a multitude of marine mammal breeding and resting sites, rearing and feeding habitat for marine fish and one of the most impressive arrays of marine invertebrates in the world. The region is also a temporary home to many species of marine birds and mammals that are seasonal residents or pass through the area during migration.

In addition to this manual there is a Field Handbook which identifies control points and access points to water bodies for equipment deployment to prevent migration of oil downstream. The Field Handbook is kept with all operators and within spill response trailers for quick reference. In Sections 9 and 10 there is additional information in regard to available equipment. Section 13 has additional information for Wildlife Response Planning.

Note: Trans Mountain will make practical and effective use of Washington State Geographic Response Plans (GRPs) for finding information about known resources at risk, including benthic and water column resources (where applicable), that may be threatened during a spill event. The Environmental Unit will evaluate all resources at risk throughout the various stages of a response to help mitigate environmental impacts. Refer to Section 10.6.2 *Washington State Geographic Response Plans* for URL links to relevant GRPs within Trans Mountain's operating area.

5.1.1 Marine Mammals

Numerous species of cetaceans (whales, dolphins, and porpoises) are found within the area and include such species as: fin (endangered), gray, humpback (endangered), sei, sperm, and orca (including the endangered Southern Resident Killer) whales, and Dall's and harbor porpoises, harbor, and the Pacific white-sided dolphin. In addition, pinnipeds including harbor seals, Californian and Stellar sea lions, and the northern elephant seal are commonly present. This region also supports a large population of river otters which are largely marine in their habits.

The islands, nearshore rocks and beaches of the region provide pupping and resting sites for harbor seals. The largest concentrations are found in the vicinity of Boundary Bay and Padilla Bay. Other smaller sites are scattered throughout the entire area. Nearshore waters are also used as feeding areas by seals, sea lions, gray whales, harbor porpoise and river otters.

5.1.2 Birds

Many species of marine birds and shorebirds are either residents or seasonal visitors with this area. Much of the seabird nesting is scattered throughout the region on offshore rocks, exposed rocky coasts or on pilings.

Bald eagles and peregrine falcons nest in the area and are closely associated with the marine ecosystem because of their feeding habits and choice of resting sites. This area hosts a large wintering population of bald eagles.

Marbled murrelets are unique among the area's seabirds because they nest inland in old-growth forests, yet spend much of their time feeding and resting on marine waters in the nearshore environment. This species is of special concern since it's been shown to be highly vulnerable to oil spills and gillnet entanglement and is listed as a threatened species. This area supports significant numbers of seabirds and waterfowl, both during the spring and fall migrations as well as many resident and overwintering species. Puget Sound is recognized as one of the most important waterfowl wintering areas on the Pacific Flyway for waterfowl. This area has been identified as a key component in the North American waterfowl plan.

5.1.3 Bird Colonies

Most of these species follow the coast during their southward movement, many species winter around these bays, while others stop briefly to rest and feed before continuing their migration to Southern California, Mexico, Central America or South America. During fall and spring migration, as well as winter, large populations of shorebirds and waterfowl inhabit nearshore areas. In the area that has the potential to be impacted by a spill, on-water densities of birds can reach 10's of thousands of birds/km².

5.1.4 Eelgrass

Eelgrass meadows in protected bays provide food source for variety of species within the marine food chain. Additionally, it provides habitat and protection and acts as a nursery for many marine species. In the event of an oil spill near eelgrass meadows, protective measures should be implemented to reduce the impact.

Measures such as booms may be effective when conditions permit deployment. If placed from shore, minimize trampling and dragging equipment over the habitat. Use of dispersants may only be applied after a review and authorization process for dispersant use is completed and approved by Unified Command. In such cases dispersants may be applied in deeper water where dilution will be rapid. If applied in shallow water, use only in areas with adequate flushing from tidal or wave action. If applied directly over seagrass beds, dispersed oil may impact seagrass and organisms associated with seagrass beds.

For cleanup, natural cleansing is still preferable to most cleanup methods. Manual removal results in the removal of sediments and organisms and should be used in the 'wade zone' only. Trampling and dragging of equipment over the habitat should be minimized.

Substrate removal may delay or prevent re-establishment of the original ecosystem and vacuum pumping may result in the removal of organisms and sediment. Both methods are not advisable. In intertidal area, low pressure flushing may be viable. Vegetation cropping should be avoided since it modifies the habitat and may kill important habitat plants.

5.1.5 Inlets, Intakes, Harbors and Marinas

Inlet, intakes, harbors and marinas are inhabited by a variety of fish, invertebrates and water birds that would be at risk if an oil spill occurs near any of these facilities. Marinas have a great potential for public exposure to hazards and damage claims. Intakes for commercial, industrial and municipal water usage areas are subject to impact due to safety hazards, loss of use and damage claims. Protective measures could include exclusionary booms to prevent or exclude oil from entering these areas. Many of the entrances or channels have tidal currents exceeding 1 knot in the opening. In these cases, booms should

be deployed landward from the entrance in quiescent areas. Booms should be placed at an angle to the current to guide oil to an area where it can be recovered.

The deployment of a second boom behind the first may be desirable to contain any oil that escaped under the primary boom.

Diversion booming should be used where the water current in an area greater than 1 knot or if the areas are too large to boom with available supplies. Diversion booms are deployed at an angle from the shoreline closest to the leading edge of the approaching oil slick to deflect oil towards shore, where pickup of pooled oil is more effective.

Since the area is predominantly environmentally sensitive, recommended response strategies are to attempt to limit the extent of shoreline fouling and to limit the area covered by the slick to the maximum extent possible. Since oil is the primary product handled, containment booming operations will be initiated. In addition, shoreline protection boom may be utilized in an attempt to prevent fouling of shorelines.

It is also important to recognize that while certain immediate environment protection response strategies must be planned for in advance, the ongoing protection and cleanup during a major spill would involve professional input from the company's oil spill advisors and the Federal and State On-Scene Coordinators.

5.1.6 Recreational Areas

Publicly accessible recreation areas including parks and recreation sites generally have good water/shoreline access for logistical purposes. These areas should be protected using various booming strategies outlined in this section.

5.1.7 Salmon and other Spawning Streams

Numerous streams throughout the area have been identified as environmentally sensitive due to the presence of spawning areas for salmon and other species.

The following factors are detrimental to spawning fishes, their nests and eggs:

- Changes in water temperature
- Increased siltation or turbidity
- Increased amount of dissolved gases in the water column
- Physical destruction of habitat by personnel and/or equipment.

To reduce the impact of an oil spill and response activities to streams identified as spawning habitat, the following steps would be taken:

- Attempt to contain spilled product as far upstream of spawning areas as possible
- Minimize or eliminate the use of overflow dams
- Minimize the number of personnel working at each response site
- Minimize use of heavy equipment at each response site
- Eliminate warm/hot water flushing tactics at response sites.

5.1.8 Subtidal Habitats, Species, Cultural and Historical Properties

Several different subtidal marine habitat types are present within this area, and these habitats support a wide variety of species that have the potential to be affected by non-floating oil spills.

- Soft sediments (including clay, mud, sand, and gravel) support bottom-dwelling species such as sea cucumbers and sea stars, halibut and flounders, cods, shrimp and crab, and various shellfish.
- Rock reefs support a diverse assemblage of immobile invertebrates (anemones, worms, sponges, etc.), mussels, scallops, and many species of macro algae. These habitats also provide shelter to a large number of various rockfish, eels, and octopus.
- Boulder and cobble fields provide much of the same ecological functions as the reefs with the addition of enhanced refuge space between the stones. These areas also serve as important foraging areas for the predatory species.
- Primary productivity of the water column occurs in the top 30 meters. Consequently, this water layer is populated with planktonic larval forms of a wide range of fish and invertebrates. In addition to the planktonic species, the entire water column serves as habitat a very large number of free-swimming fishes (salmon, herring, shark, etc.) and marine mammals such as whales, seals and sea lions. During a response, experts would need to be brought to identify any submerge cultural or historical resources.

5.2 High Consequence Areas Protection Techniques

Spills that impact a high consequence area are greatly compounded and endure far more response actions than a spill elsewhere. If a spill would to impact a HCA, specific booming techniques should be set up to contain product and reduce the environmental impact. When responding to spills in a HCA, the following measures should be considered:

- Minimize the number of personnel working at each response site
- Minimize use of heavy equipment at each response site
- Eliminate warm/hot water flushing tactics at response sites.

5.2.1 Exclusion Booming

Boom is deployed across or around sensitive areas and anchored in place. Approaching oil is deflected or contained by boom. This method is often used across small bays, harbor entrances, inlets, river, and creek mouths with currents less than 1 knot (0.5 m/s) and breaking waves of less than 1.5 ft (0.5 m) high. Typically, environmental effects are limited to minor disturbance to substrate at shoreline anchor points.



5.2.2 Deflection Booming

Boom is deployed at an angle to the approaching slick. Oil is diverted away from the HCA to a less sensitive location for recovery. This technique is often used across small bays, harbor entrances, inlets, river and creek mouths with currents exceeding 1 kt (0.5 m/s) and breaking waves of less than 1.5 ft (0.5 m). It should be used only on straight coastline areas to protect specific sites, where breaking waves are less than 1.5 ft (0.5 m). Typically, environmental effects are limited to minor disturbance to substrate at shoreline anchor points; however, diverted oil may cause shoreline oil contamination down-wind and down-current. A Net Benefit Analysis should be conducted to determine if deflection booming should be conducted.



5.2.3 Along-Shore Booming

Boom is positioned along the shoreline to provide a barrier to floating oil. Oil is diverted away from the sensitive area to a less-sensitive location for recovery. Along-shore booming might be difficult during a falling tide because constant attention is required to ensure the boom doesn't strand. This technique can be used in quiet areas with breaking waves of less than 1 ft (0.3 m). Typically, environmental effects are limited to possible shoreline oil contamination down-wind and down-current.

5.2.4 Shore-Seal Booming

Specially designed, shore-sealing boom is positioned in the inter-tidal zone to deflect oil. This technique can be used in a wide range of substrates, but is most often used on mud and sand flats. Typically, environmental effects are limited to minor disturbance to substrate at shoreline anchor points.



5.2.5 Use of Passive Sorbents

Sorbents are positioned in the swash zone to absorb incoming oil. This technique can be used in a wide range of low-slope substrates. Pom-Poms normally work best on heavier, weathered crude oil, while sorbent rolls work best on lighter, fresher crudes. The environmental effects of passive sorbents are typically limited to the minor disturbance to the substrate.



5.3 Spill Movement Estimates

Watercourse	Normal Seasonal Minimum Flow Rate (miles/hour)	Normal Seasonal Maximum Flow Rate(miles/hour)	Maximum Velocity Above Normal (miles/hour)
Chuckanut Creek	0.5	1.7	2.3
Deer Creek	0.1	0.8	1.2
Friday Creek	0.8	2.1	2.69
Nooksack River	0.9	2.5	3.1
Samish River	0.4	1.3	1.8
Siler Creek	0.1	0.6	0.9
Squalicum Creek	0.4	1.2	1.6
Sumas River	0.4	1.2	1.8
Ten Mile Creek	0.3	0.9	1.3
Tributary to Squalicum Creek	0.3	0.9	1.2
Whatcom Creek	1.0	3.6	3.9

5.4 Historical Climatic Data

	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec
Max Wind Speed (mph)	S 51	SW 44	SW 32	SW 29	SW 38	S 66
Average Wind Speed (mph)	9.4	9.4	8.7	7.9	8.4	9.2
Min Temperature (F)	36	39	47	55	46	36
Maximum Temperature (F)	49	58	69	75	70	50
Average Temperature (F)	42	48	58	65	57	42
Average Precipitation (inches)	4.6	3.2	1.6	0.9	2.4	5.7
Average Daylight (hours)	8.7	12	15.5	15.4	11.8	8.5

6.0 MULTIPLE HAZARDS

TMPL traverses through a unique geographic environment within the State of Washington accompanied by varying landscapes and topographies. In turn these natural and man-made features contribute to an overall hazard landscape which could impact Trans Mountain operations. The following section aims to describe potential hazards which could negatively impact Trans Mountain facilities, employees and contractors in order to provide both hazard context and to outline actions that may be undertaken in order to mitigate and/or respond to such events.

6.1 Natural Hazards

Natural Hazards may be defined as naturally occurring physical phenomena caused either by rapid or slow onset events which may be geophysical (earthquakes), hydrological (avalanches, floods), climatological (extreme temperatures, wildfires), meteorological (hurricanes and storms/wave surges) or biological (disease epidemics and insect/animal plagues). While Trans Mountain may not be exposed to the entirety of the aforementioned hazards, there are certain naturally occurring hazards that could potentially be expected to impact operations and personnel.

6.1.1 *Wildfire/Grass Fires*

Wildfires, including forest fires and grassland fires, are a natural hazard in any forested and grassland region of Washington State. These fires are common between May and September and are most often caused by human activity and lightning strikes. Of particular concern are interface wildfires, the area where wildfire and human development meet. Interface fires often destroy homes and other critical infrastructure and typically lead to local or large scale public evacuations.

In the event that Trans Mountain personnel identify a significant wildfire or grassfire they are to report the fire immediately to the local fire department and the state wildfire agency. In Washington State report a wildfire to both 911 Emergency Services and the Department of Natural Resources at **800-562-6010**. Be prepared to provide the following information;

1. Location
i.e. Where is the fire? How far up the hillside?
2. Size
e.g. Meters? Hectares? Size of a house? Size of a football field?
3. Rate of spread
i.e. How quickly is the fire spreading?
4. Fuel
i.e. What is burning? Grass, bushes, trees?
5. Smoke/flames
i.e. What color is the smoke? Are flames visible?
6. Threat
i.e. Are there any people or infrastructure at risk?
7. Action
i.e. Is anyone fighting the fire?

In the event Trans Mountain personnel discover a small grass fire within Trans Mountain facilities, along access roads or the pipeline Right-of-Way personnel may utilize small handheld equipment including shovels and portable fire extinguishers to suppress the fire if it is safe to do so. If the fire increases in size, spreads or presents a threat to life safety then personnel are to evacuate the area and contact the local fire department and the state wildfire body.

6.1.1.1 Wildfire/Grass Fire Checklist

- Notify Edmonton Control Center and your supervisor, issue TAS
- For large, uncontrolled fires, notify local fire department (call 911) & State Wildfire Authority. Call Washington State Department of Natural Resources at **800-562-6010**
- Evacuate all non-essential personnel and secure area
- Muster company response personnel at a safe location
- Conduct initial wildfire assessment and following the wildfire decision tree as outlined in Section 2 of the “*Wildfire Emergency Response Plan Supplement*”
- Determine strategic options, including offensive, defensive or monitoring as per Section 3 of the “*Wildfire Emergency Response Plan Supplement*”
- Determine strategies and tactics as per Section 4 of the “*Wildfire Emergency Response Plan Supplement*”
- Coordinate response with the fire department or provincial wildfire officials

6.1.2 Earthquake

An earthquake is a sudden and/or violent shaking of the ground, sometimes causing great destruction and injuries, as a result of movements within the earth's crust or volcanic action. While earthquakes may occur anywhere along TMPL it is the coastal areas of British Columbia and Washington State that pose the greatest risk.

In the even that Trans Mountain operations are affected by an earthquake it is vital to first ensure personnel safety and immediately notify the on-site supervisor and Edmonton Control Centre. Additional details including facility, pipeline or equipment damage and shutdowns should also be communicated at this time.

At the outset of an earthquake Trans Mountain personnel should follow the **Drop, Cover and Hold-On** technique. This technique involves dropping to the ground once shaking is felt and moving underneath sturdy furniture such as a table or desk. Once safely underneath solid furniture, cover your head and torso to avoid being hit by falling objects. Finally hold onto the object you are underneath in order to remain covered. Once the shaking has stopped remain in place for a least one minute to let any loose objects settle. Before exiting your safety location scan the area to look for additional hazards that may have developed as a result of the shaking. Examples may include broken glass, fallen objects and fire. While completing this scan consider the most appropriate means of exiting the building as quickly and safely as possible. Once outdoors personnel should gather at pre-determined muster points in order to complete head counts.

Trans Mountain personnel who are outdoors during the onset of an earthquake should attempt to move to a clear area if it is safe to do so. Extra attention should be paid towards overhead power lines, trees, signs, buildings, vehicles, and other potential falling hazards. The **Drop, Cover, and Hold-On** technique should be utilized as it will protect individuals from objects thrown horizontally, even if nothing is directly above them.

If Trans Mountain personnel are in a vehicle during the onset of an earthquake they should immediately and safely pull over to the side of the road, stop, and set the parking brake. Drivers should avoid overpasses, bridges, power lines, signs and other hazards. Stay inside the vehicle until the shaking stops. After the shaking has stopped proceed carefully by avoiding fallen debris, cracked or shifted pavement, and emergency vehicles. If a power line falls on the car, stay inside until a trained person removes the wire.

6.1.2.1 Earthquake Checklist

- Follow the Drop, Cover and Hold-On technique once an earthquake is felt
- Shutdown any transfer/loading operations and secure facilities:
 - Close isolation valves and tank valves
 - Shut off nonessential power supplies
- Monitor site for evidence of leaks from pipelines and storage tanks
- Notify the Edmonton Control Center Operator and Site Supervisor of response steps taken and obtain further instructions
- Evacuate all nonessential personnel and third parties to a safe location
- In the event of earthquake damage to critical Trans Mountain infrastructure enact the Emergency Response Plan.
- Refer to the facilities Fire-Pre Plan in the event of Tank Fire or 3-Dimensional Fire
- Secure facility for aftershocks
- Exercise caution when entering damaged buildings
 - Watch for:
 - Downed power lines
 - Fire
 - Flooding
 - Debris

6.1.3 Floods

Floods are the most frequent and costly natural disaster often causing large-scale damage to properties, facilities and infrastructure while also posing a threat to life safety. Flooding events known as flash floods are of particular concern. Flash floods are typically caused by abrupt and extreme rain fall that causes a river, stream, pond or other body of water to swiftly overflow its banks in a short period of time, often in several hours or less. Flashfloods can also be caused by erosion of soil and sand, or by ice jams on rivers/streams in conjunction with a winter or spring thaw.

If a flood does occur and impacts Trans Mountain personnel while working in the field or at an office location, personnel should take steps to ensure the safety of themselves and coworkers. Notify your supervisor and/or the Edmonton Control Centre as soon as safely possible.

Actions that Trans Mountain personnel may undertake as part of a proactive response to imminent floods, **if safe** to do so, include:

- Understand the difference between a Flood Watch and a Flood Warning.
 - **Flood WATCH** - flooding is possible - watch out for it and be alert.
 - **Flood WARNING** - flooding has been reported - take precautions to ensure your safety.
- Moving critical equipment and records to higher ground.
- Remove hazardous materials and dangerous goods from the flood area to prevent environmental damage.
- Shut in electricity and electrical equipment as required. (**Do not** attempt to shut off electricity if water is already present, the combination of water and live electrical current can be lethal).
- In some cases, buildings or equipment may be protected with sandbags or polyethylene barriers.

If it is determined that evacuation is needed during a flooding situation, Trans Mountain personnel should:

- Inform the Edmonton Control Centre
- Take action to shut down, isolate and de-pressurize equipment, as required
- Vacate the work area as soon as possible or if advised to do so by their supervisor and/or emergency authorities. Never ignore an evacuation order because it may endanger your safety, the safety of coworkers or emergency responders who may come to your rescue
- While evacuating the work area always follow the specified evacuation route. Do not attempt to take short cuts as they may lead to a dangerous or blocked in area.

In the case that Trans Mountain personnel are evacuating by vehicle;

- Do not drive through flood waters or underpasses. Water will often prove deeper than it looks and the vehicle could get stuck or swept away by fast water.
- If you are caught in fast-rising waters and your vehicle stalls, exit and remain with the vehicle until help arrives.
- Avoid driving across bridges if the water is high and flowing quickly, unless advised by local authorities that it is safest evacuation route.

In the event that flooding has been mitigated and it is now safe to re-enter the work site/area, personnel must exercise great caution before returning to a work area after a flood has occurred.

Re-entry must be approved by the Site Supervisor prior to building, facility or work site re-entry. Regardless of re-entry approval it is essential that personnel look for and/or report any indications that the area and buildings may not be safe.

Indicators to watch for may include:

- Buckled walls or floors. Holes in the floor, bent or broken piping, broken glass and other potentially dangerous debris.
- Flood water that is heavily contaminated with sewage and other pollutants that can cause sickness and infections.
- Electrical components and panels that need to be cleaned, dried, and tested by a qualified electrician. All equipment, heating, pressure, or sewage systems (including appliances) will need to be thoroughly cleaned, dried, inspected and deemed safe before use.

6.1.3.1 Flood Checklist

- Shut down and isolate the section of the pipeline/tank farm area at risk
- Notify Edmonton Control Centre, issue TAS
- Monitor the pipeline route for potential damage
- Buoy any above-ground facilities that could become submerged to prevent damage from craft operating in flooded areas
- Never try to walk, swim or drive through swift water
- Evacuate if necessary
- When flooding subsides, perform survey to determine if there is sufficient cover over pipeline
- Notify landowners of areas of reduced cover
- In the event of flood damage, follow the Emergency Response Plan for site assessment
- Conduct an aerial overflight

6.1.4 *Avalanche*

An avalanche is a mass of snow, often mixed with ice and debris which travels down mountain sides, and causes massive destruction to objects located within its pathway. Avalanches occur due to any of the following triggers: overloading, temperature, slope angle, snow pack conditions, and vibration. Avalanches typically occur in mountainous regions of Canada and while unlikely to impact TMPL Puget Sound operations they can still prove hazardous to operators in the field.

Response to an avalanche incident must be orderly and efficient, and keep the safety of rescuers in mind at all times. A successful rescue depends on a rapid response by appropriately trained and equipped personnel.

The full Avalanche Safety Plan is available by request through the Health & Safety Department.

6.1.4.1 **Avalanche Response Checklist**

If you witness an avalanche, or an avalanche incident is reported to you:

- Notify Emergency Services, call 911
- Retain Witness(es) and ensure safety of personnel
- Note and Record Preliminary Accident Details

Time and Date	
Reporting Persons Name	
Witness Name (hold witness)	
Time of Accident	
Location of accident (ROW KP or access route) GPS	
Number of persons involved, injured and/or missing	
Number of responders with avalanche equipment	
Vehicular involvement	
Additional relevant information (weather [flyable?] and road condition, special requirements)	
A call back number for reporting personnel.	

- Relay the above Preliminary Accident Details to the Edmonton Control Centre 888-876-6711

6.1.4.2 Avalanche Rescue Card

Avalanche Rescue Card Trans Mountain 1-888-876-6711


<p>If you are caught in a vehicle-Remain in the vehicle Shut off engine and headlights – Leave flashers and radio on. Confirm location, call for help Ensure transceiver is sending Push sectional avalanche probe to the surface. Await Rescue Team Notify Trans Mountain Emergency 1-888-876-6711 Plan for rescue and hazards, see below & over</p>	<p>If you witness an avalanche: Move people to a safe place Note: Time, Location. If persons missing or injured, vehicles involved Notify Trans Mountain Emergency 1-888-876-6711 Plan for rescue and hazards, see below & over</p>
--	--

Avalanche Search Instructions


1. Move all personnel to a safe location. Avoid contamination of the search area.
2. Retain and question witness.
3. Evaluate further hazard. Can you see the whole slope? Is the weather a factor?
4. Establish escape routes – use spotter and warning signal.
5. Mark the last seen point (if witnessed). Switch transceivers to Receive.
6. Transceiver search below the last seen point, watch for surface clues.
7. Random probe of likely burial locations, use transceivers if applicable.
8. Systematic coarse probe if transceiver search does not locate victims
9. Mark outline of avalanche deposit and all probed areas with flagging wands.
10. Draw a map of the avalanche showing all areas as they are searched/probed, noting pertinent details (last seen point, clues, victim location).
11. Brief arriving rescuers.
12. Document – arrivals, evacuations, departures, environmental concerns (shelter, food/water, lights), site sketch and photos etc.
13. Maintain communication with rescue base/team

Signal Search

TRANSCIVERS TO RECEIVE

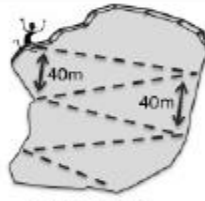


Spotter?



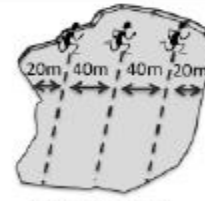
Last Seen Point

OR




Single Searcher

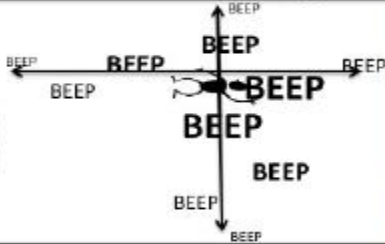
OR




Multiple Searchers

Coarse Search







Fine Search

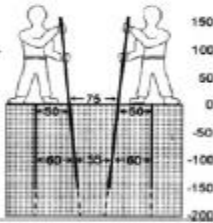
Probing - The "Three Hole per Step" Technique

If a transceiver search is unsuccessful set up a probe line. Establish the most likely area of burial.


Line up searchers in a straight line, spaced approximately 1.5 metres apart.

Probe three times, once in front of the sternum, then left and right about 50 cm on either side.

Take one step forward (~70cm) and repeat the process.



Shovel Technique



Multiple Hazards

Revised: 12/2023

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6.1.5 Tornado

While tornadoes are uncommon to the Puget Sound geographic region there is always a potential that tornadic activity could develop and negatively impact operations and personnel.

Tornadoes are defined as a violently rotating column of air which is in contact with the ground. They often develop during severe thunderstorms with frequent thunder and lightning. Tornadoes usually hit in the afternoon and early evening, but have been known to strike at night as well.

Trans Mountain personnel should be aware of the potential signs of an incoming tornado. These may include;

- An extremely dark sky, sometimes highlighted by green or yellow clouds
- A rumbling sound or a whistling sound
- A funnel cloud at the rear base of a thundercloud, often behind a curtain of heavy rain or hail

In the United States, the National Weather Service is responsible for warning the public when conditions exist that may produce tornadoes.

It is important to know the difference between a Tornado Watch and a Tornado Warning.

Tornado Watch – A tornado formation is likely in the area

Tornado Warning – A tornado has been sighted or seen on radar

6.1.5.1 Tornado Response Checklist

Before the Storm

- Notify Supervisor if you see tornado approaching
- Seek shelter, preferably in a basement of a strong building. Stay away from windows. If there is no basement take cover under heavy furniture in the center part of the building.
- If caught in open country move away from the tornado's path at a right angle. If you cannot escape lie flat in the nearest depression such as a ditch or ravine. Cover your head to protect yourself from flying debris.
- If possible, continuously monitor the radio and/or television for information updates.

After the Storm

<input type="checkbox"/>	Before moving out from cover survey the local area for any hazards that may have developed as a result of the tornado. Take caution against down power lines, fallen debris including broken glass, fires and potential flooding
<input type="checkbox"/>	Provide first aid to anyone injured
<input type="checkbox"/>	Notify your supervisor and Edmonton Control Centre of the situation status including injuries and infrastructure damage.
<input type="checkbox"/>	If damage has occurred to Trans Mountain infrastructure such as the pipeline follow the Emergency Response Plan Section 3.0 Spill/Site Assessment

6.2 Seasonal Response Hazards

As response to pipeline and facility emergencies may occur at any time of year there is a possibility that personnel may be required to respond during adverse weather conditions. Given the location of TMPL and its related facilities, responders may face conditions ranging from high heat to extreme cold, blizzard like conditions. It is imperative that responders take weather conditions into consideration as part of their overall response planning. Responders themselves must be aware of their own personal health at all times if effective operations are to be conducted. Ensuring a thorough Hazard Assessment/Tailgate Meeting is completed and a Safety Watch is appointed prior to operations cannot be overstated.

6.2.1 Winter Response Considerations

During a winter response personnel must consider the impacts that wind-chill and cold temperatures may have on responder health. Winter hazards that should be considered as part of the Health and Safety Plan include;

- **Hypothermia** – when the body loses heat faster than it can be produced leading to a reduced overall body temperature. Characterized by shivering, clumsiness and/or confusion.
- **Frostbite** – a freezing of the skin and underlying tissue leading to numbness, hard, red and/or pale skin.
- **Visibility during blizzards**, especially when driving and operating equipment
- Warm-up areas, including tents and vehicles, should be available and on-site in order to provide responders with a place to take breaks and effectively recover.

6.2.2 Responding on Ice Covered Waterbody

If response operations occur on an ice covered waterbody additional precautions must be undertaken.

Before an ice surface can be worked on or crossed it must be checked and evaluated for a safe load-carrying capacity for the equipment, people or vehicles going onto the surface. A thorough safety evaluation must be completed and an Ice Safety Plan developed and shared with all workers expected to be working near or on any ice covered waterbody. Rescue equipment with trained personnel should be available and on standby in the event that they are needed.

The Ice Safety Plan should include a list of communication and response activities to be undertaken in the event of a breakthrough. A list of resources should be outlined and confirmed prior to any on-ice work commencing.

6.2.3 Summer Response Considerations

During the summer months personnel must be aware of the impact that heat and/or humidity will have on overall health. Summer related hazards that should be considered as part of the Health and Safety Plan include;

- **Heat Exhaustion** - a condition that occurs when the body is overheated and dehydrated. Symptoms associated with this illness may include heavy sweating, dizziness and fainting
- **Heat Stroke** – occurs when the body is overheated, at or above 104 F (40 C), due to prolonged heat exposure. Is considered a medical emergency requiring immediate treatment in order to prevent permanent physical damage
- **Biological hazards** – a review of potentially hazardous wildlife (insects, mammals) and plants (poisonous weeds) should be completed with responders as part of the pre-job Tailgate Meeting
- Shaded areas with adequate rehab supplies, including water, should be established on-site in order to provide responders with an area to rest and recover during break periods

6.3 Fire Hazards

Fire Hazards, other than wildfire, which could impact operations may be grouped into three main categories;

- Terminal and Tank Farm fires
- Pump Station fires
- Pipeline Right-of-Way fires

In general there are three classes of fire that Trans Mountain responders should be familiar with. These classifications stem from the type of fuel that ignited and maintains the fire. The following descriptions provide a brief overview of these classes.

- **Class A Fires** - Consist of ordinary combustibles such as wood, paper, trash or anything else that leaves an ash. Water works best to extinguish a Class A fire.
- **Class B Fires** - Are fueled by flammable or combustible liquids, which include oil, gasoline, and other similar materials. Class B fires often spread rapidly and, unless properly secured, can re-flash after the flames are extinguished. Smothering effects which deplete the oxygen supply work best to extinguish Class B fires.
- **Class C Fires** - Energized electrical fires are known as Class C fires. Always de-energize the circuit then use a non-conductive extinguishing agent, such as Carbon dioxide. They can be caused by a spark, power surge or short circuit and typically occur in locations that are difficult to reach and see.

In the event of a fire originating from a Trans Mountain facility priority must be given to life safety. Notification and evacuation of the hazard area are the primary means of initial response. Once personnel are accounted for the On-Scene Commander may determine response options including offensive, defensive or non-intervention strategies.

6.3.1 Terminal/Tank Farm Fires

Strategies and tactics to be utilized when responding to a Terminal and/or Tank Farm fire are specifically outlined in their corresponding facility **Fire Pre-Plan**. Fire Pre-Plans provide initial responders with immediate response options including defensive and offensive firefighting tactics. The plans incorporate fire calculations for necessary amounts of water, foam concentrate and pumping capacities needed to extinguish rim seal, full surface and containment bay fires. They also include strategies for the extinguishment of three dimensional fires that may occur at valve and/or manifold locations.

In addition to Fire-Pre Plans all Terminals and Tank Farms have Fire Safety Plans which provide information regarding building evacuation procedures, evacuation routes, on-site fire equipment and fire prevention practices. For additional information refer to the specific facility Fire Safety Plan.

6.3.2 Pump Station Fires

Pump Station fires may originate from a variety of ignition sources including faulty electrical wiring, overheated materials such as flammable liquids, and lightning.

Prevention is the best method for avoiding pump station fires. Prevention activities can include;

- monitoring the accumulation of flammable and combustible waste and residues that contribute to fires
- ensuring that general equipment maintenance procedures are followed
- all flammable liquids are stored properly
- proper hot work permitting is issued
- appropriate level of fire detection and extinguishment systems and resources are available on-site (i.e. fire extinguishers)

6.3.2.1 Pump Station Fire Response Checklist

- Once fire is confirmed sound fire alarm to alert all on-site staff and contractors
- Following designated evacuation routes as outlined in the facility *Fire Safety Plan* and proceed to the designated muster station. Conduct head count.
- Call 911 or the local fire department
- Notify the Edmonton Control Centre in order to issue TAS
- Shutoff or isolate fuel sources feeding the fire if this can be done safely
- Provide first aid to any personnel who may be injured or require assistance
- For small fires consider an offensive attack utilizing handheld fire extinguishers (ABC and/or CO₂) and wheeled dry chemical extinguishers
- If the fire grows in size or if extinguishment cannot be safely achieved utilize and defensive strategy and retreat from the area
- Coordinate response with local fire
- Monitor weather conditions, including wind direction, as excessive smoke may impact members of the public

6.3.3 Right-of-Way Pipeline Fires

Right-of-way fires typically originate from failed piping/flanged connections causing a release of product into the ground with possible surface pooling. In order for a right-of way- fire to occur the released products vapors must reach a source of ignition, such as from equipment, machinery and/or vehicles near right-of-way.

Prevention is the best method for avoiding right-of-way fires. Prevention activities include;

- 24/7 monitoring of pipeline operations via SCADA system
- Aerial patrols of right of way looking for signs of
 - Vehicles/machinery on right of way
 - Discolored vegetation
 - Melted snow
- Local visual inspections from operators
- In depth maintenance/integrity program

6.3.3.1 Right-of-Way Pipeline Fire Response Checklist

- Once fire is confirmed muster any personnel in area upwind of incident
- Call 911 or local Fire Department
- Notify control center in order to issue TAS
- Shut off or isolate fuel source feeding fire if this can be done safely
- Refer to the *Right-of-Way Fire Emergency Response Plan Supplement* for a list of strategies and tactics
- For small fires consider an offensive attack utilizing handheld fire extinguishers (ABC)
- If fire grows in size or if extinguishment cannot be safely achieved utilize a defensive strategy and retreat from area
- If fire impacts adjacent wildland, follow the *Wildfire Emergency Response Plan Supplement* and ensure the appropriate Provincial Wildfire Agency is notified
- Coordinate response with local Fire Department
- Monitor weather conditions, including wind direction, as excessive smoke may impact members of the public

6.3.4 Vehicle Fires

Most vehicle fires are a result of malfunctioning electrical components, fuel lines or a fuel pipe splitting. In the case that Trans Mountain personnel are in a vehicle and begin to see smoke or smell burning material they should safely pull over and shut off the vehicle. Shutting off the engine will stop the flow of fuel and may prevent a full-blown fire. It is critical for the driver and other personnel to ensure they immediately exit the vehicle, and if safe, move off the road in order to reduce the likelihood of secondary accidents.

- For small fires only (passenger section, electrical fault, fires contained to contents of cargo space or trunk) use a vehicle ABC type fire extinguisher, if it is safe to do so.
- For large fires or fires involving fuel or storage tanks on the vehicle, evacuate the area by at least 25 meters and call for assistance from emergency responders. Once in a safe area you should stand by, assess the situation, and wait for assistance from emergency responders.

6.3.4.1 Vehicle Fire Response Checklist

- If smoke or flames are detected from an operating vehicle, safely pull to the side of the road and exit the vehicle.
- Move away from the vehicle and call 911 for any large or out of control fire
- If the fire is small in size attempt extinguishment with vehicle fire extinguisher if it is safe to do so
- Notify your supervisor and the Edmonton Control Centre

6.4 Security Hazards

Security hazards present themselves in a variety of ways including, terrorism, breach of security events and vandalism. Often the main objective of these actions is to halt or disrupt normal operations. For these reasons Trans Mountain has established robust security protocols for Trans Mountain and its related facilities. Security protocols and response actions are further supported by an active Security Management Program. The Security Management Program focuses on direct and/or impending threats to ongoing operations and in most instances resolves issues without concern. However in the event that a substantial security incident results in an impact to operations there is a strong likelihood that the Incident Management Team and Emergency Response Plans are activated. For these reasons a brief overview of common security hazards and response actions are outlined in the following subsections.

6.4.1 Terrorism

Terrorism is used to intimidate, coerce or attain ransom through the use of violence and/ or threats against persons (employees, general public, governing bodies, etc.) or property (pipeline, facilities, equipment, etc.). Violence is not the main goal of terrorism but a means to draw the attention of the local public, the government and the world to their cause.

The main reasons terrorist groups commit acts of violence to:

- Satisfy vengeance
- Create a desired influence on Governing bodies decisions, legislations or other crucial decisions
- Attract media attention in order to acquire worldwide, national or local recognition for their cause
- Discourage foreign investment, tourism or assistance programs that may affect the target country's economy
- Produce widespread fear of society
- Destroy key infrastructure and facilities that will disturb lines of communication and create societal uncertainty about the Government's ability to protect and provide for its citizens

6.4.1.1 Terrorism Response Checklist

If you experience or witness a direct, credible threat to Trans Mountain personnel or property;

- Call 911 immediately to report the situation
- If possible evacuate the site and move to a secure location
- If unable to leave the facility/building choose a safe location such as an office to hide. Lock and/or barricade yourself in a secure room if possible.
- Notify your supervisor and the Edmonton Control Centre as soon as safely possible

6.4.2 Breach of Security or Vandalism

In the event that a Trans Mountain employee or contractor arrives at a company owned site and notices suspicious and/or unusual activity, including property damage they should contact local police/security and the Edmonton Control Centre before proceeding to investigate.

Other unusual activity may include;

- The presence of drones flying overhead or hovering around the incident site
- Media representatives or unidentified individuals using cameras, cell phones, video recorders or any other devices to document the incident site

- Fixed wing aircraft or helicopters exhibiting behaviour indicating their presence is related to the incident

6.4.2.1 Breach of Security or Vandalism Checklist

- Notify the Control Centre immediately of any of the following in the vicinity of an active Trans Mountain site; provide details to the Control Centre Operator:
 - Suspicious individuals
 - Suspicious vehicles parked at, or near, the incident site
 - Suspicious packages located at, or near, the incident site
 - Signs of unauthorized access including vandalism or breach of security
- If the situation is judged to be **UNSAFE** in any way:
 - Withdraw to what is judged to be a safe distance
 - Immediately contact Police (911)
 - Do not engage any individuals in any way
 - Await the arrival of the Police at the incident site
- If the situation is considered **SAFE**:
 - Request that Police (911) be called to the site
 - Try to preserve any possible evidence found which may indicate malicious activity
 - Notify Trans Mountain Security Manager
- Remain on-site to serve as a point of contact for the authorities.
- Be available as a liaison between Company Management and the local authorities.
- Inventory damages/ property loss and estimate cost of repair or replacement.
- Make notes of evidence obtained.
- Obtain duplicate photos taken during the investigation.
- Evaluate the necessity of security personnel during non-business hours

6.4.3 Bomb Threat

A bomb threat or threat of any other nature may be received by anyone in Trans Mountain. In most cases, persons making such threats will deliver their message by phone to the first person contacted and will not wait for the call to be transferred. Consequently, it is important that a call of this nature be handled in accordance with an established plan.

6.4.4 Bomb Threat Checklist

All threats must be taken seriously.

- If threat is received by telephone, record the following information:
 - Exact wording
 - Time call was received
 - Record callers phone number if available on call display
 - Time the device or bomb is set to go off
 - Sex of caller
 - Age (young, old, teen)
 - Accent
 - Background noise (music, traffic, etc.)
- If the caller remains on the line, attempt to ascertain the following information:
 - Exact location of the bomb or nature of any other threat
 - When it is set to go off?
 - The kind and size of bomb?
 - Why it was put there?
 - How did it get into the facility?
- While the caller is on the line, attempt to locate your supervisor to listen in on the call.
- If the threat is received by email, do not delete, and contact management immediately
If threat is received by mail:
 - Do not handle it unnecessarily
 - Place it in a plastic cover immediately
- After call is over, or email/mail received contact your supervisor, and VP Operations or designate to determine further actions i.e. tank farm shut down and evacuation

7.0 SITE INFORMATION

7.1 Pipeline Overview Map



7.2 Puget Sound Area Description

The Trans Mountain mainline system from Edmonton to Burnaby transports crude petroleum, refined and semi-refined products together in the same line using a process called batching. The system goes through Kamloops Station which receives crude oil and refined products for shipment to the west coast. The Puget Sound Pipeline system connects with the Trans Mountain mainline system at Sumas, BC on the Canada/USA International Boundary. It delivers Canadian crude oil to four refineries at Ferndale and Anacortes on the west coast of Washington State. Laurel station has two breakout tanks that are used to temporarily store oil while awaiting delivery at refineries in Ferndale and Anacortes.

The geographic area covered by this Oil Spill Contingency Plan extends from the international boundary with Canada near Sumas to Ferndale and Anacortes in northwest Washington State. The land use around the pipeline varies between forested areas, urban areas and agricultural land use.

Spills entering water bodies, with the exception of the Sumas River, flow towards the sea between Lummi Bay and Padilla Bay, including Bellingham Bay, Samish Bay and shorelines in between these coastal areas. Offsite migration of land spills from the pipeline system that does not enter water bodies are likely to be confined to the pipeline right-of-way or immediately adjacent areas. Spills entering the Sumas River flow north into Canada, eventually entering the Fraser River.

The pipeline system facilities include:

- Laurel Station
- Ferndale Meter Station
- Burlington Scraper Trap
- Anacortes Meter Station
- NPS 20 (inch) pipeline from the Canada/ U.S. Border (Mile 5.5) approximately 3 miles east of Sumas, Washington to the Burlington Scraper Trap near Burlington (Mile 48).
- NPS 16 (inch) branch pipeline from the Laurel Station (Mile 20.6) approximately 12 miles to the Ferndale Meter Station adjacent to the ConocoPhillips refinery at Neptune Beach near Ferndale. There is also a connection to the refinery at Cherry Point via a delivery pipeline owned by BP.
- NPS 16 (inch) pipeline connected to the NPS 20 pipeline at the Burlington Scraper Trap, approximately 9 miles to the Anacortes Meter Station adjacent to the Shell and Tesoro Refineries on March Point near Anacortes, Washington.

7.3 Owner/Operator Information

Owner	Trans Mountain Pipeline (Puget Sound) LLC #2700, 300-5th Avenue S.W. Calgary, AB T2P 5J2	
Operator	Trans Mountain Pipeline (Puget Sound) LLC. #2700, 300-5th Avenue S.W. Calgary, AB T2P 5J2	
Zone Name	Puget Sound	
Zone Mailing Address	1009 East Smith Road Bellingham, WA 98226	
24 Hr. Zone Telephone/FAX	Phone:360-319-0800 Fax: 360-398-7432	
Qualified Individuals	Todd Pleadwell Justin Odens Jeremy Wilson Terry Tate Bob Gallagher	
Start of Operations	The Puget Sound Pipeline has been in operation since 1956.	
Response Zones Consists of the Following Counties	Whatcom and Skagit (Washington)	
Alignment Maps, etc.	Maintained at: Calgary Head Office, in the Drafting Department	
Statement of Significant and Substantial Harm	The response zones in this system all contain pipelines greater than 6 5/8 inches and are longer than ten miles. At least one section of pipeline in each response zone crosses a major waterway or comes within five miles of a public drinking water intake. Therefore, in accordance with 49 CFR 194.103(c), each entire response zone described in this Plan will be treated as if expected to cause significant and substantial harm.	
Worst case discharge	Varies based on response zone, see Section 7.5.	
PHMSA #	587	
Facilities		
Border Scraper Trap	48.00269°N/-122.22608°W	n/a
Laurel Station	48.831906°N/-122.436078°W	(360) 398-1541
Ferndale Meter Station	48.83153°N/-122.68175°W	(360) 380-1945
Burlington Scraper Trap	48.46725°N/-122.39567°W	(360) 757-1384
Anacortes Meter Station	48.47855°N/-122.55930°W	(360) 293-6323

7.4 Response Zones

Zone	Description	Worst Case Discharge (bbl.)
1	Sumas Station to Laurel Station	10,892
2	Laurel Station to Burlington	12,305
3	Burlington to Anacortes	6,143
4	Laurel Station to Ferndale	10,500
5	Laurel Station	89,455

7.5 Trans Mountain Tank Data

Location	Description	Capacity (US Gallons)	Capacity (barrels)
Ferndale Relief Tank (130)	1x Relief Tank	126,000	3000
Laurel Relief Tank (120)	1x Relief Tank	126,000	3000
Laurel Tank 170	Breakout Tank	3,757,110	89,455
Laurel Tank 180	Breakout Tank	3,716,244	85,482

7.6 Trans Mountain Products Summary

Trans Mountain handles products, which, based on their physical and chemical properties, and/or the properties of the water bodies they may spill into, have the potential to sink or submerge. Refer to the below Table for a complete product list with potential non-floating oils identified.

Product Name	Product Identifier	Vapor Density	Specific Gravity	API	Oil Group Number	Total Sulfur (wt.%)
SUPER LIGHTS						
Caroline Condensate	CCA	>1	0.75	56.0	2	0.49
Fort Sask Condensate	FSC	>1	0.68	76.7	2	0.06
Rangeland Condensate	CRL	>1	0.74	59.9	2	0.35
Premium Gasoline	G91	>1	0.70	70.9	2	0.02
Pembina Condensate	CPM	>1	0.76	54.5	2	0.16
Peace River Condensate	PCON	>1	0.75	57.3	2	0.15
LIGHTS						
BC Light Crude*	BCL	>1	0.83	39.8	2	0.60
Boundary Lake Crude*	BLK	>1	0.84	36.1	2	0.83
Bonnie Glen Crude*	BOG	>1	0.82	41.3	2	0.41
Bonnie Glen Sour Crude*	BGS	>1	0.88	29.3	3	1.22
Horizon Synthetic*	CNS	>1	0.85	34.4	3	0.08
Central Alberta KOC*	KOC	>1	0.85	35.4	3	1.07
Light Sour Oil*	LSO	>1	0.83	39.4	2	0.76
Suncor Synthetic A*	OSA	>1	0.86	32.7	3	0.20
Suncor Synthetic C*	OSC	>1	0.88	30.0	3	0.22
Premium Albion Synthetic*	PAS	>1	0.86	33.1	3	0.10
Peace River Crude*	PCR	>1	0.83	39.8	2	0.54
Peace River Sour*	PCSR	>1	0.87	31.8	3	2.59
Pembina Crude*	PEM	>1	0.83	38.9	2	0.43
Pembina North*	PNC	>1	0.83	40.0	2	0.45
Premium Synthetic*	PSC	>1	0.84	37.0	2	0.08
Rainbow Crude*	RBW	>1	0.84	37.8	2	0.49
Mixed Sweet Blend*	SW	>1	0.84	37.6	2	0.47
Shell Synthetic Light*	SSX	>1	0.87	31.6	3	0.22
Syncrude*	SYN	>1	0.86	32.4	3	0.18
MEDIUM						
Strathcona Special Stream*	SSS	>1	0.90	26.0	3	1.08
HEAVY						
Suncor Synthetic PTCN*	OSP	>1	0.91	23.8	3	3.26
Suncor Synthetic*	OSS	>1	0.91	24.0	3	2.83
SUPER HEAVY						
Albian Residual Blend*	ARB	>1	0.93	20.5	3	2.70
Albian Heavy Synthetic*	AHS	>1	0.94	19.6	3	2.47
Albian Muskeg Heavy*	AMH	>1	0.93	20.7	3	3.95

Product Name	Product Identifier	Vapor Density	Specific Gravity	API	Oil Group Number	Total Sulfur (wt.%)
Albian Vacuum Gas Oil*	AVB	>1	0.92	22.3	3	3.16
Access Western Blend*	AWB	>1	0.92	22.6	3	3.82
Borealis Heavy Blend*	BHB	>1	0.92	22.0	3	3.60
Cold Lake Blend*	CL	>1	0.93	21.4	3	3.72
Kearl*	KRL	>1	0.91	23.7	3	3.29
McKay Heavy*	MKH	>1	0.93	21.0	3	2.60
Oil Sands Q*	OSQ	>1	0.92	22.3	3	3.90
Long Lake Heavy*	PSH	>1	0.93	20.4	3	3.22
Peace Heavy*	PH	>1	0.93	21.3	3	5.11
Seal Heavy*	SH	>1	0.93	20.5	3	4.79
Statoil Cheecham Blend*	SCB	>1	0.93	20.5	3	3.83
Statoil Cheecham Syn-Bit*	SCS	>1	0.94	19.0	3	2.86
Statoil Cheecham Mixed Blend*	SCM	>1	0.94	19.8	3	3.3
Suncor Synthetic H*	OSH	>1	0.94	19.8	3	3.09
Surmont Heavy*	SHB	>1	0.94	19.7	3	2.97
Wabasca Crude*	WH	>1	0.93	21.2	3	4.02

*Products with the potential to become non-floating oils per WAC 173 -182-030(31)

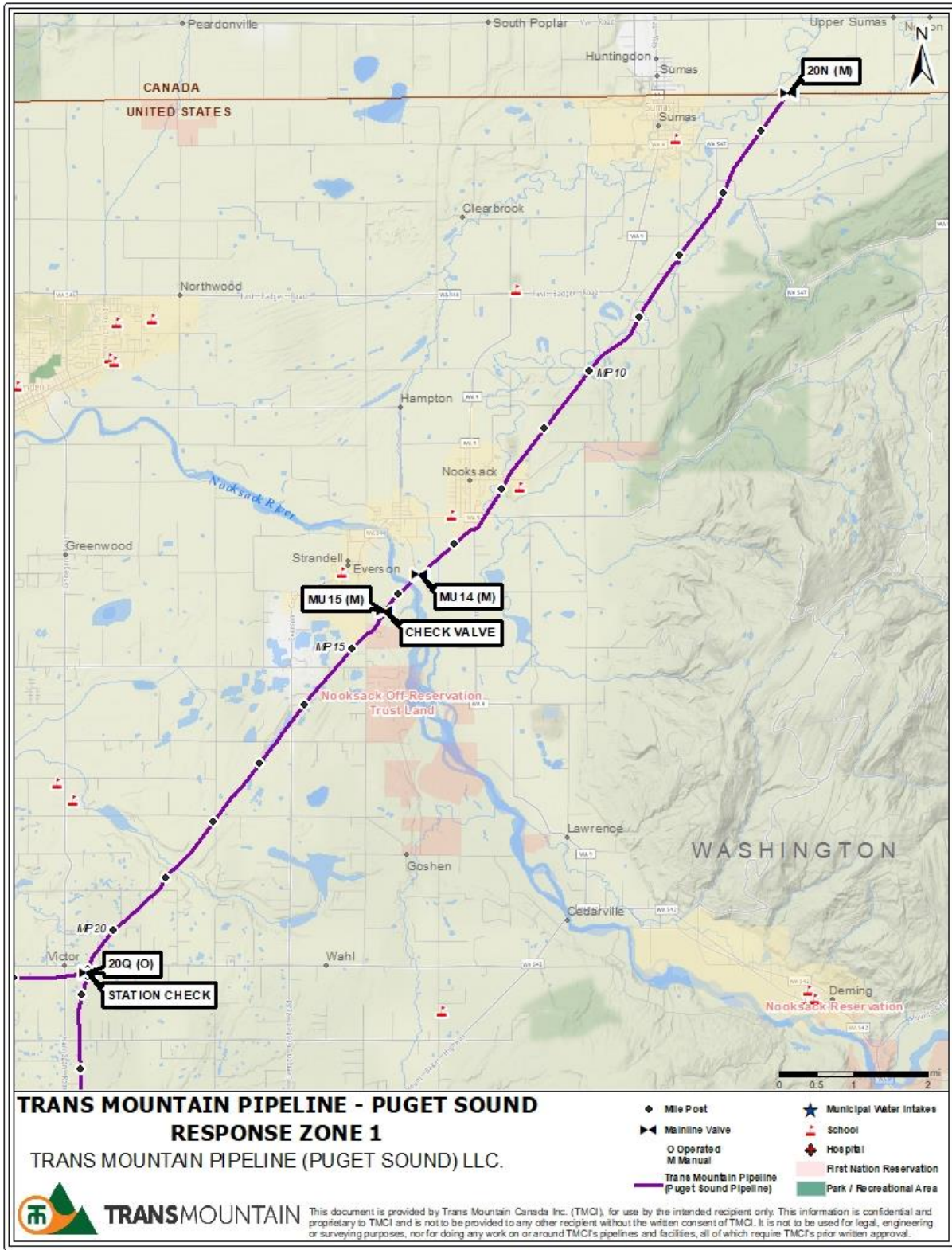
7.7 Response Zone Descriptions, Maps and Site Plans

7.7.1 Zone 1 -Sumas to Laurel Station

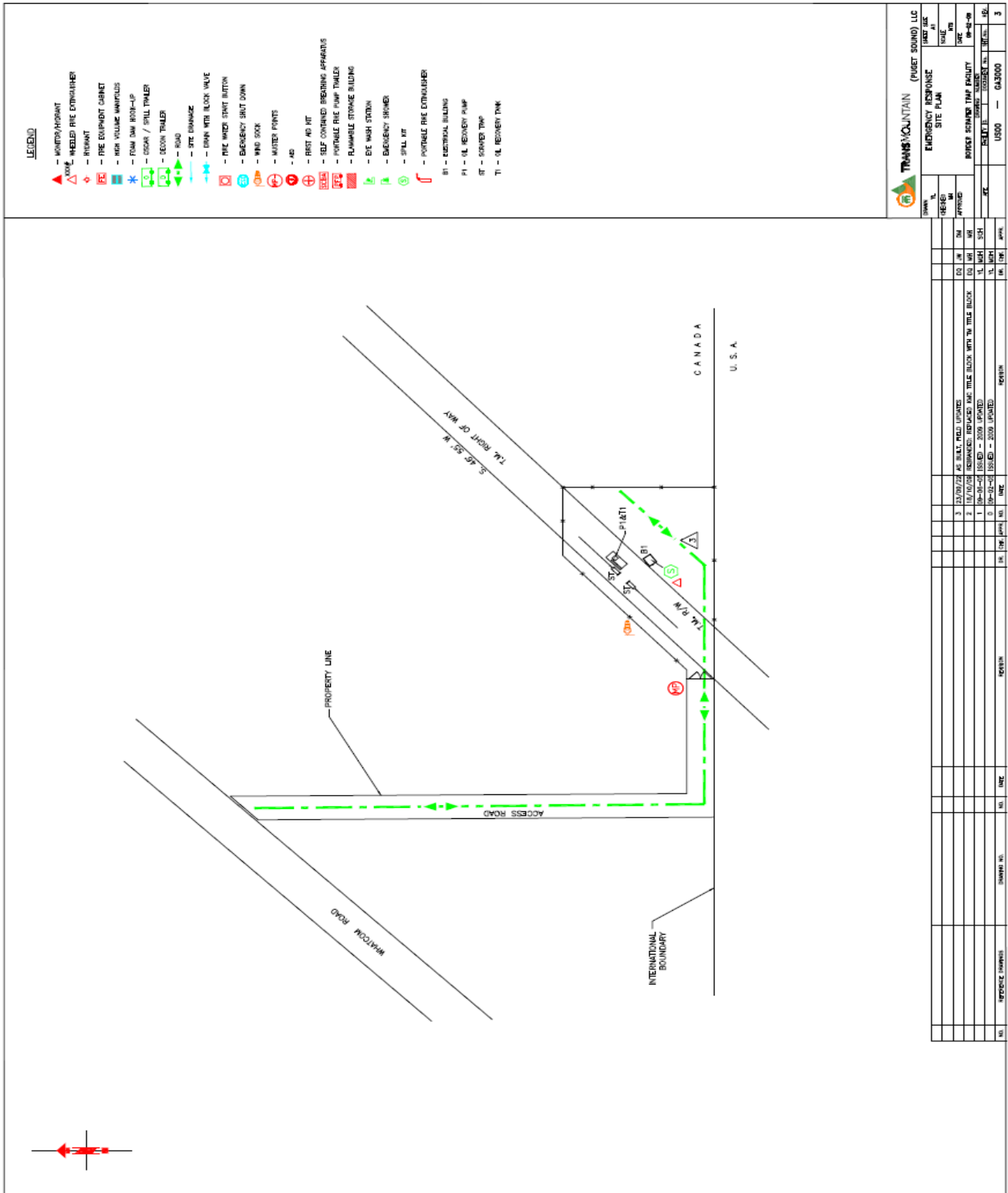
Sumas District, which includes the Border Scraper Trap, is located on the Canadian side of the USA/Canada border. The surrounding topography is primarily flat agricultural land. This location has pig loading/unloading facilities. Water is controlled on-site via surface drainage and ditches. If a spill were to occur at the Border Scraper Trap (Sumas) it would likely be very small in size and is not likely to leave the site. Using spill modeling and trajectory analysis any oil migrating off-site from Sumas is most likely to remain on land in the immediate vicinity of the site, within Canada.

The pipeline segment from Sumas to Laurel station is approximately 15.39 miles long and is a 20" diameter pipeline. The worst case spill volume for this segment of line is 10,892 bbl. The land surrounding the section of pipeline is mostly flat agricultural lands less than 100 ft above sea level. The segment of pipeline is within Whatcom County. There are two vales which can be closed remotely, one is north of the Nooksack River and the second is south of the Nooksack River. The 48 hour spill model indicates that the majority of this section will be contained to the pipeline right of way or immediately adjacent, however there are several stream crossings in this section of the pipeline. A spill into the Sumas River would be expected to cross the border into Canada within 48 hours, likewise a spill to the Nooksack River, Tennille Creek, Deer Creek and any of the tributaries/ditches that empty into those bodies of water would be expected to reach Bellingham Bay within 48 hours.

7.7.1.1 Response Zone 1 – Relief map



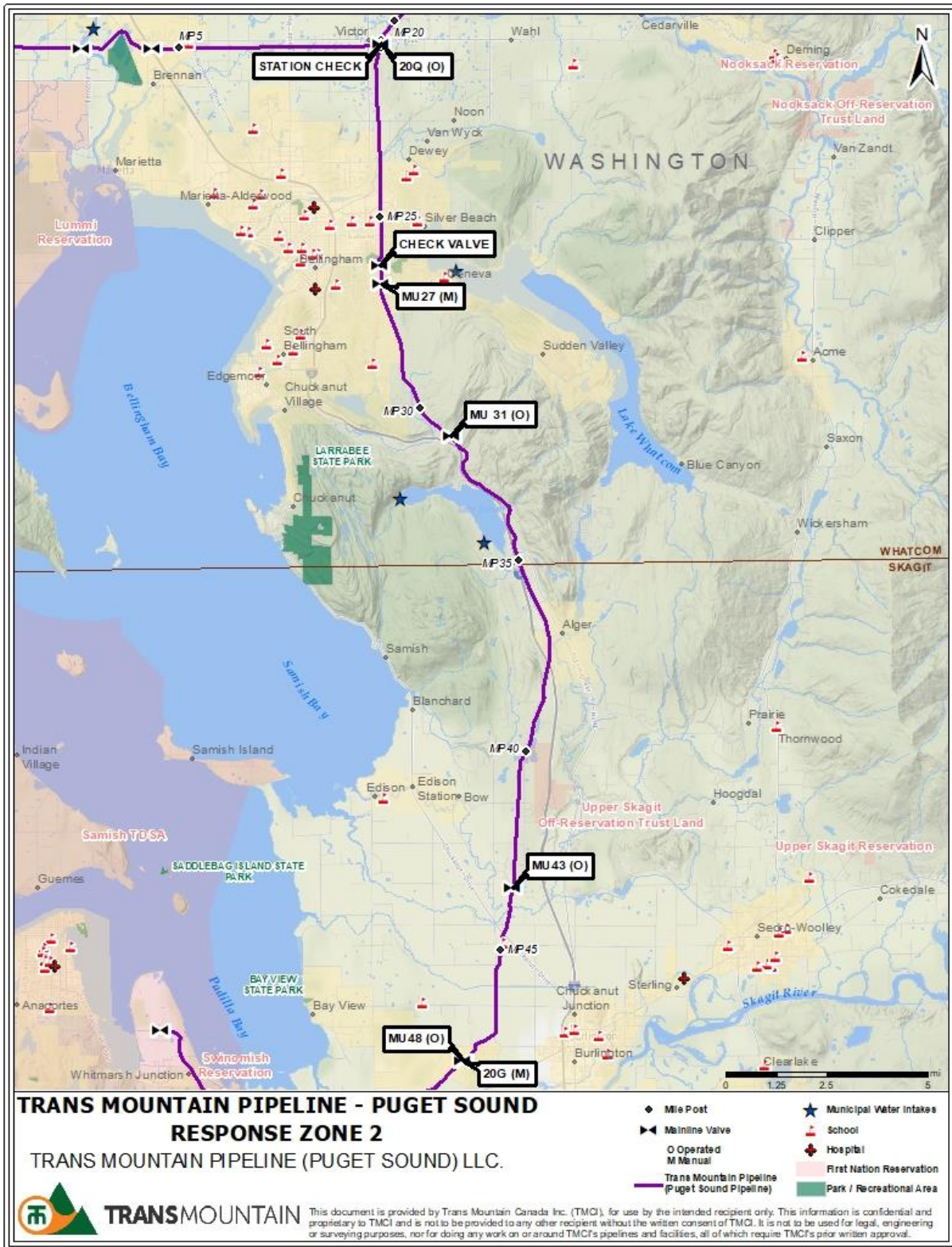
7.7.1.2 Border Scraper Trap – Site Plan



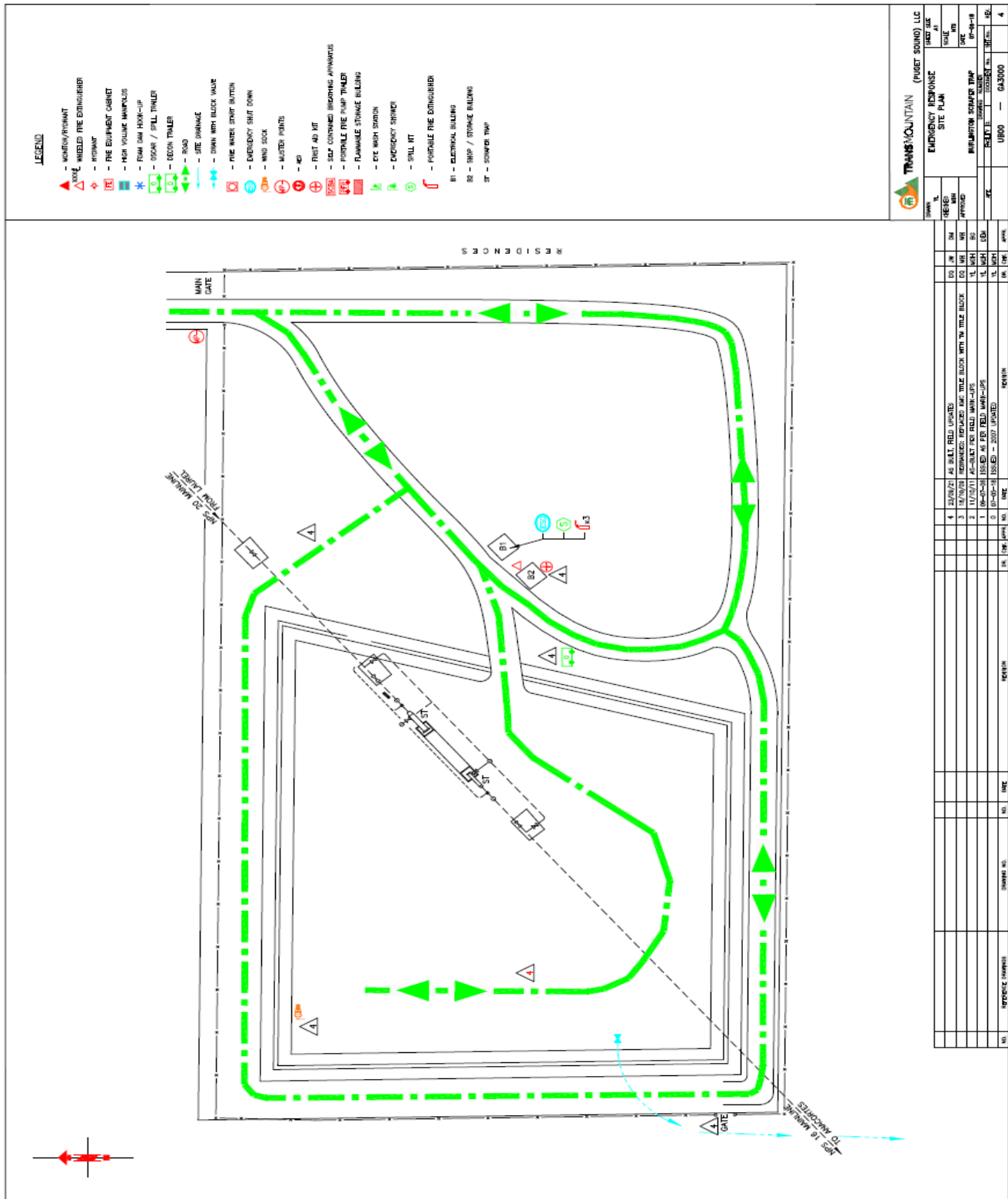
7.7.2 Zone 2 – Laurel Station to Burlington

The pipeline segment from Laurel Station to the Burlington Scraper Trap is approximately 27.63 miles long and is a 20" diameter pipeline. The worst case spill volume for this segment of line is 12,305 bbl. The land surrounding the section of pipeline varies from flat agriculture near Laurel Station to steep hillsides from 100 to 300 ft above sea level back to flat agricultural use land and near sea level at the Burlington Scrap. The pipeline also passes through Bellingham, and densely populated rural areas, Whatcom County and Skagit County. There one check valve, and one manual block valve near mile 27. The 48 hour spill model indicates that a spill in several sections of pipe will be contained to the pipeline right of way or immediately adjacent, however there are several stream crossings along this route. A spill into Squalicum Creek, Whatcom Creek, or one of the many tributaries, ditches, and Bellingham storm water system would be expected to reach Bellingham Bay within 48 hours. Spills to Chuckanut Creek its tributaries, drainage ditches or storm water drains would be expected to reach Chuckanut Bay within 48 hours. Spills between MP31 and 35 would be expected to enter Lake Samish within 48 hours. Spills entering Friday Creek, Samish River, Joe Leary Slough, any of the tributaries, drainage ditches or storm water systems would also be expected to reach Samish Bay and/or Padilla Bay within 48 hours. The surface water flow direction for the Burlington Scraper Trap can be viewed on the Burlington Scraper Trap Site Plan

7.7.2.1 Response Zone 2 – Relief Map



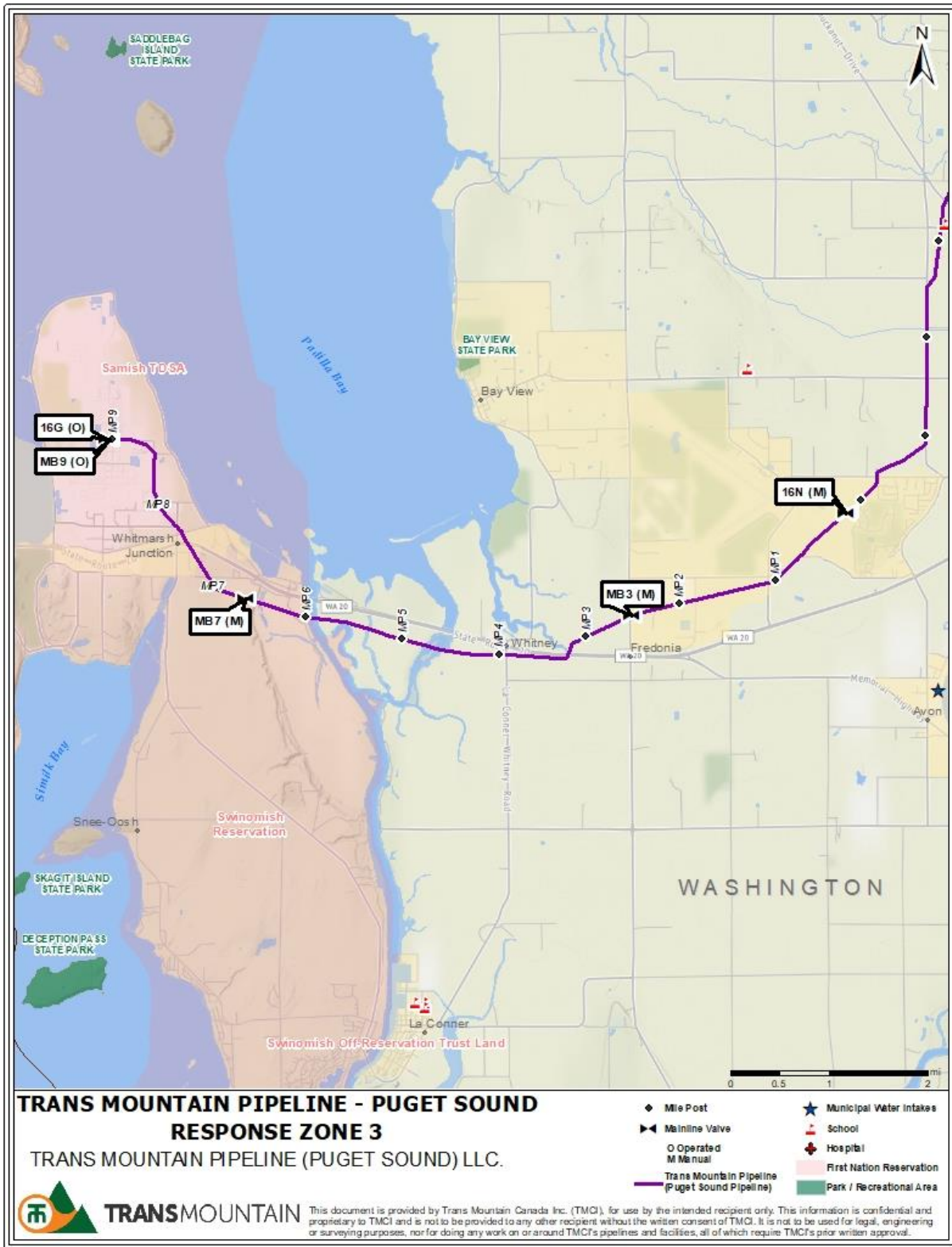
7.7.2.2 Burlington Scrapper Trap – Site Plan



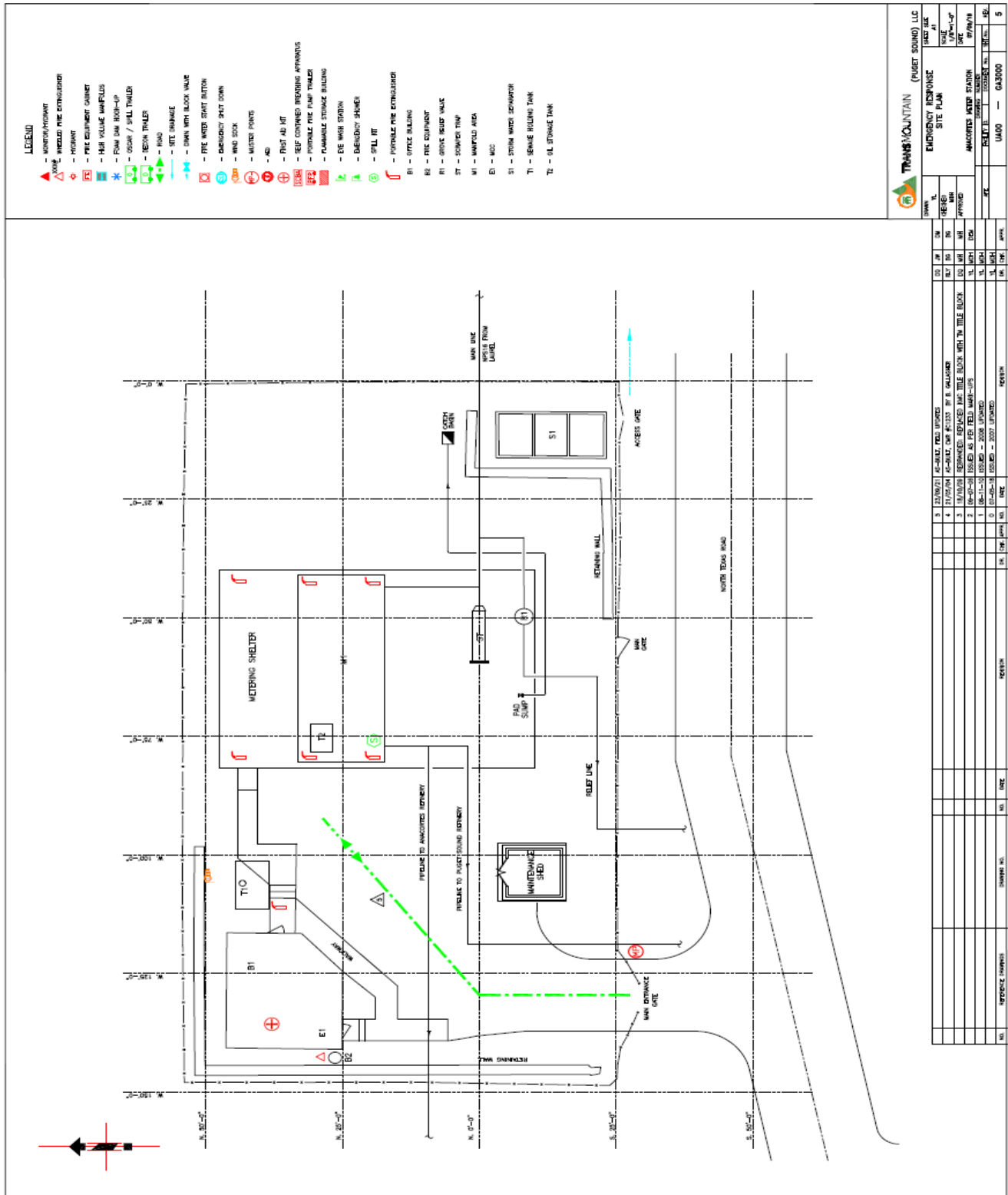
7.7.3 Zone 3 – Burlington Scraper Trap to Anacortes Meter Station

The pipeline segment from the Burlington Scraper Trap to the Anacortes Meter Station is approximately 9.09 miles long and is a 16" diameter pipeline. The worst case spill volume for this segment of line is 6,143 bbl. The land surrounding the section of pipeline is mostly flat agriculture with some steep hillsides less than 100 ft above sea level. This portion of pipeline is in Skagit County. There are two manual block valves near mile 3 and 7. The 48 hour spill model indicates that a spill in several sections of pipe will be contained to the pipeline right of way or immediately adjacent, however there are several stream crossings along this route and a spill into any of the creeks, or one of the many tributaries or storm water ditches would be expected to reach Padilla Bay within 48 hours. Additionally if a spill were to occur between mile 4 and 7 it would likely enter the Swinomish Chanel, Skagit Bay and Padilla Bay within 48 hours. The surface water flow direction for the Anacortes Meter Station can be viewed on the Anacortes Meter Station Site Plan.

7.7.3.1 Response Zone 3 – Relief Map



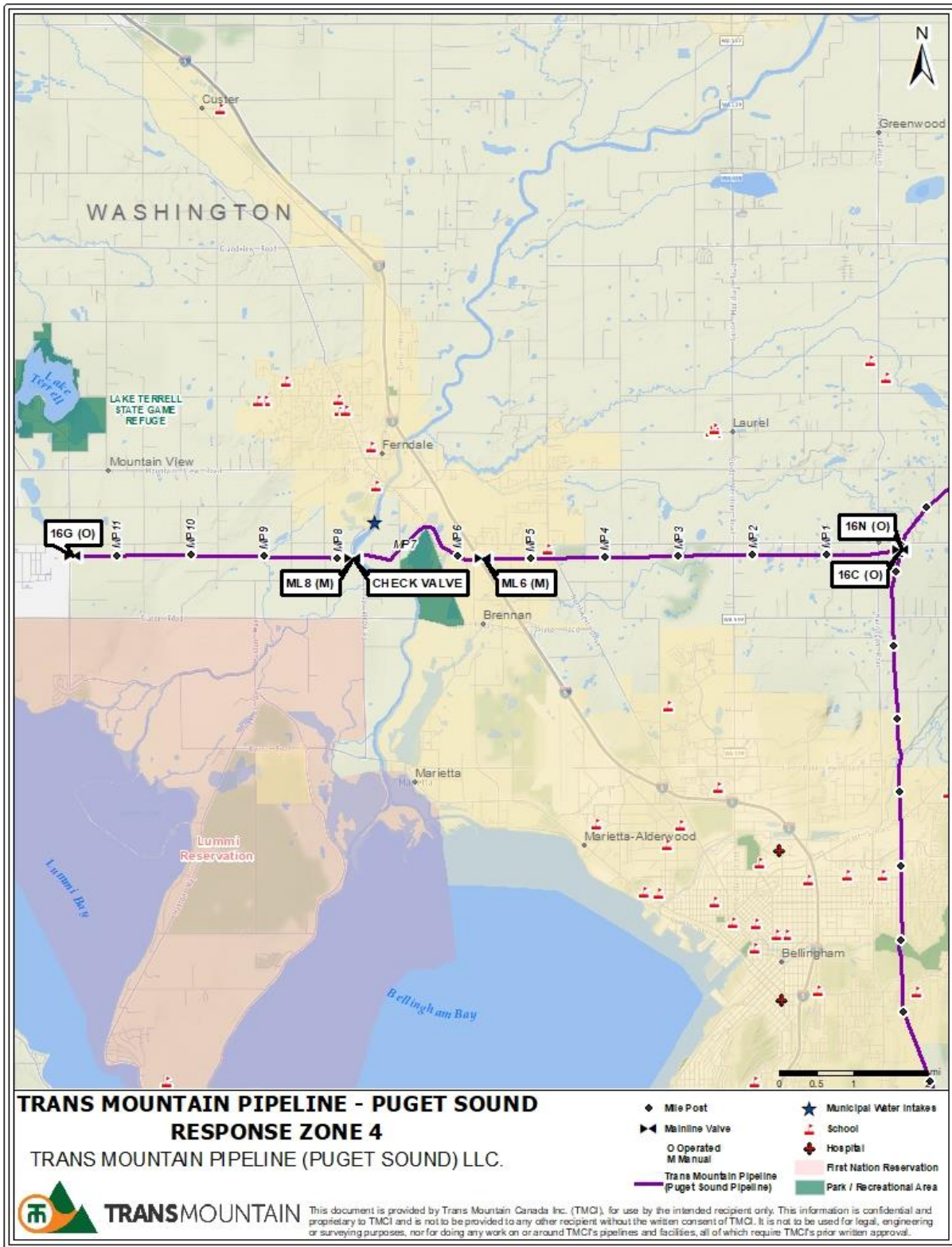
7.7.3.2 Anacortes Meter Station – Site Plan



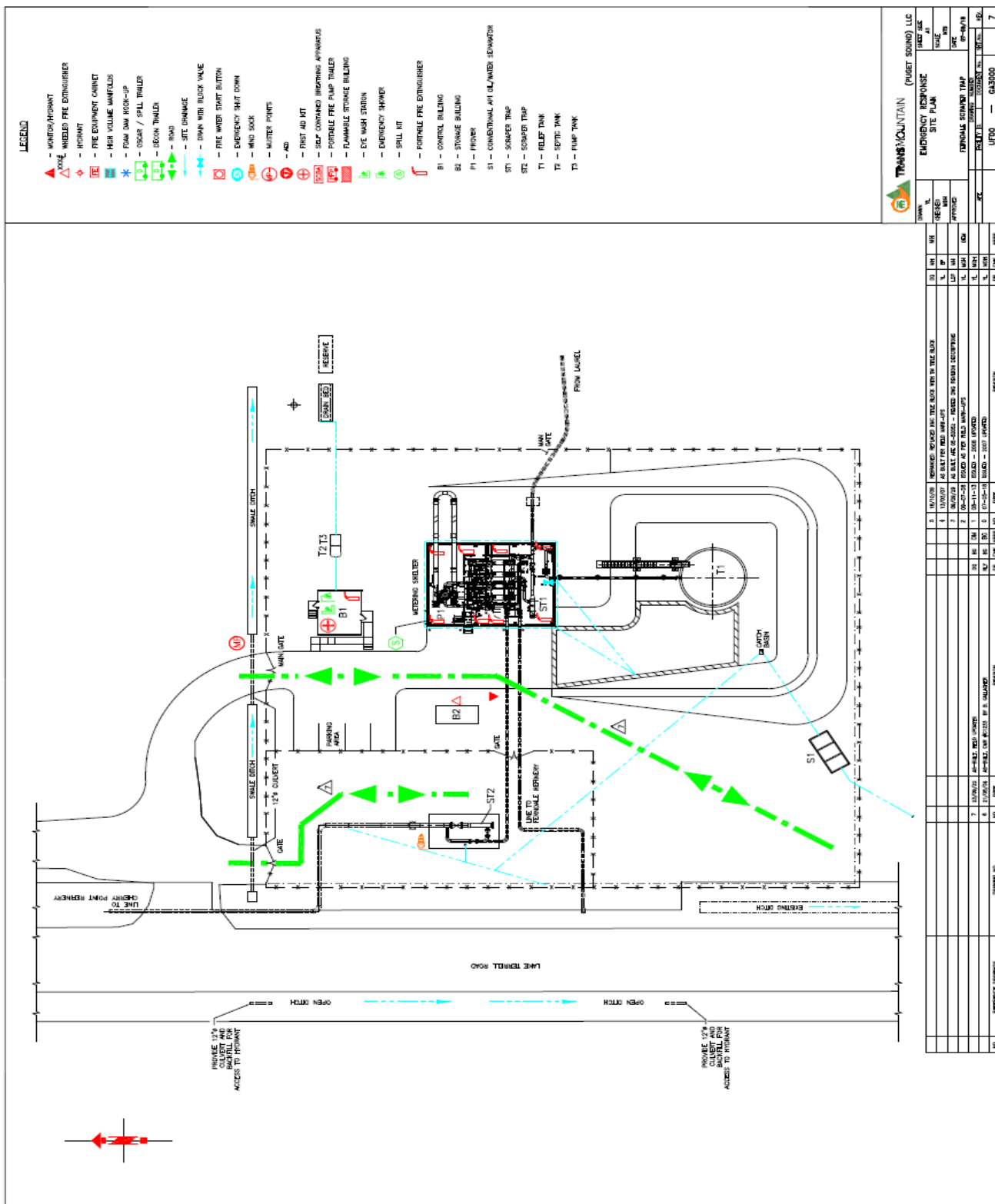
7.7.4 Zone 4 - Laurel Station to Ferndale

The pipeline segment from Laurel Station to the Ferndale Meter Station is approximately 11.65 miles long and is a 16" diameter pipeline. The worst case spill volume for this segment of line is 9,783 bbl. However, within this response zone the largest historical release is 10,500 bbl., therefore for Response Zone 4 the worst-case discharge volume will use this historical release volume. The land surrounding the section of pipeline is mostly flat agricultural lands with higher populated areas around Ferndale and Bellingham. The Pipeline also passes through the Lummi Indian Reservation and is located in an area that is 100ft above sea level to the east and nearly at sea level in the west. There are two check valves located midway along this segment of pipeline bordering the Hovander Homestead Park, and Tennant Lake Park. The pipeline segment is located in Whatcom County. The 48 hour spill model indicates that the majority of this section will be contained to the pipeline right of way or immediately adjacent, however there are several stream crossings along this route and a spill into the Nooksack River or one of its tributaries or storm water system would be expected to enter Bellingham Bay within 48 hours. Additionally spills to the Lummi River or any of its tributaries or drainage ditches would result in a spill reaching Lummi Bay. The surface water flow direction for the Ferndale Meter Station can be viewed on the Ferndale Meter Station Site Plan

7.7.4.1 Response Zone 4 – Relief Map



7.7.4.2 Ferndale Meter Station – Site Plan

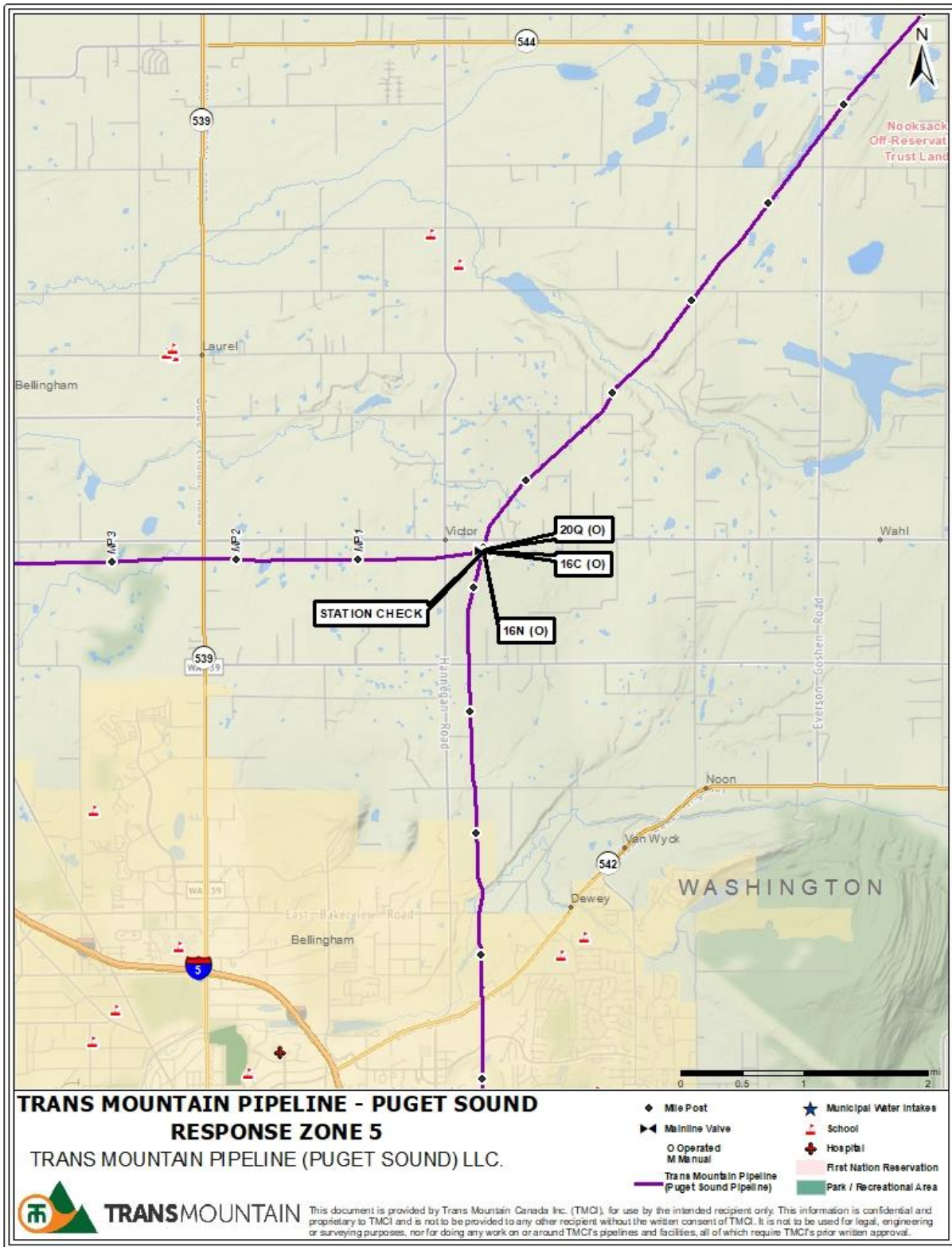


7.7.5 Zone 5 – Laurel Station

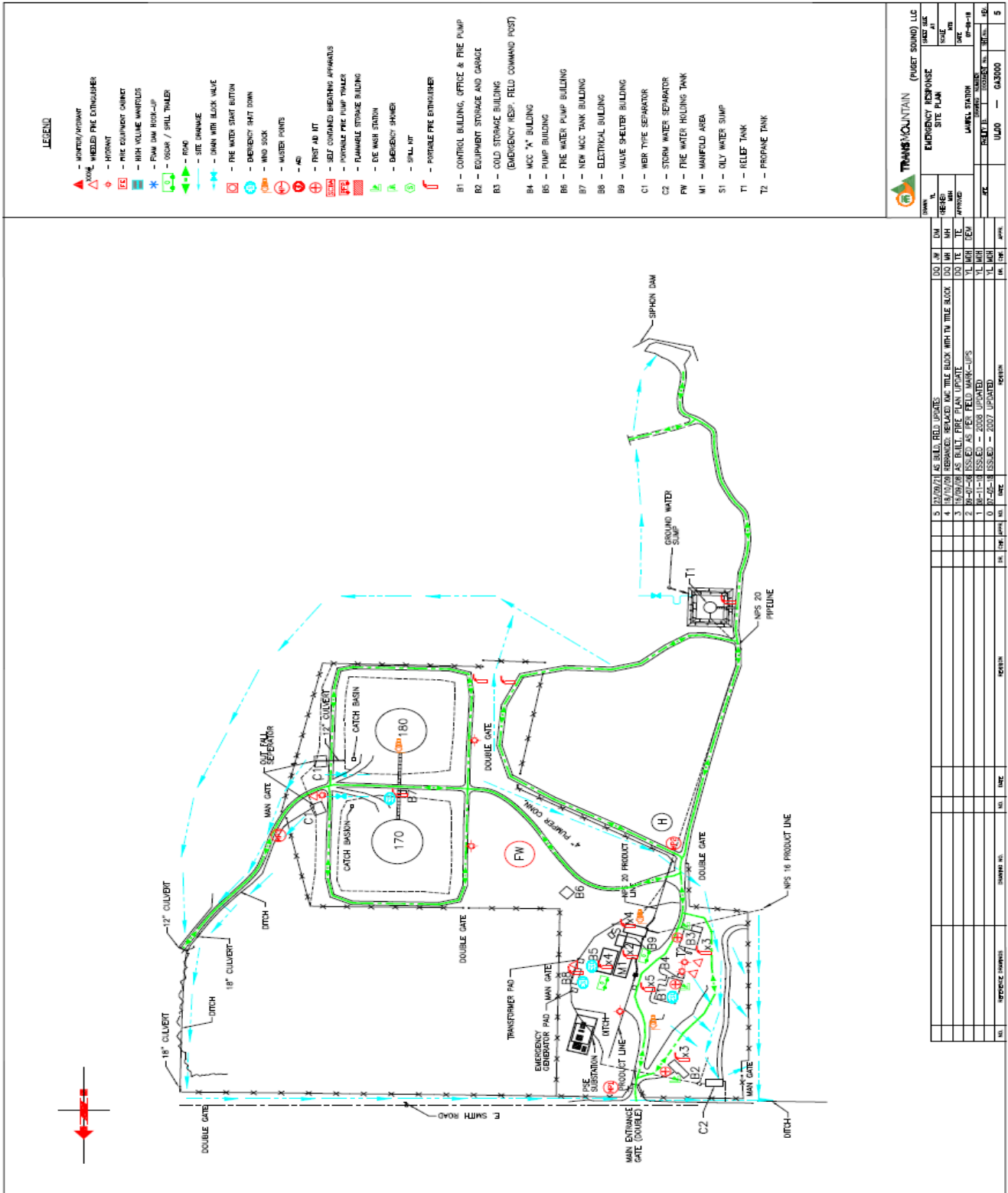
Laurel Station is a response zone. There are two 90,000 bbl., and one 3,000 bbl. relief tanks on site, with a working capacity of 89,455 bbl., 85,482 bbl., and 0 bbl. The worst case spill volume for Laurel Station is 89,455 bbl. The land surrounding Laurel Station is flat agricultural land less than 100 ft above sea level. Laurel Station is in Whatcom County. The tanks at Laurel Station are within containment which can hold 110% of the tank volume, as such a spill from the tanks is not expected to leave the site, or enter waters of the state⁵. Water is managed on-site through a system of ditches and sumps. All sumps are equipped with hydrocarbon alarms which sound if there is product mixed into the water. The water is tested to ensure when it leaves the site it falls within acceptable environmental guidelines. The combination of surface water runoff control and containment berms around the tanks means that a spill would not be expected to leave the Laurel Station site within 48 hours. The surface water flow direction for the Laurel Station can be viewed on the Laurel Station Site Plan.

⁵ Waters of the State means all lakes, rivers, ponds, streams, inland waters, underground water, salt waters, estuaries, tidal flats, beaches and lands adjoining the seacoast of the state, sewers and all other surface waters and watercourse within the jurisdiction of the state of Washington.

7.7.5.1 Response Zone 5 – Relief Map



7.7.5.2 Laurel Station – Site Plan



8.0 INCIDENT MANAGEMENT

Trans Mountain has a pre-defined Incident Command Structure with role descriptions defined and personnel pre-assigned to the key roles. The ICS structure is similar in nature to the Northwest Area Contingency Plan and uses the same terminology to the Section Chief level. Below the Section Chief level, the teams and positions outlined in this emergency response plan are an example of how things may be set up, in accordance with previous experience with spill response. However, during an actual incident each section will determine the best set up in accordance with the principals of ICS with the direction of the Section Chief, taking into account the section roles and responsibilities contained in the Northwest Area Contingency Plan.

Trans Mountain's Incident Management Team (Spill Management Team) will be filled through internal Company resources. If necessary, Trans Mountain will supplement roles using personnel from approved PRC's (NRC and/or O'Brien's Response Management) however this will not be the approach taken during the initial operational periods.

In the State of Washington, the Information Officer, Liaison Officer, Wildlife Branch Director, and the Environmental Unit Leader may be led by a state agency or trustee of the state if they are best qualified. Please refer to the Northwest Area Contingency Plan and the Trans Mountain ICS Guide for the staffing policies of the Washington State Department of Ecology for these positions.

8.1 Initial Response Team

Initial Response resources are managed by the Senior On-Site Individual who assumes the role of Incident Commander until such time as a more senior employee takes over.

8.2 Local Incident Management Team

The Local Incident Management Team (IMT), which is comprised of District personnel in each response area, will respond to incidents beyond the capability of the Initial Responders.

If deployed, the Local IMT's primary tasks are to:

- Ensure the safety of all workers in the area of the spill
- Assess the situation (i.e., incident size, severity, likely impacts)
- Take appropriate action to mitigate the impacts to life safety, the environment, and property

The Local IMT will perform these tasks until relieved or replaced by a higher level of management within the response organization.

8.3 Trans Mountain Incident Management Team

On larger spills, where the local IMT cannot manage a response without assistance, additional IMT personnel will be asked to attend from within Trans Mountain's company-wide support system.

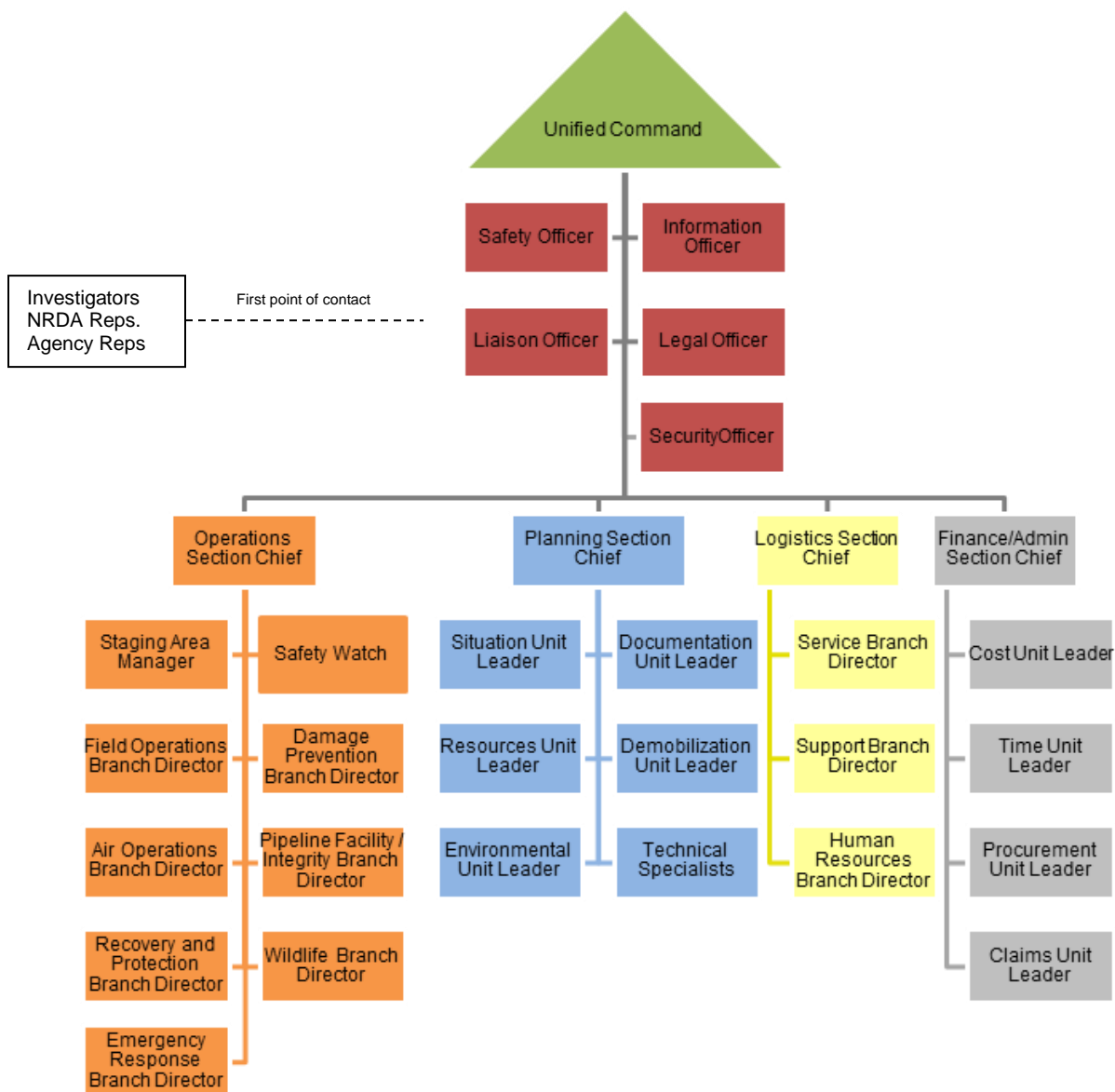
The IMT is headed by the Incident Commander who directs and coordinates all response activities and resources. The Deputy Incident Commander provides on-site staff support to the Incident Commander through the Command Staff and relieves the Incident Commander as required.

Each Section is headed by a Section Chief reporting directly to the Incident Commander. The Initial Response Team and initial IMT may be absorbed into the response organization as additional IMT personnel

arrive on the scene. The Operations Section Chief is also responsible for directing the activities of outside contractors called in to assist with the response.

8.4 Response Team Organization

The following diagram depicts a typical response organization to the branch director/unit leader level. If a position below a specific chief, director, supervisor, manager, or unit leader is not filled then the chief, director, supervisor, manager, or unit leader must complete the tasks of reporting position as well. For further information on each position and the supporting roles, please see the Trans Mountain ICS Guide or the Northwest Area Contingency Plan.



8.5 Initial Response

The initial response will be carried out immediately by local Trans Mountain personnel upon confirmation of an oil spill incident.

Initial responders are employees who are present at or near the scene of a spill who are properly trained in emergency response, defensive firefighting, safety and first aid. All other employees should be cleared from the incident scene immediately.

The senior person at the scene is automatically designated as the Incident Commander. Depending on the circumstances, the person-in-charge may be replaced by the Supervisor.

The initial responder's primary tasks are to:

- Ensure the safety of all workers and public in the area of the spill
- Assess the situation (i.e., incident size, severity, likely impacts)
- Notify the Supervisor immediately to activate the response organization and resources
- Take appropriate action to mitigate the impacts to life safety, the environment, and property until the Qualified Individual arrives.

Initial responders will perform these tasks until relieved or replaced by a higher level of management within the response organization.

In the event of a Level 1 incident, the initial responders may conduct the entire response effort.

On larger incidents, the initial responders will typically be incorporated into the Operations Section of the IMT organization. The initial Incident Command Post, staffed by key IMT positions, will be established within six hours of confirmation of an incident as per response timeframes outlined in Section 9.7.5.

8.6 Control Centre Emergency Duties

8.6.1 Control Centre Operator

The Control Centre Operator will:

- Initiate the Emergency Conditions Report (ECR)
- Advise caller as appropriate
- Contact first responders, as required
- Contact "affected" Field Supervisor(s)
- Contact the Supervisor, Control Centre Operations
- Record all events in the "Additional Information" section of the ECR for the full duration of the incident
- Assume notification role of the Supervisor, Control Centre Operations, if no contact acknowledgment is received

8.6.2 Supervisor, Control Centre

The Supervisor, Control Centre Operations (SCCO) will:

- Send a TAS using the appropriate TAS list
- If the TAS system is unavailable, contact personnel as shown in Section 2 for back up TAS contacts.
- Call into the TAS line to start the Initial Information Exchange

- Participate in conference calls as required
- Send additional TAS updates as needed or required
- Forward the completed ECR to the Manager, Technical Services and Control Centre, for approval

8.7 Transfer of Command

The Trans Mountain Response Organization is designed to work on a 24-hour basis. If 24-hour coverage is required, Command Staff and other response personnel will normally be relieved on a 12-hour shift schedule. Briefing meetings for Command Staff and other essential response personnel will be held at the time of each shift change. The Planning Section will be responsible for providing a summary of the ending shift activities along with a plan for the next shift. Written plans will be made in consultation with government agencies. Key ICS positions will be transferred on a 4-7 day rotation as needed after the initial transfer of command. The resources unit has the responsibility to identify and obtain any additional personnel required.

Whether internal or external, transfers of command for ICS positions will overlap to ensure that operations are not interrupted. The individual incoming and the individual leaving are required to meet and discuss any relevant information so that the position can be properly filled in and necessary task accomplished.

8.8 Unified Command

Wherever possible, the IMT will establish, and operate within, a Unified Command structure as warranted by the circumstances of an incident. When a federal or state agency arrives on-scene to participate in managing a response action, the agencies will utilize a unified command structure to jointly manage the spill incident. In the unified command, decisions with regard to the response will be made by consensus and documented through a single Incident Action Plan (IAP) for each operational period. In the event that the Unified Command is unable to reach consensus, the FOSC has ultimate decision-making authority. The unified command may incorporate additional tribal or local government on-scene coordinators into the command structure as appropriate.

Incident Commanders for oil discharges and hazardous substance releases will, whenever possible and practical be organized under the Unified Command Structure which includes, but not limited to:

- The pre-designated Federal On Scene Coordinator (FOSC);
- The State On Scene Coordinator (SOSC);
- The representative of the Responsible Party (RP); and
- The local and/or tribal On Scene Coordinators, as appropriate.

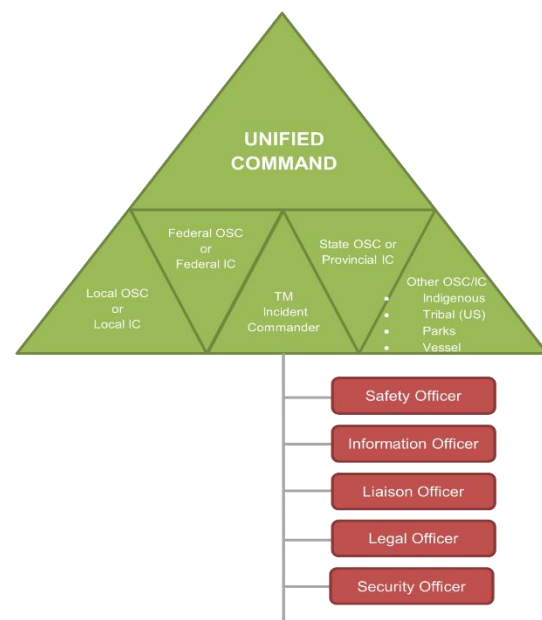
To be considered for inclusion as a UC member, the following criteria must be considered:

- The organization must have jurisdictional authority or functional responsibility under a law or ordinance for the incident; and
- The organization must be specifically charged by law or ordinance with commanding, coordinating or managing a major aspect of the incident response; and
- The incident or response operations must have impact on the organization’s Area Of Responsibility; and
- The organization should have the resources to support participation in the response organization.

Actual Unified Command makeup for a specific incident will be determined on a case-by-case basis taking into account:

- The specifics of the incident;
- Determinations outlined in the four criteria listed above; and
- Decisions reached during the initial meeting of the Unified Command.

The Unified Command is responsible for the overall management of the incident. The Unified Command directs incident activities including the development and implementation of strategic decisions, approval of the incident action plan, and approves the ordering and releasing of resources. It is expected that each Unified Command member will have the authority to make decisions and commit resources on behalf of their organization.



8.9 Qualified Individual

Response Plans for Onshore Oil Pipelines (49 CFR Part 194 and is consistent with 33 CFR 154.1026) defines Qualified Individual as "An English-speaking representative of an operator, located in the United States, available on a 24 hour basis, with full authority to: activate personnel and equipment maintained by the operator; act as liaison with the Incident Commander; and obligate any funds required to carry out all required or directed oil response activities".

The QI has the following responsibilities and authorities as required by the Oil Pollution Act of 1990 (OPA 90):

- Activate internal alarms and hazard communication systems to notify all appropriate personnel
- Notify all response personnel as needed
- Identify character, exact source, amount and extent of the release and other necessary items needed for notifications
- Notify and provide information to appropriate Federal, State and Local authorities
- Assess the interaction of the spilled substance with water and/or other substances stored at the Facility and notify on-scene response personnel of assessment
- Assess possible hazards to human health and the environment
- Coordinate rescue and response actions
- Assess and implement prompt removal actions
- Access company funds to initiate cleanup activities
- Direct cleanup activities until properly relieved of responsibility or incident is terminated
- Maintain contact with the OSC responsible for monitoring or directing the response actions via the Operations Section Chief.
- The QI may fill the role of Incident Commander, Deputy Incident Commander, as such the QI will be monitoring all response actions.

8.10 Incident Commander/Deputy Incident Commander

The Incident Commander's responsibility is the overall management of the incident. On Level 1 incidents, the command activity will likely be carried out by a single (Trans Mountain) Incident Commander. On larger, Level 2 and 3 incidents, a Unified Command structure will be employed, with additional Incident Commanders from key agencies.

The initial IC is the senior person witnessing the incident. One or more changes of the IC role might take place during the initial phase of the incident, as more-senior personnel arrive on-scene until the ultimate IC takes over and the ICP is established.

The Incident Commander may have a deputy, who may be from Trans Mountain, or from an assisting agency. Deputies must be fully qualified to take over that position at any time.

The Incident Commander/Deputy IC Responsibilities can be found in the ICS Guide; in general the duties are to:

- Ensure that adequate safety measures are in place.
- Assess the situation and/or obtains a briefing from the prior Incident Commander.
- Determine Incident Objectives and strategy.
- Establish the immediate priorities.
- Establish an Incident Command Post.

- Establish an appropriate organization.
- Ensure planning meetings are scheduled as required.
- Approve and authorize the implementation of an Incident Action Plan.
- Coordinate activity for all Command and General Staff.
- Coordinate with key people and officials.
- Approve requests for additional resources or for the release of resources.
- Keep agency administrator informed of incident status.
- Approve the use of trainees, volunteers, and auxiliary personnel.
- Authorize release of information to the news media.
- Order the demobilization of the incident when appropriate.

8.11 Safety Officer

The Safety Officer's function on the Command Staff is to develop and recommend measures for assuring personnel safety, and to assist and/or anticipate hazardous and unsafe situations.

Only one Safety Officer will be assigned for each incident. The Safety Officer may have assistants as necessary, and the assistants may also represent assisting agencies or jurisdictions. Safety assistants may have specific responsibilities such as air operations, hazardous materials, etc.

The specific duties related to the Safety Officer's responsibilities can be found in the ICS Guide, in general the duties are to:

- Develop a Site-Specific Health and Safety Plan.
- Participate in planning meetings.
- Identify hazardous situations associated with the incident.
- Review the Incident Action Plan for safety implications.
- Exercise emergency authority to stop and prevent unsafe acts.
- Investigate accidents that have occurred within the incident area.
- Assign assistants as needed.
- Review and approve the Medical Plan.

8.12 Information Officer

The Information Officer is responsible for implementing the external communications plan during any emergency incident.

The external communications plan objectives are to:

- Provide information about the incident and the related response effort to all stakeholders in a timely, accurate, and responsible fashion.
- Ensure that information about the incident is clear, factual and consistent with that provided by other responders and government agencies.
- Minimize unnecessary speculation, rumour, or concerns about the incident and potential risks to the public.
- Protect the company's reputation as a responsible corporate citizen.

The Information Officer is supported by a team of pre-assigned employees to assist in implementing the communications plan. This group is known as the External Communications Team.

The Information Officer, in consultation with the Incident Commander, ensures that the necessary contacts have been made to Trans Mountain public affairs staff at the Trans Mountain's head office in Calgary.

The Information Officer's responsibilities are to:

- Determine from the Incident Commander if there are any limits on information release.
- Develop material for use in media briefings.
- Obtain Incident Commander's approval of media releases.
- Establish a Media Relations Center.
- Inform media and conduct media briefings.
- Arrange for tours and other interviews or briefings that may be required.
- Obtain media information that may be useful to incident planning.
- Maintain current information summaries and/or displays on the incident and provide information of status of incident to assigned personnel.
- Activate a 24-hour, recorder public information line.

Note: The Information Officer position is a Government Representative or other individual designated by Unified Command for incidents within Washington State.

8.13 Liaison Officer

The Liaison Officer is the contact point for agency representatives assigned to the incident by assisting or cooperating agencies. These are personnel other than those on direct tactical assignments or those involved in a Unified Command. The specific duties for the Liaison Officer can be found in the ICS Guide.

The Liaison Officer's responsibilities are to:

- Be a contact point for Agency representatives.
- Organize and chair inter-agency coordination calls in order to provide incident status updates. Refer to the Liaison Office Toolkit for coordination call agenda.
- Maintain a list of assisting and cooperating agencies and Agency Representatives.
- Assist in establishing and coordinating interagency contacts.
- Keep agencies supporting the incident aware of the incident status.
- Monitor incident operations to identify current or potential inter-organizational problems.
- Participate in Planning Meetings, providing current resource status, including limitations and capability of assisting agency resources.
- Arrange for and provide personnel to act as an External Liaison Officer at any responding agency Incident Command Post, and/or Emergency Operations Centre as needed/requested by a local authority.

Note: The Liaison Officer position is a Government Representative or other individual designated by Unified Command for incidents within Washington State.

8.14 Government Agency Representatives

Agency Representatives assigned to an incident from Federal, State or local government agency report to the Liaison Officer or to the Incident Commander in the absence of a Liaison Officer. These representatives should have full authority to make decisions on all matters affecting that agency's participation at the incident.

8.14.1 Agency Representatives Responsibilities

- Ensure that all agency resources are properly checked-in at the incident.
- Attend briefings and planning meetings as required.
- Provide input on the use of agency resources unless resource technical specialists are assigned from the agency.
- Cooperate fully with the Incident Commander and the General Staff on agency involvement at the incident.
- Ensure the well-being of agency personnel assigned to the incident.
- Advise the Liaison Officer of any special agency needs or requirements.
- Report to home agency dispatch or headquarters on a prearranged schedule.

Ensure that all agency personnel and equipment are properly accounted for and released prior to departure.

8.15 Legal Officer

The Legal Officer is responsible for providing advice and direction on all matters that may have a legal impact on Trans Mountain. The specific duties for the Legal Officer can be found in the ICS Guide, in general the duties include:

- Legal requirements in execution of agreements
- Incident investigation report reviews/meetings
- Environmental damage assessments
- Claims, where applicable
- Any major contracts that are not standard to the operation
- Any insurance issues/concerns
- Major health & safety issues/injuries
- Information releases
- Government Agency requests
- Reporting to Incident Commander

Note: Legal maintains contact information for Insurance other agencies for claims in the Calgary office.

8.16 Response Planning (Short-Term and Initial Phase of Long-Term Events)

Short-term responses that are small in scope and/or duration and require few resources can often be managed using only the Incident Command Briefing (ICS 201 Form). Responses to longer-term events will also begin with the completion of the ICS 201 and Incident Briefing.

8.16.1 Incident Briefing

During the transfer of command process, an Incident Briefing provides the incoming Incident Commander with basic information regarding the incident situation and the resources allotted to the incident. Most importantly, it is the de facto Incident Action Plan (IAP) for the initial response and remains in force and continues to develop until the response ends or the Planning Section generates the incident's first IAP. It is also suitable for briefing individuals newly assigned to Command and General Staff, as well as needed assessment briefings for the staff.

When	<ul style="list-style-type: none"> • Upon the arrival of a new Incident Commander a transfer of Command will take place. The Incident Briefing also serves as an opportunity to provide initial information to incoming key IMT and agency personnel.
Facilitator	<ul style="list-style-type: none"> • The Incident Briefing is facilitated by the Current (and often initial) Incident Commander.
Attendees	<ul style="list-style-type: none"> • The Incident Briefing is attended by the incoming IC, the Command and General Staffs, as well as any senior responding Government Agency personnel and senior contractor representatives.
Agenda	<ul style="list-style-type: none"> • Situation (note territory, exposures, safety concerns, etc. use map/charts) • Objectives and priorities • Strategy(s) and tactics • Current organization • Resource assignments • Resources enroute and/or ordered • Facilities established

8.17 Response Planning (Long-Term Events)

Trans Mountain follows the ICS model for incident response planning. The planning cycle and associated meetings can be found in the Trans Mountain Incident Command System Guide located on Emergency Management Toolkit

8.18 Terminating/Downgrading the Response

The decision to terminate and/or downgrade emergency operations and to demobilize personnel and equipment shall be made on a site-specific basis, based on the status of the incident. Factors that may affect the decision to terminate/downgrade the response include the following:

- The emergency condition has been controlled and immediate threats to the health and safety of the public have been eliminated
- Any leaks or spills have been contained, and all remaining free oil, petroleum products, or hazardous materials have been recovered from the site
- Repair operations have been undertaken to prevent further leaks or spills from occurring
- Further emergency operations at the site will cause more damage to property and the environment than that which resulted from the leak or spill initially.

The Regional Director or designee shall consult appropriate government agencies and other involved parties before making any decisions related to terminating/downgrading response activities. These agencies and involved parties include representatives from federal, provincial and/or municipal agencies with jurisdiction in the emergency.

Prior to terminating/downgrading the response the following issues should be considered by the Unified Command:

- Demobilize equipment and personnel at the first opportunity in order to reduce cost
- Consider which resources should be demobilized first; for example, berthing expenses can be saved by demobilizing out-of-area contractors before local ones
- Equipment may need both maintenance and decontamination before being demobilized
- All facilities (staging area, Incident Command Post, etc.) should be returned to their pre-incident condition before terminating operations
- Determine what documentation should be maintained, where, and for how long
- Contract personnel may be more susceptible to "suffering" injuries as they approach termination
- Some activities will continue after the cleanup ends; examples include incident debriefing, bioremediation, claims, and legal actions
- Express gratitude to the community, police department, fire department, and emergency crews for their work during the response.

8.19 Incident Records

Trans Mountain utilizes the Incident Command System when responding to any real and/or potential emergency. As part of this process Trans Mountain's Incident Management Team utilizes ICS Forms in order to support and respond to the emergency. Any sustained response will result in the Incident Management Team establishing a Planning Cycle in order to generate an Incident Action Plan that will address all aspects of the emergency.

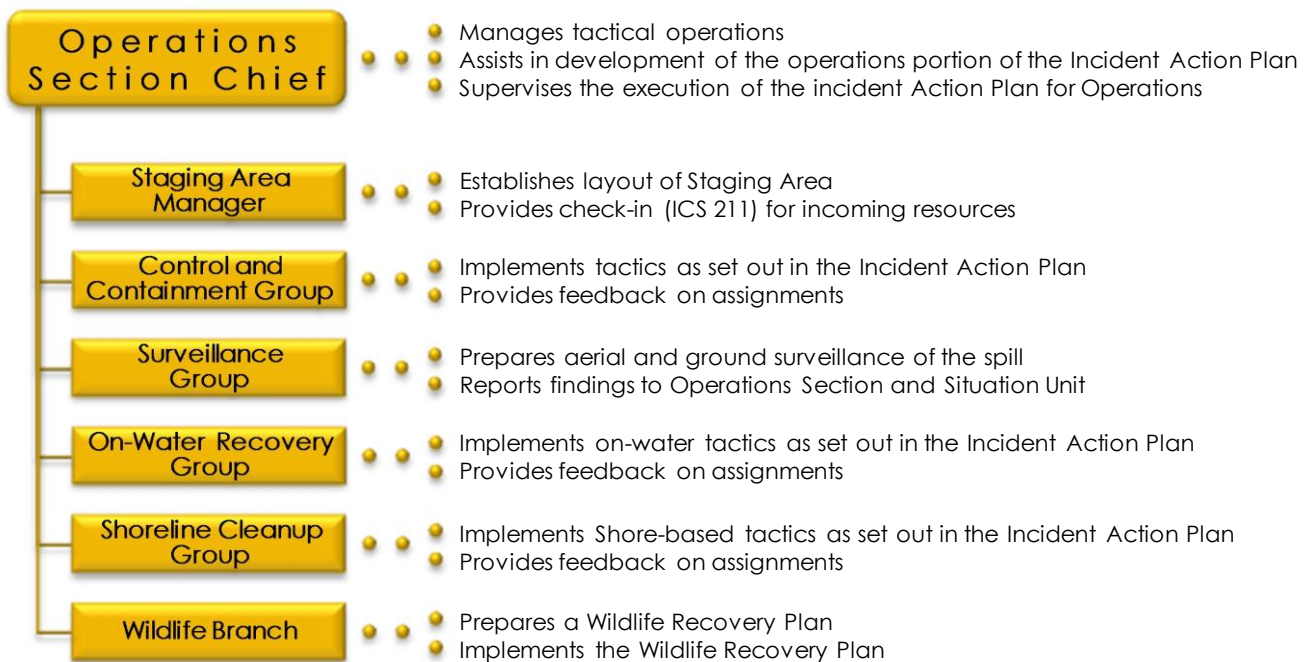
All forms generated as part of the incident response will be submitted to the Documentation Unit, under the Planning Section. Upon termination of the incident the Documentation Unit will ensure all original documents are properly stored with the Legal Department. Incident Records will be used to generate reports and for any follow up investigations, both internal and external, if required.

Incident Records are retained by the Legal Department who store all incident files in accordance with Trans Mountain's Record Retention Policy and procedures.

9.0 OPERATIONS SECTION

The Operations Section is responsible for the oversight of all tactical assignments in the response. These include all contractors or other agencies that supply tactical resources in response to the incident. These might include representatives from the Fire Department, the police, the Ambulance Service as well as response organizations. Detailed duties and responsibilities for individuals in the Operations Section can be found in the Trans Mountain Incident Command System Guide on Emergency Management Tool Kit.

The Operations Section may consist of numerous (functional) Groups and Branches, (geographic) Divisions. If Staging Areas are used, these are also managed by the Operations Section.



9.1 Response Objectives

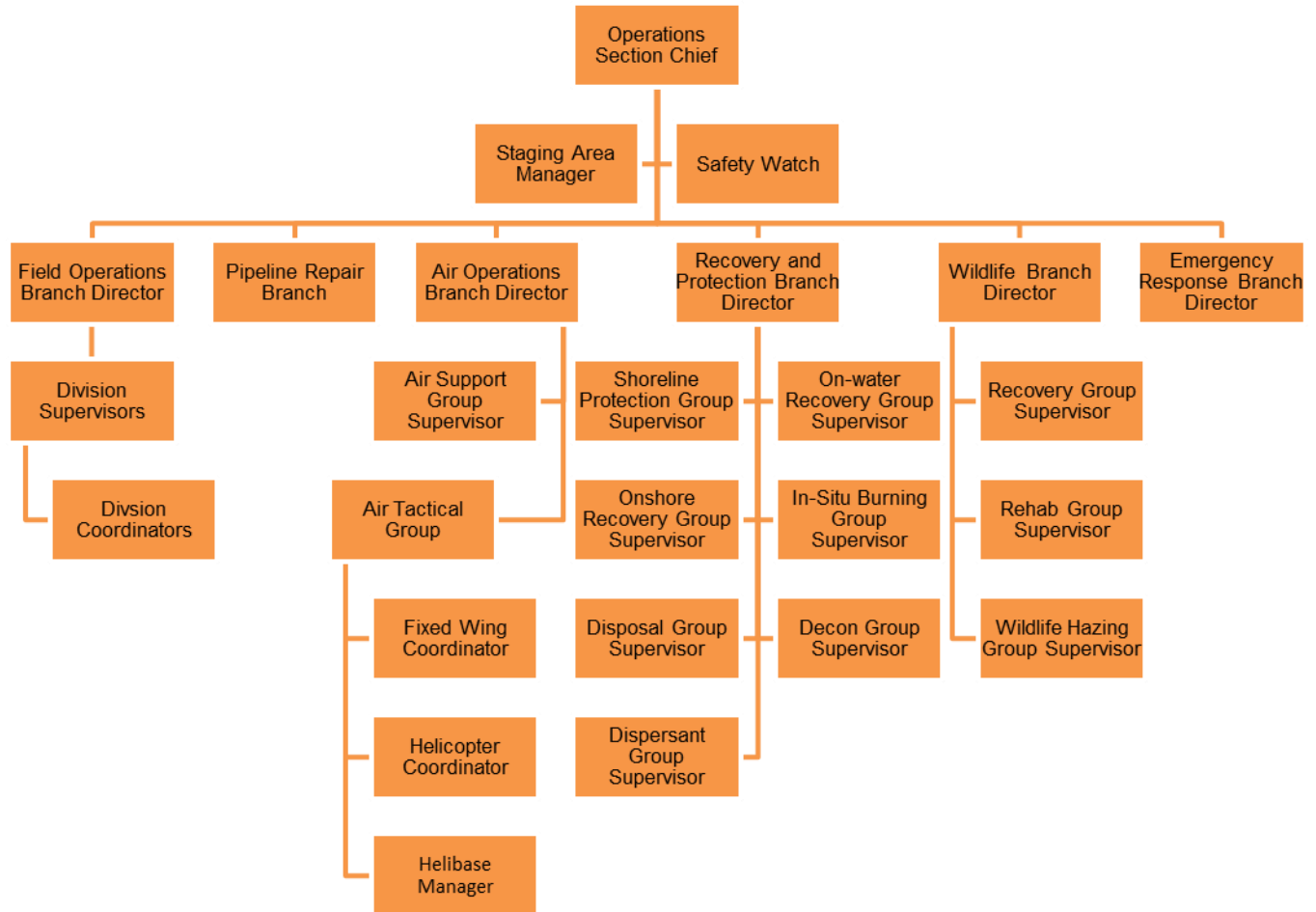
Once the safety of all personnel has been ensured, the source of discharge is secured, and initial notification has been activated, the overall tactical priorities covered are:

- Containment and Recovery of Spilled Oil
- Protection of Sensitive Resources
- Site and Shoreline Clean-Up

Response objectives and priorities will be determined by the Incident Commander, Unified Command, and the Planning and Operations Section members. Critical advice will be provided by representatives of key government agencies.

9.2 Operations Section Organization Chart

Not all roles will be filled for all incidents; however the following chart is an outline of the possible positions to be filled. Detailed descriptions of each position and its duties can be found in the Trans Mountain ICS Guide (Emergency Management Toolkit) and the Northwest Area Contingency Plan (<http://rrt10nwac.com/NWACP/Default.aspx>)



9.3 Operations Section Chief/Deputy Operations Section Chief

The Operations Section Chief, a member of the general staff, is responsible for managing all operations directly applicable to the primary mission. The Operations Chief activates and supervises elements in accordance with the Incident Action Plan and directs its execution; activates and executes the Site Safety and Health Plan; directs the preparation of unit operational plans, requests or releases resources, makes expedient changes to the Incident Action Plans as necessary, and reports such to the Incident Commander.

9.4 Air Operations Branch

Surveillance and tracking are used to monitor spill movement in both near-shore and offshore areas using visual observations. Typically, air surveillance from helicopters is used to track oil movement and to direct on-water booming and skimming operations. Air surveillance will be used at a minimum of three ten-hour

operational periods during the initial seventy-two hours of the discharge and will be available within 6 hours of a spill notification provided by NRC.

9.5 Temporary Storage

All waste materials collected from a spill should be sorted and stored in separate containers or piles that are clearly marked showing the type of waste they contain. Temporary storage locations on the premises should be totally contained and secure to prevent further leakage or migration of spilled product.

9.5.1 Temporary Storage Methods

Method of Containment	Product						Capacity
	OIL	Oily Water	Oily Soil	Oil/Debris (Small)	Oil/Debris (Medium)	Oil/Debris (Large)	
Drums	✓	✓	✓				0.2-0.5 yd ³
Bags		✓	✓	✓			1.0-2.0 yd ³
Boxes			✓	✓			1-5 yd ³
Open top roll-off	✓	✓	✓	✓	✓	✓	8-40 yd ³
Roll top roll-off	✓	✓	✓	✓	✓	✓	15-25 yd ³
Vacuum box	✓	✓					15-25 yd ³
Frac tank	✓	✓					500-20,000 gal
Poly tank	✓	✓					200-4,000 gal
Vacuum truck	✓	✓	✓				2,000-5,000 gal
Tank trailer	✓	✓					2,000-4,000 gal
Barge	✓	✓					3,000+gal
Berm, 4 ft		✓	✓	✓	✓	✓	1 yd ³
Bladders	✓	✓					25 gal-1,500 gal

9.5.1.1 Initial Handling and Storage

Initial oil handling and storage needs may be overlooked in the emergency phase of a response, which could result in delays and interruptions of cleanup operations. Initially, waste management concerns should address:

- Equipment capacity
- Periodic recovery of contained oil
- Adequate supply of temporary storage capacity and materials.

The following action items should be conducted during a spill response:

- Development of a Site Health and Safety Plan (see Section 1)
- Development of a Disposal Plan in accordance with any federal, provincial, and/or local regulations
- Continuous tracking of oil disposition in order to better estimate amount of waste that could be generated over the short and long-term
- Organization of waste collection, segregation, storage, transportation, and proper disposal
- Minimization of risk of any additional pollution
- Regulatory review of applicable laws to ensure compliance and (if appropriate) obtain permits
- Documentation of all waste handling and disposal activities
- Disposal of all waste in a safe and approved manner.

Good hazardous waste management includes:

- Reusing materials when possible
- Recycling or reclaiming waste
- Treating waste to reduce hazards or reducing amount of waste generated.

The management of the wastes generated in cleanup and recovery activities must be conducted with the overall objective of ensuring:

- Worker safety
- Waste minimization
- Cost effectiveness
- Minimization of environmental impacts
- Proper disposal
- Minimization of present and future environmental liability.

Solid wastes such as sorbents, PPE, debris, and equipment will typically be transported from the collection site to a designated facility for:

- Storage
- Waste segregation
- Packaging
- Transportation

Once this process is complete, the waste will be shipped off-site to an approved facility for required disposal.

9.6 Waste Disposal

9.6.1 Types of Spill-Related Waste Materials

The most common types of waste likely to be generated from an oil spill are:

- Contaminated Liquids - Mixture of oil and water recovered from the surface of the water usually by skimmer
- Contaminated Debris - Twigs, leaves, vegetation/seaweed, dead animals or birds coated with pollutant
- Contaminated Sediment - Sand or gravel removed from the shoreline or spill site
- Clean-up Materials - Oily/contaminated rags, oiled sorbents, oil PPE and clothing worn by response team personnel

9.6.2 Waste Management Plan

Trans Mountain must ensure that the entire volume of oil recovered and oily waste generated is properly accounted for and disposed of. Before any waste materials are transported off the site for disposal, a Waste Management Plan should be prepared in consultation with the state agencies. Responsibility for working with the state authorities to develop a proper Waste Management Plan lies with the Environmental Unit Leader. More information on the duties of the Disposal (Waste Management) Technical Specialist can be found in the Incident Command System Guide on Emergency Management Toolkit. Section 9405 of the NWACP will be followed for the development of the incident specific Waste Management and Disposal Plan.

9.6.3 Waste Transport Procedures

Once a decision has been made to transport wastes off the site for final disposal, Trans Mountain, as the Consignor or generator of the waste, is responsible for:

- Ensuring that the person or company transporting the waste is qualified and licensed.
- Ensuring that the place where the waste is transported to is approved as a waste storage and/or disposal site.
- Completing all necessary documentation (e.g., transport manifest) and retaining records for two years. Upon request and within two years, disposal records will be provided to Department of Ecology.

9.7 Emergency Equipment and Response Times

9.7.1 Trans Mountain Spill Response Equipment

Trans Mountain owns and maintains response equipment placed strategically for easy access and deployment during an incident. There are two response trailers located in the Puget Sound Region and other equipment available via NRC ES and Trans Mountain operations in Canada. There is 2000 ft of boom available for fast water deployment within 2 hours at any point on the pipeline per WAC 173-182-365 (2), stored at Laurel Station 1200ft and 800ft at Burlington Station. In addition to available boom there is recovery and storage equipment available in the two OSCAR units. The equipment used to meet the planning standards for this ERP is outlined in Section 18.2 Planning Standards. For a full detailed list of the OSCAR contents please refer to the spreadsheet associated with this plan.

Trans Mountain also owns and maintains a large fleet of emergency response equipment strategically placed at various points along the Trans Mountain in Canada which can be used to supplement a response in Washington State.

9.7.2 Planning Standard

The planning standard establishes the desired response outcomes and forms the basis for Trans Mountain's emergency response plans, procedures and processes.

The planning standard:

- Outlines the hazard assessment process, which includes a hazard listing (spill, fire, explosion);
- Specifies the quantity and location of response equipment and personnel needed to respond within maximum target response times; and
- Defines maximum target response times to be used for response planning to warrant a prompt, safe and effective response to an emergency

Maximum target times are based, in part, on a variety of regulatory requirements. Real response times are reviewed after any event requiring activation of the Emergency Response Plan to confirm Trans Mountain has resources and equipment placed in the appropriate location to meet the maximum target response times.

Current emergency response capabilities and equipment are strategically placed to meet the planning standard and include:

- Early detection systems/alarms and firefighting equipment for fires and spills (storage tanks and pump stations);
- Personnel and company vehicles to respond to spill and fires (terminal storage tanks, pump stations and right-of-way); and
- Oil Spill Containment and Response (OSCAR) units strategically placed to ensure rapid response along the right-of-way and at facilities.

9.7.3 Response Equipment

Emergency response equipment, such as spill drums with absorbent material to assist in immediate cleanup of any local spill, is available at all facilities. Other emergency resources, such as river boats and response trailers, are located at strategic locations along the Trans Mountain.

Boats - Trans Mountain owns and maintains a number of boats along the pipeline route to ensure response actions can be carried out on rivers and lakes in locations where a spill could potentially impact water bodies. Response boats are jet drive boats that range in size from 18' to 24' and allow for response in all expected water environments, including shallow water.

Boom trailer - Boom trailers may vary in size however their primary purpose is to house containment boom for on-water spill operations. The trailers contain supplementary equipment, such as additional rope, to assist with boom deployment.

Decontamination trailer - Decontamination trailers are sized to be towed by half-ton or three-quarter ton trucks and contain equipment to facilitate the cleaning of personnel and small equipment. The use of decontamination trailers ensure when personnel leave an impacted area they are not tracking contaminants with them. The trailer includes wash stations, pools, tents, detergent, hand sprayers and other equipment necessary to decontaminate people and small equipment.

Fire Foam Trailer – Fire Foam Trailers are used as mobile foam concentrate storage systems. Fire Foam Trailers may be designed to inject water/foam mixtures into a tanks foam piping systems in order to extinguish rim seal fires, others are used to store large quantities of foam concentrate for larger spills and/or fires.

Fire Hose Trailer – Hose trailers contain large quantities of fire hoses to support fire response efforts as required.

Foam Bladder Trailer – A Foam Bladder Trailer is a wheel mounted bladder foam storage tank with inline proportioning used to mix and inject firewater/ foam concentrate into a facilities fire piping system. The trailers can draw water/foam directly from the bladder or externally from foam concentrate drums utilizing a hose. The trailers include a mounted monitor which may be used for direct fire suppression.

Foam Cannon – Foam cannons are located at Trans Mountain Terminals and Tank Farms for use in the unlikely event of a tank fire. These mobile large-volume discharging platforms are capable of delivering water or foam solution for fire suppression, tank cooling, personnel protection and vapor suppression.

OSCAR trailer - Oil Spill Containment and Recovery (OSCAR) trailers are located strategically at various points along TMPL. These trailers contain various tools and spill response equipment ranging from absorbent materials and skimmers, to booms and other cleanup tools specific to the area.

Portable Fire Pump – Portable fire pumps are located at Trans Mountain Terminals and Tank Farms for use in the unlikely event of a large tank fire. These mobile pumps assist the existing fire systems by providing higher capacity pumping of water and/or foam solution.

Rapid Response Trailer - Rapid Response trailers are similar to OSCAR trailers, however they are smaller in size (typically under 30' long), can be towed behind a half-ton or three-quarter ton truck and are more maneuverable in tight locations. Rapid response trailers have containment, recovery and storage equipment on board.

Wildlife Response Trailer – Wildlife Response Trailers are deployed to spill locations in order to deter wildlife, including birds and a variety of ground animals, from entering or landing near the contaminated area(s). A variety of equipment including fencing, flags and effigies are housed within these trailers.

Wildfire Response Trailer – Wildfire Response Trailers are designed as a self-supplied fire water and/or foam deployment system. The trailers are designed to protect at risk facilities along the pipeline right-of-way.

Winter Response Trailer - Winter Response Trailers contain specialized equipment designed to be used in ice and snow. Winter response equipment includes specialized ice cutting devices (ice auger, chainsaw), ice rescue equipment, specialized ice lifting devices and additional rehabilitation supplies. Personal protective equipment and safety

equipment that would be useful during a cold weather response, such as blankets, heaters, winter liners for hard hats, are also included.

9.7.4 Response Equipment Maintenance

Trans Mountain response equipment is tested and inspected as noted below, records for maintenance are kept for a period of at least 5 years and may be made available to Washington State Department of Ecology upon request.

- Daily and weekly – portions of the fire suppression systems are tested and inspected on a weekly and daily basis depending on the system component and regulatory requirements.
- Monthly – all emergency response equipment is inspected and inventoried on a monthly basis to ensure response readiness.
- Spring Inspection – all emergency response equipment undergoes a thorough spring maintenance check which may include inspection by a third party inspection facility. All equipment is function tested at this time.
- Fall Inspection – all emergency response equipment undergoes a thorough fall inspection and maintenance check which includes winterizing any equipment that is at risk of freezing. Some equipment is also inspected by a third party inspection facility.
- Exercises – all equipment is deployed at least annually during an exercise at which time all components are inspected and tested in a response environment. All equipment used during an exercise is inspected in accordance with its Post-use Inspection procedures, which may include decontamination of watercraft, function testing pumps/generators, drying ropes and boom etc.
- Multi-year programs – some emergency equipment such as fixed fire suppression systems undergo 3 year inspections and 5 year inspection and maintenance activities in accordance with guidance provided by industry standards.

9.7.5 Response Times

Trans Mountain has a planning standard to identify the maximum times by which specific activities are anticipated to occur. The planning standard is used to strategically locate people and equipment to ensure a prompt response to any event involving Trans Mountain. These response times are for planning purposes only and do not act as target times. All incidents are responded to immediately upon notification of a potential incident or at the confirmation of an incident. Response times are reviewed after any event requiring activation of the Emergency Response Plans to ensure they are adequate and effective. Response times are divided into seven response targets and are measured from the time an emergency is confirmed.

Activity	Response Time
Confirmed Emergency – Shutdown of Operations	Immediate
Internal Emergency Response (TAS) conference call	30 Minutes
Initial Site Safety Assessment	1 Hour
Emergency Response Equipment on-site	2 Hours
Incident Command Post established, Emergency Response Equipment deployed	6 Hours
Advanced Response Equipment	12 Hours
Additional Equipment as needed	24+ Hours

9.7.6 Equipment Requirements

To determine equipment placement and requirement the worst case discharge volume is used. The worst case discharge volume is calculated as described in Section 18 of this manual.

9.7.7 Mobile Spill Equipment List

Trans Mountain Location*	Boat	Boom Trailer	Secondary Boom (not mobile)	Decontamination Trailer	OSCAR Trailer	Rapid Response Trailer	Wildlife Response Trailer	Non-Floating Oil Trailer	Land/Creek Trailer	Winter Response Trailer
Gainford Station	x	x			x					x
Edson Station	x			x						
Jasper Station	x	x			x		x			x
Rearguard Station				x						
Blue River Station	x	x			x					x
Blackpool Station				x						
Kamloops Terminal	x (2)	x			x		x	x		x
Kingsvale Station				x		x				
Hope Station	x					x				x
Sumas Station		x		x	x		x		x	
Burnaby Terminal	x				x					
Westridge Marine Terminal	x		x	x ¹	x ²					
Laurel Station	x (3)			x	x					
Burlington Station					x					

*Equipment is subject to movement based on risk

9.7.8 Mobile Fire Equipment List

Trans Mountain Location	Fire Foam Trailer	Fire Hose Trailer	Foam Bladder Trailer	Foam Cannon	Wildfire Trailers	Gorilla
Edmonton Terminal		x (2)	x	x		x
Jasper Station					x (2)	
Blue River Station					x	
Kamloops Terminal	x (2)*			x	x	
Hope Station					x	
Sumas Terminal		x		x		
Burnaby Terminal		x		x		x

9.7.9 Primary Response Contractor Spill Response Equipment

Trans Mountain relies upon third party contractors to supply additional manpower and equipment to meet the planning standards set out by the Washington State Department of Ecology and the Department of Transportation Pipeline Hazardous Material Safety Administration. In doing so the equipment available is listed in Section 18 of this document.

Note: the area in which Trans Mountain operates, in-situ burn would not normally be considered as a response tactic, however if in the planning process in consultation with WDOE it is determined that in-situ burn is the most effective tactic, the equipment will be supplied by NRC, and the processes in Section 9407 of the Northwest Area Contingency Plan will be followed.

9.7.10 Worldwide Response Resource List (WRRL)

The WRRL is a database that stores data on various types of oil spill response equipment in the Pacific Northwest. The advantage of the WRRL is that it provides a uniform system to describe and list equipment. Each piece of equipment that is entered in the database is given a unique "WRRL ID" that provides a standard way of tracking and listing equipment in the region. The database can be accessed via the internet and downloaded in a variety of formats. Once the information is downloaded the data can be used in a number of different ways. The WRRL can be used to locate and order response equipment during a drill or spill, provide an overall picture of the regions response resources, be used for developing and reviewing oil spill contingency plans, assist in cost accounting, or by an organization to track their own resources.

The WRRL list can be located at: <https://wrrl.world/fmi/webd/WRRL>

9.8 Decontamination Plan

All personnel and equipment must go through a decontamination process to ensure spilled material does not contaminate a larger area than needed. The Decontamination Group Supervisor will work under the Recovery and Protection Branch Director. The Decontamination Group Supervisor is responsible for creating and implementing the Decontamination Plan.

9.9 Public Evacuation Plan

The Incident Commander and other company employees shall cooperate and work closely with responding emergency agencies. Appropriate information will be provided as required to enable community emergency operations to be conducted.

Trans Mountain personnel will work with local authorities to assist with the preparation of an evacuation plan, when requested. Trans Mountain will at the very least provide company spokespeople at any evacuation/reception centre to answer questions from the public, if the local authority does not require help to develop the evacuation plan. This plan will take into consideration the following:

- Weather conditions
- Evacuation sites for receiving evacuees
- Ensuring that all residents of the area to be evacuated receive emergency instructions
- Time it will take for evacuation
- Method for evacuation
- Evacuation routes
- Capacity of the evacuation routes
- Awareness of the needs of "special needs" people
- Awareness of the needs of farm animals and pets
- Security of evacuated properties
- Notification for controlled re-entry into the area.

If the public is immediately threatened in the initial stages of the incident and evacuation is required before local response agencies arrive at the scene of the emergency, the Incident Commander must ensure public protection and may request available company personnel to initiate an evacuation and/or site perimeter security, which may include roadblocks. Evacuation duties will be turned over to local response agencies as soon as possible.

9.9.1 Post Evacuation Procedures

The Incident Commander, together with local emergency agencies and pertinent government agencies, will make the decision to return residents to the area. The company will notify the affected people and ensure that:

- Residences are ventilated and checked
- Return transportation to the homes is provided
- Follow up meetings are conducted with the evacuees to address any concerns they may have.

10.0 PLANNING SECTION

The Planning Section is responsible for the gathering of incident intelligence, and the development of Incident Action Plans. This includes the tracking of incident information and resources, and the documentation of the incident. Detailed duties and responsibilities for individuals in the Planning Section can be found in the Trans Mountain Incident Command System Guide on Emergency Management Toolkit.

Technical Specialists, i.e., fire or oil spill specialists will also be assigned to the Planning Section.



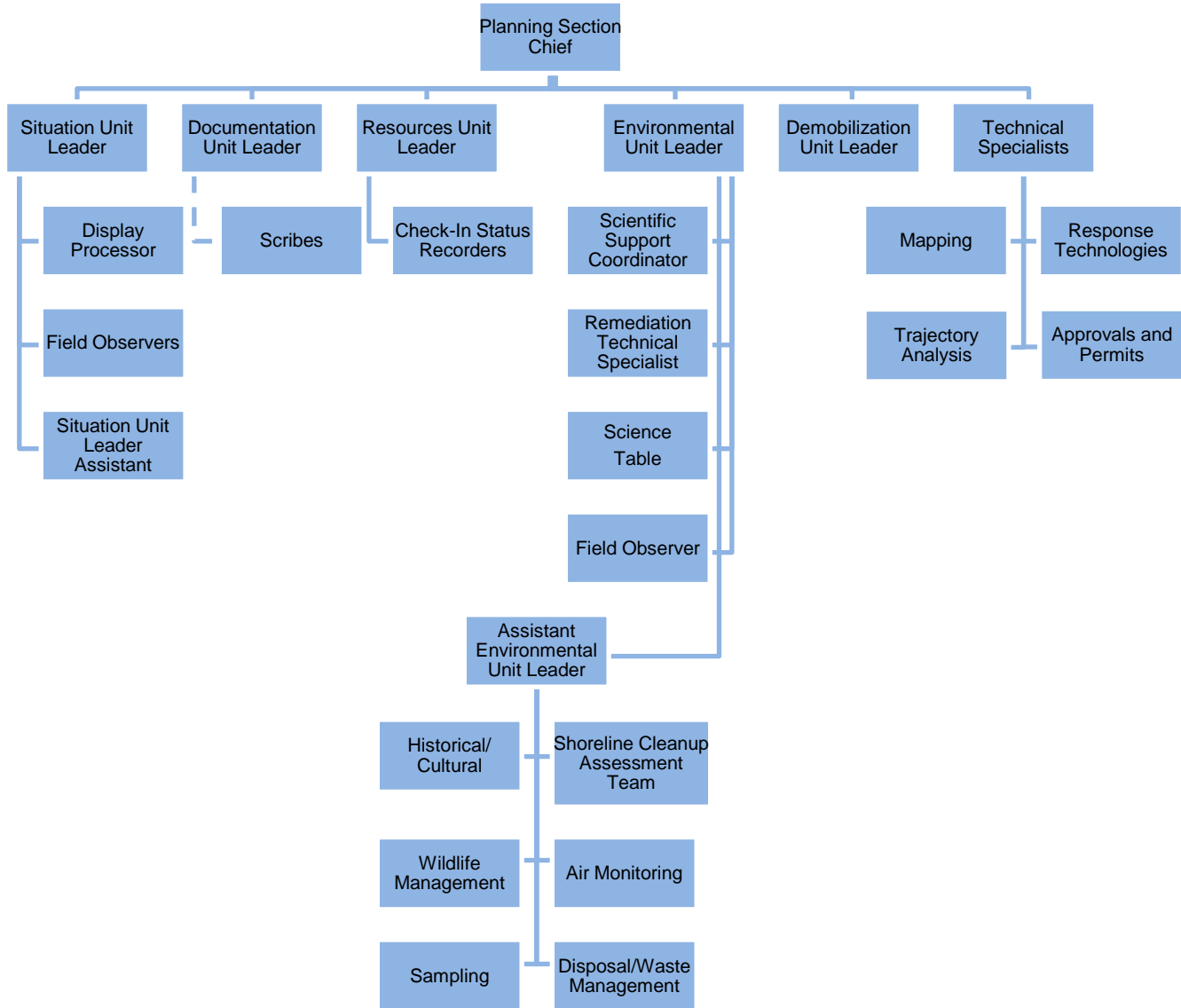
10.1 Planning Section Chief

The Planning Section Chief, a member of the General Staff, is responsible for collecting, evaluating, disseminating, and using information about the incident and status of resources. Information is needed to:

- 1) understand the current situation,
- 2) predict probable course of incident events, and
- 3) prepare alternative strategies for the incident.

10.2 Planning Section Organization Chart

Not all roles will be filled for all incidents; however the following chart is an outline of the possible positions, and reporting structure. Detailed descriptions of each position and its duties can be found in the Trans Mountain ICS Guide (Emergency Management Toolkit) and the Northwest Area Contingency Plan (<http://rrt10nwac.com/NWACP/Default.aspx>).



NOTE: This is an example of possible reporting structure, the actual reporting structure will be determined at the time of an incident by the Section Chief and Unit Leaders.

10.3 Environmental Unit Leader

The Environmental Unit Leader is responsible for environmental matters associated with the response, including strategic assessment, modeling, surveillance, and environmental monitoring and permitting. The Environmental Unit prepares environmental data for the Situation Unit. Most Technical Specialists engaged during the response will be assigned to the EUL. For a detail description of the duties associated with the Environmental Unit Leader please see the Trans Mountain ICS Guide (Emergency Management Toolkit) and the Northwest Area Contingency Plan (<http://rrt10nwac.com/NWACP/Default.aspx>).

Note: In Washington State, the Environment Unit Leader is a government natural resource trustee agency representative OR other individual designated by Unified Command.

10.4 Monitoring and Sampling

10.4.1 Spill Monitoring

Visual observations of spilled product will be reported using a standard format on a map. If weather allows, the best surveillance is done from helicopter overflights. Overflights should be planned at least twice per day; at first light and just prior to sunset to provide timely input to operations plans. Overflight observations should be annotated on maps or charts of the area, and preferably include photography or video recordings of the oiled and non-oiled areas. In low light and/or fog conditions Trans Mountain will request NRC to deploy their tracking buoys in marine waters and/or rivers to assist with tracking oil movements.

10.4.2 Sampling

Oil samples will be collected from the source of the spill and from key concentrations of oil in the environment. Source samples should be collected as soon as possible after the incident to help characterize the spilled oil. Field samples should be collected to characterize the oil that has impacted shorelines or sensitive areas.

All samples for chemical analysis must be collected in chemically clean jars, sealed, labelled, and kept refrigerated until processed in the laboratory. **Chain-of-Custody** forms must be initiated by the person collecting the samples and maintained through delivery to the laboratory. Specific lab analyses to be performed will depend on the situation and needs to be established at the time of the incident. Accredited laboratories, to be recommended by Technical Advisors at the time of an incident, are to be used for all analyses.

10.4.3 Air Monitoring

Air monitoring will take place immediately upon confirmation of a release. Initial monitoring will occur downwind of the incident using personal air monitoring equipment carried by all Trans Mountain personnel. The initial air monitoring will occur continuously, and results recorded if the personal air monitor alarms. Any alarm levels will be recorded along with the location and time on the gas detection record form. The person responsible for air monitoring will then begin to move away from the source in a down wind direction to determine the extent of potential air contamination. This will assist first responders with setting up a response zone. As more equipment and personnel arrive in the area a more detailed air monitoring plan will be developed under the direction of Unified Command to allow responders to evaluate air contamination for human health impacts. Air monitoring contractors will be called to assist with the development of the air monitoring plan and collect field samples with additional specialized equipment. All records will be forwarded to the Command Post at the end of each shift. Real time air monitoring will be reported directly to Safety Watch immediately if occupational and/or human health

criteria are exceeded, or upon request. Safety Watch will report any result that exceeds occupational health criteria to the Safety Officer immediately, and any other air monitoring results upon requested by the Safety Officer, as needed. The public will be informed of air monitoring results, as they become available via regular updates from the Information Officer and/or the Joint Information Center.

10.5 Demobilization

Trans Mountain will develop a Demobilization Plan, to ensure the resources available are what is required. Therefore, emphasis must be placed on establishing efficient demobilization procedures. Further information on the Demobilization Unit Leader is available in the Incident Command System Guide located on Emergency Management Toolkit

10.5.1 Demobilization Procedures

- Operations Section will determine which resources are ready for release from a specific collection site
- The Planning Section will provide guidance on release priorities and demobilization recommendations
- Information maintained by the Planning Section will be utilized to assist in the prioritization
- Decontaminated equipment will be returned to appropriate staging area for release or re-deployment
- Transports for equipment will be required if remote from staging area
- The Planning Section will document all demobilization and decontamination activities
- Equipment designated for re-assignment will be mobilized to the appropriate staging area
- The Division Supervisor will ensure a log is maintained documenting that proper decontamination procedures are performed for each piece of equipment
- The Operations Section will ensure that redeployed personnel receive proper rest prior to returning to duty. The Planning Section Chief will monitor personnel redeployment activities to ensure number of hours worked is within acceptable guidelines Planning Section Resources

10.6 Planning Section Resources

10.6.1 Northwest Area Contingency Plan

This plan is intended for use as a guideline for coordination of spill response actions and to ensure consistency in response to spills. Federal and state rules require that a Responsible Party (RP), or spiller, must be able to manage spills with a pre-designated response management organization that accommodates a unified command structure in recognition of federal, state, tribal or local jurisdiction.

The plan will assist the Planning Section with area specific information and can be found at:

<http://rrt10nwac.com/NWACP/Default.aspx>

10.6.2 Washington State Geographic Response Plans

Geographic Response Plans (GRPs) guide early response actions in the aftermath of an oil spill. GRPs are made up of pre-identified response strategies for specific areas of Washington State at risk from spills. Response Strategies are designed to minimize impacts to sensitive environmental, cultural and economic resources.

For additional information regarding Washington State's Geographic Response Plans click on the link below.

<https://ecology.wa.gov/Regulations-Permits/Plans-policies/Contingency-planning-for-oil-industry/Geographic-response-plans-for-oil-spills>

All Washington State Geographic Response Plans can be found at the following URL;

<https://www.oilspills101.wa.gov/northwest-area-contingency-plan/geographic-response-plans-grps/list-of-geographic-response-plans/>

GRPs applicable to Trans Mountain’s operating area are listed in the table below.

GRP Name	Link to Area Specific GRP
Nooksack River	https://www.oilspills101.wa.gov/northwest-area-contingency-plan/geographic-response-plans-grps/nooksack-river-grp/
North Central Puget Sound	https://www.oilspills101.wa.gov/northwest-area-contingency-plan/geographic-response-plans-grps/north-central-puget-sound-grp/
Lower Skagit	https://www.oilspills101.wa.gov/northwest-area-contingency-plan/geographic-response-plans-grps/lower-skagit-grp/
Samish River	https://www.oilspills101.wa.gov/northwest-area-contingency-plan/geographic-response-plans-grps/samish-river-grp/
North Puget Sound	https://www.oilspills101.wa.gov/northwest-area-contingency-plan/geographic-response-plans-grps/north-puget-sound-grp/
Sumas River	https://www.oilspills101.wa.gov/northwest-area-contingency-plan/geographic-response-plans-grps/sumas-river-grp/

10.6.3 Washington State Department of Ecology – Spills

The Spill Program’s vision is to prevent, prepare for and respond aggressively to oil spills; to be our best for the State of Washington. Our goal is “zero spills”. The Spills Program’s mission is to protect Washington’s environment, public health, and safety through a comprehensive spill prevention, preparedness, and response program. The Spills Program was created by the Washington Legislature in 1997 to prevent, prepare for and respond to oil and hazardous material releases from regulated oil-handling facilities and vessels. The spills website has many links that may be useful, which is found at: <http://www.ecy.wa.gov/programs/spills/spills.html>

10.6.4 Trans Mountain – Geographic Information Systems

Trans Mountain has a Geographic Information System (GIS) that can be utilized in a number of ways to support incident response including the mapping of the incident, tracking and trajectory of released product which enhances scission making ability on the clean-up efforts.

The GIS includes information on the location and size of the pipeline, valve locations and types, break out tanks, containment structures, control stations, safety equipment, the pipeline right of way and access and control points. It also contains information in regards to sensitive natural, cultural and economic area information, public resources, water intakes, aquifers, monitoring wells, drinking water supplies, topography of the area and applicable geographic response plans, control point locations and the location of response equipment and its staging locations. GIS tools are able to complete oil spill trajectory modelling and assist with the development of the incident/drill common operating picture. Software is

updated regularly including ESRI data lifecycle updates which take place every two years. GIS tools will be updated following a drill or spill event should applicable lessons learned be identified.

10.7 Shoreline Cleanup Planning Standards

A Shoreline Assessment Program will be established in accordance with Section 9421 of the Northwest Area Contingency Plan. This plan establishes a SCAT Program including reconnaissance activities, cleanup recommendations, treatment endpoints, and the final sign off process. SCAT surveys will occur before shoreline cleanup operations begin.

10.7.1 Shoreline Types

A good understanding of oil penetration and retention is essential for establishing shoreline response priorities. The degree to which oil will penetrate a shoreline depends primarily on the permeability of the sediment and the viscosity of the oil. Gravel beaches, for example, have high permeability and are easily penetrated by light to heavy weight oils. On the other hand, fine sandy beaches and mud flats are not easily penetrated by many oils. This is especially true if these beaches are wet before contact with oil.

Oil retention is governed by the rate at which environmental factors remove oil from a given shoreline. These factors include wave energy, natural erosion, tidal action, evaporation, and biodegradation. Areas that experience high wave energy or high natural erosion should be given a lower priority for response because these processes will eventually force the oil into the water column where it will undergo biodegradation. By comparison, oil retention will be high in calm shoreline areas that do not experience high wave energy. Therefore, these areas should receive higher priorities for protection and cleanup. The shoreline types that could be impacted by an oil spill from Trans Mountain include the following:

- ESI 3 – Fine to Medium Grained Sand Beaches and Unvegetated Steep Riverbanks
- ESI 4 – Coarse Grained Sand Beaches
- ESI 5 – Mixed Sand and Gravel Beaches
- ESI 6A – Gravel Beaches – Pebbles to Cobbles
- ESI 6B – Gravel Beaches – Cobbles to Boulders
- ESI 7 – Exposed Tidal Flats
- ESI 8A – Sheltered Vertical Rocky Shores & Solid, Vertical, Man-Made Structures
- ESI 8B – Sheltered Rubble Slope
- ESI 9A – Sheltered Tidal Flats of Sand and Mud
- ESI 9B – Sheltered Vegetated Low Bank
- ESI 10 – Salt & Fresh-Water Marshes (Herbaceous & Woody Vegetation)

In the event of an oil spill, Environmental Sensitivity (ESI) Maps will be used to determine the specific shoreline types at risk of being oiled. ESI maps are prepared by NOAA and can be found in various online mapping applications including NOAA's Environmental Response Management Application (ERMA) found:

<https://erma.noaa.gov/northwest#/layers=1&x=122.53357&y=48.63410&z=10.2&panel=layer>

Each shoreline type presents unique challenges and considerations when responding to oil on the shore. The NWACP Section 9420 provides detailed *descriptions*, *predicted oil impacts*, and *response considerations* for each of the aforementioned shoreline types. Trans Mountain is committed to using the information and tools in the NWACP, including *9420 Northwest Area Shoreline Countermeasures*

Manual and Matrices; 9421 Shoreline Cleanup and Assessment (SCAT) Response Tool; 9422 Shoreline Segmentation Guidance for Shoreline Cleanup and Assessment Techniques (SCAT).

10.7.2 Contracted Resources for Shoreline Cleanup

Through a contract with NRC, Trans Mountain meets all of the planning standards for shoreline cleanup (WAC 173-182-522). This includes access to:

- (a) one hundred trained shoreline clean-up workers;
- (b) trained shoreline clean-up supervisors;
- (c) adequate equipment for passive recovery for three miles of shoreline on three tide lines;
- (d) shoreline clean-up mobile storage cache that can support eighty to one hundred shoreline clean-up workers with personal protective equipment, hand tools, and other logistical support for three to five days.

The shoreline cleanup response trailers are detailed on the WRRL at www.wrri.world. Details about staging of passive recovery equipment and logistical resources for sourcing additional equipment are detailed in NRC's PRC Application. Information on the training program for shoreline cleanup supervisors and shoreline cleanup workers can be found in NRC's application.

10.7.3 Shoreline Cleanup Data Management

A shoreline cleanup data management plan (including data collection, data communication, and data transmission) will be developed in accordance with the guidance in the NWACP section 9421. Depending on the scale of the response, data management may be handled by the SCAT Coordinator or a delegated Data Manager.

10.8 Air Monitoring Plans

Trans Mountain contractors will conduct air monitoring during an unplanned release event to obtain accurate and reliable data. Trans Mountain will utilize its Air Monitoring Plan - *Public Health Assessment & Response Plan for Airborne Risks* to determine action level criteria and subsequent actions to be taken to protect the public. The Air Monitoring Plan is a supplemental document to the Emergency Response Plan stored in the Emergency Management Toolkit. The plan can also be found at the back of this section.

Public Health Assessment & Response Plan for Airborne Health Risks



PUBLIC HEALTH ASSESSMENT AND RESPONSE PLAN FOR AIRBORNE HEALTH RISKS ASSOCIATED WITH PIPELINE/TERMINAL OPERATIONS AND INCIDENTS (AIR MONITORING PLAN)

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Plan Maintenance

Responsibility

The accountability for the Public Health Assessment and Response Plan for Airborne Health Risks Associated with Pipeline/Terminal Operations and Incidents (Air Monitoring Plan) development and maintenance is a combined effort by the Trans Mountain Manager, Emergency Management and the Manager, Environment. This accountability is such:

The document is owned by the Emergency Management Program as a supplemental plan to the Emergency Response Plan (ERP), however it is developed and maintained in cooperation with the Environment Protection Program who is responsible for the implementation of the Air Monitoring Plan during an emergency.

The administrative management for the Air Monitoring Plan will be administered by the Emergency Management Program.

Plan Revisions

All requests for change must be made through the Manager, Emergency Management using the Revision Request Form located in this section of the manual.

Revisions after Release or Exercise

In the event that Trans Mountain experiences an incident (worst case or otherwise), or conducts an exercise or training session, the effectiveness of the ERP and its supplemental plans will be evaluated and updated as necessary.

Changes in Operating Conditions

If a new or different operating condition develops, or if new information which would substantially affect the implementation of the ERP and its supplemental plans is identified, then Trans Mountain will modify these to impacted Plans to address such changes.

Revision Request Form

Requested by:	Date:
Dept/Agency:	Phone No.:
Revision Type: ___ Addition ___ Deletion ___ Correction	
Manual Section:	Page:
Revision (attach separate sheet if necessary):	
Signature of Requestor:	
Send to: Manager, Emergency Management Trans Mountain 2700-300 - 5 th Avenue S.W. Calgary, AB T2P 5J2 Canada Fax: (403) 514-6401	

To be completed by Manager, Emergency Management	
Date Received:	Comments:
Date Reviewed:	
Issued as Revision: Y/ N	
If No, reason for Rejection:	
Signature Manager, Emergency Management:	

Control Sheet

Revision Number	Date of Revision	Change(s)	Name
1	January 2018	New Plan Issued	J. Kereliuk
2	February 2020	Plan updated: <ul style="list-style-type: none"> • Change of title of the plan to <i>Public Health Assessment and Response Plan for Airborne Health Risks Associated with Pipeline/Terminal Operations and Incidents</i> • Revision of scope to include large, scheduled maintenance events • Movement of content (Section 4.0) and change of title, to Section 3.0 <i>Air Monitoring Initiation</i> • Addition of new content Section 3.2 <i>Initial Air Monitoring Strategy</i> • Movement of tables <i>Air Monitoring for Product Release</i> and <i>Air Monitoring for Fire</i> from Appendix to Section 3.0; titles changed • Movement of table <i>Standards for PCOCs</i> from Section 3.0 to Appendix II – Standards for PCOCs • Addition of appropriate references to the Health Authority to Development of Evacuation Zones and Shelter-in-Place Criteria (Section 3.3.1) • Additional content to Fixed Reading Monitors (Section 3.5.1) • Additional content to Direct Reading Monitors (Section 3.5.2) • Applicable Guidelines and Action Levels (Section 4.0) improved readability by creating subsections • <i>Applicable Guidelines and Action Levels</i> clarification of language, with the addition of the term ‘guidelines’ • Addition of United States Environmental Protection Agency – Acute Exposure Guideline Levels to the guidelines and standards • Revised Appendix II – Standards for PCOCs to have ppb and ppm units; added additional guideline criteria for reference 	K. McLernon
3	July 2021	<ul style="list-style-type: none"> • Revision of Appendix II - Standards for PCOCs guideline criteria limits 	

4	April 2022	<ul style="list-style-type: none">• Updated to include TMEP (Trans Mountain Pipeline System)• Removal of acronym AMP• Section 2.0, Updated “Environment Unit Lead” to “Environment Unit Leader”• Additional content to Fixed Reading Monitors (Section 3.5.1)• Addition of Appendix III - Detection by Terminal Permanent Air Monitoring Stations• Clarification that the EUL can also initiate the Air Monitoring Plan	
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1.0 INTRODUCTION

The protection of air quality in an emergency is a priority for Trans Mountain. Monitoring and mitigation of impacts during the response to a release is a main focus of the Incident Management Team, which will establish, and be located in, the Incident Command Post (ICP). The timely assessment of the condition of air quality provides valuable information, allowing for assessment of public health risk and protection of neighbouring communities.

The fundamental concepts of the Public Health Assessment & Response Plan for Airborne Risks (“Air Monitoring Plan”) are initiated upon declaration of an emergency through the TAS process and are maintained until the development of the incident specific air monitoring plan. The incident specific air monitoring plan evolves from the Air Monitoring Plan and will be scaled according to the magnitude of the incident.

The Air Monitoring Plan will function as a “living document” in which information collected during sampling and monitoring will be used to continuously update the response strategies and monitor their effectiveness to achieve the objectives as laid out in the Incident Action Plan (IAP).

1.1 Scope

In the event of an emergency that impacts, or potentially could impact, air quality and has the potential to affect the public, the Air Monitoring Plan will be activated in conjunction with the appropriate ERP. The Air Monitoring Plan is considered a subset of Trans Mountain’s ERP(s) and has been developed to align with the Incident Command System (ICS).

1.1.1 Maintenance Events

The plan will also guide air monitoring during large scheduled maintenance events, particularly **Appendix II – Standards for PCOCs: Sources and Detection Limits**. If it is identified that air monitoring is required, Air Monitoring Team(s) will be assembled, and an event specific plan will be generated in consultation with the EH&S Director and Operations Manager.

Should monitoring data indicate that an action level is reached, the Air Monitoring Team, in conjunction with the EH&S Director and Operations Manager, will initiate an assessment of public health risk. Using the guidelines and objectives in **Section 3.2**, as well as **Table 3-1 Initial Air Monitoring Action Levels and Response Strategies for Product Release and Fire** and **Appendix II – Standards for PCOCs: Sources and Detection Limits** as reference material, the Team will evaluate the data and consult with the Medical Health Officer of the Health Authority with jurisdiction to determine if the air monitoring strategy should be adjusted and if additional public safety measures should be recommended and/or communicated. Should public safety measures be recommended, the Trans Mountain Emergency Response Plan (ERP) will be activated, and an ICP, including an Environmental Unit (EU) will be stood up.

1.2 Objectives

The objectives of the Air Monitoring Plan are to:

- Anticipate and identify Potential Chemicals of Concern (PCOC) from product releases and/or fires;
- Evaluate, via proper monitoring principles, public health exposures;
- Facilitate development and implementation of incident-specific air monitoring and response strategies to protect the public; and
- Identify action levels for PCOC that triggers assessment of public health risk.

1.3 Implementation of the Air Monitoring Plan

Activation of the Trans Mountain ERP will occur when an emergency is declared. Once an emergency is declared, and a need is identified for air monitoring, the Air Monitoring Plan will be initiated, and the Air Monitoring Team(s) will be mobilized.

The Air Monitoring Plan will be used in conjunction with other appropriate plans for the response phase of the incident until the incident specific air monitoring plan is developed. These plans will be used during the transition from a response phase to the remediation phase as determined by Unified Command. Implementation of the Air Monitoring Plan is a function of the Planning Section's EU.

2.0 ROLES AND RESPONSIBILITIES FOR INCIDENTS

The following personnel are responsible and accountable for carrying out their specific duties to complete the requirements under the Air Monitoring Plan.

2.1 Environmental Unit Leader

The Environmental Unit Leader (EUL) is responsible for environmental matters associated with the response including ambient air monitoring for public health exposure. The EUL is responsible for the implementation of the Air Monitoring Plan. Duties for this role can be found in the Trans Mountain ICS Guide.

The Assistant Environmental Unit Leader supports the primary EUL with oversight and management of Technical Specialists.

2.2 Air Monitoring Technical Specialist

The Air Monitoring Technical Specialist is part of the EU and is responsible for implementation of the Air Monitoring Plan and development of the incident specific air monitoring plan. The incident specific air monitoring plan outlines the monitoring of ambient air quality in nearby communities potentially impacted by a release.

The Air Monitoring Technical Specialist initiates the Air Monitoring Plan by contacting and deploying the Air Monitoring Team and coordinating the communication of air monitoring results from the field to Unified Command through the EUL and Planning Section Chief.

Additionally, this role coordinates closely with regulatory agencies participating within the EU to develop an incident specific air monitoring plan and assessments of public health risk. Specific duties for this role can be found in Trans Mountain’s ICS Guide.

2.3 Air Monitoring Team

The Air Monitoring Team is part of the EU and is responsible for performing air monitoring in accordance with the Air Monitoring Plan. The Air Monitoring Team is comprised of pre-identified third-party contractors based on technical knowledge, relevant experience, and response times. The third-party contractor will mobilize to the location of the incident and begin ambient air monitoring as soon as possible, once the Air Monitoring Plan has been initiated. Contractors are listed in the Confidential Appendix of the ERP.



Figure 1: Air Monitoring Positions Under Incident Command System

3.0 AIR MONITORING INITIATION DURING INCIDENTS

3.1 Initiation Timeline

3.1.1 *Trans Mountain Alert System and Initiation of the Plan*

The Air Monitoring Plan will be initiated when an emergency is declared by Trans Mountain using the Trans Mountain Alert System (TAS) process (senior management discussion). The TAS call is initiated within 30 minutes of the release being identified. At the conclusion of the TAS call, the Air Monitoring Plan will be initiated, and mobilization of the Air Monitoring Team will occur. The Air Monitoring Plan is most often initiated before the ICP for the incident has been established.

3.1.2 *Air Monitoring Team Mobilization*

Once the Air Monitoring Plan has been activated, the Air Monitoring Team (third party contractor) will be instructed to mobilize, as soon as possible, to the location of the release and begin nearby community air monitoring. This step in the response is carried out by the EUL or Air Monitoring Technical Specialist and occurs before the ICP has been established and Unified Command is operational.

The general strategy is to:

- Mobilize adequate resources to monitor nearby communities based on the information available during the TAS call;
- Prioritize sensitive receptors and downwind communities for monitoring;
- Establish appropriate monitoring perimeter between the community and the release to begin collecting real time data;
- Communicate initial air monitoring results as soon as possible to the Air Monitoring Technical Specialist; and
- Initiate electronic data website sharing for fixed system monitoring and direct reading measurements as appropriate, if available telecommunication services permit (i.e., cell service).

The Air Monitoring Team will follow the prescribed actions outlined in **Table 3-1**, until an incident specific air monitoring plan is developed and approved.

3.1.3 *Incident Command Post (ICP)*

The ICP is set up and established as soon as reasonably possible by the Trans Mountain Incident Management Team (dependent on mobilization of personnel and resources).

Appropriate local, municipal, provincial, and federal agencies will be invited to participate in the EU. The multi-jurisdictional EU lies within the Planning Section of the ICP.

3.2 Initial Air Monitoring Strategy

The initial air monitoring strategy sets out action levels for pre-identified PCOCs for product releases or fires. Action Levels are the concentration of a PCOC that trigger the EU to assess public health risk. For the purposes of the Air Monitoring Plan, action levels are set at the detection limit of the monitoring

instruments for each individual PCOC as outlined in **Table 3-1**. This strategy acts as an interim measure until the incident specific air monitoring plan is developed.

When monitoring data indicates that an action level is reached, the EUL or Air Monitoring Technical Specialist will initiate an assessment of public health risk. Using the guidelines and objectives in **Appendix II – Standards for PCOCs: Sources and Detection Limits** as reference material, the EU will evaluate the data and consult with the Medical Health Officer or Health Authority with jurisdiction to determine if the air monitoring strategy should be adjusted and if additional public safety measures should be recommended and/or communicated.

Table 3-1: Initial Air Monitoring Action Levels and Response Strategies for Product Release and Fire

Air Monitoring for Product Release			
Potential Chemical of Concern (PCOC)	Action Level	Instrument	Action to be Taken
Total volatile organic compounds (TVOCs)	Detection - 0.1 ppm	MultiRAE	EU to assess public health risk.
		AreaRAE	
Benzene (C ₆ H ₆)*	Detection - 0.05 ppm	UltraRAE 3000	EU to assess public health risk. Request Air Monitoring Team to increase frequency of benzene sampling.
		Gastec tube (or similar) #121L	
Sulphur dioxide (SO ₂)	Detection - 0.1 ppm	MultiRAE	EU to assess public health risk.
Hydrogen sulphide (H ₂ S)	Detection - 0.1 ppm	MR Pro Sensor	
		MultiRAE PID	
Air Monitoring for Fire			
PCOC	Action Level	Instrument	Action to be Taken
Particulate matter 10 micrometers (PM10)	Detection - 0.001 mg/m ³	DustTrak Aerosol Monitor	EU to assess public health risk.
Particulate matter 2.5 micrometers (PM2.5)	Detection - 0.001 mg/m ³	DustTrak Aerosol Monitor	
Carbon monoxide (CO)	Detection - 1 ppm	MultiRAE Sensor	
	Detection - 0.5 ppm	Gastec tube #1LC	
Nitrogen dioxide (NO ₂)	Detection - 1 ppm	MultiRAE PID	
	Detection - 0.1 ppm	MultiRAE Sensor	
	Detection - 0.1 ppm	Gastec tube #9L	

*Measure benzene at detection of VOC.

3.3 Development of an Incident Specific Air Monitoring Plan

Once the ICP is established, the local, regional, provincial/state and federal agencies with jurisdiction present in the EU will participate in the development of an incident specific air monitoring plan coordinated by the EUL and/or Air Monitoring Technical Specialist. The initial (general) strategy, as per **Section 3.2, Table 3-1**, will be maintained until the incident specific air monitoring plan has been developed and approved by Unified Command.

Several factors will be considered during the development of the incident specific air monitoring plan:

Incident Details	<ul style="list-style-type: none"> • Location (i.e., physical address, or global positioning system [GPS] coordinates) • Type and amount of product released and/or on fire • Safety Data Sheets (SDS) for released product • Exclusion zone air monitoring results
Receptors	<ul style="list-style-type: none"> • Location in relation to product release and/or fire <ul style="list-style-type: none"> ○ i.e., distance, down-wind/stream, up wind/stream • Type of receptors <ul style="list-style-type: none"> ○ i.e., intermediate, commercial, industrial, farmland, residential, schools, daycares, hospitals, immune compromised individuals
Location Details	<ul style="list-style-type: none"> • Urban versus rural setting • Accessibility • Weather conditions • Inversions • Exclusion zone boundary • Land ownership (i.e., private versus public) • Aerial maps
Sample Methodologies	<ul style="list-style-type: none"> • Equipment capability <ul style="list-style-type: none"> ○ i.e., range, resolution, specificity, chemical interferences, previous results, data extrapolation
Plume Dispersion Model	<ul style="list-style-type: none"> • Where required inputs are available, a plume dispersion model will be prepared to help determine potential inhalation hazards.

Due to the time delay from air sample collection and the subsequent laboratory analysis, the response strategies will be based on the real-time air monitoring. The EU may decide that air sampling and laboratory analysis is required for additional reference of subsequent effects depending on the severity of the emergency and the potential for elevated levels of non-real time measurable PCOCs.

The multi-jurisdictional agencies and the Air Monitoring Technical Specialist within the EU will discuss the above details to determine the most practical monitoring strategy for the incident specific air monitoring plan, including the identification of, and if necessary, the initiation of additional monitoring.

The air monitoring actions levels and response strategies will be updated, as necessary, from those described and implemented initially (as per **Section 3.2, Table 3-1**).

3.3.1 Development of Evacuation Zones and Shelter-In-Place Criteria

Trans Mountain does not have the authority to independently issue public safety orders (i.e., evacuation (of area) or shelter in place). Public safety orders will be issued by the Local Authority, and/or the Health Authority. Public safety actions can be recommended by the Unified Command, based on air monitoring data and recommendations provided by the EU. The EUL and/or Air Monitoring Technical Specialist will provide input to the Incident Commander until the EU and Unified Command has been established.

When a PCOC action level is detected, the EU will initiate an assessment of public health risk. In the event that the EU recommends a public safety order be issued, the Planning Section Chief will be notified with an ICS-213 general message form for escalation to the Unified Command.

Refinement of the proposed evacuation zone may be made by the Unified Command, the Local Authority, Fire Department, and/or the Health Authority. Additional considerations in the determination of evacuation zones can include receptor profiles, time of day and weather, transportation routes and methods, and stability of situation.

3.4 Reporting Timeframes

The timeframes for reporting data are dependent on the conditions of the specific release.

Factors that may affect reporting timeframes are:

- Time the release occurs (i.e., middle of the night versus Monday morning);
- Time for contractor staff to mobilize to the location (i.e., rural or urban location);
- Time to set up the ICP (i.e., travel time for Trans Mountain staff and participating regulators to arrive at the ICP location); and/or
- Access and setup time of typical telecommunication systems (i.e., data sharing website, ICP communications).

3.4.1 Initial Air Monitoring Data Results

The TAS call will occur within 30 minutes of the emergency being identified. At the conclusion of the TAS call, mobilization of the Air Monitoring Team will be initiated. An initial report briefing will be provided by the Air Monitoring Team to the Air Monitoring Technical Specialist within 1-hour of the Team's arrival to the site. The information report, via phone or radio, should include the number of individuals composing the Air Monitoring Team, the instruments being used and preliminary monitoring results.

3.4.2 Updates and Monitoring Data

In urban areas, telecommunications allow the contractor to set up a secure website for data sharing where direct reading results and fixed monitoring data is updated in real time.

Permanent ambient fence line data is available in real time at the Edmonton, Sumas and Burnaby Terminals and at the Westridge Marine Terminal. Local regional ambient air monitoring stations provide

publicly available data online for urban areas in both British Columbia and Alberta which can also be accessed.

Updates regarding air monitoring data will be communicated to the Planning Section Chief for inclusion in situational updates provided to Unified Command. The frequency of the air monitoring updates will be determined by the Planning Section Chief in consultation with the EUL.

Updates, in rural locations, will be made via radio or cell phone to the Air Monitoring Technical Specialist; the frequency of these updates will be established by the EUL and/or Air Monitoring Technical Specialist and the Air Monitoring Team based on air monitoring results and potential risk to nearby communities.

3.5 Monitoring Equipment

3.5.1 Permanent Monitors

Permanent air monitoring stations that provide continuous monitoring of VOCs, ozone, and toxic gases are in place at the Edmonton, Sumas, Burnaby, and Westridge Marine Terminals. Meteorological parameters like air temperature, relative humidity, wind speed and direction, atmospheric pressure, and precipitation are also continuously measured (see **Appendix III - Detection by Terminal Permanent Air Monitoring Stations**).

3.5.2 Fixed Reading Monitors

AreaRAE instruments are used as fixed air monitoring units during an incident that utilize wireless technology to send real time data to the EU for up to five sensors including: LELs, O₂, VOCs, and toxic gases (H₂S, SO₂, CO or NO₂). Fixed air monitoring units, when available, will be set up around the impacted area to assess migration of air emissions.

3.5.3 Direct Reading Monitors

Mobile air monitoring teams are deployed to nearby communities or public areas to assess ambient air quality using direct reading instruments. Direct reading monitors, or instruments with similar capabilities, that may be used include the following:

- ppbRAE (TVOCs ppb);
- MiniRAE (TVOCs ppm);
- MultiRAE (Lite, Regular, or Pro), Q-RAE Plus or VRAE (H₂S, SO₂, LEL, CO, NO₂);
- UltraRAE or UltraRAE-3000 (benzene when equipped with benzene SEP tubes); and
- SidePak AM510 Aerosol Monitor or DustTrak DRX Aerosol Monitor.
(Note: this unit is not intrinsically safe [PM10, PM2.5]).

Where cellular service is available, air monitoring data will be digitally communicated in real time to the Air Monitoring Technical Specialist via a secure website.

3.6 Daily Reports

Reports will be produced by the Air Monitoring Team summarizing the activities, conditions, and sampling. Reports will be prepared as per **Appendix IV – Daily Monitoring Report Summary (Product Releases)** and **Appendix V – Daily Monitoring Report Summary (Fire)**.

The monitoring report will be submitted daily or when milestone events occur (i.e., phase of on-site clean-up completed, significant weather changes, and exclusion zone expansion/contraction).

4.0 APPLICABLE GUIDELINES AND ACTION LEVELS

4.1 Standards and Guidelines

In the event of a release, or fire, standards and guidelines that are used to assess public safety are:

- Ambient Air Quality Objectives;
- Occupational Exposure Limits; and
- Acute Exposure Guideline Levels.

Appendix II – Standards for PCOCs: Sources and Detection Limits outlines the published, recognized standards and guidelines for ambient air quality, worker exposure limits, and acute public exposure levels applicable to the measurable PCOCs for a product release or fire.

The standards and guidelines used during an emergency scenario include, but are not limited to, the following, depending on the location of the emergency:

- Alberta Ambient Air Quality Objectives and Guidelines;
- The Alberta Occupational Health and Safety Code: Schedule 1 – Occupational Exposure Limits for Chemical Substances;
- BC Ambient Air Quality Objectives and Guidelines;
- British Columbia Occupational Health and Safety Regulation: Section 5.48 – WorkSafeBC – Table of Exposure Limits for Chemical or Biological Substances;
- Metro Vancouver’s Ambient Air Quality Objectives and Guidelines; and
- United States Environmental Protection Agency – Acute Exposure Guideline Levels.

In some cases, a monitoring instrument’s detection limit is not low enough to detect actionable levels of PCOCs in ambient air quality. For some substances Acute Exposure Guideline Levels (AEGL) have not been published or are less conservative than the substance's Occupational Exposure Limits (OEL). For these reasons, all listed standards and guidelines should be referenced and considered when assessing public health risk and when developing the incident specific air monitoring plan.

5.0 MONITORING PRODUCT RELEASES

5.1 Potential Chemicals of Concern

The list of real time measurable PCOCs has been pre-determined based on available crude product information and Safety Data Sheets (SDS).

Table 5-1 outlines the *Direct Reading PCOCs*¹ for crude product release compounds.

Table 5-1: Direct Reading PCOCs identified by Trans Mountain – Product Release

Product Type: Crude Oil & Refined Product	
Benzene (C ₆ H ₆)	Sulfur dioxide (SO ₂)
Total volatile organic compounds (TVOCs)	Hydrogen sulfide (H ₂ S)

Comprehensive analysis of Canadian crude oil properties, which has the most frequent updates, can be found at www.crudemonitor.ca—a committee-driven and industry-funded initiative to maintain historical information on crude types.

6.0 MONITORING FIRES

6.1 Potential Chemicals of Concern

Fires may involve crude oil or refined products. The list of real time measurable PCOCs has been pre-determined based on available chemical product information and SDS.

Table 6-1 outlines the *Direct Reading PCOCs* for fire compounds:

Table 6-1: Direct Reading Fire PCOCs

Product Type: Crude Oil & Refined Product	
Benzene (C ₆ H ₆)	Sulfur dioxide (SO ₂)
Total volatile organic compounds (TVOCs)	Hydrogen sulfide (H ₂ S)
Carbon monoxide (CO)	Nitrogen dioxide (NO ₂)
Particulate matter 10 micrometers (PM ₁₀)	Particulate matter 2.5 micrometers (PM _{2.5})

¹ The identification of additional PCOCs for monitoring, could occur, based on the actual product involved and the specifics of the incident; these would be noted in the preparation and updating of the incident specific air monitoring plan by the multi-jurisdictional agencies and the Air Monitoring Technical Specialist within the EU

7.0 COMMUNICATION

7.1 Air Monitoring Team and Environment Unit

Communications between the EU and the Air Monitoring Team is paramount to meet the objectives of the Air Monitoring Plan. Once community monitoring has commenced, the Air Monitoring Team will:

- Continually evaluate the monitoring results, and the status of the product release and/or fire is contained and stable;
- Notify the EU immediately upon detection of PCOCs as identified in **Appendix II – Standards for PCOCs: Sources and Detection Limits**;
- Set up a secure website to share direct reading and fixed monitoring data in real time to the EU, where possible; and
- Prepare and submit daily monitoring reports to the EU—see **Appendix IV – Daily Monitoring Report (Product Releases)** and **Appendix V – Daily Monitoring Report Summary (Fire)**.

7.2 Communication Methods to At-Risk Populations

If public communications to at-risk populations in relation to air quality is required, the EU will draft an *ICS-213 General Message Form* and deliver it to:

- The Operations Section Chief;
- The Information Officer; and
- The Liaison Officer.

Protocols and supplemental plans, including the Liaison Officer agency briefings and the Trans Mountain Crisis Communications Plan, will be utilized to distribute the messaging in coordination and collaboration with the participating jurisdictions and regulatory bodies. At risk populations will be identified and measures taken to reinforce communications of key and pertinent messages by the Joint Information Office in conjunction with the Liaison Officer.

8.0 RECORDS AND RECORD MAINTENANCE

All related air monitoring documentation will be maintained in the incident file as outlined in the ERP.

APPENDIX I – DEFINITIONS AND ACRONYMS

Definitions

Action Level	The concentration of a PCOC that requires the EU to assess public health risk.
Alarm Level	The level at which the instrument alarms to notify personnel of a hazardous environment.
Direct Reading	Instruments that permit real-time measurements of air contaminants.
Emergency	<p>A condition that results in or may result in:</p> <ul style="list-style-type: none"> • Death or injury requiring hospitalization; • Explosion or fire; • Leak, rupture or release; and/or • Any significant event such as earthquake, flood, severe storm or bomb threat that has the potential to impact inland Terminals and/or Tank Farms.
Guideline Criteria	Guideline criteria are airborne concentrations of chemicals that, if exceeded for a sustained period, may warrant actions by the unified command to protect impacted community areas and/or recommend shelter-in-place or evacuations if conditions persist. They do not represent chemical concentrations that necessarily produce health effects from short duration exposures, nor should they be used to set guidelines for repatriation and long-term exposure.
Incident Command Post	A Unified Area Command is established when incidents under an Area Command are multi-jurisdictional.
Incident Command System	A standardized on-site management system designed to enable effective, efficient incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure (as per the Trans Mountain ICS Guide).
Potential Chemicals of Concern (PCOC)	A pre-determined list of chemicals that may be released into atmosphere during a product release or fire.
Product Release	Any liquid hydrocarbon released from Trans Mountain sites, equipment or facilities.
Receptors	The public population outside of the exclusion zone, at risk of exposure to contaminants during a product release and/or fire.

Air Monitoring Team	A team of Trans Mountain staff and external third parties, who are prepared and trained to respond in the event of a product release and/or fire.
Sensitive Receptors	Receptors that may exhibit a different or enhanced response than the majority of the population when exposed to the same level of PCOC and are given additional considerations when developing sampling strategies and monitoring.

Acronyms

AAQO	Ambient Air Quality Objectives
AB	Alberta
AEGL	Acute Exposure Guideline Levels
BC	British Columbia
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
C₆H₆	Benzene
CL	Ceiling Limit
CO	Carbon Monoxide
ERP	Emergency Response Plan
EU	Environment Unit
EUL	Environmental Unit Leader
hr	Hour
H₂S	Hydrogen Sulfide
IAP	Incident Action Plan
ICP	Incident Command Post
ICS	Incident Command System
LEL	Lower Exposure Limit
mg/m³	milligrams per cubic meter
NO	Nitrogen Oxide
NO₂	Nitrogen Dioxide
NO_x	Nitrogen Oxides
O₂	Oxygen
O₃	Ozone

OEL	Occupational Exposure Limit
OHS	Occupational Health and Safety
PCOC	Potential Chemicals of Concern
PEL	Permissible Exposure Limit
PM₁₀	Particulate matter measuring less than 10 micrometers in diameter
PM_{2.5}	Particulate matter measuring less than 2.5 micrometers in diameter
ppb	parts per billion
ppbv	parts per billion volume
ppm	parts per million
ppmv	parts per million volume
SDS	Safety Data Sheet
SO₂	Sulphur Dioxide
STEL	Short Term Exposure Limit
TAS	Trans Mountain Alert System
TRS	Total Reduced Sulphur
TVOC	Total Volatile Organic Compounds
TWA	Time Weighted Average
µg/m³	micrograms per cubic meter
VOC	Volatile Organic Compounds (and Total VOC, TVOC)

APPENDIX II – STANDARDS FOR PCOCs: SOURCES AND DETECTION LIMITS

PCOC		Guideline Criteria															
		AB AAQO ¹			BC AAQO ²			Metro Vancouver AAQO ³			AB OHS OEL ⁴ 8-hr	AB OHS CL ⁴	BC OHS STEL ⁵	BC OHS TWA ⁵ 8-hr	AEGL-1 ⁶		Monitoring Equipment Detection Limit ^{**}
		1-hr	8-hr	24-hr	1-hr	8-hr	24-hr	1-hr	8-hr	24-hr				1-hr	8-hr		
H ₂ S	ppb	10	-	3	5	-	2	5 (desirable) 10 (acceptable)	-	-	10,000	15,000	10,000	-	510	330	100
	ppm	0.01	-	0.003	0.005	-	0.002	0.005 (desirable) 0.01 (acceptable)	-	-	10	15	10	-	0.51	0.33	0.1
C ₆ H ₆	ppb	9	-	-	-	-	-	-	-	-	500	2,500	2,500	500	52,000	9,000	50
	ppm	0.009	-	-	-	-	-	-	-	-	0.5	2.5	2.5	0.5	52	9	0.05
SO ₂	ppb	172	-	48	75	-	-	70	-	-	2,000	5,000	5,000	2,000	200	200	100
	ppm	0.172	-	0.048	0.075	-	-	0.07	-	-	2	5	5	2	0.2	0.2	0.1
CO	ppb	13,000	5,000	-	13,000	5,000	-	13,000	5,000	-	25,000	-	100,000	25,000	83,000	27,000	1,000
	ppm	13	5	-	13	5	-	13	5	-	25	-	100	25	83	27	1
NO ₂	ppb	159	-	-	60	-	-	60	-	-	3,000	5,000	1,000	-	500	500	100
	ppm	0.159	-	-	0.06	-	-	0.06	-	-	3	5	1	-	0.50	0.50	0.1
TPM*	ug/m ³	-	-	100	-	-	120	-	-	-	10	-	-	10	-	-	0.001
PM ₁₀	ug/m ³	-	-	-	-	-	50	-	-	50	3	-	-	3	-	-	0.001
PM _{2.5}	ug/m ³	80	-	29	-	-	25	-	-	25	-	-	-	-	-	-	0.001

1 Alberta Ambient Air Quality Objectives

2 British Columbia Ambient Air Quality Objectives

3 Metro Vancouver Ambient Air Quality Objectives

4 Alberta Occupational Health and Safety Occupational Exposure Limit

5 OHS Guidelines Part 5: Chemical Agents and Biological Agents

6 US Environmental Protection Agency Acute Exposure Guideline Level

* Particulates Not Otherwise Regulated (Total Dust)

**PCOC can be detected by fixed and mobile monitoring equipment

C₆H₆ = Benzene

CO = Carbon Monoxide

H₂S = Hydrogen Sulfide

NO₂ = Nitrogen Dioxide

PCOC = Potential Chemical of Concern

PM₁₀ = Particulate matter 10 micrometers

PM_{2.5} = Particulate matter 2.5 micrometers

SO₂ = Sulfur Dioxide

TPM = Total particulate matter

APPENDIX III - DETECTION BY TERMINAL PERMANENT AIR MONITORING STATIONS

PCOC	Westridge	Edmonton	Burnaby	Sumas	Monitoring Equipment	Measurement Intervals
H ₂ S and Mercaptan as TRS	✓	✓	✓	✓	Thermo Fisher Scientific 43iQTL with CDN 101	Continuous
SO ₂	✓	✓	✓	✓	Thermo Fisher Scientific 43iQ Sulfur Dioxide Analyzer	Continuous
NO, NO ₂ and NO _x	✓	✓	✓	✓	Thermo Fisher Scientific 42iQ NO-NO ₂ -NO _x Analyzer	Continuous
O ₃	✓	✓	✓	✓	Thermo Fisher Scientific 49iQ Ozone Primary Standard	Continuous
Total respirable PM _{2.5}	✓	✓	✓	✓	Thermo Fisher Scientific Model 5030i SHARP (Synchronized Hybrid Ambient Real-time) particulate monitor	Continuous
Respirable PM _{2.5} - speciated samples	✓	-	-	-	Met One Instruments, Speciation Air Sampling System (SASSTM)	Every 6 days
Diesel particulate matter	✓	-	-	-	Magee Scientific Aethalometer Model AE33	Continuous
VOCs as BTEX	✓	✓	✓	✓	AMA Instruments GC 5000 BTX	Continuous
Meteorological parameters	✓	✓	✓	✓	-	-

BTEX = Benzene, Toluene, Ethylbenzene and Xylene

 H₂S = Hydrogen Sulfide

NO = Nitric Oxide

 NO₂ = Nitrogen Dioxide

 NO_x = Nitrogen Oxides

 O₃ = Ozone

PCOC = Potential Chemical of Concern

 PM_{2.5} = Particulate matter 2.5 micrometers

 SO₂ = Sulfur dioxide

TRS = Total Reduced Sulphur

VOC = Volatile Organic Compound


*Meteorological parameters measured include air temperature, relative humidity, wind speed and direction, atmospheric pressure, precipitation and reduced visibility.

APPENDIX IV – DAILY MONITORING REPORT SUMMARY **(PRODUCT RELEASES)**

MONITORING REPORT		
To:	Location:	
Project No.:	Report No.:	Date:
Project Name:	Time In:	Time Out:

POTENTIAL CHEMICALS OF CONCERN		

CLEAN-UP ACTIVITIES/STATUS

SITE DIAGRAM														
														

WEATHER CONDITIONS		
Wind Direction:	Temperature:	Precipitation
Wind Intensity:	Humidity:	Other:

MONITORING LOCATIONS					
1.	Lat:	Long:	6.	Lat:	Long:
2.	Lat:	Long:	7.	Lat:	Long:
3.	Lat:	Long:	8.	Lat:	Long:
4.	Lat:	Long:	9.	Lat:	Long:
5.	Lat:	Long:	10.	Lat:	Long:

DIRECT READING SAMPLE RESULTS SUMMARY				
Location (reference # above)	TVOCs	C ₆ H ₆	SO ₂	H ₂ S

DIRECT READING SAMPLE RESULTS SUMMARY				
Location (reference # above)	TVOCs	C₆H₆	SO₂	H₂S


COMMENTS (i.e., nearby activities, odour, etc.)	
Name:	Email:
Title:	Tel:

APPENDIX V – DAILY MONITORING REPORT SUMMARY (FIRE)

MONITORING REPORT		
To:	Location:	
Project No.:	Report No.:	Date:
Project Name:	Time In:	Time Out:

POTENTIAL CHEMICALS OF CONCERN		

CONTROL ACTIVITIES/STATUS

SITE DIAGRAM													
													

WEATHER CONDITIONS		
Wind Direction:	Temperature:	Precipitation
Wind Intensity:	Humidity:	Other:

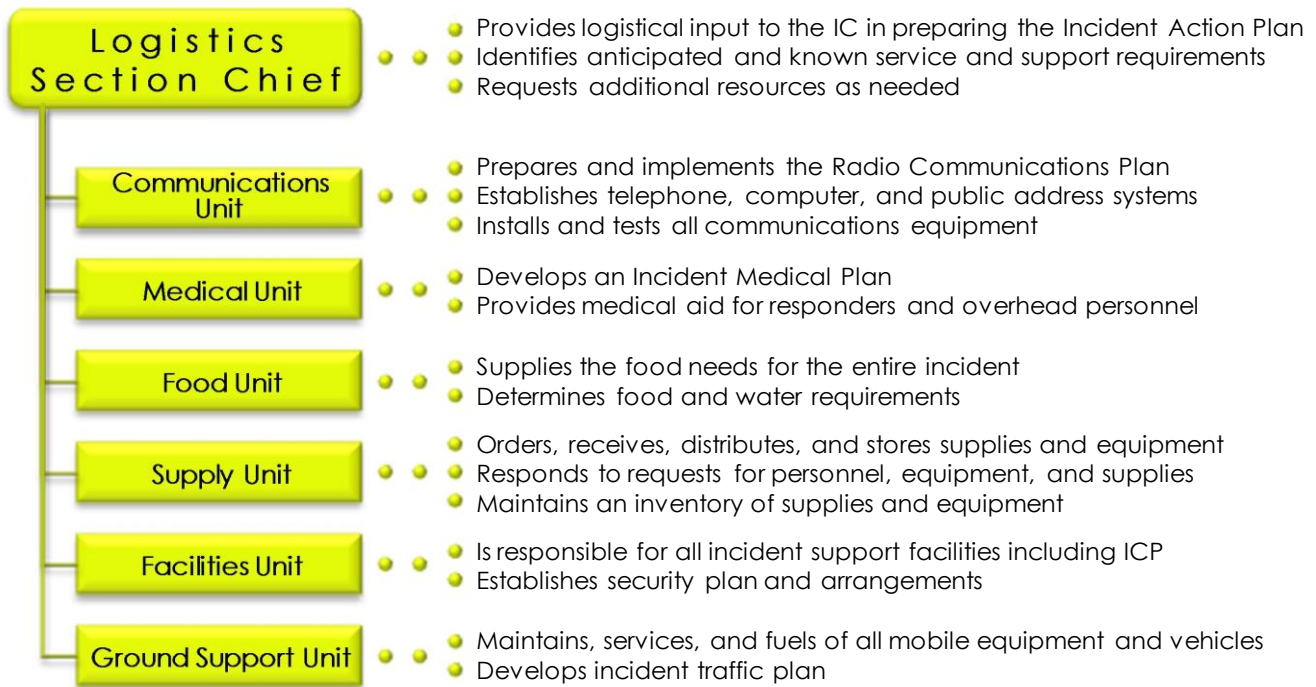
MONITORING LOCATIONS					
1.	Lat:	Long:	6.	Lat:	Long:
2.	Lat:	Long:	7.	Lat:	Long:
3.	Lat:	Long:	8.	Lat:	Long:
4.	Lat:	Long:	9.	Lat:	Long:
5.	Lat:	Long:	10.	Lat:	Long:

DIRECT READING SAMPLE RESULTS SUMMARY								
Location (reference # above)	TVOCs	C ₆ H ₆	SO ₂	H ₂ S	CO	NO ₂	PM ₁₀	PM _{2.5}

COMMENTS (i.e., nearby activities, odour, etc.)	
Name:	Email:
Title:	Tel:

11.0 LOGISTICS SECTION

The Logistics Section is responsible for providing support to the incident, including all incident facilities (including the Incident Command Post). The Logistics Section will also source all required resources, including personnel and equipment, accommodations, food and supplies. Detailed duties and responsibilities for individuals in the Logistics Section can be found in the Trans Mountain Incident Command System Guide on Emergency Management Toolkit.

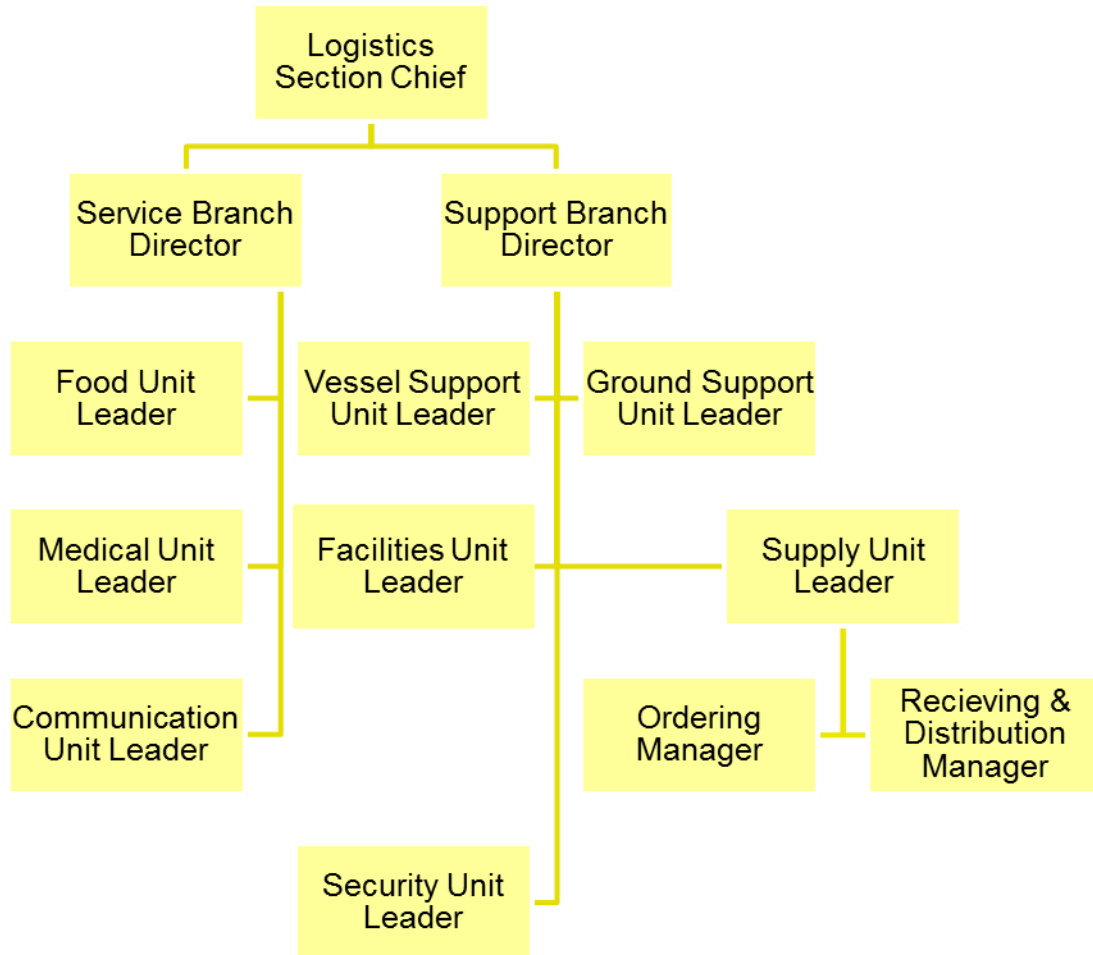


11.1 Logistics Section Chief

The Logistics Section Chief, a member of the General Staff, is responsible for providing facilities, services, and material in support of the incident response. The Logistics Section Chief participates in developing and implementing the Incident Action Plan and activates and supervises Branches and Units within the Logistics Section

11.2 Logistics Section Organization Chart

Not all roles will be filled for all incidents; however, the following chart is an outline of the possible positions to be filled. Detailed descriptions of each position and its duties can be found in the Trans Mountain ICS Guide (Emergency Management Toolkit) and the Northwest Area Contingency Plan (<http://rrt10nwac.com/NWACP/Default.aspx>)



11.3 Facilities

11.3.1 Incident Command Post

Typically, the ICP is located near the incident site and is the focus for the conduct of direct, on-scene control of tactical operations. Incident planning is also conducted at the ICP; an incident communications center also would normally be established at this location. The ICP may be collocated with the incident base, if the communications requirements can be met. The ICP may perform local Emergency Operations Center-like functions in the context of smaller jurisdictions or less complex incident scenarios.

Upon arrival at the site, IMT members should go directly to the primary ICP location. The IMT will assemble at the designated Command Post as soon as possible following notification. If another location is being utilized, team members will be notified upon arrival.

11.3.2 Media Relations Centre

The designated Media Relations Centre in the event of an emergency will be designated at the time of an emergency, based on the location of the ICP.

11.3.3 Staging Areas

A number of locations may serve as the key staging areas for response activities, the actual location of the staging area will depend on the type of emergency event. It is important to note that Logistics is responsible for establishing staging areas but, once established, Operations is responsible for their continued operation and staffing.

Factors considered in the selection of staging areas include:

- Safety and security
- Accessibility by road, water
- Available space for storing equipment
- Suitability for landing helicopters
- Ease of providing long-term logistics support (personnel changes, fueling, and provisioning)

11.4 Communications

11.4.1 Emergency Communications System

During a spill response, communications will take place through one of the following modes:

- Landline and/or cellular telephones
- Radio System
- Satellite Communication

This section describes the overall communications plan and procedures followed in the event of an oil spill or other emergency.

11.4.2 Telephone Communications

Regular or cellular telephones will be the primary mode of communications between team members to whom cellular or car phones have been assigned, and the Incident Command Post, and between the Incident Command Post and various outside agencies and organizations. Regular and cellular telephone contacts for all IMT personnel and agencies are provided in Section 2.

11.4.3 Radio Communications

The radio system utilizes Motorola portable radio units. Separate channels may be used for the incident response and normal operations. Also, different contractors operate a number of radios on separate channel. When necessary to facilitate communications between Trans Mountain and contract personnel, radios may be shared during an incident. During an incident, all radio frequencies used will be tracked using the ICS 205.

11.4.4 Additional Resource Suppliers

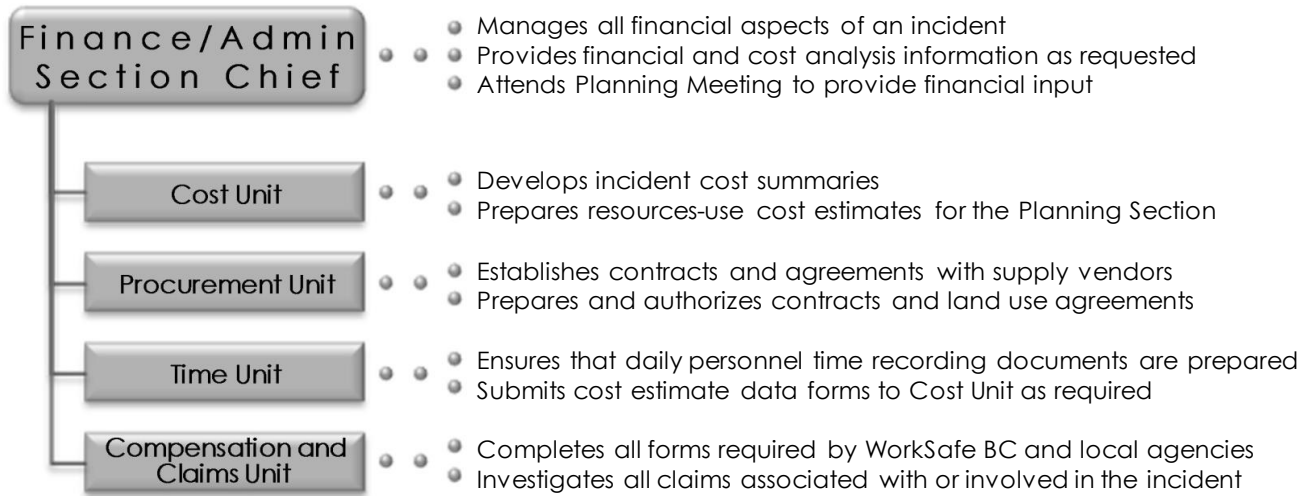
Suppliers and contact information is provided for a range of resources that might be required in the event of a spill in Section 2.

11.5 Security

Due to the large amount of public attention created at an incident site, additional security measures are required. Security needs will be evaluated for any command post, staging area as well as the incident site. Additional duties for security can be found in the Incident Command System Guide.

12.0 FINANCE AND ADMINISTRATION SECTION

The Finance and Administration Section is responsible for all financial aspects of the response, including assisting in establishing contracts with suppliers, and setting up systems to monitor time and costs. Detailed duties and responsibilities for individuals in the Finance Section can be found in the Trans Mountain Incident Command System Guide on Emergency Management Toolkit.

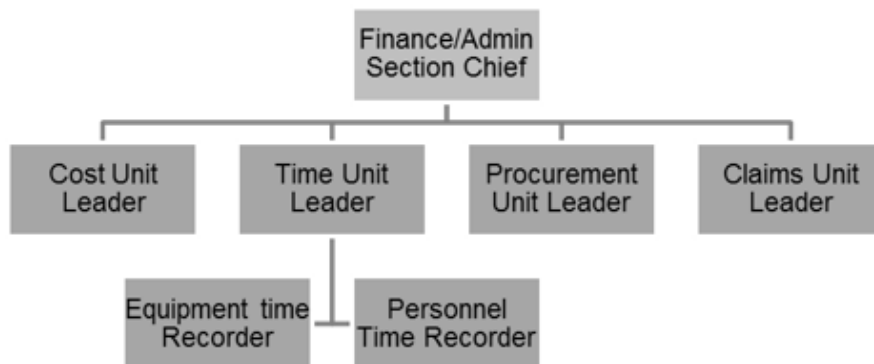


12.1 Finance Section Chief

The Finance/Administration Section Chief, a member of the General Staff, is responsible for all financial and cost analysis aspects of the incident and for supervising members of the Finance/Administration Section. In the absence of a Claims Unit Leader the Finance/Administration Section Chief will begin the claims process

12.2 Finance Section Organization Chart

Not all roles will be filled for all incidents; however, the following chart is an outline of the possible positions to be filled. Detailed descriptions of each position and its duties can be found in the Trans Mountain ICS Guide (Emergency Management Toolkit) and the Northwest Area Contingency Plan (<http://rrt10nwac.com/NWACP/Default.aspx>)



12.3 Managing Spill Liability Claims –Claims Unit Leader

The Insurance/Risk Management Department will do the following things while managing spill liability claims. The Claims unit leader will work closely with the Trans Mountain Insurance Risk Management Department, or the Insurance/Risk Management Department will deploy specific personnel to the ICP. There is a formal and informal claims process, whenever possible Trans Mountain will use the informal process as a means of directly and immediately compensating individuals impacted by the incident.

- Participation in the initial TAS conference call to gather information.
- Provide notice of incident to appropriate insurers.
- Coordinate with legal, operations & procurement to investigate any contractual protections available.
- Establish contact with the Risk Management group
- Establish contact with liability adjuster and instruct them to proceed immediately to the incident site. Adjuster(s) can be on site within 4-12 hours of notification.
- Member of Risk Management group will travel to site to work with the adjuster and act as the liaison with the incident commander on site.
- Adjuster can make contact with the displaced residents at the discretion of Trans Mountain or the local authorities. Adjuster will gather pertinent information (phone no., address, damage assessments, costs incurred) and will provide contact information to them for later follow-up.
- Set up an 800 number for the intake of damage claims to be funneled back through the adjuster for processing. This would be coordinated through the Communications Department and advertised with public information communications and on the website.
- Adjuster and/or Risk Management to follow-up with displaced residents to address concerns regarding damage claims or out of pocket expenses that resulted from the incident.
- Risk Management to coordinate with the business unit to set up a property damage/liability AFE to cover the costs of damage claims of third parties.
- Instruct adjuster to gather documentation from third party claimants in order to settle and/or resolve any damage claims arising from the incident.
- Risk Management to coordinate with legal department on those third-party claims in which Trans Mountain is sued or third party has legal representation.
- Claims will be processed in the order they are received.
- Each claim will be given a unique tracking number and claimants will be able to track the progress of their claim with this number.
- If incomplete, claimants will be provided a thorough explanation of the deficiencies and a timeframe to submit the necessary information to continue processing the documents.
- Once processed, will a release need to be signed by claimant before payment.

12.4 Managing Spill Liability Claims – Informal Claims Process

A land agent (“Adjustor” in this context) enters the field as soon as possible after the report of the incident, often within hours. The land agent begins identifying and communicating with parties that are either directly affected by the incident or close enough to warrant communications on what is occurring. This land agent has the authority to immediately compensate or make arrangements with affected parties to mitigate the negative effect the event has had on their lives. Examples of this “immediate compensation” might be: Short term accommodations for displaced persons; water, food or groceries provision or compensation; short term lost income payment (in cases where the party has limited resources); payment for boarding of livestock or household pets; rental vehicle compensation necessitated due to loss of access to their own car; travel costs to stay with relatives or to get away from trauma of situation;

compensation for short term counseling; payment for destroyed tools/equipment that might prevent the person from carrying on their livelihood until replaced.

These immediate “claims” are identified in the field, settled immediately (with consultation with the Claims Unit Leader, or under agreed terms of reference) and either cash or check is done up on the spot, or company credit cards are used to procure things like hotel rooms. Formal paperwork is not required on these payments; the party must sign a receipt acknowledging the payment. If there are additional claims, the formal process in Section 12.5 will be followed.

12.5 Managing Spill Liability Claims –Formal Claims Process

In the event that the informal process cannot settle claims by individuals, this formal process will be followed.

12.5.1 Oil Spill Claims Event Tiers

Oil spill claims events can be generally classified by the number of claims anticipated rather than the quantity of product released. These tiers are defined as follows:

- Tier 1 – up to 50 oil spill claims anticipated
- Tier 2 – between 50 and 500 spill claims are anticipated
- Tier 3 – over 500 spill claims are anticipated

12.5.2 7.2 Oil Spill Claims Management

Management of oil spill claims will be provided by the Claims Unit Leader and the Trans Mountain Insurance/Risk Management Department representatives in cooperation with the Incident Commander (Refer to Section 2 for contact information). Outside contractors will support claims processing during all events.

12.5.3 Insurance

Trans Mountain is insured in excess of the oil spill liability requirements for onshore facilities outlined in the Oil Pollution Act of 1990.

12.5.4 Oil Spill Claims Handling Process

After an oil spill occurs, Trans Mountain will advertise for claims following the information provided in Section 12.5.5. Oil spill claims information and forms will be made available through local claims centers, if established, or via the internet. Sample claims forms and internal claim check and tracking forms are presented in Section 12.5.11. Examples of documentation needed for various types of claims can be found in Section 12.5.10. Section 12.5.9 explains the Trans Mountain claims adjudication process and provides related timeframes. Depending on the anticipated number of claims related to the spill, Trans Mountain will establish local claim centers. Oil spill claims will be accepted by Trans Mountain up to 3-years from the date that Trans Mountain began advertising for claims or 3-years from the date that the injury or damage being claimed was reasonably discovered – whichever date is earlier. Natural Resources Damage Assessment (NRDA) claims are handled separately from other claims and may be accepted by Trans Mountain in a manner and timeframe agreed to by the company and the lead federal and/or state trustee agency.

12.5.5 Oil Spill Claims Advertisements

Trans Mountain will advertise for claims after being advised to do so by our legal department, or within 15-days after being designated as the Responsible Party for an oil spill by the Federal On-Scene

Coordinator (FOSC) or the USCG National Pollution Funds Center (NPFC). The geographic extent of the oil spill will dictate the publications in which claim advertisements will be placed. The length of time advertisements will run in local publications will be based on recommendations provided by our legal department or the length of time specified by FOSC or the NPFC. A sample claims advertisement is presented in Section 12.5.11.4.

12.5.6 Oil Spill Claims Contact Information

In the event of an oil spill contact information for oil spill claims, location of local claim centers and mailing address for claims submission will be available via the toll free Public Information Line, established at the time of an incident, and on the website established at the time of an incident, as well as in advertisements placed in local publications.

12.5.7 Local Claims Centers

Local claims centers will be established based on community need and/or the number anticipated claims. Local claims centers will remain in operation for as long as warranted by workload and community need.

12.5.8 Oil Spill Claims Forms

The claims form used by Trans Mountain is presented in Section 12.5.11.1. A sample Claims Tracking Form is presented in Section 12.5.11.2. Other forms may be used if they provide an equivalent level of information as that found in Section 12.5.11.1. Information entered in the claim form must be typed or legibly hand-written in blue or blue-black ink. The claim form must include the “sum-certain” monetary amount being claimed and be signed by the claimant in black or blue-black ink. The Claims Tracking Sheet presented in Section 12.5.11.2 is used in the claims adjudication process to track the status of claims received and Claim Check Sheet presented in Section 12.5.11.3 is used to record the type of documentation provided with each claim.

12.5.9 Oil Spill Claims Adjudication and Timeframe

Trans Mountain will process claims in the order they are received. Each claim will be assigned a unique identification number which will be used to track the claim internally. The identification number can also be used by claimants who wish to provide additional information to support their claim or inquire about the status of a claim. Trans Mountain will review each claim received to ensure, as much as possible, that all needed information to make a claim decision has been provided by the claimant. If additional information is needed, we will request that the claimant forward that information to us so it can be added to the claim and considered during adjudication. If the information requested is not received within 90 days, Trans Mountain will adjudicate the claim with the available information. This may result in a reduction of possible claim compensation or an outright denial of the claim.

Once Trans Mountain sends the claimant a claim determination, the claimant must either accept or reject the offer within 60 days. The claimant must sign a release before the claim will be processed for payment. If the claimant takes no action within 60 days after receiving the claim determination, the offer to pay the claim will be voided and the claim will be closed. If the claimant rejects the offer, they can provide additional information and ask Trans Mountain to reconsider the claim determination; typically, this would start an entirely new review process with another claim determination made as a result of the reconsideration. Claims submitted to Trans Mountain will be paid in the order that accepted offers (with signed releases) are received. Claims are usually paid with 30-days from the date Trans Mountain receives the claimant’s signed release.

12.5.10 Oil Spill Claims Documentation

The amount and type of documentation needed to make a claim determination depends on many factors, including the claim type and the monetary amount claimed.

The following types of claims may be submitted to Trans Mountain. Example types of documentation are also included below within the listing of each claim type. The examples provided are for reference only; they may or may not represent everything needed to adjudicate a claim.

12.5.11 Removal Costs

Costs to prevent, minimize, mitigate, or clean up the oil spill. Examples of Proof and Documentation that may be needed:

- Proof that actions were coordinated with the FOSC.
- Witness statements
- Detailed description of actions
- Dates on which work was performed
- Analysis of spill substance
- Map of area
- Pictures of area, damage, and spill
- Receipts, invoices, or similar records with description of work
- How rates were determined and any comparison of rates
- Daily records of personnel costs including details on labor rates, hours, travel, and transportation
- Daily records of equipment costs including description and use
- Signed disposal manifests and proof of payment for disposal
- Payroll verification of hourly rate at the time of spill
- Verification of equipment rates for equipment used

12.5.12 Property Damage

Injury or damage to or economic loss resulting from destruction of real property (land or buildings) or other personal property including a boat. Examples of Proof and Documentation that may be needed:

- Proof of ownership or leasehold interest in the property; lease or rental agreement of any substitute property used
- Proof or evidence that property was injured, destroyed, or not usable because of the oil spill
- Report of any expenses or money lost while the property was unavailable because of spill damage
- Proof of value of property both before and after the spill or injury
- Documented cost of repair or replacement of the property
- Proof of value of property before and after the spill
- Documentation that shows whether or not substitute property was available, and related costs of substitute property if used.
- Documentation that shows how claimant lost money from the damage to the property
- Witness statements
- Copy of title, deed, lease, or license to property in claimant's name
- Pictures or videotape of property and/or damage
- Maps or legal documents showing the location of the property within the spill area

- Professional property appraisals for the value of the property prior to and after the spill, actual selling price of the property, and evidence connecting the depressed selling price to the oil spill rather than to other economic or real property factors
- Copies of bills paid for repair of damage or two estimates showing activities and costs to repair the damage

12.5.13 Loss of Profits or Earning Capacity

Damages equal to the loss of profits or impairment of earning capacity due to the injury, destruction, or loss of property or natural resources. Examples of Proof and Documentation that may be needed:

- Proof that property or natural resources that were damaged, destroyed or lost, resulted in claimant's loss
- Proof the claimant's income was reduced due to the damage or loss of the property or natural resources and how much it was reduced
- Documentation showing the amount of profits and earnings in similar time periods
- Documentation showing any alternative employment or business during the period claimed and any income received during that period
- Documentation showing and savings to overhead costs or other normal expenses - those not paid as a result of the spill (commuting costs, utility fees, employee salaries)
- Photos of damaged property (before and after the spill)
- Witness Statements on how the spill led to loss of business income or earning capacity; explain any earnings anomalies
- Statement on how the spill caused a loss in income
- Affidavit from claimant's employer about the impact the spill had on an employee's work or income, and if the employer intends to file a claim for lost profits or earning capacity.
- Copies of pay stubs, receipts, timesheets from before, during, and after the spill
- Personnel records from claimant's employer before, during, and after the spill, showing employment
- Claimant's description of efforts to reduce loss, including job search
- Copies of any job-hunting expenses (e.g., travel costs)
- Signed copies of income tax returns and schedules for at least two years prior to spill
- Details of employment expenses not paid during period being claimed (e.g., commuting costs)
- Copies of pay stubs, receipts, timesheets from alternative employment during time of spill (including unemployment compensation)
- Description and documentation of business losses due to spill
- Copies of letters of business cancellations caused by the spill damage
- Maps or descriptions of the area showing the business location and the spill impact area
- Financial statements for at least two years prior to spill and from the year of the spill
- Signed copies of business income tax returns and schedules for at least three years prior to spill
- Details on efforts to mitigate business losses or why no efforts were taken
- For hotels, daily and monthly occupancy information for two years prior to spill and the year of the spill
- Description of marine charter business losses caused by the spill
- Evidence that charter vessel(s) was in the area impacted by the spill and were unable to carry on their business due to the spill
- Maps or descriptions of the area showing charter business location within spill area
- Signed copies of income tax returns (for charter boat business) and schedules for at least three years prior to spill

- Details on expenses not paid out during period being claimed (e.g., wages)
- Booking records for three years prior to spill and year of spill
- List of charter rates, including any services the business specializes in (e.g., sport fishing)
- Copies of any logs relating to boating activities for the year prior to and the year of the spill
- Registration documents for the vessel

12.5.13.1 Loss of Subsistence Use of Natural Resources

Loss of subsistence use claim if natural resources claimants depend on for subsistence use purposes that have been injured, destroyed, or lost by an oil spill event. Examples of Proof and Documentation that may be needed:

- Proof that injury, destruction, or loss of natural resources would have been used by the claimant to obtain food, shelter, clothing, medicine, or other minimum necessities of life.
- Documentation identifying each specific natural resource for which compensation for loss of subsistence use is being claimed
- Description of the actual subsistence use you make of each specific natural resource you identify;
- Description of how and to what extent claimant's subsistence use of the natural resource was affected by the injury to, destruction of, or loss of, each specific natural resource;
- Description of claimant's efforts to mitigate subsistence use loss
- Description of alternative source(s) or means of subsistence available to claimant during the period

12.5.13.2 Loss of Government Revenue:

Net loss by Federal, State, or Local Governments of taxes, royalties, rents, fees, or net profit shares due to the injury, destruction, or loss of real property, personal property, or natural resources. Examples of Proof and Documentation that may be needed:


- Information showing that the loss of revenue was caused by the injury to, destruction of, or loss of real or personal property or natural resources caused by the discharge
- Information showing the amount, identity, and description of the revenue loss for which compensation is claimed, including the applicable authority for collecting the revenue, method of assessment, applicable rate, and dates of collection or periods of loss
- Documentation showing expenditures saved because revenue was not collected
- The total assessment or revenue collected and related expenditures for comparable revenue periods, typically covering two years
- Description of what revenues were impacted and how the spill caused a loss of revenues
- Copies of statutes, regulations, ordinances, etc., outlining applicable authority to raise such revenues, property affected, method of assessment, rate of assessment, and method and dates of collection of assessment
- Government financial reports showing total assessment or revenue collected for comparable periods, typically covering two years
- Details of any expenses not paid out by government

12.5.13.3 Increased Public Service Costs

Net costs by State & Local Governments for providing increased or additional public services during or after removal activities, including protection from fire, safety, or health hazards, caused by a discharge of oil or directly attributable to response to the oil spill Event. *Examples of Proof and Documentation that may be needed:*

- Documentation showing justification for the public services provided, including documentation of what specific services were provided and the relationship to the spill.
- Documentation showing when services were provided during and after the oil spill removal.
- Documentation showing services were in addition to services normally provided
- Documentation showing the net cost for the services and the methods used to compute those costs
- Reports showing the increased public services were required and if the services were due to fire, health, or safety hazards
- Detailed description of what increased services were necessary and why, including a distinction between removal activities, safety acts, and law enforcement acts, and if the increase was actually incurred or if normal resources were diverted for use
- Daily reports on the activities of the government personnel and equipment involved
Government Labor and Equipment Rates:
- Payroll verification of the government hourly rate at the time
- Verification of the standard government equipment rates for any equipment claimed
- Signed and dated records of the spill including hourly rates for labor and equipment
- Explanation as to whether rates are fully loaded or not and formulas used
- Certification that rates used reflected actual costs incurred and did not include punitive damages or fees

12.5.14 Oil Spill Claims Forms
12.5.14.1 ACORD General Liability Notice of Occurrence/Claim - SAMPLE

		GENERAL LIABILITY NOTICE OF OCCURRENCE / CLAIM		DATE (MM/DD/YYYY)
AGENCY		INSURED LOCATION CODE	DATE OF LOSS AND TIME	
		CARRIER	AM PM	
CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS: CODE: SUBCODE:		POLICY NUMBER		NAIC CODE
		AGENCY CUSTOMER ID:		
INSURED				
NAME OF INSURED (First, Middle, Last)			INSURED'S MAILING ADDRESS	
DATE OF BIRTH	FEIN (if applicable)			
PRIMARY PHONE # <input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL	SECONDARY PHONE # <input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL		PRIMARY E-MAIL ADDRESS:	
			SECONDARY E-MAIL ADDRESS:	
CONTACT				
NAME OF CONTACT (First, Middle, Last)			CONTACT'S MAILING ADDRESS	
DATE OF BIRTH	FEIN (if applicable)			
PRIMARY PHONE # <input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL	SECONDARY PHONE # <input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL		PRIMARY E-MAIL ADDRESS:	
WHEN TO CONTACT			SECONDARY E-MAIL ADDRESS:	
OCCURRENCE				
LOCATION OF OCCURRENCE			POLICE OR FIRE DEPARTMENT CONTACTED	
STREET:			REPORT NUMBER	
CITY, STATE, ZIP:				
COUNTRY:				
DESCRIBE LOCATION OF OCCURRENCE IF NOT AT SPECIFIC STREET ADDRESS:				
DESCRIPTION OF OCCURRENCE (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)				
TYPE OF LIABILITY				
PREMISES: INSURED IS		OWNER	TENANT	
OWNER'S NAME & ADDRESS (if not insured)		TYPE OF PREMISES		
		PRIMARY PHONE # <input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL		
		SECONDARY PHONE # <input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL		
		PRIMARY E-MAIL ADDRESS:		
		SECONDARY E-MAIL ADDRESS:		
PRODUCTS: INSURED IS		MANUFACTURER	VENDOR	
MANUFACTURER'S NAME & ADDRESS (if not insured)		TYPE OF PRODUCT		
		PRIMARY PHONE # <input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL		
		SECONDARY PHONE # <input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL		
		PRIMARY E-MAIL ADDRESS:		
		SECONDARY E-MAIL ADDRESS:		
WHERE CAN PRODUCT BE SEEN?				
ACORD 3 (2013/01)				

INJURED / PROPERTY DAMAGED

AGENCY CUSTOMER ID: _____

NAME & ADDRESS (Injured/Owner)			EMPLOYER'S NAME & ADDRESS		
PRIMARY PHONE #	<input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL	SECONDARY PHONE #	<input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL	PRIMARY PHONE #	<input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL
PRIMARY E-MAIL ADDRESS:			PRIMARY E-MAIL ADDRESS:		
SECONDARY E-MAIL ADDRESS:			SECONDARY E-MAIL ADDRESS:		
AGE	SEX	OCCUPATION			
WHERE TAKEN			DESCRIBE INJURY		
DESCRIBE PROPERTY (Type, model, etc.)			ESTIMATE AMOUNT	WHERE CAN PROPERTY BE SEEN?	

WITNESSES

NAME AND ADDRESS	PRIMARY PHONE #	<input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL	SECONDARY PHONE #	<input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL
PRIMARY E-MAIL ADDRESS:				
SECONDARY E-MAIL ADDRESS:				
NAME AND ADDRESS	PRIMARY PHONE #	<input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL	SECONDARY PHONE #	<input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL
PRIMARY E-MAIL ADDRESS:				
SECONDARY E-MAIL ADDRESS:				
NAME AND ADDRESS	PRIMARY PHONE #	<input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL	SECONDARY PHONE #	<input type="checkbox"/> HOME <input type="checkbox"/> BUS <input type="checkbox"/> CELL
PRIMARY E-MAIL ADDRESS:				
SECONDARY E-MAIL ADDRESS:				

REMARKS (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

REPORTED BY	REPORTED TO

AGENCY CUSTOMER ID: _____

APPLICABLE IN ALABAMA

Any person who knowingly presents a false or fraudulent claim for payment of a loss or benefit or who knowingly presents false information in an application for insurance is guilty of a crime and may be subject to restitution fines or confinement in prison, or any combination thereof.

APPLICABLE IN ALASKA

A person who knowingly and with intent to injure, defraud, or deceive an insurance company files a claim containing false, incomplete, or misleading information may be prosecuted under state law.

APPLICABLE IN ARIZONA

For your protection, Arizona law requires the following statement to appear on this form. Any person who knowingly presents a false or fraudulent claim for payment of a loss is subject to criminal and civil penalties.

**APPLICABLE IN ARKANSAS, DELAWARE, KENTUCKY, LOUISIANA, MAINE, MICHIGAN, NEW JERSEY,
NEW MEXICO, NEW YORK, NORTH DAKOTA, PENNSYLVANIA, RHODE ISLAND, SOUTH DAKOTA,
TENNESSEE, TEXAS, VIRGINIA, AND WEST VIRGINIA**

Any person who knowingly and with intent to defraud any insurance company or another person, files a statement of claim containing any materially false information, or conceals for the purpose of misleading, information concerning any fact, material thereto, commits a fraudulent insurance act, which is a crime, subject to criminal prosecution and [NY: substantial] civil penalties. In LA, ME, TN, and VA, insurance benefits may also be denied.

APPLICABLE IN CALIFORNIA

For your protection, California law requires the following to appear on this form: Any person who knowingly presents a false or fraudulent claim for payment of a loss is guilty of a crime and may be subject to fines and confinement in state prison.

APPLICABLE IN COLORADO

It is unlawful to knowingly provide false, incomplete, or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance, and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policy holder or claimant for the purpose of defrauding or attempting to defraud the policy holder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado Division of Insurance within the Department of Regulatory Agencies.

APPLICABLE IN THE DISTRICT OF COLUMBIA

Warning: It is a crime to provide false or misleading information to an insurer for the purpose of defrauding the insurer or any other person. Penalties include imprisonment and/or fines. In addition, an insurer may deny insurance benefits, if false information materially related to a claim was provided by the applicant.

APPLICABLE IN FLORIDA

Pursuant to S. 817.234, Florida Statutes, any person who, with the intent to injure, defraud, or deceive any insurer or insured, prepares, presents, or causes to be presented a proof of loss or estimate of cost or repair of damaged property in support of a claim under an insurance policy knowing that the proof of loss or estimate of claim or repairs contains any false, incomplete, or misleading information concerning any fact or thing material to the claim commits a felony of the third degree, punishable as provided in S. 775.082, S. 775.083, or S. 775.084, Florida Statutes.

APPLICABLE IN HAWAII

For your protection, Hawaii law requires you to be informed that presenting a fraudulent claim for payment of a loss or benefit is a crime punishable by fines or imprisonment, or both.

APPLICABLE IN IDAHO

Any person who knowingly and with the intent to injure, defraud, or deceive any insurance company files a statement of claim containing any false, incomplete or misleading information is guilty of a felony.

APPLICABLE IN INDIANA

A person who knowingly and with intent to defraud an insurer files a statement of claim containing any false, incomplete, or misleading information commits a felony.

AGENCY CUSTOMER ID: _____

APPLICABLE IN KANSAS

Any person who, knowingly and with intent to defraud, presents, causes to be presented or prepares with knowledge or belief that it will be presented to or by an insurer, purported insurer, broker or any agent thereof, any written statement as part of, or in support of, an application for the issuance of, or the rating of an insurance policy for personal or commercial insurance, or a claim for payment or other benefit pursuant to an insurance policy for commercial or personal insurance which such person knows to contain materially false information concerning any fact material thereto; or conceals, for the purpose of misleading, information concerning any fact material thereto commits a fraudulent insurance act.

APPLICABLE IN MARYLAND

Any person who knowingly or willfully presents a false or fraudulent claim for payment of a loss or benefit or who knowingly or willfully presents false information in an application for insurance is guilty of a crime and may be subject to fines and confinement in prison.

APPLICABLE IN MINNESOTA

A person who files a claim with intent to defraud or helps commit a fraud against an insurer is guilty of a crime.

APPLICABLE IN NEVADA

Pursuant to NRS 686A.291, any person who knowingly and willfully files a statement of claim that contains any false, incomplete or misleading information concerning a material fact is guilty of a felony.

APPLICABLE IN NEW HAMPSHIRE

Any person who, with purpose to injure, defraud or deceive any insurance company, files a statement of claim containing any false, incomplete or misleading information is subject to prosecution and punishment for insurance fraud, as provided in RSA 638:20.

APPLICABLE IN OHIO

Any person who, with intent to defraud or knowing that he/she is facilitating a fraud against an insurer, submits an application or files a claim containing a false or deceptive statement is guilty of insurance fraud.

APPLICABLE IN OKLAHOMA

WARNING: Any person who knowingly and with intent to injure, defraud or deceive any insurer, makes any claim for the proceeds of an insurance policy containing any false, incomplete or misleading information is guilty of a felony.

APPLICABLE IN WASHINGTON

It is a crime to knowingly provide false, incomplete, or misleading information to an insurance company for the purpose of defrauding the company. Penalties include imprisonment, fines and denial of insurance benefits.

12.5.14.2 Claims Tracking Sheet- SAMPLE

Claims Number _____

Claimant's Name _____

Claimant's Address _____

Claimant's Contact Phone# _____

Claimant's Email _____

Claim Type _____

Amount Claimed (\$) _____

Date Claim Received _____

Name of Adjudicator (Lead) _____

Adjudicator Phone# _____

Adjudicator Email _____

Date Follow-Up _____

Information Requested (N/A if Not Applicable) _____

Claim Determination Date (Sent) _____

Claim Determination Amount (\$) _____

Date Release Received (N/A if Not Applicable) _____

Date Rejection Received (N/A if Not Applicable) _____

Date Payment Approved (N/A if Not Applicable) _____

Date Claim Closed _____

12.5.14.3 Claims Check Sheet - SAMPLE

Claims Number _____

Claimant's Name _____

Date Claim Received _____

Documents Provided		
1	Claim Form - Signed (Accord, GL Notice of Occurrence or Equivalent)	
2	Affidavit from employer on the impact on work or income due to the spill and if the company will be filing a claim for lost profits	
3	Analysis of spill substance	
4	Any expenses or money lost while the property was unavailable because of spill damage	
5	Beach closures or fishing advisories	
6	Booking records for three years prior to spill and year of spill	
7	Certification that rates used reflected actual costs incurred and did not include punitive damages or fees	
8	Copies of any job-hunting expenses (e.g., travel costs)	
9	Copies of any logs relating to boating activities for the year prior to and the year of the spill	
10	Copies of bills paid for repair of damage or two estimates showing activities and costs to repair the damage	
11	Copies of letters of business cancellations caused by the spill damage	
12	Copies of pay stubs and other documentation showing income Claimant received before, during, and after the spill and oil spill response	
13	Copies of pay stubs, etc., from alternative employment during time of spill	
14	Copies of pay stubs, receipts, etc., from before, during, and after the spill	
15	Copies of statutes, regulations, ordinances, etc., outlining applicable authority to raise such revenues, property affected, method of assessment, rate of assessment, and method and dates of collection of assessment	
16	Copy of title, deed, lease, or license to property in Claimant's name	

Documents Provided		
17	Daily records of equipment costs including description and use	
18	Daily records of personnel costs including details on labor rates, hours, travel, and transportation	
19	Daily reports on the activities of the government personnel and equipment involved	
20	Dates on which work was performed	
21	Describe any compensation available to Claimant for the subsistence loss Claimant suffered	
22	Describe each alternative source or means of subsistence available to Claimant during the period of time for which Claimant claim a loss of subsistence	
23	Describe each effort Claimant made to mitigate Claimant's subsistence use loss	
24	Describe how and to what extent Claimant's subsistence use of the natural resource was affected by the injury to, destruction of, or loss of, each specific natural resource	
25	Describe the actual subsistence use Claimant make of each specific natural resource Claimant identify	
26	Description and documentation of business losses due to spill	
27	Description of business losses caused by the spill	
28	Description of efforts to reduce Claimant's loss, including job search	
29	Description of what revenues were impacted and how the spill caused a loss of revenues	
30	Detailed description of actions	
31	Detailed description of what increased services were necessary and why, including a distinction between removal activities, safety acts, and law enforcement acts, and if the increase was actually incurred or if normal resources were diverted for use	
32	Details and explanation of net loss of revenue	

Documents Provided		
33	Details of any expenses not paid out by government during the period being claimed	
34	Details of employment expenses not paid during period being claimed (e.g., commuting costs)	
35	Details on efforts to mitigate losses or why no efforts were taken	
36	Details on expenses not paid out during period being claimed (e.g., wages)	
37	Evidence connecting the depressed selling price of a property to the oil spill rather than to other economic or real property factors	
38	Evidence that vessel(s) were in the area impacted by the spill and were unable to carry on their business due to the spill	
39	Explanation as to whether rates are fully loaded or not and formulas used; states should provide rates under OMB Circular A-87	
40	Financial statements for at least two years prior to spill and from the year of the spill	
41	For hotels, daily and monthly occupancy information for two years prior to spill and the year of the spill	
42	FOSC report	
43	FOSC, natural resource trustee and newspaper reports describing the oil spill and response, and the resulting injury, destruction or loss of natural resources	
44	Government financial reports showing total assessment or revenue collected for comparable periods, typically covering two years	
45	Government Labor and Equipment Rates	
46	How rates were determined and any comparison of rates	
47	Identify each specific natural resource for which compensation for loss of subsistence use is being claimed	
48	Information in EPA or USCG notifications, and claims advertising	
49	Information on EPA or USCG notification	

Documents Provided		
50	Lease or rental agreement of any substitute property used	
51	List of charter rates, including any services the business specializes in (e.g., sport fishing)	
52	Map of area	
53	Maps or descriptions of the area showing business location within spill area	
54	Maps or descriptions of the area showing the business location and the spill impact area	
55	Maps or legal documents showing the location of the property within the spill area	
56	Maps	
57	Newspaper reports describing the spill	
58	Payroll verification of hourly rate at the time of spill	
59	Payroll verification of the government hourly rate at the time	
60	Personnel records from Claimant's employer before, during, and after the spill, showing employment	
61	Photographs and videos	
62	Photos of damaged property (before and after the spill)	
63	Pictures of area, damage, and spill	
64	Pictures or videotape of property and/or damage	
65	Professional property appraisals for the value of the property prior to and after the spill	
66	Published accounts, witness statements and other written records documenting Claimant's use of natural resources for subsistence purposes before, during, and after the spill and oil spill response	
67	Receipts, invoices, or similar records with description of work	
68	Records showing compensation Claimant received for Claimant's loss	

Documents Provided		
69	Records showing the expenses Claimant avoided during the time Claimant were not able to carry out Claimant's subsistence use of the affected natural resource	
70	Registration documents for the vessel(s), copies of business license, vessel license, fishing license, captain's license	
71	Reports showing the increased public services were required and if the services were due to fire, health, or safety hazards	
72	Signed and dated records of the spill including hourly rates for labor and equipment	
73	Signed copies of income tax returns and schedules for at least three years prior to spill	
74	Signed copies of income tax returns and schedules for at least two years prior to spill	
75	Signed disposal manifests and proof of payment for disposal	
76	Statement from Claimant or witnesses on how the spill caused the loss of income; explain any earnings anomalies	
77	Statement from Claimant or witnesses on how the spill led to loss of income or earning capacity; explain any earnings anomalies	
78	Statement on how the spill caused a loss in income	
79	Store and barter receipts showing the replacement costs Claimant claim;	
80	Verification of standard equipment rates for equipment used	
81	Verification of the standard government equipment rates for any equipment claimed	
82	Witness statements and documents showing the alternative sources of subsistence available to Claimant, and Claimant's efforts to reduce the damages resulting from Claimant's loss of subsistence use, including receipts from job-hunting expenses (e.g., travel costs)	
83	Witness statement(s)	

Documents Provided		
84	Other	
85	Other	
86	Other	

12.5.14.4 Claims Advertisement - SAMPLE**Advertisement for Oil Spill Claims****CompanyX**

Oil Spill - January 24, 2010
4300 Gallons Heavy Oil
Budd Inlet (Olympia, WA)
South Puget Sound

The U.S. Coast Guard National Pollution Funds Center has designated CompanyX as the Responsible Party for an oil spill that occurred around 7:00AM (PST) on January 24, 2010, impacting the waters of Budd Inlet and South Puget Sound. An estimated 4,300 gallons of heavy fuel oil was released from our facility on Boston Harbor Road (in Olympia) into Budd Inlet and South Puget Sound.

CompanyX is receiving claims related to this incident. Information about claims and the claims process is available on-line at the CompanyX website (see link below). You can also call, email, or mail us if you need additional assistance or information.

Website: www.companyx.com/claims.htm

Email: claims@companyx.com

Phone: **(360) 407-0007** (Mon-Sat, 8am to 5pm PST)

Mail: CompanyX – Oil Spill Claims
PO Box 4912876, Olympia, WA 98503

13.0 WILDLIFE CARE

13.1 Wildlife Response Plan

13.1.1 Wildlife Response Purpose & Organization

The primary goals of the Wildlife Response Plan are to ensure that oiled wildlife response:

- Is conducted in a safe and effective manner for responders, animals, and the public.
- Is fully integrated into the overall spill response and ICS structure.
- Provides resources in a timely manner to minimize the impacts of an oil spill to wildlife.
- Provides best achievable capture and care for spill impacted wildlife based on the specific objectives of the Unified Command for the incident.

Additionally, the plan is designed to:

- Meet all requirements of WAC 173-182-540 and WAC 220-450-100 Planning Standards for Wildlife Response and WDFW rehabilitation requirements.
- Provide clear details on the Primary Response Contractor (PRC) and Wildlife Response Service Provider (WRSP) resources required - including personnel, equipment and facilities - under contract to Trans Mountain that will be available to carry out the incident specific plan that is developed by the Wildlife Branch and approved by the Unified Command.
- Outline tactical options that the plan holder's WRSP contractors are skilled in executing and that can be used in developing the incident specific plan.

13.1.2 Plan Organization

The Plan is organized to be consistent with both Trans Mountain's Emergency Response Plan (Contingency Plan) and the Northwest Area Contingency Plan (NWACP) in general, and the sections applying to wildlife specifically. These include Sections 9310 - Northwest Wildlife Response Plan, 9311 NW Area Wildlife Deterrence Resources, 9312 Oil Spill Marine Mammal Resources, 9313 Wildlife Branch Position Descriptions, and 9314 Potential Mobile Bird Rehabilitation Unit Deployment Locations in Coastal Counties.

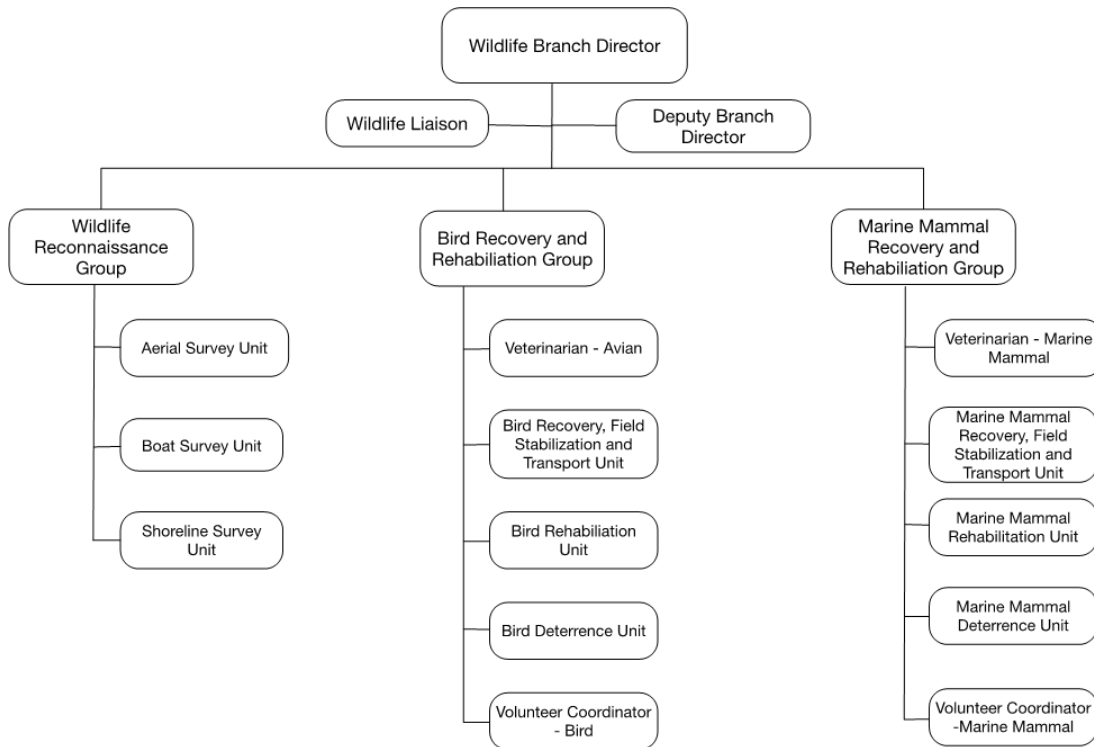
13.2 Wildlife Response Organization

This plan is designed to be easily integrated into and consistent with the NWACP and utilizes the same organizational structure for Wildlife Response as laid out in Section 9310 v.21. It is not meant to duplicate or provide detailed information on all aspects of oiled wildlife response in an incident. It is intended to provide a high-level overview and refer to existing documents recognized and utilized by NW Area Committee and response community for more detailed information. The Wildlife Branch operates within the Operations Section with close cooperation and communication with the Environmental Unit within the Planning Section. Wildlife Response is divided into three groups under the direction of, and reporting to, the Wildlife Branch Director. As shown in the Wildlife Branch Organizational Chart below (following the NW Wildlife Response Plan) the groups are:

- 1) Wildlife Reconnaissance
- 2) Bird Recovery and Rehabilitation
- 3) Marine Mammal Recovery and Rehabilitation

Each of these groups have a number of responsibilities and may be broken into a number of units to address the unique needs of each response.

13.2.1 Wildlife Branch Organization Chart



The Wildlife Branch will use oiled wildlife response protocols that are recognized as best practice and have been utilized and improved upon in hundreds of responses throughout the world over the last 30 years. These protocols are consistent with the NWACP and are repeatedly referenced within it. They are also consistent with the National Wildlife Rehabilitators Association and International Wildlife Rehabilitation Council’s Minimum Standards for Wildlife Rehabilitation (4th edition 2012). They include NOAA’s Pinniped and Cetacean Oil Spill Response Guidelines (2015), Oil Spill Emergency Response Killer Whale – Hazing Implementation Plan (2014) and Supporting Information for the Killer Whale Section of the Northwest Wildlife, and Focus Wildlife Protocols for the Care of Oil Impacted Wildlife.

13.3 Initial Response Actions

13.3.1 Activation of Wildlife Branch

Under the NWACP, the Wildlife Branch is activated when an oil spill is in the vicinity of wildlife resources or has a trajectory that puts them at risk. Initial activation may be only a Wildlife Branch Director if the risk is thought to be low at the outset. The policy of the NW Area Committee is that USFWS will fill the role of Director and Deputy Director of the Wildlife Branch unless they delegate those roles to other parties. As stated in the NW Area Wildlife Plan, “unless otherwise indicated by USFWS, the Wildlife Branch Director position will be delegated to the WDFW for spills that occur within the legal boundaries of Washington State. Focus Wildlife, an authorized WRSP recognized by Washington Department of Ecology can provide staff experienced as Director and Deputy Director of the Wildlife Branch. Based on the staffing policy of the NWACP, WRSP personnel could take the role of Deputy Wildlife Branch Director working alongside a Wildlife Branch Director from WDFW. Once a Wildlife Branch Director is in place, they will determine the specific immediate priorities. The following actions are typical initial priorities in oiled wildlife response.

13.3.2 Assessment of Potential Impacts & Initial Mitigation Strategies

13.3.2.1 Reporting Impacted Wildlife

Initial efforts will include evaluating any current reports of oiled wildlife. In some incidents the initial responders, members of the public, or local agencies may see or even collect potentially impacted wildlife before the Wildlife Branch is activated. If this occurs, these parties may notify the Washington Emergency Management Division prior to an ICP being established at 800 258-5990 for generic reporting of oiled wildlife. The Washington Department of Fish and Wildlife (WDFW) has an oiled wildlife hotline 800-22-BIRDS tied to a voice mail system that will be activated by WDFW if warranted. Other reporting protocols may be implemented during a response. Once activated, reporting systems should be quickly supported by live personnel to provide near real time reports of oiled animals to wildlife field personnel.

13.3.2.2 Development of Initial Wildlife Reconnaissance & Monitoring Plan

An early priority will be acquiring real time information on species and number of animals in the response area. The highest priority will be to quickly gain a broad overview to help in the planning and prioritization of initial deterrence and recovery efforts and should include species behavior such as feeding, breeding, nesting, and daily movements throughout the area if possible. Aerial surveys may provide a good general picture - especially if the observer is experienced in identifying wildlife from the air - although ground/vessel-based teams will likely be required for more specific information. If dedicated aerial wildlife resources are not available, a seat on an overflight conducting spill trajectory observations may be useful for wildlife observations in the immediate spill area. Trans Mountain contracts air support services, including overflights, through its primary response contractor - NRC.

13.3.2.3 Evaluations of Wildlife Deterrence Options

Keeping animals away from oil is always a better alternative than recovery and rehabilitation and, in some responses, there may be opportunities to keep wildlife from becoming oiled. One means of doing so is to conduct deterrence (aka "hazing") activities that encourage wildlife to move away from an area in which they may become oiled. Several factors will determine the likely success of deterrence including species, species' activities, topography, places of refuge, and availability of equipment and personnel. While the Wildlife Deterrence Units as defined in the NW Wildlife Response Plan will probably not be organized immediately, much of this information can be gathered and prioritized during initial assessment/reconnaissance and can be evaluated quickly by the Wildlife Branch Director. Even if it is determined that there are no viable deterrence strategies initially available, there should be continuous evaluation throughout the response to determine whether opportunities for these activities exist. Details on bird deterrence techniques can be found in Bird Hazing Manual: Techniques and Strategies for Dispersing Birds from Spill Sites, Gorenzel and Salmon, University of California Agriculture and Natural Resources Publication 21638. A link to the downloadable pdf can be found at <https://anrcatalog.ucanr.edu/pdf/21638.pdf>.

The contracted WRSP, Focus Wildlife, and PRC, NRC, maintain wildlife deterrence resources such as flags, effigies, and canons. Staging locations and equipment details can be found on the WRRL and in the state approved applications.

13.3.2.4 Evaluation of the Use of Preemptive Capture Options

Preemptive capture is another method for keeping animals from becoming oiled. It involves capture and either holding animals in captivity or relocating them outside of the projected response area. As described in the NW Wildlife Response Plan, preemptive capture may be considered in cases where there are very high priority species that can be safely captured and maintained in captivity or, if relocated, will not immediately return to the site of the response.

13.3.2.5 Evaluate Potential for Impacts Across State Borders

If there is a possibility of impacts to wildlife across state borders (including wildlife oiled on one side that then travels to the other side) contact should be initiated with the Liaison Officer and relevant trustees to determine how best to ensure an effective response while meeting the needs of the trustee agencies of each state. Selected contacts for the Oregon Department of Wildlife are available in the Wildlife Contact List in the NWACP ICS Toolkit on <https://www.OilSpills101.wa.gov>. If there is a recognized threat, there may already be representatives present in the Environmental Unit.

In the case of the potential for impacts occurring across the US/Canadian border, more formalized discussions will be required to evaluate the potential for the movement of wildlife, personnel, and equipment across the international border.

13.3.3 Wildlife Response Plan for Submission to Planning Section

Wildlife response plans will be drafted within the Wildlife Branch based on information collected from the initial notification, overflight observations, and any wildlife assessment conducted by the WRSP. Section 9310 of the NWACP contains a significant amount of information that can assist in development of the initial plan.

Wildlife plans should include tasks associated with the reconnaissance, deterrence, recovery, transport, field stabilization and primary care activities associated with oiled wildlife response based on the needs of the current and following operational period. Activities should accommodate any species groups likely to be impacted and the plan should address any species-specific activities that may be required.

Specifically, the plan should:

- Identify site(s) for Wildlife Rehabilitation Facilities.
- Identify site(s) for staging of deterrence, recovery, transport and if appropriate field stabilization.
- Provide for activation of initial personnel and equipment resources.
- Reference the most current resources at risk information available from the Environmental Unit (ICS form 232) or from Chapter 6 of the appropriate Geographic Response Plan (GRP) where the incident has occurred. Links to specific Washington Department of Ecology GRPs can be found at <https://www.oilspills101.wa.gov/>
- List initial prioritized tasks expected to be carried out in the operating period.
- Provide a Wildlife Branch Organization Chart (ICS 203).

The Wildlife Response Plan must be evaluated and updated throughout the response to reflect the changing information, circumstances and priorities as the response evolves.

13.3.4 Whale Reconnaissance, Monitoring, & Deterrence

Southern Resident killer whales are listed as endangered both by the state and the federal government. Minimizing any impacts from an oil spill is an extremely high priority. The WAC 173-182-540 (2) b-d regulations list specific requirements for a plan covering area of potential impacts of whales which may include Southern Resident killer whales. It requires the ability to provide reconnaissance and monitoring of whales outside of the immediate spill area, which has been defined by NOAA as within 30 miles relative to the spill or spill trajectory. Identification of whales to the level needed to effectively respond requires specialized personnel and the proper equipment. Both boat and air surveys should be anticipated. Section 9310.10.2.4 of the NW Wildlife Plan provides guidance on killer whale response and links to further guidance documents provided by NOAA to the NW Area Committee that detail

appropriate personnel and methods. These include Supporting Information for the Killer Whale section of the Northwest Wildlife Response Plan, which provides:

- Contact details for organizations able to identify killer whales to ecotype, pod and individual,
- Contact details for deterrence equipment
- Oil Spill Emergency Killer Whale Hazing Implementation Plan, which provides guidance on methods for deterrence including pre-approved methods in situations where immediate action is necessary.
 - Pre-approved methods include helicopters, Oikomi pipes and underwater firecrackers (seal bombs).

13.3.5 Vessels and Personnel for Monitoring and Deterrence

Whales can be found in all marine areas of Washington State's Puget Sound, Strait of Juan de Fuca, and Outer Coast. During an oil spill in or near these waters, it is crucial to monitor for whales in and beyond the immediate spill area, and to be prepared to deter them away from the oil if necessary. Trans Mountain is committed to supporting whale monitoring and deterrence during an oil spill. This includes the rapid procurement of personnel and aircraft capable of supporting aerial reconnaissance and deterrence, and prompt coordination with the individuals and organizations with authority and resources capable of conducting this work. Aircraft are available through NRC. A list of individuals and organizations capable of conducting whale reconnaissance and deterrence is available in the Wildlife Contact List in the NWACP ICS Toolkit at <https://www.OilSpills101.wa.gov> and NWACP Section 9312.

Deterrence of SRKWs can impact their health, and deterrence activities must be done in accordance with federal laws that protect whales. The Marine Mammal Protection Act (MMPA) prohibits harassing, harming, or killing marine mammals, but has an exemption for federal or state employees if the harassment to marine mammals is necessary for the health and safety of the animals. The Endangered Species Act (ESA) has similar prohibitions but does not have a specific exemption for federal and state employees.

The National Marine Fisheries Service has authorized SRKW deterrence activities to be conducted through a scientific research and enhancement permit held by NOAA's Marine Mammal Health and Stranding Response Program. The permit is consistent with protections of the MMPA and ESA and covers oil spill-related actions in Puget Sound and the Salish Sea. Under oversight by Federal and State agencies and, in accordance with the permitting requirements, all marine mammal deterrence operations conducted within the Wildlife Branch will be led by NOAA or the USCG FOSC prior to NOAA becoming engaged.

The Northwest Area Contingency Plan (NWACP) Section 9310, Northwest Wildlife Response Plan, describes monitoring and deterrence for large whales including orca. NWACP Section 9311 describes deterrence resources in the Northwest region, including contact information for each equipment cache and information for ordering new equipment. The Worldwide Response Resource List (WRRL) lists contact information and characteristics on various types of oil spill response equipment, as well as pre-contracted and pre-trained Vessels of Opportunity (VOO) in the Pacific Northwest, that can be called out NRC. In addition to the resources identified in the NWACP and WRRL, the Washington Department of Ecology enrolls VOO that may be available at the time of a spill to supplement monitoring and deterrence efforts. VOO are registered through the OilSpills101.wa.gov website and can be called-out during drills and spills if needed. The query of the database will be led by the Liaison section through Ecology's Jetty system upon request by the Unified Command or if the Wildlife Branch Director deems additional volunteer assets necessary.

Additional potential resources to be considered when establishing a monitoring program for whales during an oil spill in Washington include: the Pacific Whale Watch Association, Orca Network, and OrcaSound. Pacific Whale Watch Association is a local community of whale watching vessels who may have VOO vessel resources or personnel with knowledge of recent whale locations and movement patterns. Orca Network is a citizen-science based program that tracks the locations of Washington's Orca whale sightings. OrcaSound is a network of underwater microphones (hydrophones) in the North Puget Sound and San Juan Islands capable of detecting Orca in the surrounding waters. Contact information for these organizations are available in the Wildlife Contact List in the NWACP ICS Toolkit at <https://www.OilSpills101.wa.gov>.

13.4 Post Emergency Phase Response Actions

Much of an oiled wildlife response occurs in what can be considered the post-emergency phase once the initial plan has been approved, resources are in place, and the range of Wildlife Branch activities appropriate to the incident are taking place. These activities include:

13.4.1 Reconnaissance

Daily reconnaissance activities should be done to identify oiled and unoled wildlife within the spill response area and surrounding areas. This is done to direct the activities of search and collection teams, to identify opportunities for deterrence of unoled wildlife and to document impacts of the oil spill and the response activities on animals in the region. In addition to normal reconnaissance activities, in some areas there will be the need for ongoing monitoring of whales, including Southern Resident killer whales well beyond the immediate operational area of the response. Whale deterrence beyond the area of normal operations may be required to reduce impacts to these animals.

13.4.2 Preventing Secondary Oiling Impacts

Preventing secondary oiling impacts should always be done where possible through deterrence and collection of oiled carcasses that may attract predators and/or scavengers. This should include consistent evaluation of opportunities to keep animals from becoming oiled and effectively execute incident specific appropriate techniques keeping unimpacted animals out of the impacted area.

13.4.3 Documenting Impacts

Wildlife impacts must be documented through reconnaissance and collection and processing of oiled carcasses and of live oiled animals. Wildlife recovery teams should be supervised and deployed in an effective and efficient manner utilizing all available information on wildlife movements and activities and matching that information with appropriate techniques, personnel, and equipment. Safety and effectiveness of alternative techniques should be continually evaluated, such as on water capture, night operations, and trapping.

13.4.4 Field Stabilization

Decisions on whether to institute stabilization care in the field followed by transport to designated rehabilitation facilities, or simply have recovery personnel transport animals directly to the rehabilitation facility, must be made and enacted. Field stabilization is the initial mitigation of oiling and is typically initiated when the transport time from the collection point to the rehabilitation center exceeds a few hours. Whenever transport is undertaken, appropriate vehicles to safely transport oiled wildlife to the primary care facility must be used (e.g., climate-controlled enclosed vehicles for oiled birds). NRC has a stabilization trailer to support this function. Trailer details and staging information can be found in the WRRL.

13.4.5 Rehabilitation Care

Details on species-specific rehabilitation techniques are documented in other protocols, but all must accomplish the following:

- Document oil impacts and evaluate physical condition for each individual animal.
- Provide stabilization care to ensure fitness for removing oil.
- Remove oil, all cleaning solution residue, and dry feathers or fur.
- Restore the condition of oiled animals to promote survival and normal behavior in the wild.
- Evaluate fitness for release, in consultation with trustee agencies determine site of release and place permanent marking on the animal as appropriate and permitted.
- Transport to release site and release.

13.4.6 Post Release Studies

In collaboration with trustee agencies, post release study opportunities and priorities, such as radio telemetry or color marking, should be discussed as early in the response as feasible. Even where active post-released studies are ruled out, permanent marking of released wildlife should be done following USFWS and NOAA guidelines, when feasible.

13.4.7 Demobilization

A plan for demobilization or downscaling of the Wildlife Branch should be developed midway through the response. Due to the nature of wildlife rehabilitation the activities of the Wildlife Branch are likely to last much longer than most other areas of the response. These activities will continue until all wildlife has been released from the rehabilitation facility or has been determined to be un-releasable and transferred to permanent care or euthanized. There should be regular evaluation to ensure that the Wildlife Branch is right sized to meet the current objectives of the Unified Command for the Wildlife Branch.

13.5 Wildlife Response Resources

13.5.1 Personnel Resources for Wildlife Response

Trans Mountain maintains a contract with NRC, an approved PRC, for the necessary personnel to support all facets of wildlife response including impact assessment, reconnaissance, deterrence, capture, stabilization, and rehabilitation. NRC, through a contract with Focus Wildlife, an approved Wildlife Response Service Provider, maintains access to additional qualified personnel capable of fulfilling key response roles which may include Wildlife Branch Director, Rehab Crew and personnel for Initial Field Assessment and Wildlife Response activities. Further details can be found within NRC's PRC and Focus Wildlife's WRSP applications.

Section 9312 of the NWACP - Marine Mammal Resources lists organizations and personnel that have significant experience and expertise in marine mammal capture, handling, deterrence, transport, and husbandry.

13.5.1.1 Specialized Personnel Resources for Killer Whale Reconnaissance, Monitoring, & Deterrence

Sections 9311 and 9312 of the Northwest Area Plan list several resources to provide marine mammal specialist personnel to be utilized in killer whale Reconnaissance, Monitoring and Deterrence under the direction of NOAA staff. Cascadia Research Collective located centrally in Olympia, Washington can be reached at 360-943-7325 and has extensive experience to provide capable personnel in this area.

13.5.2 Wildlife Equipment & Facilities Resources

While some of the equipment and facility resources needed in oiled wildlife response (such as boats and aircraft) are utilized in many areas of the response other resources (such as specifically outfitted trailers) are very specific to wildlife response. Contracts with PRCs provide access to a wide range of equipment and supplies including boats, aircraft, and personal protection equipment (PPE) that can be utilized for oiled wildlife response. Trans Mountain's contract with NRC includes the use of their wildlife response equipment. These wildlife equipment stockpiles include specialized equipment for use in recovery and rehabilitation of oiled wildlife. While the equipment has been largely been developed to meet initial needs for birds it can be utilized for a variety of species. A detailed equipment list can be accessed via the Worldwide Response Resource List (WRRL) at www.wrri.world.

13.5.2.1 Field Stabilization

Field Stabilization is generally the first step in reversing the effects of oiling and requires space and equipment to evaluate wildlife, provide first aid such as supplemental heat and fluids and hold them safely prior to transport to the wildlife rehabilitation facility. Through a contract with NRC, Trans Mountain has access to the Focus Wildlife's Forest River Stabilization Trailer. This trailer provides equipment and supplies for mobile field stabilization activities, including conducting the initial health assessment, and treatment of impacted wildlife prior to transport to an oiled wildlife rehabilitation facility. The trailer meets field stabilization and asset requirements of providing an enclosed space of at least one hundred and eighty square feet, lighted and heated, and is capable of arriving on-scene within 12 hours of spill notification. Further details are provided in Focus Wildlife's PRC application.

13.5.2.2 Mobile Rehabilitation Units (MRU)

Trans Mountain has access to NRC's trailer-based Wildlife Mobile Response Unit (Wildlife MRU equipment) which is specifically designed to support wildlife rescue and rehabilitation activities related to oil spills. NRC is capable of deploying the Wildlife MRU equipment to locations within Washington State within 24 hours of request for mobilization of these resources by Trans Mountain. Additional information, including equipment lists and site setup diagram, are found with NRC's PRC application.

The NWACP Section 9314 – Potential Mobile Bird Rehabilitation Unit Deployment Locations in Coastal Counties, includes appropriate locations in both Skagit and Whatcom Counties where rehabilitation units can be deployed.

13.5.2.3 Specialized Equipment for Killer Whale Reconnaissance, Monitoring & Deterrence

Trans Mountain's contract with NRC provides air support that could be used for Whale Monitoring and Deterrence. Note that aircraft and flight personnel must be suitable for extended offshore monitoring operations.

Deterrence equipment - The three methods for killer whale deterrence that have been pre-approved by NOAA Fisheries in certain circumstances are herding/hazing by helicopter, Oikomi pipes, and underwater firecrackers. A set of Oikomi pipes owned by NOAA are stored at IOSA in Friday Harbor. IOSA can be contacted through 360-468-3441. WDFW has additional pipes stored in Olympia. NOAA has underwater firecrackers and other marine mammal deterrence equipment in Seattle and can be contacted through Lynne Barre at 206-718-3807.

14.0 SAFETY DATA SHEETS

SDS's for products shipped through TMPL are available online at the following website.

<https://ww1.actiocms.com/login.cfm> (login required)

15.0 EMERGENCY MANAGEMENT PROGRAM POLICIES

15.1 Environment, Health and Safety Policy



Effective Date	3/6/2023
Reviewed Date	3/6/2023
Policy Owner	Director, EHS
Approver	President and CEO

ENVIRONMENT, HEALTH AND SAFETY POLICY

Policy Statement

The Environment, Health, and Safety (EHS) Policy serves to state and reinforce Trans Mountain's commitment to EHS principles in all aspects of its business activities.

Background

Trans Mountain is committed to ensuring that the principles of EHS remain a top priority wherever we operate. All employees and contractors working for, or on behalf of Trans Mountain must share in the commitment of protecting people and the environment, contributing to sustainable development by using materials, natural resources and energy efficiently, and promoting best practices to ensure we continue to earn the confidence of our customers, and the public.

Purpose

This Policy establishes the EHS principles by which Trans Mountain's business activities must be conducted and provides confirmation of Trans Mountain's commitment to the health and safety of our employees and contractors, the public, as well as to environmental protection and sustainability.

Applicability

This Policy applies to all employees, contractors, consultants, entities, companies, and offices under our operational control.

Guiding Principles

- We comply with all environmental, health and safety, laws, rules and regulations, not just because it is legally required, but also because we believe it is the responsible way to conduct our business.
- We have a systematic approach to environmental, health, and safety, (EHS) management designed to comply with the law and follow industry best practice through the implementation of our environmental management system and Life Saving Rules.
- We train our employees and contractors to be aware of and meet their responsibility for environmental protection, as well as health, safety and to achieve continuous performance improvement.
- We ensure all workers are aware of and understand their right to refuse unsafe work and the authority to stop any work they believe will endanger their health or safety, or that of others.
- We actively identify and manage risks to prevent or reduce possible adverse consequences from our operations and undertake a precautionary approach to EHS challenges.
- We have systems in place to ensure we are prepared for emergencies and procedures that coordinate our response plans with emergency response organizations to minimize the impacts to the environment and the communities where we operate.
- We assess and manage exposure of our employees and contractors to EHS hazards in our operations.
- We monitor and report EHS performance in support of our sustainability goals.
- We implement strategies to reduce our environmental footprint and meet our emissions reduction goals.
- We engage our leadership and resources to effectively implement and execute the principles above.

Compliance

All employees, contractors, and consultants working for, or on behalf of Trans Mountain shall comply with this Policy; any purposeful violation of this Policy may result in disciplinary action, including, where applicable, termination of employment/employment services agreement and/or legal action.

Review and Approval

This Policy, including any substantial revisions following its initial publication, shall be sanctioned by the Director, EHS and approved by Trans Mountain's President and Chief Executive Officer. Administrative modifications to this Policy and its appendices may be approved by the Director, EHS.



Dawn Farrell, President and CEO
Trans Mountain Corporation

16.0 REGULATORY BACKGROUND

16.1 Federal

This Plan is intended to satisfy the requirements of the Oil Pollution Act of 1990 (OPA 90) and has been prepared in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and applicable Area Contingency Plans (ACP), EPA Region I Regional Contingency Plan. Specifically, this Plan is intended to satisfy:

- PHMSA, U.S. Department of Transportation requirements for a Facility Response Plan (FRP).

16.1.1 Statement of Significant and Substantial Harm

The response zones in this system all contain pipelines greater than 6 5/8 inches and are longer than ten miles. At least one section of pipeline in each response zone crosses a major waterway or comes within five miles of a public drinking water intake. Therefore, in accordance with 49 CFR 194.103(c), each entire response zone described in this Plan will be treated as if expected to cause significant and substantial harm.

16.1.2 DOT/PHMSA Cross Reference

OPA 90 REQUIREMENTS (49 CFR 194)	LOCATION
• Name and address of operator	Section 7.3
• For each Response Area which contains one or more line sections that meet the criteria for determining significant and substantial harm (194.103), listing and description of Response Areas, including county(s) and state(s)	Section 7.9
• Information summary for core plan	Section 7.2
• QI names and telephone numbers, available on 24-hr basis	Section 7.3
• Description of Response Area, including county(s) and state(s) in which a worst-case discharge could cause substantial harm to the environment	Section 7.3
• List of line sections contained in Response Area, identified by milepost or survey station or other operator designation	Section 7.5
• Basis for operator's determination of significant and substantial harm	Section 7.3
• The type of oil and volume of the worst-case discharge	Section 7.5
• Certification that the operator has obtained, through contract or other approved means, the necessary private personnel and equipment to respond, to the maximum extent practicable, to a worst-case discharge or threat of such discharge	Section 19
Notification Procedures	
• Notification requirements that apply in each area of operation of pipelines covered by the plan, including applicable state or local requirements	Section 2.8

<ul style="list-style-type: none"> Checklist of notifications the operator or Qualified Individual is required to make under the response plan, listed in the order of priority 	Section 2.8.4
<ul style="list-style-type: none"> Name of persons (individuals or organizations) to be notified of discharge, indicating whether notification is to be performed by operating personnel or other personnel 	Section 2.8.4
<ul style="list-style-type: none"> Procedures for notifying Qualified Individuals 	Section 2.3, 2.4
<ul style="list-style-type: none"> Primary and secondary communication methods by which notifications can be made 	Sections 2.5
<ul style="list-style-type: none"> Information to be provided in the initial and each follow-up notification, including the following: <ul style="list-style-type: none"> name of pipeline time of discharge location of discharge name of oil recovered reason for discharge (e.g. material failure, excavation damage, corrosion) estimated volume of oil discharged weather conditions on scene actions taken or planned by persons on scene 	Section 2.4.1
Spill Detection and On-Scene Spill Mitigation Procedures	
<ul style="list-style-type: none"> Methods of initial discharge detection 	Section 2.1
<ul style="list-style-type: none"> Procedures, listed in order of priority, that personnel are required to follow in responding to a pipeline emergency to mitigate or prevent any discharge from the pipeline 	Introduction (Page 1 – Initial Response Actions)
<ul style="list-style-type: none"> List of equipment that may be needed in response activities based on land and navigable waters including: <ul style="list-style-type: none"> portable pumps and ancillary equipment transfer hoses and pumps facilities available to transport and receive oil from a leaking pipeline 	Section 9.7
Identification of the availability, location, and contact phone numbers to obtain equipment for response activities on a 24-hour basis	Section 2.10
Identification of personnel and their location, telephone numbers, and responsibilities for use of equipment in response activities on a 24-hour basis	Section 2.10
Response Activities	
<ul style="list-style-type: none"> Responsibilities of, and actions to be taken by, operating personnel to initiate and supervise response actions pending the arrival of the Qualified Individual or other response resources identified in the response plan 	Introduction (Page 1 – Initial Response actions)
<ul style="list-style-type: none"> Qualified Individual's responsibilities and authority, including notification of the response resources identified in the response plan 	Section 8.9

<ul style="list-style-type: none"> Procedures for coordinating the actions of the operator or Qualified Individual with the action of the OSC responsible for monitoring or directing those actions 	Section 8.9
<ul style="list-style-type: none"> Oil spill response organizations (OSRO) available through contract or other approved means, to respond to a worst-case discharge to the maximum extent practicable 	Section 2.10
<ul style="list-style-type: none"> For each organization identified under paragraph (d), a listing of: <ul style="list-style-type: none"> equipment and supplies available trained personnel necessary to continue operation of the equipment and staff the oil spill removal organization for the first seven days of the response 	Section 2.10
List of Contacts	
<ul style="list-style-type: none"> List of persons the Plan requires the operator to contact 	Sections 2.9, 2.10
<ul style="list-style-type: none"> Qualified individuals for the operator's areas of operation 	Section 7.3
<ul style="list-style-type: none"> Applicable insurance representatives or surveyors for the operator's areas of operation 	Section 8.15
<ul style="list-style-type: none"> Persons or organizations to notify for activation of response resources 	Section 2.9, 2.10
Training Procedures	
<ul style="list-style-type: none"> Description of training procedures and programs of the operations 	Section 17.2.2
Drill Procedures	
<ul style="list-style-type: none"> Announced and unannounced drills 	Section 17.2
<ul style="list-style-type: none"> Types of drills and their frequencies; for example: <ul style="list-style-type: none"> manned pipeline emergency procedures and qualified individual notification drills conducted quarterly drills involving emergency actions by assigned operating or maintenance personnel and notification of qualified individual on pipeline facilities which are normally unmanned, conducted quarterly shore-based Emergency Response Team (ERT) tabletop drills conducted yearly oil spill removal organization field equipment deployment drills conducted yearly a drill that exercises entire response plan for each Response Area, would be conducted at least once every three years 	Section 17.2.2
Response Plan Review and Update Procedures	

<ul style="list-style-type: none"> Procedures to meet 194.121 	Preface (Plan Maintenance)
<ul style="list-style-type: none"> Procedures to review plan after a worst-case discharge and to evaluate and record the plan's effectiveness 	Preface (Plan Maintenance)
Response Area Appendices	
Each response area appendix would provide the following information:	
<ul style="list-style-type: none"> Name and telephone number of the qualified individual 	Section 7.3
<ul style="list-style-type: none"> Notification procedures 	Section 2.10
<ul style="list-style-type: none"> Spill detection and mitigation procedures 	Section 2.1
<ul style="list-style-type: none"> Name, address, and telephone number of oil spill response organization 	Section 2.10
<ul style="list-style-type: none"> Response activities and response resources including: <ul style="list-style-type: none"> equipment and supplies necessary to meet 194.115 trained personnel necessary to sustain operation of the equipment and to staff the oil spill response organization and spill management team for the first seven days of the response 	Section 2.10, 9.7, 18
<ul style="list-style-type: none"> Names and telephone numbers of federal, state, and local agencies which the operator expects to assume pollution response responsibilities 	Sections 2.9
<ul style="list-style-type: none"> Worst case discharge volume 	Section 18.0
<ul style="list-style-type: none"> Method used to determine the worst-case discharge volume, with calculations 	Section 18.1
<ul style="list-style-type: none"> A map that clearly shows: <ul style="list-style-type: none"> location of worst-case discharge distance between each line section in the Response Area: <ul style="list-style-type: none"> each potentially affected public drinking water intake, lake, river, and stream within a radius of five miles of the line section each potentially affected environmentally sensitive area within a radius of one mile of the line section 	Section 18.3
<ul style="list-style-type: none"> Piping diagram and plan-profile drawing of each line section; may be kept separate from the response plan if the location is identified 	Section 18.2
<ul style="list-style-type: none"> For every oil transported by each pipeline in the response area, emergency response data that: <ul style="list-style-type: none"> include name, description, physical and chemical characteristics, health and safety hazards, and initial spill-handling and firefighting methods meet 29 CFR 1910.1200 or 49 CFR 172.602 	Sections 14.0 and 7.7

16.2 Washington State Regulations

This Plan is intended to satisfy the requirements of the Washington Administrative Code 173-182. The plan is also intended to work in conjunction with the Northwest Area Contingency Plan and the Washington State Geographic Response Plans. Specifically, this Plan is intended to satisfy the following criteria from WAC 173-182.

Washington Administrative Code	Comments
110 (3)(a)	The ERP is being submitted by Trans Mountain as the owner/operator of the Trans Mountain Pipeline (Puget Sound) system.
120 (3)	The ERP is being submitted as part of the five-year cycle for review and approval.
130 (1), (2), (3)(a)(b)(d-l), (5), (6), (7,) and (8)	The ERP is being submitted to comply with these sections, and will be addressed individually further in this cross-check sheet
130 (3)(c), and (4)	Not Applicable
140 (1) and (2)	The ERP outlines the process for Plan Maintenance within the Preface on page x under “ <i>Plan Maintenance</i> ”> “ <i>Responsibility</i> ” > bullet point # 2.
142 (1-6)	Information fulfilling this part of the Code is described within the Preface on page xi “ <i>Changes in Operating Conditions</i> ”. Trans Mountain will ensure that all temporary or permanent significant changes affecting personnel and/or equipment listed in the Plan is communicated with WDOE as stipulated and timelines for permanent Plan modifications are adhered to. Section 142(2)(f)(ii) is not applicable to Trans Mountain.
145	The implementation of this ERP is described in the Introduction Section on page 2 under “ <i>Plan Implementation</i> ”. This Plan will be implemented for any emergency or drill within Washington State unless a decision to use a different plan is first approved by the federal and state on-scene coordinators.
150	Post spill review and documentation procedures are described in the Preface on page xi under “ <i>Revisions After Release or Exercise</i> ”. Trans Mountain will conduct post spill review assessments to evaluate the effectiveness of the response plan and make improvements as required. A post spill review may include debriefs with WDOE and other participating agencies/organizations if appropriate. A debrief will be completed if major plan updates are identified or significant lessons learned can be recorded and implemented.
210	Trans Mountain is content with the current format of this ERP and is confident that the Plan is laid out in such a way as to maximize functionality during a spill. The Plan contains a variety of diagrams, job aids and checklists and includes a detailed table of contents at the beginning. The Plan is divided into logic chapters and sections and is formatted to allow for easy replacement of individual pages.
220	The signed binding agreement for this Plan is located in <i>Section 19.2 Trans Mountain Certification – Binding Agreement</i> . The written statement within the Binding Agreement contains required contact details and confirms/verifies commitments outlined in Section 220 (2) (a)(b)(c)(d) & (e).

Washington Administrative Code	Comments
230 (1) and (2)	The ERP has been written to be fully compliant with all applicable sections of WAC 173-182 and in accordance and with reference to the NWACP. The NWACP is referred to in various sections but specifically in <i>Section 10.6.1 Planning Section Resources Northwest Area Contingency Plan</i>
230 (3) (a)	The federal and state regulations covered by this Plan are outlined in <i>Section 16 Regulatory Background</i> . More specifically this Plan has been designed to meet WAC 173-182 and OPA 90 Requirements (49 CFR 194). This is stated within the Introduction Section of this ERP, specifically on page 2 under “Regulatory Scope of the Plan”
230 (3) (b) (i)	Within this Plan there are a total of five (5) WCD response zones for different sections of the pipeline. For each response zone a specific WCD has been calculated. A detailed description of the methods used for calculating each WCD is described in <i>Section 18.1 Worst Case Discharge Calculations</i> .
230 (3) (b) (ii)	Not Applicable, this ERP has not been developed for a vessel or as an umbrella plan.
230 (3) (b) (iii)	There is only one facility using this Plan, Laurel Station. A WCD has been calculated for this facility as per WAC 173 182 030 (70)(d). This information is located in <i>Section 18.1.2 Tank Calculation</i>
230 (3) (c)	The Control Sheet acts as the Plan “Log Sheet” and is located within the Preface on page xiii. The Control Sheet includes a description of amendments made to Plan, identifies the person authorized make Plan changes and confirms the date that changes were made and communicated to WDOE.
230 (3) (d)	This cross-reference table is required by this chapter. The cross-reference table is located in <i>Section 16.2 Washington State Regulations</i> and identifies the location within the Plan where components required by this chapter are located.
230 (3) (e) (i) and (ii)	The Primary Response Contractors contact information is contained in <i>Section 2.10 Primary Response Contractors</i> . Wildlife Response Contacts including NRC and Focus Wildlife are located in <i>Section 13.6</i> . Letters of intent or letters of contract are included in <i>Section 19.5 PRC – Contracts/Letters of Intent</i> . The contract document for PRC’s can be made available upon request by the WDOE.
230 (3) (e) (iii)	Trans Mountain does not rely on mutual aid agreements to meet the planning standards.
230 (3) (e) (iv) and (v)	Trans Mountain does not rely on a PRC to staff ICS positions for its Spill Management Team; however a contract agreement is in place with O’Brien’s Response Management, a state approved SMT, for ICS staff (if required), in the event of an oil spill. Offer of spill response services is outlined in the O’Brien’s Response Management contract letter located in <i>Section 19.5 PRC – Contracts/Letters of Intent</i> .
230 (3) (f)	The procedure to track and account for the entire volume of oil recovered and oily waste generated and disposed of during a spill including the commitment to provide records to Ecology upon request is in <i>Section 9.6.3</i>

Washington Administrative Code	Comments
	<i>and 9.6.3 of the ERP .Additional procedures are available in Section 4.12 Credit for Oil Recovery.</i>
230 (4) (a)	The name, location, type and address of the facility covered by this ERP is outlined in <i>Section 7.3 Owner/Operator Information</i>
230 (4) (b)	The start date for facility operations covered by this ERP is referenced in <i>Section 7.3 Owner/Operator Information.</i>
230 (4) (c) (i)	A description of operations covered by this ERP is described in <i>Section 7.2 Puget Sound Area Description</i>
230 (4) (c) (ii)	The capacity and inventory of all tanks covered by this ERP are listed in <i>Section 7.5 Trans Mountain Tank Data</i>
230 (4) (c) (iii)	All oil(s) or product(s) which may be handled at the facility, including product name, density, gravity, API, oil group number, and sulfur content is outlined in <i>Section 7.6 Trans Mountain Products Summary</i>
230 (4) (c) (iv) and (v)	A detailed description of operations covered by the ERP, including response zone maps, site topography, drainage systems, pipelines, tanks and all associated sites are described in <i>Section 7.7 Response Zone Descriptions, Maps and Site Plans.</i> More specifically <i>Sections 7.7.1 Zone 1 -Sumas to Laurel Station, 7.7.2 Zone 2 - Laurel Station to Burlington, 7.7.3 Zone 3 – Burlington Scraper Trap to Anacortes Meter Station, 7.7.4 Zone 4 – Laurel Station to Ferndale, and 7.7.5 Zone 5 – Laurel Station</i>
230 (5), (6), and (7)	Not Applicable – this ERP does not cover vessels nor is it an Umbrella Plan.
230 (8)	Concise procedures to establish a process to manage oil spill liability claims of damages to persons or property, public or private, for which a responsible party may be liable is described in <i>Section 12.5 Managing Spill Liability Claims – Formal Claims Process.</i>
232	Not Applicable – This ERP has not been designed for vessels or as a vessel umbrella plan.
240(1)	The field document for this ERP, known as the Geographic Response Field Handbook, contains time critical information for the initial emergency phase of a spill and a substantial threat of a spill. The Geographic Response Field Handbook is distributed to personnel who participate in oil handling operations and is also located at key operations facilities. A distribution list for this Handbook is located within the Handbook Preface page vii - " <i>Distribution</i> ".
240 (2)	Section 2 of the Geographic Response Field Handbook, " <i>Initial Response Actions</i> " includes information describing the procedures to detect, assess and document the presence and size of a spill. Section 3 " <i>Notification</i> " describes spill notification procedures including a call out list that meets the requirements in WAC 173-182-260 and 173-182-264, and Section 2 outlines significant steps responders should follow if responding to a spill, listed in a logical progression of response activities. In addition, the entirety of the Handbook is laid out in a logical progression of response.
242	Not Applicable – this ERP has not been designed for vessels.

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250 (1)	The Initial Response Actions are described in the Introduction on Page 1 in the paragraph titled “ <i>Initial Incident Actions</i> ”. This includes the requirement to document initial response actions using appropriate ICS 201 form.
250 (2), (3) and (4)	Initial spill assessment is covered within <i>Section 3 Spill/Site Assessment</i> of the ERP. Specifically, <i>Section 3.5.2 Estimating Spill Trajectories</i> describes the methodology and equipment used to conduct initial spill assessment. <i>Section 3.5.4 Estimating Spill Volume</i> provides direction for estimating initial spill volume. Safety assessment procedures are identified in <i>Section 1.0 Responder Health and Safety</i> and further supported by <i>Section 3.1 Site Assessment Guidelines</i> , <i>Section 3.2 Vapor Monitoring on Marine Spills</i> and <i>Section 3.3 Vapor Monitoring on Land Spills</i> . Confirming the occurrence and estimating the quantity and nature of the spill is completed through ongoing spill surveillance. This is described in <i>Section 3.5.1 Spill Surveillance</i> . If the initial spill volume has changed significantly then updated spill volumes will be reported as per section 2.8.4.
260 (1)	Procedures to ensure immediate notifications to appropriate internal and external parties are described in <i>Section 2.4 Internal Notification Procedure</i> and <i>Section 2.8 External Notification</i> . The central reporting office is the Edmonton Control Center whose number is provided in <i>Section 2.4.2 How to Report</i> . <i>Section 2.8.4 Initial Notification Requirements – Confirmed Emergency Condition</i> provides the call down list for reporting to external agencies including the appropriate call order and who is to place the call.
260 (2)	The list of names and phone numbers for required notifications for government agencies is located in <i>Section 2.8.4 Initial Notification Requirements – Confirmed Emergency Condition</i> with additional contact information located in <i>Section 2.9 Other Notification</i> . Notification details for response contractors are located in <i>Section 2.10 Primary Response Contractors (PRC)</i> . Company spill management team members’ notification details are located in <i>Section 2.6 Trans Mountain Contacts</i> .
260 (3)	Order of priority is established for immediate notification in <i>Section 2.8.4 Initial Notification Requirements – Confirmed Emergency Condition</i>
262	Not Applicable– this ERP has not been designed for vessels.
264 (1)	The requirement to report all spills to ground or containment that may threaten waters of the state is outlined in the table located in <i>Section 2.8.4 Initial Notification Requirements – Confirmed Emergency Condition</i>
264 (2)	The requirement to report spills that are either unconfirmed or of an unknown size are covered by <i>Section 2.8.4 Initial Notification Requirements – Confirmed Emergency Condition (footnote #3)</i> and <i>2.8.2 External Notification – Potential Emergency Condition</i>
270 (1) and (2)	Maintenance and Record Keeping of response equipment is outlined in <i>Section 9.7 Response Equipment Maintenance</i> . This section also outlines the schedule, methods and procedures for equipment maintenance and indicates that Trans Mountain will maintain these records for a period of no less than five years.
280 (1) (a)	The organizational diagram depicting the chain of command for the Incident Management Team (Spill Management Team) for a worst case

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	<p>spill is depicted in <i>Section 8.4 Response Team Organization</i>. The different Incident Management Teams are described in <i>Section 8.1 Initial Response Team, 8.2 Local Incident Management Team, and 8.3 Trans Mountain Incident Management Team</i>.</p> <p>Further breakdown of the sections is contained in <i>Sections 9.2 Operations Section Organization Chart, 10.2 Planning Section Organization Chart, 11.2 Logistics Section Organization Chart, 12.2 Finance Section Organization Chart</i></p>
280 (1) (b)	<p>Incident Management Team (Spill Management Team) personnel expected to fill the ICS roles and their alternates are listed in <i>Section 2.6 Trans Mountain Contacts</i>. The list includes a primary and alternate individual for each ICS position down to the Section Chief level including all Command positions.</p>
280 (1) (c-d)	<p>Trans Mountain utilizes the Incident Command System to manage incidents and is consistent with the NWACP. The only area of deviation from the NWACP is in regard to duties related to the Information Officer and Liaison Officer. The duties of the Information Officer (<i>Section 8.12 Information Officer</i>) and Liaison officer (<i>Section 8.13 Liaison Officer</i>) are outlined in the Plan and have been altered to maintain continuity with Trans Mountain's operations and training personnel have received. The major difference is that the Information Office is responsible for public communications and the Liaison Officer is only tasked with agency liaison. The Trans Mountain ICS Guide has the Liaison Officer assigning the Community Relations Coordinator to the JIC for consistent messaging; the duties these individuals perform are consistent with the NWACP, the reporting structure changes slightly. All ICS Sections are outlined in brief within this Plan. <i>Section 8.0 Incident Management</i> describes various types of incident management including the planning processes followed for both short and long term emergency events. The planning process is consistent with the NWACP. <i>Section 9.0</i> outlines general duties and functions of the Operations Section and provides additional background information. <i>Section 10.0</i> outlines the general duties and functions of the Planning Section and provides additional background information and planning information. <i>Section 11.0</i> describes the Logistics Section and <i>Section 12.0</i> describes the Finance and Administration section. Additionally, Trans Mountain has developed and maintains an ICS Guidebook that is available by request. The ICS Guidebook provides additional details and checklists for every position within the ICS structure that Trans Mountain expects to utilize. The ICS Guidebook is consistent with and references the NWACP.</p>
280 (2)	<p><i>Section 17.1 Training and 17.2 Exercises</i> outlines the training and exercise requirements for individuals listed in 280(1)(b). <i>Section 17.1 and 17.2</i> describe the type of training and exercises required and the format and frequency of each.</p>
280 (3)	<p>Primary and Secondary Incident Commanders are listed in <i>Section 2.6 Trans Mountain Contacts</i> and are located within 6 hours of a potential incident site. Response times for the rest of the spill management team are identified in the <i>Section 9.7.5 Response Times</i>.</p>

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280 (4)	A narrative description of estimated time frames for arrival of the spill management team is provided in Section 2.5.1 <i>Incident Management Team Mobilization</i> , Section 8.5 <i>Initial Response</i> and supported by the Section 9.5 <i>Response Times</i> .
280 (5)	<i>Section 8.7 Transfer of Command</i> outlines procedures for transferring responsibilities from initial to incoming response staff. This section includes details regarding shift length and rotational schedules.
280 (6)	Not Applicable - this ERP has not been designed for vessels.
310 (1) and (2)	A description of this section of the WAC has been provided in <i>Section 18.2 Planning Standards</i> .
315	Trans Mountain would utilize non-dedicated workboats and operators provided by its Primary Response Contractor NRC. A list of services provided by NRC is located in <i>Section 2.10 Primary Response Contractors</i> . A letter of contract between Trans Mountain and NRC is found in <i>Section 19.5 PRC-Contracts/Letters of Intent</i> .
317	Not Applicable – Trans Mountain is not an owner/operator of a covered vessel or a covered vessel plan holder.
320	<i>Section 9.4 Air Operations Branch</i> outlines the air surveillance requirements and how Trans Mountain intends to achieve them including the requirement for air operations to support three, ten-hour operational periods during the first seventy two hours of the discharge. Air operations support is provided via NRC, Trans Mountain’s Primary Response Contractor listed in <i>Section 2.10</i> .
321	Not Applicable – Trans Mountain is not an owner/operator of a covered vessel or a covered vessel plan holder.
324	Trans Mountain has a PRC contract with NRC for equipment and spill response resources which is inclusive of the ability to respond to oil which may become non-floating. This is confirmed in the PRC Contracts/Letter of Intent located in Section 19.5 and Section 2.10 <i>Primary Response Contractors</i> . Section 4.8 <i>Non-Floating Oil</i> confirms Trans Mountains ability to meet planning standards for non-floating oils. Trans Mountain will adhere to the Northwest Area Contingency Plan (NWACP) Section 9412 – Non-Floating Oils Spill Response Tool.
325	As stated in <i>Section 4.10.7 Cleanup Techniques – Dispersant</i> , Trans Mountain will adhere to the NWACP Dispersant Use Policy and follow Section 9406 of the NWACP - Dispersant Authorization Process and Decision Support Tools. Any use of dispersants will be approved by Unified Command. Trans Mountain uses a dedicated PRC (NRC) to conduct in-situ burning operations as stated in PRC Contracts/Letters in Section 19.5 and Section 2.10 <i>Primary Response Contractors</i> .
330	Per <i>Section 4.11.2 In-Situ Burning</i> , Trans Mountain will follow Section 9407 of the NWACP – In-Situ Burning Operations Planning Tool to determine if in-situ burning is the best course of action for spill mitigation. In-situ burning operations will occur at the direction and approval of Unified Command. Trans Mountain uses a dedicated PRC (NRC) to conduct in-situ burn operations as stated in PRC Contracts/Letters in Section 19.5 and Section 2.10 <i>Primary Response Contractors</i> .

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335	Planning Standards for storage is described for each response zone in <i>Section 18.2 Planning Standards</i>
345	Effectiveness of recovery systems is outlined for each response zone in <i>Section 18.2 Planning Standards</i>
348	Effective daily recovery capacity is outlined for each response zone in <i>Section 18.2 Planning Standards</i>
349	Not Applicable - Trans Mountain is not an owner/operator of a covered vessel or a covered vessel plan holder.
350	Documented compliance with the planning standard including resource spreadsheets for each response zone is located in <i>Section 18.2 Planning Standards</i>
355	Not Applicable - Trans Mountain is not an owner/operator of a covered vessel/vessel terminal or a covered vessel plan holder.
365	Compliance with the planning standard table located in this section is covered for each response zone in <i>Section 18.2 Planning Standards</i> .
366	Compliance with the planning standard table located in this section is covered for each response zone in <i>Section 18.2 Planning Standards</i> .
375	Compliance with the Padilla Bay planning standard table is located in <i>Section 18.2.1.5 Zone 4 Padilla Bay</i>
370, 380, 385, 390, 395, 400, 405, 410, 415, 420, 430, and 450	Not Applicable – Trans Mountain does not transit or operate within a five nautical mile radius of these locations
510 (1) (2)(a)(b)(c)(d)(e)(f) (3), (4)	Requirements for response and protection strategies including a description outlining how environmental protection will be achieved, including methods to track and contain spilled oil and enhance recovery, are described in <i>Section 4.0 Spill Containment and Recovery</i> and <i>Section 5.0 Protection of Sensitive Areas</i> . GRP's and reference to the NWACP are located in <i>Section 10.6.1</i> and <i>10.6.3</i> respectively. The Incident Command Post for Trans Mountain Puget Sound is provided in <i>Section 2.12 Incident Command Post Location</i> .
515 (1)(2)(a)(b)(c)(d)(e) (3), (4) (5)	<i>Section 10.6.4 – Trans Mountain – Geographic Information Systems</i> contains a description of the GIS tools available to Trans Mountain Responders including how systems may be utilized to map and track spilled oil, enhance decision making, and assist with recovery and removal operations.
522	Shoreline cleanup can be found in section <i>4.7 Response Tactics for Shoreline</i> and <i>Section 10.7 Shoreline Cleanup Planning Standards</i> and is described for each response zone in <i>Section 18.2 Facility Planning Standards</i>
530(1)(2)	<i>Section 2.1.10 Detection of Spills to Groundwater</i> includes a description of the methods to be used to immediately assess groundwater spills. Contact information in the plan for resources typically used to investigate, contain and remediate/recover spills to groundwater is located in <i>Section 2.10 Primary Response Contractors</i> . <i>Section 3.5.5 Groundwater Spill Assessment</i> includes a description of methods to be used when a spill occurs that is not on impermeable ground.
535 (1) to (8)	For parts 1 and 2 the content is described in <i>Section 3.0 Spill//Site Assessment</i> , for parts 3 to 6 and 8 the content is found in the <i>Air</i>

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	<i>Monitoring Plan</i> found at the back of <i>Section 10 Planning Section</i> and for part 7 the description of public communication methods is found in <i>8.12 Information Officer</i> .
540	Planning standards for wildlife rescue and rehabilitation, including compliance with the Northwest Wildlife Response Plan contained within the NWACP Section 9310 is described in <i>Section 13.0 Wildlife Care</i> . Trans Mountain utilizes NRC, a Primary Response Contractor, to ensure wildlife rescue standards and requirements are upheld. NRC maintains a contract with a state approved Wildlife Service Provider (WRSP) Focus Wildlife which provides Trans Mountain with access to Focus Wildlife response services and equipment. Trans Mountain would activate Focus Wildlife through NRC in the event of an oil spill. Wildlife services are confirmed in the NRC PRC Contracts/Letter of Intent located in Section 19.5 and listed as part of <i>Section 2.10 Primary Response Contractors</i> .
Section E	Not Applicable - Outlines plan evaluation and is informational for Trans Mountain.
700 (1 - 6)	<i>Section 17.2 Exercises</i> outlines the commitments to conduct exercises/drills in order to confirm response plan components function to the maximum extent practicable and to ensure prompt and proper removal of oil in order to minimize damage from a variety of spill sizes.
710	<i>Section 17.2.2 Type and Frequency of Exercises</i> details the type and frequency of drills to ensure compliance with the triennial drill cycle.
720	<i>Sections 17.2.3 Exercise Program Evaluation Criteria</i> and <i>17.2.5 Exercise Component Checklist</i> confirm that Trans Mountain will evaluate exercises as per the NPREP 2016 guidance document and the fifteen core components identified by WDOE within 173-182-730.
730 (1)(2)	<i>Section 17.2.4 Alternative Drill Credit</i> outlines how Trans Mountain may apply and receive alternative drill credit in the event of a response to an actual spill in which the WDOE was a participant. This section also describes how Trans Mountain may apply for alternative drill credit for out-of-state drills if all WAC 173-182-730(2) requirements are met.
740	Informational only. This has not been included as an option within the response plan as it is not the intent of Trans Mountain to request waivers for exercises.
Part IV	Not Applicable – specific to Primary Response Contractor Applications
Part V	Informational – outlines record keeping and non-compliance information

17.0 TRAINING AND EXERCISES

17.1 Training

Training Element	Qualified Individual (QI)	Incident Management Team (IMT)	Initial Response Team	Frequency
Review of Emergency Response Plan at least annually and includes: <ul style="list-style-type: none"> • ICS Overview • NWACP policies • Use and location of GRP's • Contents of ERP, Field Handbook and ICS Guide 	x	x	x	Every 3 years
ICS 100 Level Certification	x	x	x	Once
HAZWOPER Certification	x	Command Staff, Operations Section, Planning Section Chief, and Environment Unit	x	Annually
Deployment Exercise	x	x	x	Annually

In addition to the training elements described in the matrix above, Trans Mountain personnel who are found responsible for causing an oil spill will be required to receive follow-up training that addresses the cause of the spill and provides them with measures they can take to prevent the recurrence of similar incidents.

17.1.1 Employee Training Records

A training record shall be maintained for each employee that has been trained in accordance with requirements in 29 CFR 1910.120 and 49 CFR 194.117. The Training Department is responsible for maintaining training records for all Company employees, related to safety and emergency related training functions. Training records are maintained as long as the employment with Trans Mountain continues.

In accordance with 49 CFR 195.403, and at intervals not exceeding 15 months but at least once each calendar year, the Emergency Management Department will;

- Review with personnel their performance in meeting the objectives of the emergency response training program,
- Make appropriate changes to the emergency response training program, and
- Require and verify that supervisors maintain a thorough knowledge of the emergency response procedures for which they are responsible.

17.1.2 Contractors Training Records

The Trans Mountain emergency response contractors are responsible for maintaining all training records for their employees. Periodic audits shall be conducted of contractor training records to ensure that they comply with the emergency training and exercise requirements. Audit documentation shall be retained in the Trans Mountain emergency training and exercise files.

17.1.3 Instructors

HAZWOPER instructors and training organizations shall be required to provide a current record of instructor certification to the operator's headquarters prior to undertaking any training. These records shall be maintained at the Trans Mountain office located in Calgary, AB, as long as the instructor undertakes training, as required by 29 CFR 1910.120.

17.2 Exercises

17.2.1 Company Policy

Trans Mountain participates in the National Preparedness for Response Exercise Program (PREP). During each triennial cycle, all components of the Plan will be exercised at least once. Trans Mountain will provide WDOE and any other stakeholder the opportunity to help design and evaluate all tabletop and deployment drills, which Trans Mountain is looking for credit. Objectives not successfully met at an exercise will be tested again within the triennial cycle with the exception of significant failures will be retested within 30 days. WDOE will provide a written evaluation of the exercise to Trans Mountain and will outline any objectives successfully met. If changes to the ERP or training program are identified or required Trans Mountain will request an informal review with WDOE within 30 days of receipt of a report requiring/suggesting such changes to determine an action plan for making the changes.

17.2.2 Type and Frequency of Exercises

The following drills will be conducted during the triennial cycle. These will be either evaluated by WDOE or self-evaluated. In either case of evaluation, the WDOE matrix will be used. The following table indicates the type of drill and frequency of the drill along with description and any additional scheduling information.

Drill Type	Frequency in Triennial Cycle	Definition	Scheduling Instruction
Tabletop Drill	2	Is intended to demonstrate the capability to manage a spill using the incident command system. Role playing shall be required in the drill and all tabletop drills will included a master list of equipment and personnel identified to fill both command post and field operations roles. The master resources list will include; WRRL identification numbers for all resources, and personnel names, affiliation home base and command post or field role.	Must be scheduled at least 60 days in advance on the Drill Calendar https://fortress.wa.gov/ecy/naces/
Worst Case Tabletop Drill	1	Once in the triennial cycle the IMT as identified in this plan will be mobilized in state for a drill.	Must be scheduled at least 90 days in advance on the Drill Calendar https://fortress.wa.gov/ecy/naces/
Ecology Unannounced Drills	As Needed	Will be conducted on an as needed basis determined by WDOE. Immediately prior to the start of the drill Trans Mountain will be notified in writing of the objectives, expectation and scenario. Trans Mountain may	

Drill Type	Frequency in Triennial Cycle	Definition	Scheduling Instruction
		request to be excused if conducting the drill poses unreasonable safety or environmental risk, or significant economic hardship. More information around unannounced drills can be found in WAC 173-182-710 (9)	
Trans Mountain Unannounced Drills	3		Will not be scheduled, is a test of the TAS notification system. One call to occur annually, in the event a real call takes place, the drill will not be conducted during that calendar year.
Wildlife Deployment Drill	1	Once every three years regional mobile wildlife rehabilitation equipment and personnel necessary to set up the wildlife rehabilitation system found in the plan. This is an additional deployment drill or may be combined with a larger multi objective deployment drill.	Scheduled at least 30 days in advance, and entered on the Drill Calendar https://fortress.wa.gov/ecy/naces/
Deployment Drills	6	Deployment drills will be used to demonstrate the actions Trans Mountain would take in a spill including Notifications, safety actions, environmental assessment and response equipment deployment. The drills will include a combination of Trans Mountain owned assets, contracted PRC assets and non-dedicated assets, and vessels of opportunity (if appropriate, and applicable). Equipment dedicated in the plan and personnel responsible for operating the equipment will be tested during the triennial cycle, drills will be designed to demonstrate the ability to meet the planning standards,	Scheduled at least 30 days in advance on the Drill Calendar https://fortress.wa.gov/ecy/naces/

Drill Type	Frequency in Triennial Cycle	Definition	Scheduling Instruction
		including recovery systems and system compatibility and the suitability of the system for the operating environment. The drills will be conducted in all operating environments that could be impacted by a spill. At least twice in the triennial cycle a GRP will be deployed. At least once in the triennial exercise cycle Trans Mountain will participate in one large scale equipment deployment drill conducted as a joint large-scale, multiple plan equipment deployment drill.	

Notes: Trans Mountain may receive credit for a PRC drill and count as one of the above drills if the PRC is listed in this plan Trans Mountain operates in the area of the drill, it is scheduled on the drill calendar, and Trans Mountain participates in or observes the drill in person.

17.2.3 Exercise Program Evaluation Criteria

The following table outlines the 15 core components of the PREP. These core components also align with the Washington Administrative Code 173-182-720 Evaluation Criteria, which will be used to evaluate all exercises conducted in the triennial cycle.

Core components	Description
Notifications	Test the notifications procedures identified in the Area Contingency Plan (ACP) and the Spill Response Plan.
Staff mobilization	Demonstrate the ability to assemble the spill response organization identified in the ACP and the Spill Response Plan.
Ability to operate within the response management system described in the Plan: <ul style="list-style-type: none"> • Unified Command • Response management system 	Demonstrate the ability of the spill response organization to work within a unified command. Demonstrate the ability of the response organization to operate within the framework of the response management system identified in their respective plans.
Source Control	Demonstrate the ability of the spill response organization to control and stop the discharge at the source.

Assessment	Demonstrate the ability of the spill response organization to provide initial assessment of the discharge and provide continuing assessments of the effectiveness of the tactical operations.
Containment	Demonstrate the ability of the spill response organization to contain the discharge at the source or in various locations for recovery operations.
Recovery	Demonstrate the ability of the spill response organization to recover the discharged product.
Protection	Demonstrate the ability of the spill response organization to protect the environmentally and economically sensitive areas identified in the ACP and the respective industry response plan.
Disposal	Demonstrate the ability of the spill response organization to dispose of the recovered material and contaminated debris.
Communications	Demonstrate the ability to establish an effective communications system for the spill response organization.
Transportation	Demonstrate the ability to establish multi-mode transportation both for execution of the discharge and support functions.
Personnel Support	Demonstrate the ability to provide the necessary support of all personnel associated with response.
Equipment maintenance and support	Demonstrate the ability to maintain and support all equipment associated with the response.
Procurement	Demonstrate the ability to establish an effective procurement system.
Documentation	Demonstrate the ability of the spill response organization to document all operational and support aspects of the response and provide detailed records of decisions and actions taken.

17.2.4 Alternative Drill Credit

Trans Mountain may request drill credit for a response to an actual spill, provided that WDOE has an opportunity to participate and evaluate the spill response. Credit from spills will not alleviate the necessity to drill as per WAC 173-182-730. In the event of an actual spill being used for credit Trans Mountain will refer to WAC 173-182-730 to understand the criteria and timeline of reporting to be used. Additionally, Trans Mountain may request drill credit for drills held out of state if all of the requirements are met in WAC 173-182-730 (3).

17.2.5 Exercise Component Checklist

An exercise checklist is provided by WDOE and will be used for evaluation purposes. Each component must be checked off at least once in a three-year period. The active/historical check sheets can be obtained from the Emergency Response and Security Group on request.

18.0 WORST CASE DISCHARGE

In order to calculate worst case discharge for Trans Mountain's pipeline system and associated breakout tanks the area has been divided up into 5 response zones. The response zones each have a different WCD calculation based on DOT 49 CFR 194.105(b) and Washington Administrative Code 173-182-030 (70)(d). In the event that either calculation results in a differential of WCD volume the higher of the two is used for this emergency response plan and to determine the planning standards applied to each response zone as identified by WAC173-182-365.

The five response zones are as follows:

Zone 1 – Sumas Station to Laurel Station

Zone 2 – Laurel Station to Burlington

Zone 3 – Burlington to Anacortes

Zone 4 – Laurel Station to Ferndale

Zone 5 – Laurel Station

Zones 1-4 are pipeline response zones and have been broken down by the ability to be remotely controlled by the Control Centre located in Edmonton, Alberta Canada, which does not rely on a field response to shut down.

Zone 5 is the Laurel Station location which contains two breakout storage tanks. These tanks are in operation for temporary storage of oil awaiting delivery to refineries in Anacortes and Ferndale. These tanks are both available for recovered liquid storage and can receive liquid from vacuum trucks directly.

The worst-case discharge (WCD) as defined in 49 CFR 194.105(b), as the largest volume of the following:

- The pipeline's maximum shut-down response time in hours (based on historic discharge data or in the absence of such data, the operators best estimate), multiplied by the maximum flow rate expressed in barrels per hour (based on the maximum daily capacity of the pipeline), plus the largest drainage volume after shutdown of the line section(s) in the response zone expressed in barrels; or
- The largest foreseeable discharge for the line section(s) within a response zone, expressed in barrels (cubic meters), based on the maximum historic discharge, if one exists, adjusted for any subsequent corrective or preventative action taken; or
- If the response zone contains one or more breakout tanks, the capacity of the single largest tank or battery of tanks within a single secondary containment system, adjusted for the capacity or size of the secondary containment system, expressed in barrels.

Under PHMSA’s current policy, operators are allowed to reduce the worst-case discharge volume derived from 49 CFR 194.105(b)(3) by no more than 75% if an operator is taking certain spill prevention measures for their breakout tanks and presents supporting information in the response plan. An operator can reduce the worst-case discharge volume based on breakout tanks in the response zones as follows:

Spill Prevention Measures	Percent Reduction Allowed
Secondary containment capacity greater than 100% capacity of tank and designed according to NFPA 30	50%
Tank built, rebuilt, and repaired according to API Std 620/650/653	10%
Automatic high-level alarms/shutdowns designed according to NFPA/API RP 2350	5%
Testing/cathodic protection designed according to API Std 650/651/653	5%
Tertiary containment/drainage/treatment per NFPA 30	5%*
Maximum allowable credit or reduction	75%

The worst case discharge (WCD) as defined by WDOE in WAC 173-182-030 (70)(d) as; For pipelines, the size of the worst case spill is dependent on the location of pump stations, key block valves, geographic considerations, or volume of the largest breakout tank. The largest volume determined from three different methods, complicated by adverse weather conditions:

- The pipeline’s maximum time to detect the release, plus the maximum shutdown response time multiplied by the maximum flow rate per hour, plus the largest line drainage volume after shutdown;
- The maximum historic discharge from the pipeline; and
- The largest single breakout tank or battery of breakout tanks without a single secondary containment system.

Each operator shall determine the worst-case discharge and provide the methodology, including calculations used to arrive at the volume. The following section describes each calculation method and the final result for each response zone.

18.1 Worst Case Discharge Calculations

18.1.1 Pipeline Calculation

The worst-case discharge volume is calculated based on the highest volume for each response zone using the highest volume for each of the 3 criteria in 49 CFR 194.105(b), and WAC 173-182-030 (70)(d) listed in the previous section.

The worst-case scenario (full mainline rupture with 100% potential rupture volume out) is used for calculating the potential spill volume in the event of rupture. Pipeline total spill volumes are comprised of two components:

- the shutdown volume or initial spill volume
- the drain-down volume or stabilization spill volume

The shutdown volume, also termed the initial spill volume, is the fluid that is pumped out after pipe failure and before the leak detection software detects the release, pumps are shut down and mainline automated valves are closed. At a given point along the pipeline, the initial loss is the amount of product that can be released before the rupture site is isolated, namely:

- Initial spill volume = time to isolate the rupture point × maximum flow rate

The shutdown volume assumes a time delay of 15 minutes to recognize a leak and shut down as indicated in the list below, additionally to comply with Washington Department of Ecology Regulation Chapter 173-182-030, Section (70)(d)(i) which states “At a minimum the total time to detect and shut down the pipeline, must be equal or greater than thirty minutes” the total release time has been adjusted to 30 minutes total from 15 minutes in the calculation.

- Leak Detection 4 minutes
- Troubleshooting 2 minutes
- Pump shutdown 4 minutes
- Valve closure time 5 minutes
- Additional Time for Shutdown 15 minutes
- Total release time 30 minutes

Note: Time for evaluation and shut-down during bad weather has not been included explicitly as it has been determined that the weather will not impact the shut-down time due to the automation in the system, and that a total time of 30 minutes is sufficient for shut-down in all weather conditions.

The drain-down volume, also termed the stabilization spill volume, is the potential amount of product that can be released after isolation of the rupture point. The magnitude of the drain-down volume is related to the following factors,

- the pipeline elevation profile
- the location of mainline valves including automatic valves, check valves and manual valves
- the expected emergency response time to the leak-related manual valves
- Pipeline diameter and wall thickness
- The fluid properties such as viscosity, density and vapor pressure

For a given leaking point in the pipeline, its maximum drain-down volume is calculated using the following assumptions:

- All mainline automatic block valves are assumed to be closed within the initial shut-down period of 15 minutes, and mainline check valves block the reversal flow automatically.
- The total release time has been adjusted to 30 minutes.
- The manual valves are left open
- The maximum possible drain-down volume from the isolated leaking point is calculated using spill volume calculation software.

When emergency crews arrive on site within the emergency response time, they can reduce the cumulative flow by closing the leak-related manual valves. Manual valve closure will reduce the drain-down volume obtained. The maximum drain-down volumes, without the manual valves being automated or closed by emergency crews, is used for evaluation of the spill size potential in WCD calculations.

The liquid pipeline spill volume software was developed by an engineering firm to conservatively quantify liquid spill volume that would be released after a catastrophic failure of the pipeline. The worst-case scenario spill volume in the event of a full mainline rupture is calculated. Essentially, the maximum drain-down volume is determined and added to the shutdown volume.

Input data for the software includes distance, elevation and valve type and location data. Both input and output data are in a specific spreadsheet format. Each and every location that has elevation data is considered as an isolated spill or leak location. The elevation profile is then tested both upstream and downstream of the selected spill location. Each segment of the pipeline is tested to determine how much fluid could leak from the line. The volume of leaked fluid is determined by the occurrence of locations at a higher elevation than the leak point within the segment.

TMPL extends for about 57.46 miles (92.48 km) from the US Border trap to the Anacortes delivery terminal and about 11.64 miles (18.74 km) from Laurel station to Ferndale terminal. The pipeline size is NPS 20 from US Border trap to Burlington station while it is NPS 16 from Burlington station to Anacortes terminal and from Laurel station to Ferndale terminal. The pipeline has a maximum flow rate of about 226,560 bpd (1501 m³/h). Trans Mountain has identified all the HCAs in this pipeline system. Based on the HCAs, the pipeline was divided into 4 sections to simplify the spill volume calculations and analysis. To further simplify the calculations for the response zones, the highest potential spill volume in a given response zone will be used for the WCD for that response zone.

The results of the spill volume calculations for each phase of the shutdown and drain down process are outlined in the table below. Adding the volumes of each phase provides the total worst-case outflow volume for each specific Zone. Further spill profile information for each Zone is provided on the subsequent pages.

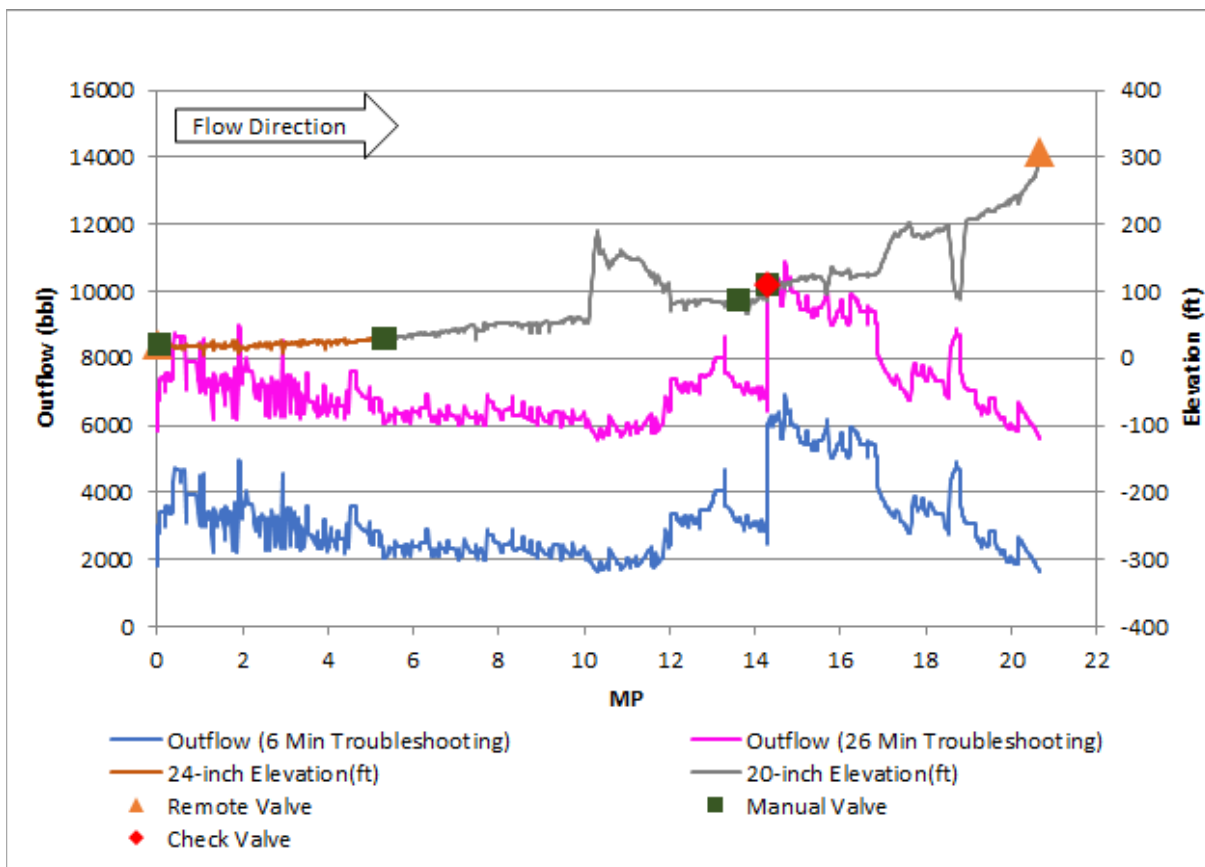
Zone	Mile Post	Phase 1 Outflow (bbl.) <i>Detection/ Troubleshooting Period</i>	Phase 2 Outflow (bbl.) <i>Pump Shutdown</i>	Phase 3 Outflow (bbl.) <i>Valve Closure</i>	Phase 4 Outflow (bbl.) <i>Gravity Drainage</i>	Total Outflow (bbl.)
1	14.71	5,178.60	431.55	4,131.36	1,150.39	10,892
2	42.92	5,178.60	431.55	877.25	5,817.49	12,305
3	5.94	4,088.37	340.70	1,638.19	76.07	6,143
4	8.42	4,633.49	386.12	4,006.15	685.62	9,783

18.1.1.1 Response Zone 1 – Sumas Station to Laurel Station

Response Zone 1 of TMPL is approximately 20.67 miles (33.26 km) long from the Sumas Station in British Columbia, Canada to Laurel Station in Bellingham, Washington. The below table presents the locations of existing mainline block valves (automatic and manual), and check valves in this section.

Valve Description	Valve Type	Chainage (miles)
US Border Trap	Automatic	5.359
MU 14	Manual	13.696
MU 15	Manual	14.395
Nooksack River	Check Valve	14.396
Laurel Station 20Q	Automatic	20.68

The spill volume profile for Response Zone 1 from Sumas Station to Laurel Station is presented below. In this figure, the pink line, labeled “26 Minute Troubleshooting:” represents the calculated total spill volume profile based on the existing mainline valves assuming that all manual valves are open. An overall peak volume of 10,892 bbl. occurs at MP 14.71. The blue line, labeled “4 Minute Troubleshooting” represents the calculation without the additional 15 minutes of release time required by WAC 173-182-030. Trans Mountain will use the more conservative 26 minutes troubleshooting for planning purposes.



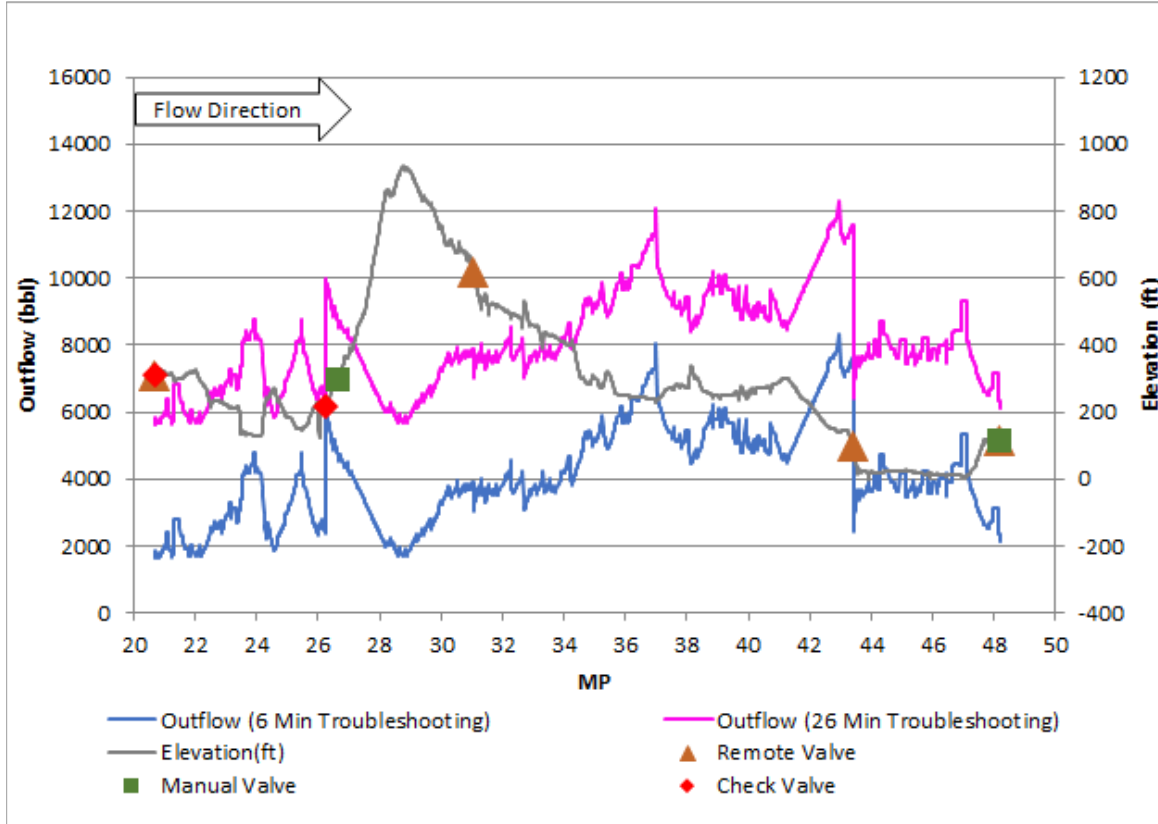
Note: The worst-case release volume occurs within Washington State. This plan does not cover planning for the portion of the pipeline within Canada.

18.1.1.2 Response Zone 2 – Laurel Station to Burlington

Response Zone 2 of TMPL is approximately 27.51 miles (44.27 km) long from the Laurel Station to Burlington. The below table presents the locations of existing mainline block valves (automatic and manual), and check valves in this section.

Valve Description	Valve Type	Chainage (miles)
Laurel Station Block Valve (20Q)	Automatic	20.677
Laurel Station Check Valve	Check	20.687
Whatcom Creek	Check Valve	26.357
MU 27	Manual	26.809
MU31	Automatic	31.048
MU 43	Automatic	43.408
MU 48	Automatic	48.172
Burlington Receive Valve	Manual	48.189

The spill volume profile for Response Zone 2 from Laurel Station to Burlington is presented below. In this figure, the pink line, labeled “26 Minute Troubleshooting:” represents the calculated total spill volume profile based on the existing mainline valves assuming that all manual valves are open. An overall peak volume of 12,305 bbl. occurs at MP 42.92. The blue line, labeled “4 Minute Troubleshooting” represents the calculation without the additional 15 minutes of release time required by WAC 173-182-030. Trans Mountain will use the more conservative 26 minutes troubleshooting for planning purposes.

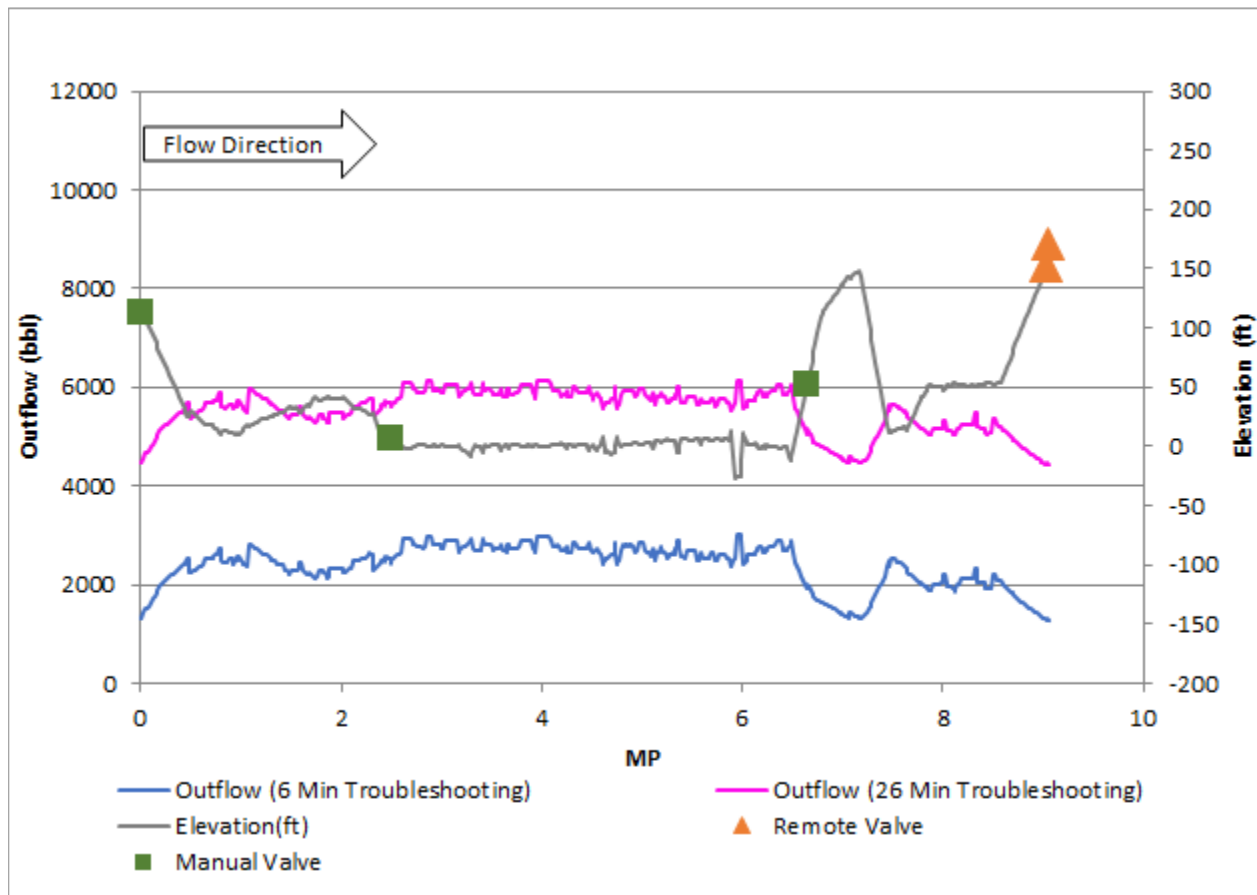


18.1.1.3 Response Zone 3 – Burlington to Anacortes

Response Zone three of TMPL is approximately 9.047 miles (14.55 km) long from Burlington to Anacortes. The table below presents the locations of existing mainline block valves (automatic and manual), and check valves in this section.

Valve Description	Valve Type	Chainage (miles)
MU 48	Automatic	0.000
MB 3	Manual	2.490
MB 7	Manual	6.641
MB 9	Automatic	9.030
Anacortes 16G	Automatic	9.052

The spill volume profile for Response Zone 3 from Burlington to Anacortes is presented below. In this figure, the pink line, labeled “26 Minute Troubleshooting:” represents the calculated total spill volume profile based on the existing mainline valves assuming that all manual valves are open. An overall peak volume of 6,143 bbl. occurs at MP 5.94. The blue line, labeled “4 Minute Troubleshooting” represents the calculation without the additional 15 minutes of release time required by WAC 173-182-030. Trans Mountain will use the more conservative 26 minutes troubleshooting for planning purposes.

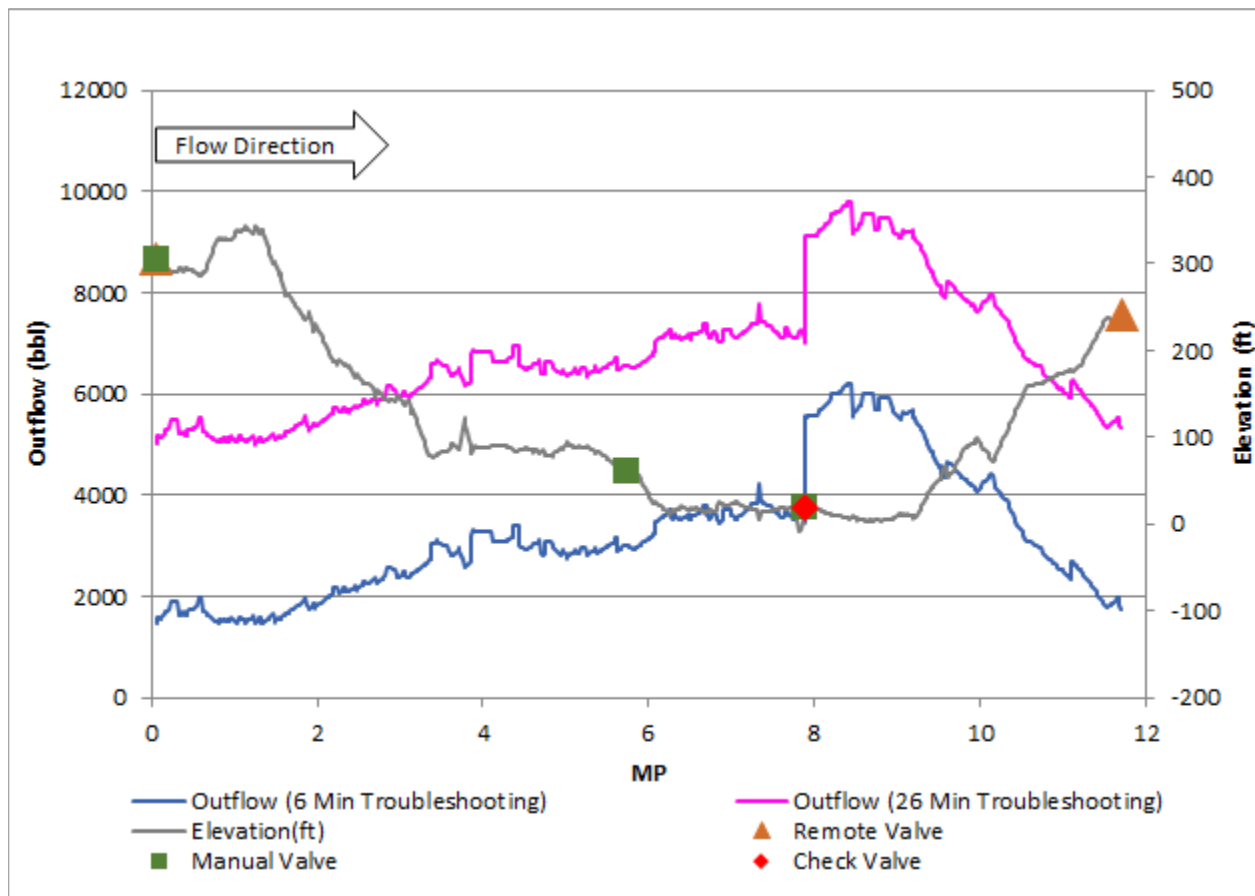


18.1.1.4 Response Zone 4 – Laurel Station to Ferndale

Response Zone 4 of TMPL is approximately 11.63 miles (18.71 km) long from Laurel Station to Ferndale. The table below presents the locations of existing mainline block valves (automatic and manual), and check valves in this section.

Valve Description	Valve Type	Chainage (miles)
Laurel-Ferndale Launch Valve (16M)	Automatic	0.066
16C Block Valve	Manual	0.070
Pacific Highway Block Valve	Manual	5.734
D/S Nooksack Block Valve	Manual	7.880
Nooksack River Check	Check	7.882
Ferndale 16G	Automatic	11.699

The spill volume profile for Response Zone 4 from Laurel Station to Ferndale is presented below. In this figure, the pink line, labeled “26 Minute Troubleshooting:” represents the calculated total spill volume profile based on the existing mainline valves assuming that all manual valves are open. An overall peak volume of 9,783 bbl. occurs at MP 8.42. The blue line, labeled “4 Minute Troubleshooting” represents the calculation without the additional 15 minutes of release time required by WAC 173-182-030. Trans Mountain will use the more conservative 26 minutes troubleshooting for planning purposes. Within this response zone the largest historical release is 10,500 bbl., therefore for Response Zone 4 the WCD volume will use the historical release volume.



18.1.2 Tank Calculation

The worst-case discharges for breakout tanks have two sets of criteria under the two legislations. In Washington state under WAC 173-182-030 (70)(d) the WCD is the volume of the largest tank on site which amounts to 89,455 bbl. The WCD calculation under DOT regulation 49 CFR 194.105(b)(3) accounts for a reduction of 70% of the tank volume equalling 26,837 bbl. The WCD of Zone 5 is 89,455 bbl., because it is the largest worst-case discharge volume of the two calculations.

18.1.3 Historic Releases

The WCD calculation under DOT regulation 49 CFR 194.105(b)(2) and WDOE regulation WAC 173-182-030 (70)(d) requires a look at historic spills. A spill in Zone 2 on January 10, 1973 equaled 10,500 bbl., which is larger than the calculated WCD of 7,186 bbl. Zones 1, and 3-5 do not have larger historic spills than the calculated WCD volumes. The following table outlines the historic spills for TMPL, and Laurel Station Response Zones:

Date	Response Zone	Material Released	Volume Released (bbl.)
30-Jul-12	5	Crude	0.003
12-Apr-09	2	Crude	0.006
4-Jun-08	5	Crude	0.1
26-Oct-00	5	Crude	645
25-Nov-95	5	Crude	0.5
7-Mar-92	5	Crude	50
11-Dec-91	5	Crude	84
15-Jan-91	5	Condensate	75
1-Jun-88	5	Crude	0.1
7-Feb-83	3	Crude	1
1-Feb-79	5	Condensate	1149
3-Dec-75	5	Crude	0.1
23-Apr-74	2	Crude	100
10-Jan-73	2	Crude	10500
11-Aug-72	3	Crude	10
12-Jul-71	5	Crude	6300
15-Oct-56	5	Crude	1
5-Mar-55	2	Crude	10

18.1.4 Response Zone Worst Case Discharge Volumes

The following table outlines the WCD volume for each response zone based on the above calculations, and will be used to determine the planning standards under WAC 173-182-365:

Zone	Description	Worst Case Discharge (bbl.)
1	Sumas Station to Laurel Station	10,892
2	Laurel Station to Burlington	12,305
3	Burlington to Anacortes	6,143
4	Laurel Station to Ferndale	10,500
5	Laurel Station	89,455

18.2 Planning Standards

Washington State applies a planning standard that will be verified during drills. Should an actual spill event occur Trans Mountain understands that the initial response to the event is guided by safety considerations, and that Trans Mountain is responsible for addressing the entire volume of the spill regardless of the planning standard, also that the planning standards do not constitute cleanup standards that are to be met. In the event of an actual spill the failure to remove the discharge within the time periods set out in the plan will not constitute failure to comply with the ERP for the purposes of the planning standards or for the purpose of imposing administrative, civil, or criminal penalties under any other law. WAC 173-182-310.

18.2.1 Planning Spreadsheets

The following sections outlines the planning spreadsheets provided by WDOE to demonstrate how the planning standards are being met for each of the five response zones. These spreadsheets are also available electronically from the Emergency Management Department.

18.2.1.1 Zone 1 - Nooksack River

Plan Holder: Trans Mountain Pipeline (Puget Sound) Llc.
Planning Standard Summary Analysis: WAC 173-182-365 Transmission pipelines and pipeline tank farms
The summary analysis spreadsheet is based on a conceptual model of equipment that would be available based on the guidelines set forth in WAC 173-182 for; planning standards, determining effectiveness of recovery systems, documenting compliance with planning standards, and plan evaluation criteria. Actual times and performance in spills will depend on the conditions of the day. An electronic version of the equipment detail spreadsheet which lists all equipment can be made available by Ecology upon request. The planning standard summary analysis indicates total access to boom, storage and recovery resources required to meet the planning standard. Equipment access is based on information listed on the WRRL and information provided through the plan holder contingency plan and Primary Response Contractor applications as of 6/1/2023. This information is subject to change as additional equipment is acquired and/or relocated. Substantive changes will result in an update of the spreadsheets.
PRC(s): NRC
Plan Holder owned equipment: Yes, equipment is listed on the WRRL
Worst Case Spill Volume (bbls): 10,892 bbls
Oil Products Handled by Group (Group 1-5): group 3
Mutual Aid/Letters Of Intent: N/A
Analysis point description: Pipeline response zone 1. Point where the pipeline crosses the Nooksack River.
Marine 50% or Freshwater 65% shore side storage credit: Yes
Alternative Planning Standard: N/A

	On-water Storage (bbls)	Shore side Storage (bbls)	On-water Total Storage (bbls)	Calm Water (EDRC)	Protected Water (EDRC)	Open Water (EDRC)	Total Recovery (EDRC)	B1 Boom (ft)	B2 Boom (ft)	B3 Boom (ft)	Total Boom (ft)	Personnel (12 hour shift)
2 hr available	0	0	0	0	0	0	0	0	0	2,000	2,000	2
2 hr required			0				0				2,000	
meets standard			Yes				Yes				Yes	
6 hr available	0	1,104	1,104	0	21,029	0	21,029	0	12,100	2,000	14,100	86
6 hr required			1,098				1,098				7,000	
meets standard			Yes				Yes				Yes	
12 hr available	525	4,294	4,819	0	42,684	0	42,684	4,500	51,300	10,900	66,700	235
12 hr required			3,295				1,647				27,000	
meets standard			Yes				Yes				Yes	
24 hr available	525	6,294	6,819	0	42,684	0	42,684	4,500	51,300	10,900	66,700	235
24 hr required			6,589				2,196				27,000	
meets standard			Yes				Yes				Yes	
48 hr available	525	6,294	6,819	0	42,684	0	42,684	4,500	51,300	10,900	66,700	235
48 hr required			6,589				2,746				27,000	
meets standard			Yes				Yes				Yes	

18.2.1.2 Zone 2 - Nooksack River

Plan Holder: Trans Mountain Pipeline (Puget Sound) Llc.
Planning Standard Summary Analysis: WAC 173-182-365 Transmission pipelines that may impact shoreliens of statewide significance
The summary analysis spreadsheet is based on a conceptual model of equipment that would be available based on the guidelines set forth in WAC 173-182 for; planning standards, determining effectiveness of recovery systems, documenting compliance with planning standards, and plan evaluation criteria. Actual times and performance in spills will depend on the conditions of the day. An electronic version of the equipment detail spreadsheet which lists all equipment can be made available by Ecology upon request. The planning standard summary analysis indicates total access to boom, storage and recovery resources required to meet the planning standard. Equipment access is based on information listed on the WRRL and information provided through the plan holder contingency plan and Primary Response Contractor applications as of 6/1/2023. This information is subject to change as additional equipment is acquired and/or relocated. Substantive changes will result in an update of the spreadsheets.
PRC(s): National Response Corporation (NRC)
Plan Holder owned equipment: Yes, equipment is listed on the WRRL
Worst Case Spill Volume (bbls): 12,305 bbls
Oil Products Handled by Group (Group 1-5): group 3
Mutual Aid/Letters Of Intent: N/A
Analysis point description: Point where the pipeline crosses the Nooksack River. Pipeline zone 2- Ferndale
Marine 50% or Freshwater 65% shore side storage credit: Yes
Alternative Planning Standard: N/A

	On-water Storage (bbls)	Shore side Storage (bbls)	On-water Total Storage (bbls)	Calm Water (EDRC)	Protected Water (EDRC)	Open Water (EDRC)	Total Recovery (EDRC)	B1 Boom (ft)	B2 Boom (ft)	B3 Boom (ft)	Total Boom (ft)	Personnel (12 hour shift)
2 hr available	0	0	0	0	178	0	178	0	0	2,000	2,000	6
2 hr required			0				0				2,000	
meets standard			Yes				Yes				Yes	
6 hr available	100	1,036	1,136	0	29,688	0	29,688	0	13,300	4,400	17,700	114
6 hr required			431				1,231				7,000	
meets standard			Yes				Yes				Yes	
12 hr available	525	2,174	2,699	0	42,588	0	42,588	0	50,300	10,900	61,200	231
12 hr required			1,292				1,846				27,000	
meets standard			Yes				Yes				Yes	
24 hr available	525	2,174	2,699	0	42,588	0	42,588	0	50,300	10,900	61,200	231
24 hr required			2,584				2,461				27,000	
meets standard			Yes				Yes				Yes	
48 hr available	525	2,174	2,699	0	42,588	0	42,588	0	50,300	10,900	61,200	231
48 hr required			2,584				3,076				27,000	
meets standard			Yes				Yes				Yes	

18.2.1.3 Zone 3 – Sammish River

Plan Holder: Trans Mountain Pipeline (Puget Sound) Llc.
Planning Standard Summary Analysis: WAC 173-182-365 Transmission pipelines that may impact shorelines of statewide significance
The summary analysis spreadsheet is based on a conceptual model of equipment that would be available based on the guidelines set forth in WAC 173-182 for; planning standards, determining effectiveness of recovery systems, documenting compliance with planning standards, and plan evaluation criteria. Actual times and performance in spills will depend on the conditions of the day. An electronic version of the equipment detail spreadsheet which lists all equipment can be made available by Ecology upon request. The planning standard summary analysis indicates total access to boom, storage and recovery resources required to meet the planning standard. Equipment access is based on information listed on the WRRL and information provided through the plan holder contingency plan and Primary Response Contractor applications as of 6/1/2023. This information is subject to change as additional equipment is acquired and/or relocated. Substantive changes will result in an update of the spreadsheets.
PRC(s): National Response Corporation (NRC)
Plan Holder owned equipment: Yes, plan holder owned equipment is listed on the WRRL
Worst Case Spill Volume (bbbls): 6,145
Oil Products Handled by Group (Group 1-5): group 3
Mutual Aid/Letters Of Intent: N/A
Analysis point description: Pipeline response Zone 3 - where the pipeline crosses the Sammish River
Marine 50% or Freshwater 65% shore side storage credit: No
Alternative Planning Standard: N/A

	On-water Storage (bbbls)	Shore side Storage (bbbls)	On-water Total Storage (bbbls)	Calm Water (EDRC)	Protected Water (EDRC)	Open Water (EDRC)	Total Recovery (EDRC)	B1 Boom (ft)	B2 Boom (ft)	B3 Boom (ft)	Total Boom (ft)	Personnel (12 hour shift)
2 hr available	0	0	0	0	178	0	178	0	0	2,000	2,000	6
2 hr required			0				0				2,000	
meets standard			Yes				Yes				Yes	
6 hr available	300	1,036	1,336	0	34,433	0	34,433	0	25,700	6,400	32,100	133
6 hr required			615				615				7,000	
meets standard			Yes				Yes				Yes	
12 hr available	2,479	2,174	4,653	0	43,346	0	43,346	7,500	59,100	10,900	77,500	255
12 hr required			1,844				922				27,000	
meets standard			Yes				Yes				Yes	
24 hr available	2,479	2,174	4,653	0	43,346	0	43,346	7,500	59,100	10,900	77,500	255
24 hr required			3,687				1,229				27,000	
meets standard			Yes				Yes				Yes	
48 hr available	2,479	2,174	4,653	0	43,346	0	43,346	7,500	59,100	10,900	77,500	255
48 hr required			3,687				1,536				27,000	
meets standard			Yes				Yes				Yes	

18.2.1.4 Zone 4 – Swinomish Channel

Plan Holder: Trans Mountain Pipeline (Puget Sound) Llc.
Planning Standard Summary Analysis: WAC 173-182-365 Transmission pipelines that may impact shorelines of statewide significance
The summary analysis spreadsheet is based on a conceptual model of equipment that would be available based on the guidelines set forth in WAC 173-182 for; planning standards, determining effectiveness of recovery systems, documenting compliance with planning standards, and plan evaluation criteria. Actual times and performance in spills will depend on the conditions of the day. An electronic version of the equipment detail spreadsheet which lists all equipment can be made available by Ecology upon request. The planning standard summary analysis indicates total access to boom, storage and recovery resources required to meet the planning standard. Equipment access is based on information listed on the WRRL and information provided through the plan holder contingency plan and Primary Response Contractor applications as of 6/1/2023. This information is subject to change as additional equipment is acquired and/or relocated. Substantive changes will result in an update of the spreadsheets.
PRC(s): National Response Corporation (NRC)
Plan Holder owned equipment: Yes, plan holder owned equipment is listed on the WRRL
Worst Case Spill Volume (bbbls): 10,500
Oil Products Handled by Group (Group 1-5): group 3
Mutual Aid/Letters Of Intent: N/A
Analysis point description: Pipeline response zone 4 - where the pipeline crosses the Swinomish Channel
Marine 50% or Freshwater 65% shore side storage credit: No
Alternative Planning Standard: N/A

	On-water Storage (bbbls)	Shore side Storage (bbbls)	On-water Total Storage (bbbls)	Calm Water (EDRC)	Protected Water (EDRC)	Open Water (EDRC)	Total Recovery (EDRC)	B1 Boom (ft)	B2 Boom (ft)	B3 Boom (ft)	Total Boom (ft)	Personnel (12 hour shift)
2 hr available	0	0	0	0	178	0	178	0	2,000	0	2,000	10
2 hr required			0				0				2,000	
meets standard			Yes				Yes				Yes	
6 hr available	1,125	1,036	2,161	0	44,325	0	44,325	0	36,700	8,400	45,100	169
6 hr required			1,050				1,050				7,000	
meets standard			Yes				Yes				Yes	
12 hr available	34,507	2,174	34,507	0	79,665	0	79,665	7,800	70,300	12,900	91,000	305
12 hr required			3,150				1,575				27,000	
meets standard			Yes				Yes				Yes	
24 hr available	34,745	2,174	36,919	0	79,665	9,600	89,265	7,800	70,300	12,900	91,000	309
24 hr required			6,300				2,100				27,000	
meets standard			Yes				Yes				Yes	
48 hr available	35,221	2,174	37,395	0	81,105	9,600	90,705	7,975	70,500	13,900	92,375	317
48 hr required			6,300				2,625				27,000	
meets standard			Yes				Yes				Yes	

18.2.1.5 Zone 4 – Padilla Bay

Plan Holder: Trans Mountain Pipeline (Puget Sound) Llc.
Planning Standard Summary Analysis: WAC 173-182-375 Padilla Bay Planning Standard
The summary analysis spreadsheet is based on a conceptual model of equipment that would be available based on the guidelines set forth in WAC 173-182 for; planning standards, determining effectiveness of recovery systems, documenting compliance with planning standards, and plan evaluation criteria. Actual times and performance in spills will depend on the conditions of the day. An electronic version of the equipment detail spreadsheet which lists all equipment can be made available by Ecology upon request. The planning standard summary analysis indicates total access to boom, storage and recovery resources required to meet the planning standard. Equipment access is based on information listed on the WRRL and information provided through the plan holder contingency plan and Primary Response Contractor applications as of 6/1/2023. This information is subject to change as additional equipment is acquired and/or relocated. Substantive changes will result in an update of the spreadsheets.
PRC(s): National Response Corporation
Plan Holder owned equipment: Yes - equipment listed on the WRRL
Worst Case Spill Volume (bbbls): 10,500
Oil Products Handled by Group (Group 1-5): group 3
Mutual Aid/Letters Of Intent: N/A for meeting planning standards
Analysis point description: Pipeline response zone 4 - where the pipeline can impact Padilla Bay
Marine 50% or Freshwater 65% shore side storage credit: No
Alternative Planning Standard: N/A.

	On-water Storage (bbbls)	Shore side Storage (bbbls)	Total Storage (bbbls)	Calm Water (EDRC)	Protected Water (EDRC)	Open Water (EDRC)	Total Recovery (EDRC)	B1 Boom (ft)	B2 Boom (ft)	B3 Boom (ft)	Total Boom (ft)	Personnel (12 hour shift)
1.5 hr available	0	0	0	0	0	0	0	0	1,000	0	1,000	4
1.5 hr required			0				0				1,000	
meets standard			Yes				Yes				Yes	
2 hr available	0	0	0	0	178	0	178	0	3,800	0	3,800	11
2 hr required			0				0				3,000	
meets standard			Yes				Yes				Yes	
6 hr available	1,125	1,036	2,161	0	44,147	0	44,147	0	29,900	7,400	37,300	156
6 hr required			315	158			315				13,000	
meets standard			Yes	Yes			Yes				Yes	
12 hr available	1,350	1,916	3,266	0	49,379	0	49,379	4,500	50,900	11,900	67,300	249
12 hr required			1,575	210			1,050				33,000	
meets standard			Yes	Yes			Yes				Yes	
24 hr available	1,588	1,916	3,504	0	49,379	9,600	58,979	4,500	50,900	11,900	67,300	257
24 hr required			2,940				1,470				53,000	
meets standard			Yes				Yes				Yes	
48 hr available	2,094	1,916	4,010	0	54,407	9,600	64,007	4,675	51,100	12,900	68,675	266
48 hr required			2,940				2,625				53,000	
meets standard			Yes				Yes				Yes	

18.2.1.6 Laurel Station

Plan Holder: Trans Mountain Pipeline (Puget Sound) Llc.
Planning Standard Summary Analysis: WAC 173-182-366 Transmission pipeline tank farms
The summary analysis spreadsheet is based on a conceptual model of equipment that would be available based on the guidelines set forth in WAC 173-182 for; planning standards, determining effectiveness of recovery systems, documenting compliance with planning standards, and plan evaluation criteria. Actual times and performance in spills will depend on the conditions of the day. An electronic version of the equipment detail spreadsheet which lists all equipment can be made available by Ecology upon request. The planning standard summary analysis indicates total access to boom, storage and recovery resources required to meet the planning standard. Equipment access is based on information listed on the WRRL and information provided through the plan holder contingency plan and Primary Response Contractor applications as of 6/1/2023. This information is subject to change as additional equipment is acquired and/or relocated. Substantive changes will result in an update of the spreadsheets.
PRC(s): National Response Corporation (NRC)
Plan Holder owned equipment: YES, Planholder owned equipment listed on the WRRL.
Worst Case Spill Volume (bbls): 89,455
Oil Products Handled by Group (Group 1-5): Group 3
Mutual Aid/Letters Of Intent: N/A
Analysis point description: Zone 5, Laurel Station
Marine 50% or Freshwater 65% shore side storage credit: Yes, plan to utilize the break out tanks at Laurel for recovered oil.
Alternative Planning Standard: N/A

	On-water Storage (bbls)	Shore side Storage (bbls)	Total Storage (bbls)	Calm Water (EDRC)	Protected Water (EDRC)	Open Water (EDRC)	Total Recovery (EDRC)	B1 Boom (ft)	B2 Boom (ft)	B3 Boom (ft)	Total Boom (ft)	Personnel (12 hour shift)
2 hr available	0	0	0	0	178	0	178	0	0	2,000	2,000	6
2 hr required			0				0				2,000	
meets standard			Yes				Yes				Yes	
6 hr available	668	3,036	3,704	0	33,962	0	33,962	0	13,400	4,400	17,800	128
6 hr required			3,131				8,946				7,000	
meets standard			Yes				Yes				Yes	
12 hr available	3,561	9,174	12,735	0	47,620	0	47,620	7,500	59,400	10,900	77,800	267
12 hr required			4,696				13,418				27,000	
meets standard			Yes				Yes				Yes	
24 hr available	3,561	9,174	12,735	0	47,620	0	47,620	7,500	59,400	10,900	77,800	267
24 hr required			12,524				17,891				27,000	
meets standard			Yes				Yes				Yes	
48 hr available	3,561	9,174	12,735	0	47,620	0	47,620	7,500	59,400	10,900	77,800	267
48 hr required			12,524				22,364				27,000	
meets standard			Yes				Yes				Yes	

18.2.2 Vac Truck to Storage Tank Off-loading of Recovered Oil

- Vac truck driver will enter facility and check in at Control building and sign in on visitor log sheet.
- Day operator will confirm the driver is current with his year required Trans Mountain safety orientation.
- The day operator will fill out and issue a safe work permit for the unloading of product into tankage.
- Vac truck driver will fill out a Trans Mountain “Vacuum and Tank Truck Pre-Job Checklist” and review it with the day operator and obtain his signature.
- Day operator will attach checklist to the daily safe work permit and post prior to work commencing.
- Day operator will accompany the vac truck to the appropriate tank and will gas check the entire area prior to allowing truck into the tank bay area.
- Day operator will guide vac truck into tank bay, and act as a spotter while truck backs into the appropriate location.
- The vac truck will be grounded to tank, and hoses run to the appropriate tank valve.
- The vac truck will build tank pressure prior to discharging into selected tank. Once pressure is reached, the day operator will open the tank valve to facilitate the off-loading.
- Once vac truck has transferred all product to the tank, the day operator will close and secure tank valve, and escort truck out of the tank bay.
- The vac truck driver will work under the same safe work permit for his entire shift and sign out on the stations visitor log when leaving the site for the last time.
- A new safe work permit and “Vacuum and Tank Truck Pre- Job Checklist” are required to be filled out and posted for each shift.

18.2.3 Oil Recovery Rate

OSCAR Unit	Nameplate Capacity (USGPM)	Efficiency Factor (%)	USGPD	Barrels per Day
Laurel OSCAR				
4' Pedco Weir Skimmer with 2x3" pumps	338	20	194,688	4,635
2' Pedco Weir Skimmer with 1x3" pump	338	20	97,344	2,317
Canadyne Multiskimmer	(brush) 88	20	25,344	603
	(drum) 52	20	14,976	356
Burlington OSCAR				
4' Pedco Weir Skimmer with 2x3" pumps	338	20	194,688	4,635
2' Pedco Weir Skimmer with 1x2" pump	172	20	49,536	1,179
Morris M1-11/24 Disc Skimmer	20	20	5,760	137
Total 24 Hour Adjusted Rate w/ Brush			561,600	13,369
Total 24 Hour Adjusted Rate w/ Drum			551,232	13,122
Total 24 Hour Adjusted Rate w/ Disk			542,016	12,903

18.2.4 Trans Mountain Owned Recovered Liquid Storage

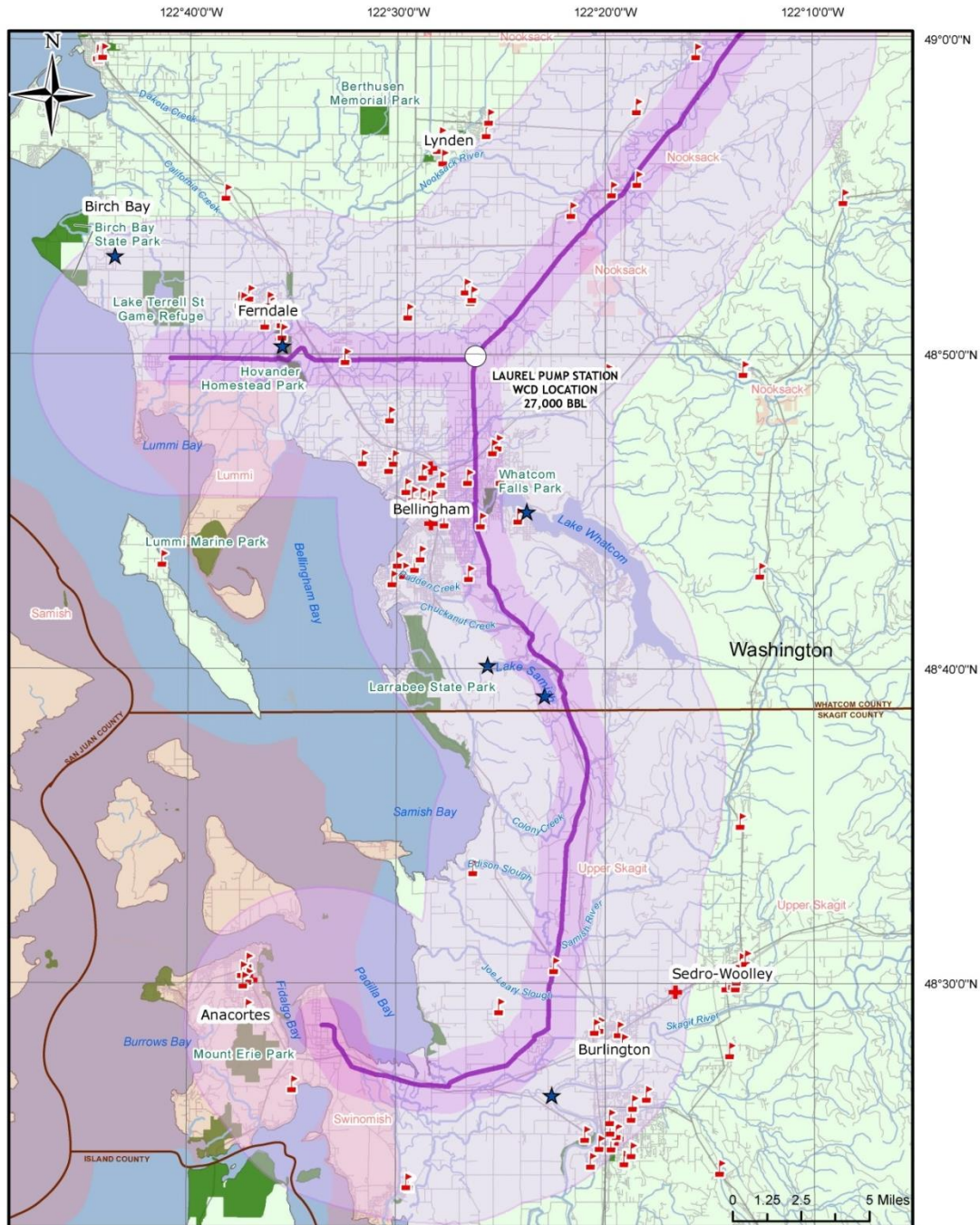
Trans Mountain has several storage options available for use during an emergency these are listed below:

Location	Description	Capacity (US Gallons)	Capacity (barrels)
Laurel (OSCAR)	1x Portatank	1,000	23
	2x Pillow tanks	6,000	142
	1x Buoywall	1,500	35
Burlington (OSCAR)	1x Buoywall	1,500	35
	2x Pillow Tanks	6,000	142
Ferndale Relief Tank (130)	1x Relief Tank	126,000	3000
Laurel Relief Tank (120)	1x Relief Tank	126,000	3000
Laurel Tank 170	Breakout Tank	3,757,110	89,455
Laurel Tank 180	Breakout Tank	3,716,244	85,482
Total Permanent Storage		7,725,354	183,937
Total Temporary Site Storage		16,000	380

18.2.5 Trans Mountain Owned Boom

Under WAC 173-182-365 (2) Trans Mountain maintains 2000 ft of boom in Washington State all of which is available anywhere along the pipeline within 2 hours. After the two-hour window Trans Mountain relies upon our PRC's to provide additional boom capability for the 6, 12, 24, and 48-hour requirements.

18.3 Worst Case Discharge Map



**TRANS MOUNTAIN PIPELINE - PUGET SOUND
WORST CASE DISCHARGE MAP
TRANS MOUNTAIN
PIPELINE
(PUGET SOUND) LLC.**

- WCD Zone (1 mile)
- WCD Zone (5 miles)
- TMPL - Puget Sound Pipeline
- Municipal Water Intakes
- Schools
- Hospitals
- Parks/Recreation Areas
- First Nation Reserves

19.0 CERTIFICATIONS

19.1 Trans Mountain Certification

Response Plan Certification

Emergency Response Plan Certification

For the Trans Mountain Pipeline (Puget Sound) LLC from the Canada/U.S. Border to Laurel Station (Bellingham, WA), and from Laurel Station to Anacortes Meter Station (Anacortes, WA) and from Laurel Station to Ferndale Meter Station (Ferndale, WA), certifies that:

- A spill response plan ("Plan") has been prepared that will be implemented in the event of a worst case discharge of oil
- The Plan is in effect for this pipeline and that Operator personnel are trained in the implementation of this Plan
- The availability of private personnel and equipment necessary to respond, to the maximum extent practicable, to a worst case discharge or a substantial threat of a discharge is ensured by contract or other approved means
- This Plan meets the applicable requirements of the U.S. Department of Transportation (49 CFR 194).

Acceptance Verification: This verifies acceptance of this Spill Response Plan for Trans Mountain Pipeline (Puget Sound) LLC. This Plan will be used by facility personnel when responding to an oil spill. This Plan will be used in conjunction with the Geographic Response Field Handbook and Incident Command System Manual when necessary. The Supervisor, Puget Sound or designee has the authority to make appropriate expenditures in order to execute the provisions of this Plan. The Supervisor, Puget Sound or designee will be considered the "Qualified Individual."



Michael Davies,
Chief Operating Officer
September 20, 2023

19.2 Trans Mountain Certification – Binding Agreement



Washington State
Department of Ecology
 Spill Prevention, Preparedness, and Response Program
 P.O. Box 47600, Olympia, WA 98504-7600
 Office Phone: (360) 407-7455
 Fax: (360) 407-7288 or toll free 1-800-664-9184

Binding Agreement for WAC 173-182 and WAC 173-186

WAC 173-182-220 and WAC 173-186-210 require that each plan contain a written statement binding the contingency plan holder to its use. The binding agreement shall be signed by:

- a) An authorized representative(s) of a nonprofit corporation established to provide oil spill contingency plan coverage;
- b) An authorized owner, or operator, or a designee with authority to bind the owners and operators of the facilities or vessels covered by the plan;
- c) An authorized resident agent of the vessel(s) submitting the plan;
- d) An authorized representative(s) of a company contracted to the vessel or facility and approved by ecology to provide containment and clean-up services.

WAC 173-182-142 and WAC 173-186-140 classify the permanent loss of personnel designated as the binding agreement signatory as a significant change to the plan and require notification to Ecology within 24 hours.

Submitting Party Information

Company Name: Trans Mountain Pipeline (Puget Sound) LLC	
Contact Name: Michael Davies	
Signing Authority as Described Above (A, B, C, or D): B	
Address: 300 5th Ave. S.W. Calgary, AB T2P 5J2	
Phone Number: 403-514-6597	Fax Number: 403-514-6492
Email: Michael_Davies@transmountain.com	Website: https://www.transmountain.com

Additional Submitting Party Information (If Needed)

Company Name:	
Contact Name:	
Signing Authority as Described Above (A, B, C, or D):	
Address:	
Phone Number:	Fax Number:
Email:	Website:

Binding Agreement

I certify that I have reviewed and am familiar with the information submitted in this Plan and that the information in the contingency plan is accurate. I am authorized to submit the plan and commit to:

- a) A safe and immediate response to spills and to substantial threats of spills that occur in, or could impact Washington waters or Washington's natural, cultural and economic resources;
- b) Having an incident commander in the state within six hours after notification of a spill;
- c) Implementation and use of the plan during a spill and substantial threat of a spill, and to the training of personnel to implement the plan;
- d) Making necessary and appropriate expenditures in order to implement plan provisions; and
- e) Working in unified command within the incident command system to ensure that all personnel and equipment resources necessary to the response will be called out to clean up the spill safely and to the maximum extent practicable.



Authorized Signature

Sept. 5, 2023


Date

Kelly Malinoski

Print Name

Director Emergency Management

Title



Authorized Signature

Sept 5 2023

Date

Michael Davies

Print Name

Chief Operating Officer

Title

19.3 United States Department of Transportation – Approval



U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety Administration**

1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

February 2, 2024

Kelly Malinoski
Director, Emergency Management
Trans Mountain Pipeline (Puget Sound) LLC
300 5th Avenue SW, Suite 2700
Calgary, AB, Canada T2P 5J2

Subj: Approval of the Trans Mountain Pipeline (Puget Sound) LLC, Puget Sound Emergency Response Plan

Dear Ms. Malinoski:

The Pipeline and Hazardous Materials Safety Administration (PHMSA) has received and reviewed Trans Mountain Pipeline (Puget Sound) LLC, Puget Sound Emergency Response Plan (Sequence Number: 0587) dated January 2024. We conclude that the plan complies with PHMSA’s regulations concerning onshore oil pipelines found at 49 Code of Federal Regulations (CFR) Part 194. Your response plan is approved.

This approval is valid for five years from the date of this letter. If discrepancies are found during PHMSA inspections, or if new or different operating conditions or information would substantially affect the implementation of this plan, you will be required to resubmit a revised plan. See 49 CFR § 194.121(b).

According to the 2016 National Preparedness for Response Program (PREP), “Plan holders are encouraged to notify their PHMSA regional office at least one month in advance of conducting their PREP exercises.” Please send your annual PREP exercise schedule to PHMSA.OPA90@dot.gov. When possible, PHMSA will participate and provide feedback on your exercises.

Should you have any questions or concerns, please contact me at (202) 366-4595 or by email at the address listed above. Please include the sequence number and your PHMSA Operator Identification Number on any future correspondence.

Sincerely,

Rick Raksnis

Rick Raksnis, Supervisor
Oil Spill Preparedness Branch
Preparedness, Emergency Support and Security Division
Office of Pipeline Safety

19.4 Washington State Department of Ecology - Approval

Oil Spill Contingency Plan Approval Certificate



The Oil Spill Contingency Plan for


Trans Mountain Pipeline (Puget Sound) LLC

*has been APPROVED pursuant to
Chapter 173-182 Washington Administrative Code
by the*

WASHINGTON STATE
DEPARTMENT OF ECOLOGY

**Spill Prevention, Preparedness, and Response Program
Spill Preparedness Section**

December 13, 2023
Date of Approval



Matt Bissell
Preparedness Section Manager

December 13, 2028
Plan Expiration Date

19.5 PRC – Contracts/Letters of Intent

Letters of intent and/or letter of contract for each PRC are included in this section on the next few pages, where available as identified in Section 2.10 Primary Response Contractors (PRC). The actual contract, where a contract exists is available to Washington State Department of Ecology for inspection upon request.

WITT O'BRIEN'S



August 31, 2023

Kelly Malinoski
 Director, Emergency Management
 Trans Mountain Pipeline (Puget Sound) LLC
 2700, 300 – 5th Avenue S.W.
 Calgary, AB T2P 5J2

Via Email: Kelly.Malinoski@transmountain.com

In accordance with WAC 173-182-230 this letter confirms that O'Brien's Response Management has a Professional Services Agreement with Trans Mountain. Pursuant to the terms of this Agreement, Trans Mountain is authorized to reference O'Brien's Response Management (O'Brien's) in its state and/or federal contingency and response planning documents and O'Brien's commits to provide resources to meet these response needs, including the requirements of WAC 173-182-280 *Spill management teams (SMTs)*.

To support these regulatory requirements O'Brien's can supply, at a minimum, the following:

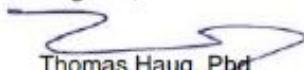
ICS Position	Name	Name	Name
Responsible Party Incident Commander	O'Brien's	O'Brien's	O'Brien's
Public Information Officer	O'Brien's	O'Brien's	O'Brien's
Liaison Officer	O'Brien's	O'Brien's	O'Brien's
Safety Officer	O'Brien's	O'Brien's	O'Brien's
Operations Section Chief	O'Brien's	O'Brien's	O'Brien's
Planning Section Chief	O'Brien's	O'Brien's	O'Brien's
Logistics Section Chief	O'Brien's	O'Brien's	O'Brien's
Finance Section Chief	O'Brien's	O'Brien's	O'Brien's
Wildlife Branch Director	O'Brien's*		
Air Operations Branch Director	O'Brien's		
Situation Unit Leader	O'Brien's		
Resources Unit Leader	O'Brien's		
Documentation Unit Leader	O'Brien's		
Environmental Unit Leader	O'Brien's		

**To be staffed by International Bird Rescue (IBR), a Washington State approved Wildlife Response Service Provider (WRSP), via a pre-existing agreement between IBR and O'Brien's.*

The personnel to fill the roles indicated above reference found in the approved O'Brien's WA SMT Application (dated 20 July 2023; expires 20 July 2026).

If you have any questions, or need further assistance, please contact me either by phone at (562) 217-3511 or by email at thaug@wittobriens.com. **In the event of an emergency, please contact the O'Brien's Response Management 24 Hour Command Center at 985-781-0804.**

Regards,



Thomas Haug, PhD
 Manager, West Coast Response Operations
 O'Brien's Response Management
 818 Town & Country Blvd, Suite 200
 Houston, TX 77024



August 30, 2023

Kelly Malinoski
Director, Emergency Management
Trans Mountain Pipeline (Puget Sound) LLC
2700, 300 – 5 Avenue SW
Calgary, AB T2P 5J2

Via Email: Kelly_Malinoski@transmountain.com

RE: PRC/OSRO Coverage

RESPONSE CONTRACTOR CERTIFICATION

This letter confirms that NRC Environmental Services Inc. (NRC) has a contract with Trans Mountain Pipeline (Puget Sound) LLC to provide oil spill response coverage for its Puget Sound Operations. NRC confirms that Trans Mountain Pipeline (Puget Sound) is authorized to reference NRC resources and certifications in its state and/or federal contingency and response planning documents pursuant to terms of the contract for coverage commencing January 1, 2018.

As the Primary Response Contractor (PRC) for Trans Mountain Pipeline (Puget Sound), NRC confirms it will provide contracted resources for the following oil spill response services, including meeting the updated WAC 173-182 requirements for NFOs, wildlife, shoreline clean up, dispersants, and in situ burning, pursuant to the response capabilities detailed in its approved PRC Application:

- Incident Command System Personnel (as available)
- Response Managers and Supervisors
- Equipment Decontamination and Management
- Waste Minimization, Management and Disposal
- Dispersant and In-situ Burn
- Non-Floating Oils
- Non-dedicated workboats and operators
- Aerial Surveillance
- Shoreline Clean-up
- Wildlife Rescue and Rehabilitation

NRC is a Washington State approved PRC and has been rated by the U.S. Coast Guard as an Oil Spill Response Organization (OSRO) meeting all classification ratings for Rivers/Canals, Inland/Nearshore and Oceans environments, as well as providing Shoreline response capabilities. NRC is capable of beginning mobilization of response efforts within one hour of a spill notification.

If you have any questions, or if I can be of further assistance, please don't hesitate to contact me either by phone at 206-730-3993 or by e-mail at stephanie.barton@usecology.com

Sincerely,



Stephanie Barton
Director, Emergency Response Programs
NRC Environmental Services Inc.
9520 10th Avenue South, Suite 150
Seattle, WA 98108

Copy: NRC Seattle