

Wildfire

Response Plan



WILDFIRE MITIGATION AND RESPONSE PLAN

This material is protected by copyright and is the exclusive property of Trans Mountain Corporation and its affiliates. No external distribution or transmission of this material is permitted without the prior written consent of Trans Mountain Corporation.

To apply for the copyright holder's written permission to reproduce any part of this publication, or to receive a hardcopy of this document, a written submission should be made to the Emergency Management Department at Trans Mountain Corporation 2700-300, 5 Avenue SW, Calgary, AB T2P 5J2 or by email to Emergency_Management@transmountain.com.

Trans Mountain Corporation assumes no responsibility for errors or omissions in this document or for direct, incidental, or consequential losses or damages that may result from the external use or duplication of this material. This document is uncontrolled when downloaded or printed from the company website. Before using this material, verify that this is the most current version of the document.

This document will be updated occasionally. If you wish to receive notification of updates, please send an email to Emergency_Management@transmountain.com requesting to be notified when an updated version of the document is available online. Manual holders, as indicated on the distribution list, will receive updates automatically as required.

TABLE OF CONTENTS

PLAN MAINTENANCE.....	I
PLAN REVISIONS	I
REVISION REQUEST FORM	II
CONTROL SHEET	III
1.0 INTRODUCTION	1
1.1 Scope	1
1.2 Objectives	1
1.3 Notification	2
1.4 Implementation of the Wildfire Response Plan	2
1.5 Initial Wildfire Assessment.....	3
1.6 Mitigation and Risk Assessment.....	4
2.0 ROLES AND RESPONSIBILITIES.....	5
2.1 Wildfire Field Operations Branch Director (Operations Section)	5
2.2 Division Supervisor (Operations Section)	5
2.3 Planning Section	5
3.0 CONDUCTING HOT WORK DURING WILDFIRE SEASON	6
3.1 Danger Class Ratings.....	6
3.2 Safety Plan.....	6
3.3 Fire Hazard Protocols.....	6
3.4 Additional Performance Standards	7
4.0 HEALTH AND SAFETY REQUIREMENTS	8
5.0 STRATEGIC OPTIONS	9
5.1 Monitoring Operations	9
5.2 Defensive Operations	9
5.3 Offensive Operations.....	10
6.0 TACTICAL OPERATIONS	11
6.1 Fire Area Entry Procedure	11
6.2 Pipeline/Pump Stations/Automatic & Manual Valves	12
6.3 Terminals/Tank Farms.....	17
7.0 POST FIRE CONSIDERATIONS.....	23
APPENDICES	24

PLAN MAINTENANCE

Responsibility

The accountability for the Wildfire Mitigation and Response Plan development and maintenance belongs to the Trans Mountain Manager, Emergency Management.

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

If Trans Mountain activates the Wildfire Mitigation and Response Plan, or conducts an exercise or training session, the effectiveness of the ERP (Emergency Response Plans) and its supplemental plans will be evaluated and updated, as necessary.

Changes in Operating Conditions

If new or different operating conditions or information would affect the implementation of the ERP and its supplemental plans, Trans Mountain will modify these to address such a change.

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 Corp 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	June 12, 2018	Update to format and content for new equipment	K. Malinoski
2	October 2018	Rebranding from Kinder Morgan to Trans Mountain	K. Malinoski
3	October 2018	QA/QC of Rebranding	C. MacDonald
4	April 2022	Annual Review and update.	K. McLernon
5	May 2023	Update of content and diagrams with respect to offensive/defensive firefighting, changes to foam application and clean-up process. Removal of trailer equipment pictures and lists, addition of link to trailer equipment checklists.	T. Grant
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

1.0 INTRODUCTION

Wildfires pose a significant threat to Trans Mountain infrastructure. While the wildfire firefighting response is a function of Provincial/State agencies, protecting Trans Mountain infrastructure from the threat of a wildfire is imperative. It is important to ensure that a fire on Trans Mountain property is addressed as quickly as possible and appropriate Wildfire Centres are notified should there be a potential for an incident on Trans Mountain property to develop into a wildfire situation off site.

Trans Mountain assets are located over approximately 1300 km. This distance traverses the provinces of Alberta and British Columbia as well as Washington State, which vary in landscape from farm grasslands, mountains, valleys, and urban areas. The fuel types vary around the assets from light grass to heavy timber.

Many Trans Mountain facility sites have large, graveled areas of fire break, however there are locations along the pipeline where there are denser forested areas which could generate enough heat and flame to damage infrastructure. In addition, wildfire suppression activities conducted by wildfire responders acting on behalf of the Provincial/State, including heavy equipment clearing, have the potential to damage Trans Mountain infrastructure (third party damage).

Ensuring Trans Mountain infrastructure is protected from a threat of a wildfire and/or wildfire response activities, through effective planning, mitigation, and response, will help minimize potential impacts.

Trans Mountain, as a critical infrastructure owner, participates in Provincial/State wildfire pre-planning meetings and coordination calls to aid in the assessment of risk and actively monitors wildfire potential throughout the risk season. Trans Mountain ensures its Wildfire Mitigation and Response Plan is updated before the start of wildfire season and that it can be implemented seamlessly with Provincial/State and other stakeholder wildfire plans.

1.1 Scope

In the event a wildfire has the potential to impact Trans Mountain infrastructure, the Wildfire Mitigation and Response Plan will be activated in conjunction with the appropriate ERP:

- Trans Mountain Pipeline
- Puget Sound
- Trans Mountain Terminal
- Westridge Marine Terminal

The Wildfire Mitigation and Response Plan is considered a subset of Trans Mountain's ERP(s) and has been developed to align with the Incident Command System (ICS).

1.2 Objectives

The primary objective of the Wildfire Mitigation and Response Plan is to aid in the protection of life and property in the event of a wildfire. Specifically, this plan aims to protect Trans Mountain infrastructure from wildfire while also ensuring that a fire originating from a Trans Mountain site does not escalate and impact offsite wildfire fuel sources. This plan will assist responders when assessing the initial fire threat and in preparing plans to protect, and if necessary, respond to wildfire events.

1.3 Notification

Trans Mountain will be contacted by the Wildfire Center or the agency Emergency Operations Center if a wildfire is threatening a Trans Mountain asset. This notification should be sent to the Control Centre who will then issue a Trans Mountain Alert System (TAS) Notification. During the TAS conference call the Trans Mountain's Incident Management Team (IMT) and responders will determine which protection method is best suited for the type of asset at risk, and the overall fire threat to that asset.

In the case where a Trans Mountain Employee or Contractor discovers a wildfire, they must immediately report the wildfire to the Provincial/State reporting line first, and then notify the Control Centre.

In the event of fire situation within the property boundaries of a Trans Mountain facility that has the potential to leave the property and develop into a wildfire situation, Trans Mountain personnel will contact the appropriate Wildfire Centre reporting line and advise them of the potential situation.

Alberta: 310-FIRE (3473)

British Columbia: 1-800-663-5555 [*5555 on cell]

Washington State: 911 and 1-800-562-6010

1.4 Implementation of the Wildfire Response Plan

Activation of the Trans Mountain ERP will occur when an emergency is declared through the TAS process. Once an emergency is declared, and the need to protect Trans Mountain infrastructure from a wildfire threat has been determined, the Wildfire Mitigation and Response Plan will be implemented, and wildfire protection and/or response activities initiated.

The Wildfire Mitigation and Response Plan will be used with other applicable plans for the wildfire threat response phase until the incident specific wildfire response plan is developed. These plans will be used during the transition from a response phase to the remediation phase as determined by Incident Command.

1.5 Initial Wildfire Assessment

Wildfire incidents require planning, communication and effective command and control of responders throughout the incident. An accurate initial threat assessment will help to ensure the protection of personnel, facilities, and company assets. The Incident Commander will consider the following to mobilize an adequate number of resources required to mitigate the incident:

- Location of fire to facility;
- Size of fire;
- Weather conditions, wind, precipitation;
- Estimated time of fire arrival to site;
- Number and location of employees;
- Elevation relative to site to fire;
- Condition of surrounding wildland exposure;
- Natural fire breaks between fire and infrastructure;
- Available site equipment:
 - Water supply;
 - Dry retention pond;
 - Distance to Trans Mountain Wildfire trailer;
- Sand and dirt available to cover strategic valves;
- Location and availability of contract Wildfire response personnel able to conduct fire suppression activities; and
- Recommendations being made by the Wildfire Response Center.

1.6 Mitigation and Risk Assessment

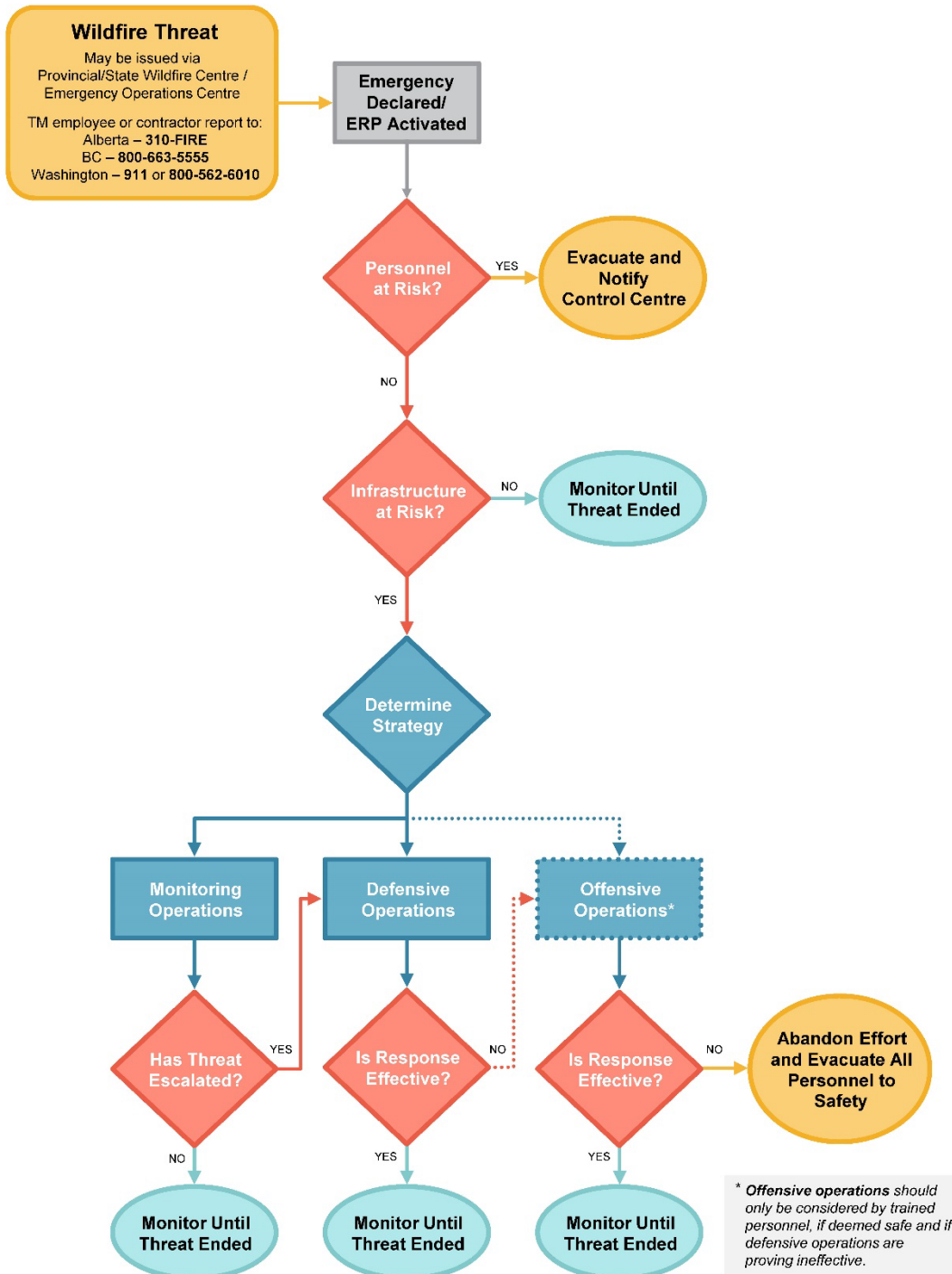


FIGURE 1 - RESPONSE STRATEGIES

2.0 ROLES AND RESPONSIBILITIES

The Trans Mountain Incident Command Post is responsible for carrying out specific duties to complete the requirements under the Wildfire Mitigation and Response Plan.

2.1 Wildfire Field Operations Branch Director (Operations Section)

The Wildfire Field Operations Branch Director is responsible for overseeing and implementing wildfire response activities established in the IAP (Incident Action Plan), including implementation of the Wildfire Mitigation and Response Plan.

2.2 Division Supervisor (Operations Section)

Under the Wildfire Field Operations Branch Director, Division Supervisors are responsible for coordinating the implementation of the Wildfire Mitigation and Response Plan within a specific geographic region.

Depending on the size and location of the wildfire, the response groups may be further divided into Strike Teams, Task Forces, and Single Resources.

2.3 Planning Section

Development of an incident specific wildfire response plan is the responsibility of the Planning Section.

The Advanced Planning Unit is responsible for the development of a post event assessment of all infrastructure involved or damage arising from the wildfire and/or protection efforts/tactics and a plan to facilitate any repairs, if any, to Trans Mountain infrastructure.

The Environmental Unit is responsible for the planning and conduct of the post-fire assessment of any environmental impacts arising from the protection effort/tactic (e.g., gel/foam) used to protect infrastructure.

3.0 CONDUCTING HOT WORK DURING WILDFIRE SEASON

Hot work is defined as any work conducted in the field during wildfire season that may cause fire ignition. The potential of ignition is based on the wildfire hazard around work and the weather and fuel conditions.

3.1 Danger Class Ratings¹

Low: Fires may start easily and spread quickly, but there will be minimal involvement of deeper fuel layers or larger fuels.

Moderate: Forest fuels are drying and there is an increased risk of surface fires starting. Carry out any forest activities with caution.

High: Forest fuels are very dry and the fire risk is serious. New fires may start easily, burn vigorously, and challenge fire suppression efforts. Extreme caution must be used in any forest activities. Open burning and industrial activities may be restricted.

Extreme: Extremely dry forest fuels and the fire risk is very serious. New fires will start easily, spread rapidly, and challenge fire suppression efforts. General forest activities may be restricted, including open burning, industrial activities and campfires.

3.2 Safety Plan

The Project Manager is responsible for developing site-specific safety plans for all employees and submitting them before mobilization. Job safety meetings should be conducted as often as needed to maintain employee awareness of hazards and the safe practices needed to minimize them.

3.3 Fire Hazard Protocols

During wildfire season, the local wildfire hazard must be checked prior to leaving the office. This can be checked on the Provincial/State web sites. The hazard will dictate what tools and procedures to follow for the work day.

During Wildfire Season:

- All required paperwork shall be filled out with daily fire hazard added to the form.
- All vehicles conducting field work shall park on gravel or non-ignitable surfaces with all windows rolled up and the vehicle pointing in the direction of travel exit.
- At least two shovels and two fire extinguishers, or wildfire backpacks, shall be on site and close to working personnel.

¹ Fire Ratings as per the Province of British Columbia <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/prepare/weather-fire-danger/fire-danger/>

During High and Extreme Wildfire Hazard days:

- All workers shall determine a Safety Zone in the event of a wildfire ignition. Identify all escape routes and discuss with all personnel on site.
- The wildfire trailers shall be taken to the work site with the crew. The wildfire trailer shall be used to pre-treat any area of concern by watering down any Class “A” materials (cloth, wood, paper, rubber, and many plastics) within a 2m radius of work area where sparks may cause ignition.
- A Thermal Imaging Camera (TIC) should be used to assess up to 5m radius of work area for identification of any hot spots. If the TIC is not available, Fire Watch protocols shall be followed (See [Appendix 1](#)).
- The work site shall be inspected 24hrs after work has been completed. The intention of the inspection is to check for any fire starts.

3.4 Additional Performance Standards

3.4.1 Control of Work Zones

- The Field Worker shall control pedestrians and/or vehicles into and out of the work zone. It is the subcontractor's responsibility to politely notify pedestrians to remain outside of work zones. Should pedestrians enter work zones after being notified to stay out, all work must immediately cease until pedestrians have left the work zone.

3.4.2 Gate Locking

- When working in an area where there is a locked gate, it is important to maintain access control and lock the gate once the last vehicle has entered the area and alternatively when the last vehicle has left the area.

4.0 HEALTH AND SAFETY REQUIREMENTS

Trans Mountain personnel and contractors will not be engaged in direct wildfire response activities unless they meet specific training criteria outlined by Occupational Health and Safety organizations in both Alberta and British Columbia. Training requirements that must be followed by those engaging in wildfire response includes:

- Formally trained S-100 Basic Fire Suppression & Safety Course or the annual refresher course S-100a Recertification Basic Fire Suppression & Safety Course
- S-185 Fire Entrapment Avoidance
- Basic First Aid
 - When conducting tree assessment and/or falling operations, Trans Mountain personnel and contractors must be qualified assessors and/or fallers.
- Physically fit to perform duties;
- Annual recertification; and
- In possession of appropriate Personal Protective Equipment (PPE), including:
 - Fire resistant clothing;
 - Hard hat;
 - Gloves;
 - Work Boots; and
 - Safety Glasses.

5.0 STRATEGIC OPTIONS

The strategic options listed below outline specific stages or levels of action that can be taken to address a wildfire situation.

Establishing and maintaining effective communication links with Provincial/State Wildfire Centres is of vital importance not only during monitoring operations but also during defensive and offensive Operations.

5.1 Monitoring Operations

Monitoring operations refers to taking limited action by isolating the affected area(s) referred to as a “monitored burn over.” This is the preferred option for fires that cross any pipeline, and/or underground manual valves where there is minimal risk for damage to pipeline infrastructure.

Personnel will safely observe the incident until the risk of intervening has been reduced to acceptable levels.

This operation will also be used when the Incident Commander determines that applying offensive or defensive operations would place emergency responders at an unacceptable level of risk.

5.2 Defensive Operations

Defensive operations involve no active firefighting activities but are defensive in nature and could involve the protection of pumps, valves, and other structures.

The decision to use a defensive approach will be made with the ICP (Incident Command Post) and the Incident Commander.

Defensive operations may be carried out by Trans Mountain staff, third party contractors, Provincial/State forestry resources or a combination, but always are under the supervision of Trans Mountain personnel. Options for defensive operations may include:

- Perimeter sprinklers
- Using fire gel
- Burying the asset with sand or dirt
- Requesting Provincial/State Wildfire Center to laydown fire retardant around facility if air resources available

Sand/Dirt – Burying a valve or other asset is a viable way to protect it from a passing fire. The decision to use sand/dirt will depend on the material's availability and the amount of time it will take to protect the asset in relation to the fire behavior.

Perimeter Sprinklers – A system of nozzles, hose, water, and a pump will keep the area surrounding the asset wet to reduce the likelihood of ignition. This tactic will vary between locations, depending on the availability of the required equipment and water sources necessary to maintain the sprinkler system. Third party wildfire contractors should be engaged to expedite set-up and determine the best approach for asset protection. Protection strategies are dependent on location, fuel source, and expected fire behavior.

Fire Gel – Fire gel has been used successfully to protect structures and assets during wildfires. Fire gel would be considered for remote facilities where there is no ready access to large water supplies. A third-party wildfire contractor should be engaged to expedite the application and provide additional equipment as required.

5.3 Offensive Operations

An offensive operation is an aggressive attack intended to extinguish wildfire. Trans Mountain is not responsible for extinguishment of a wildfire, however adequately trained contractors or provincial firefighters may use offensive tactics to direct the fire away from a critical asset. This will only be undertaken if the following criteria are met:

- Wildfire Response Certified/trained personnel are available
- Adequate resources are available
- The operation can be performed safely
- There is a high likelihood of success
- The Incident Commander, in consultation with the Provincial/State Industry Liaison Officer, has determined that the Trans Mountain asset requires protection due to the expected fire behavior

Offensive operations may be carried out by third party wildfire contractors, and/or Provincial/State wildfire resources, as requested, and available. All third-party contractors will work under the supervision of Trans Mountain personnel. The Trans Mountain Incident Command Post will liaise with the Provincial/State Wildfire Center to assist with setting and establishing priorities within the Trans Mountain site.

Contact information for wildfire contractors can be found in the Incident Notification Guideline in the Emergency Toolbox.

6.0 TACTICAL OPERATIONS

6.1 Fire Area Entry Procedure

Prior to entering any area, contact should be made with the Provincial/State Wildfire Center “Industry Liaison” and the local wildfire Incident Commander. Information to gather would include updates on the fire path, and the location of Provincial/State crews working near the pipeline. Information for Trans Mountain to share would include site location where activities are taking place, route to the site location, strategies being used to protect infrastructure, and confirmation that it is safe for Trans Mountain staff to be in the area. Note: Trans Mountain may require local municipal or provincial permits to enter fire-affected areas.

A Communication Plan should also be developed and confirmed. This would include communications between Trans Mountain Incident Management Team and the Provincial/State Wildfire Center “Industry Liaison;” Trans Mountain Operations and site responders, and Trans Mountain responders with Provincial/State Wildfire crews in the field.

Trans Mountain staff should also collect the following information prior to entering the hazard area:

- Weather forecast for the next 4 hours
- Current Wind direction, temperature, and humidity

The driver/spotter will monitor these conditions for change while the application takes place.

Site operations should be conducted with a minimum 2-person crew:

- One member as a driver/spotter who stays alert to changing conditions
- The other member who implements the defensive strategies

6.2 Pipeline/Pump Stations/Automatic & Manual Valves

6.2.1 Monitoring Operations

- Confirm site is secured
- Evacuate all unnecessary personnel
- Shut down site projects and maintenance work not critical to operations
- Isolate section of pipeline/pump station/valve.

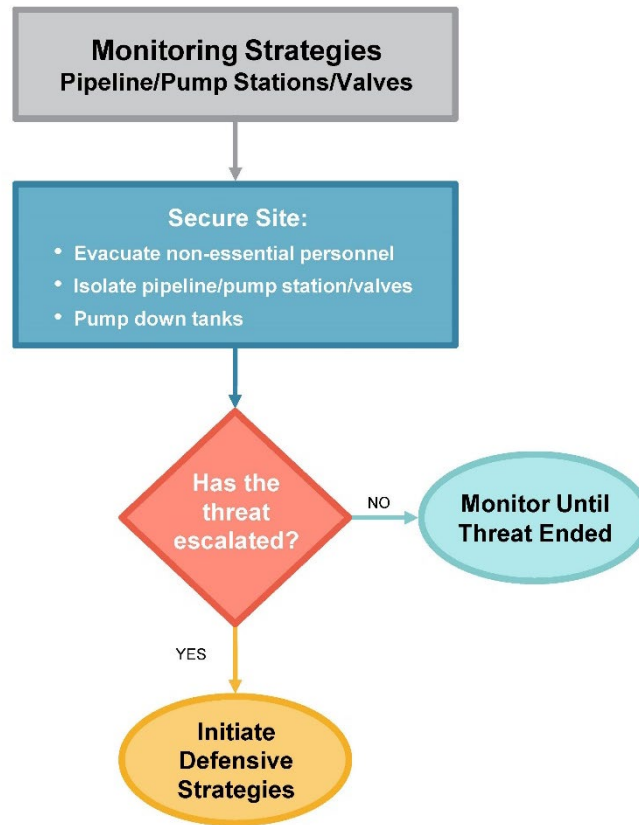


FIGURE 2 - MONITORING STRATEGIES

6.2.2 **Defensive Strategies**

- Defensive strategies should be utilized only if it is safe to do so and there is no possibility of entrapment. Personnel conducting defensive strategies must identify and be aware of safe zones and escape routes out of the fire area. Personnel are to halt strategies and evacuate if any of the following criteria are met:
 - Directed to evacuate by Provincial/State wildfire representatives or;
 - Clear access along escape routes is being threatened or;
 - Given forecasted weather, the fire is expected to arrive at the site within 2 hours.
- Evacuating personnel should contact the Control Centre and Supervisor when clear of site and in safe zone.
- Assets closest to the approaching fire should be treated first.
 - Assess and enhance, if required, site fire proofing:
 - Clear brush, trees, grass away from ROW (create a fire break)
 - If qualified falling resources are available, cut down trees adjacent to ROW to prevent candling; fireside first
 - Remove a wide path 6m to 15m of vegetation along property line (fire side) with the use of machinery (create a fire break)
 - Consider dirt & sand deployment:
 - Cover assets with minimum 15cm of sand or dirt
 - Determine availability of sand or dirt on site
 - Determine availability of equipment (Skid steer, backhoe, dozer)
 - Determine time to fire arrival
 - Determine availability of sand or dirt off site that be brought in within a sufficient time period
 - Determine availability of contractors
 - Identify and select appropriate water supply:
 - Fire suppression water/retention pond on site
 - Municipal fire services available on site
 - Wildfire trailer/Structure Protection Unit on site or enroute.
 - Consider and setup sprinkler/blitz fire ground monitor:
 - Set up requires a minimum one (1) hour
 - Create widest barrier possible, close to fence line on fire side of facility
 - Soak ground vegetation 6m to 15m outside fence line on fire side of facility
 - Consider utilizing fire pumps for sprinkler/blitz fire ground monitor
 - See [Appendix 4](#) for detailed instructions

- Consider and apply Gel/Foam to infrastructure:
 - Anticipate at least 1 hour time for application
 - Gel/Foam can be applied 6-8 hours before fire arrives
 - Cover assets with 3mm to 6mm thick of Gel/Foam to achieve a 24 - hour protection
 - See [Appendix 5](#) and [Appendix 6](#) for detailed instructions

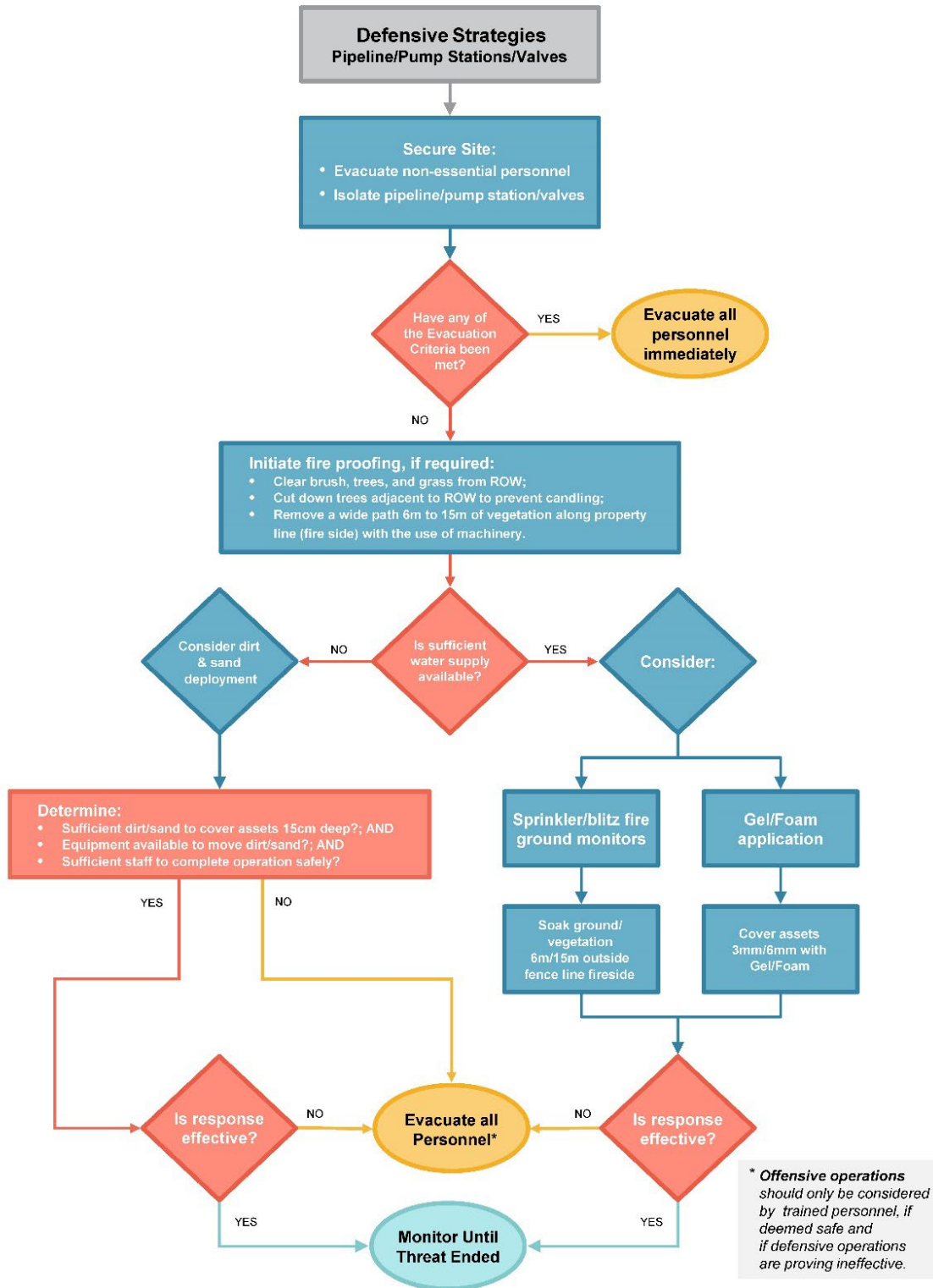
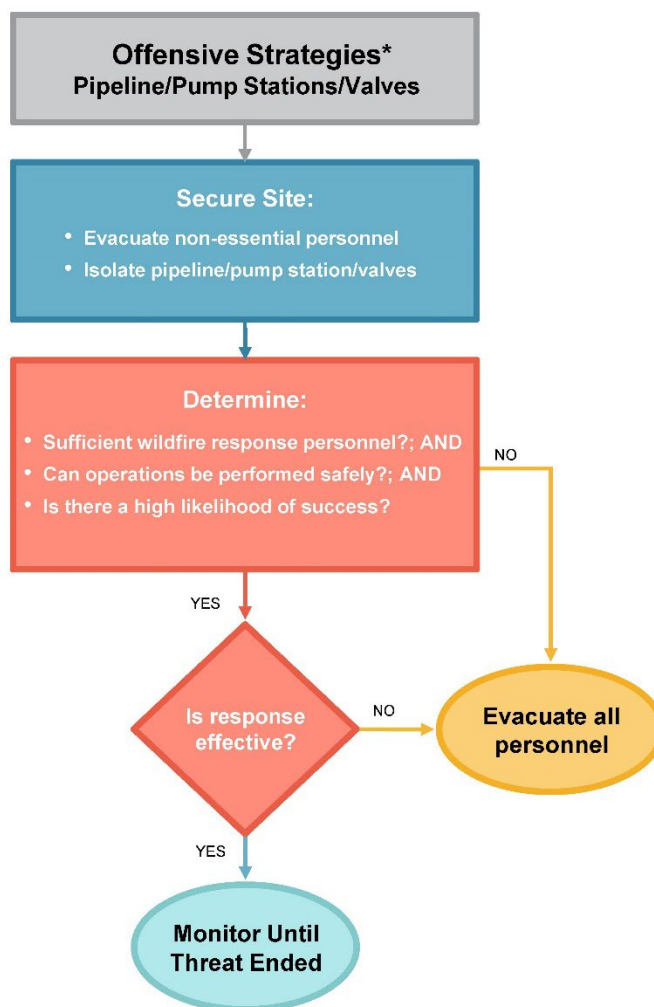


FIGURE 3 - DEFENSIVE STRATEGIES

6.2.3 Offensive Strategies

- Assist Provincial/State crews to safely access and/or cross ROW with vehicles and equipment being used for fire management tactics (fire guard construction, back burning, etc.).
- If fire behavior increases, update the Provincial/State Wildfire Centre to prompt an escalated response (additional resources, air tanker support, etc.).
 - Communicate the fire severity and likelihood of spread in addition to the impact and values of infrastructure being threatened.



** Offensive operations should only be considered by trained personnel, if deemed safe and if defensive operations are proving ineffective.*

FIGURE 4 - OFFENSIVE STRATEGIES

6.3 Terminals/Tank Farms

6.3.1 *Monitoring Operations*

- Confirm site is secured
- Evacuate all unnecessary personnel
- Shut down site projects and maintenance work not critical to operations
- Isolate Terminal from main line
- Pump down tanks to remove potential fuel source

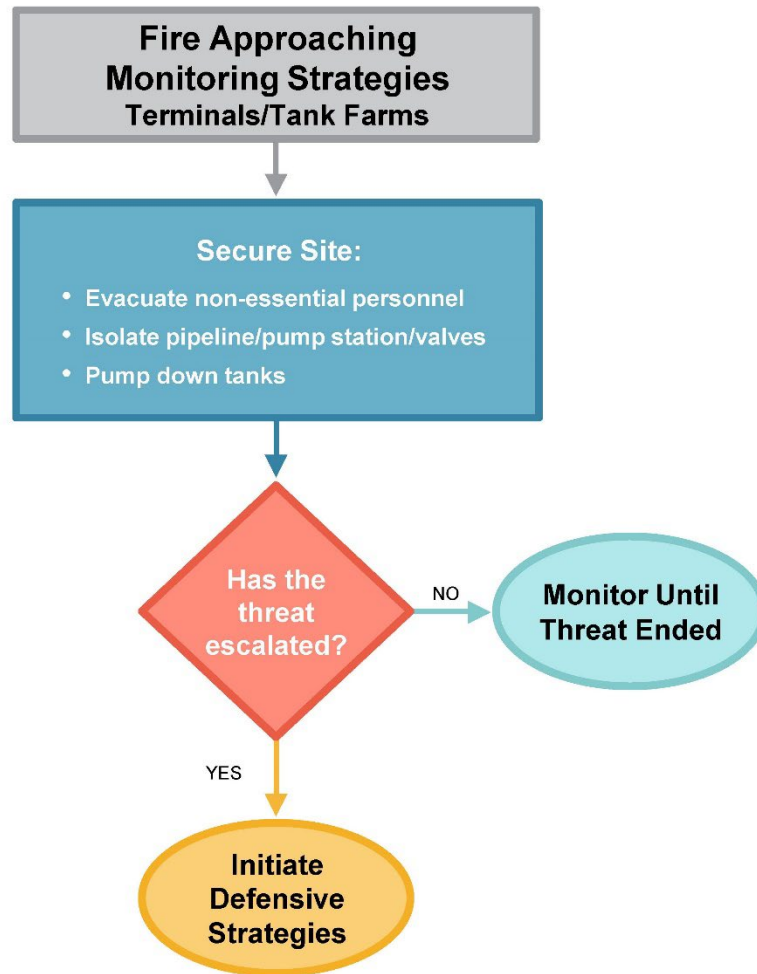


FIGURE 5 - MONITORING STRATEGIES - FIRE APPROACH

6.3.2 *Defensive Operations for Wildfire Approaching Terminals/Tank Farms*

- Defensive strategies should be utilized only if it is safe to do so and there is no possibility of entrapment.
- Personnel conducting defensive strategies must identify and be aware of safe zones and escape routes out of the fire area.
- Personnel to halt strategies and evacuate if any of the following criteria are met:
 - Directed to evacuate by Provincial/State wildfire representatives or;
 - Clear access along escape routes is being threatened or;
 - Given forecasted weather, fire is expected to arrive at the site within 2 hours.
- Evacuating personnel are to contact the Control Centre and Supervisor when clear of site and in safe zone.
- Assets closest to the approaching fire should be treated first
 - Assess and enhance, if required, site fire proofing by:
 - Clearing brush, trees, grass away from fence line (create a fire break)
 - If qualified falling resources are available, cut down trees adjacent to fence line to prevent candling; fireside first
 - Remove a wide path 6m to 15m of vegetation along property line (fire side) with the use of machinery (create a fire break)
 - Identify and select appropriate water supply:
 - Fire suppression water pond /Retention Pond on -site
 - Municipal water service available on site
 - Wildfire trailer tank on site or enroute
 - Consider and setup sprinkler/blitz fire ground monitor:
 - Set up requires a minimum one (1) hour
 - Create widest barrier possible, close to fence line on fire side of facility
 - Soak ground vegetation 6m to 15m outside fence line on fire side of facility
 - Consider utilizing fire pumps for sprinkler/blitz fire ground monitor
 - See [Appendix 4](#) for detailed instructions
 - Consider and apply Gel to infrastructure:
 - Anticipate at least 1 hour time for application
 - Gel/Foam can be applied 6-8 hours before fire arrives
 - Cover assets with 3mm to 6mm thick of Gel/Foam to achieve a 24-hour protection
 - See [Appendix 5](#) and [Appendix 6](#) for detailed instructions
 - Implement rim seal fire system and apply foam along rim seals on tanks closest to fire side (See Tank Specific Fire Pre-Plan for detailed instructions).

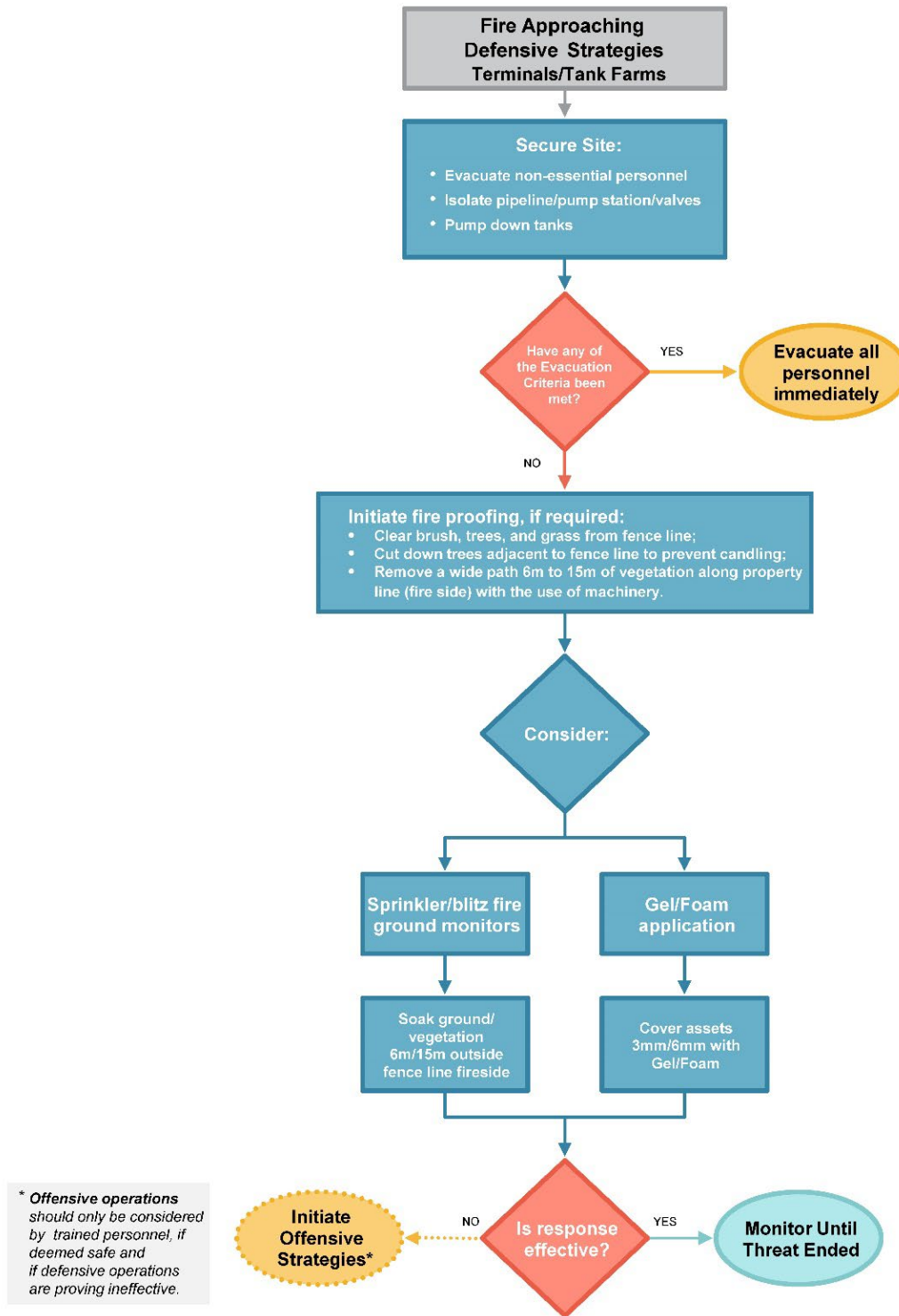


FIGURE 6 - DEFENSIVE STRATEGIES - FIRE APPROACHING

6.3.3 Defensive Operations for Preventing Fires from Leaving Terminals/Tank Farms

Fires originating within the Terminal/Tank Farm can cause a wildfire outside the fence line. While there are specific plans to deal with tank fires, it is important to take steps to prevent a fire within the fence line from developing into a wildfire situation outside. In addition to the instructions in the Fire Pre-Plans for tank fires, the following strategies should be considered.

- Assess and enhance, if required, site fire proofing by:
 - Clearing brush, trees, grass away from fence line (create a fire break)
 - If qualified falling resources are available, cut down trees adjacent to fence line to prevent candling
 - Remove a wide path 6m to 15m of vegetation along property line with the use of machinery (create a fire break)
- Identify and select appropriate water supply:
 - Fire suppression water /Retention Pond on site
 - Municipal water service available on site
 - Wildfire trailer tank on site or enroute
- Consider and setup sprinkler/blitz fire ground monitor:
 - Set up requires a minimum one (1) hour
 - Create widest barrier possible, close to fence line of facility
 - Soak ground vegetation 6m to 15m outside fence line of facility
 - Consider utilizing fire pumps for sprinkler/blitz fire ground monitor
 - See [Appendix 4](#) for detailed instructions
- Consider and apply Gel/Foam to infrastructure:
 - Anticipate at least 1 hour time for application
 - Gel/Foam can be applied 6-8 hours before fire arrives
 - Cover assets with 3mm to 6mm thick of Gel/Foam to achieve a 24- hour protection
 - See [Appendix 5](#) and [Appendix 6](#) for detailed instructions

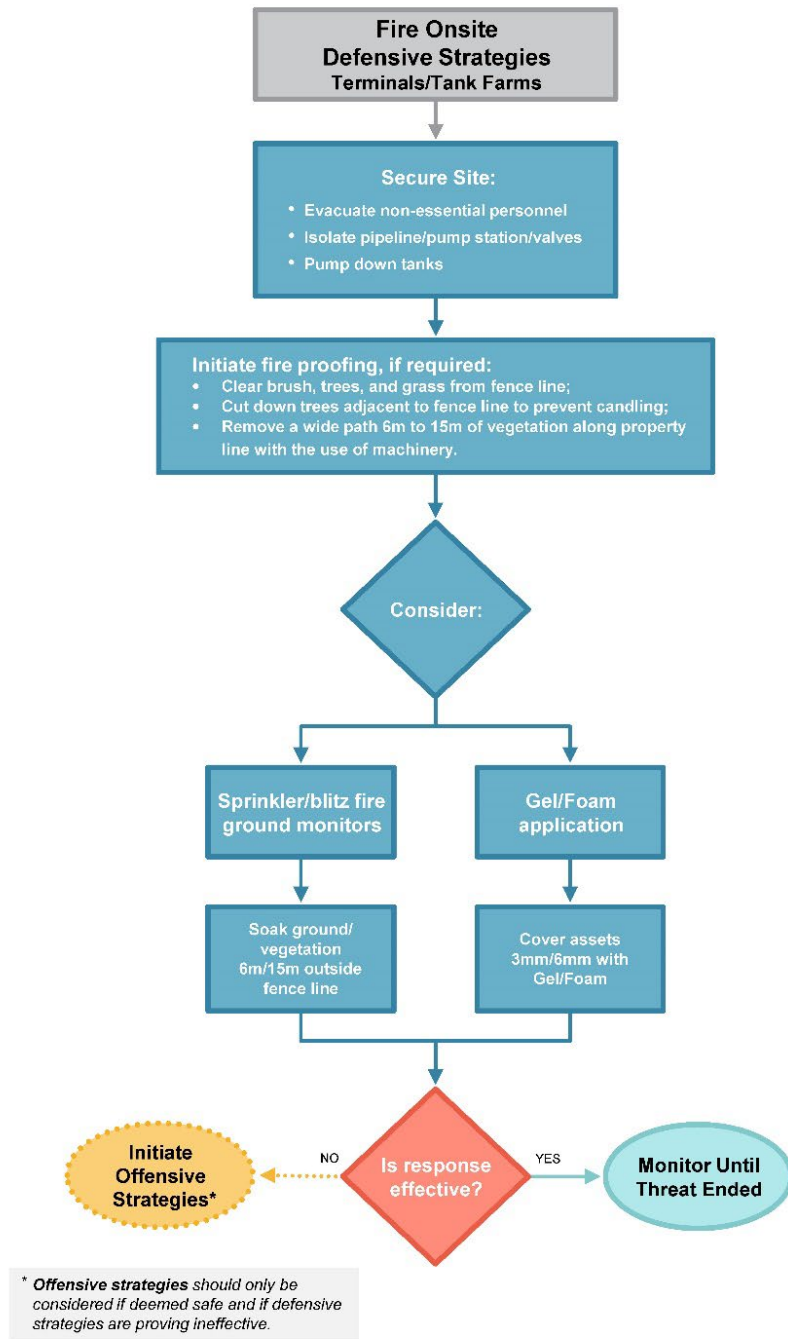


FIGURE 7 - DEFENSIVE STRATEGIES – FIRE ONSITE

6.3.4 Offensive Operations

- Communicate **early** to Provincial/State Wildfire Center the expected severity of damage and impacts of the imposing wildfire to Trans Mountain infrastructure. Discuss options such as
 - back burn of property line vegetation.
 - laydown of fire retardant around facility (note this tactic requires air and ground resources).

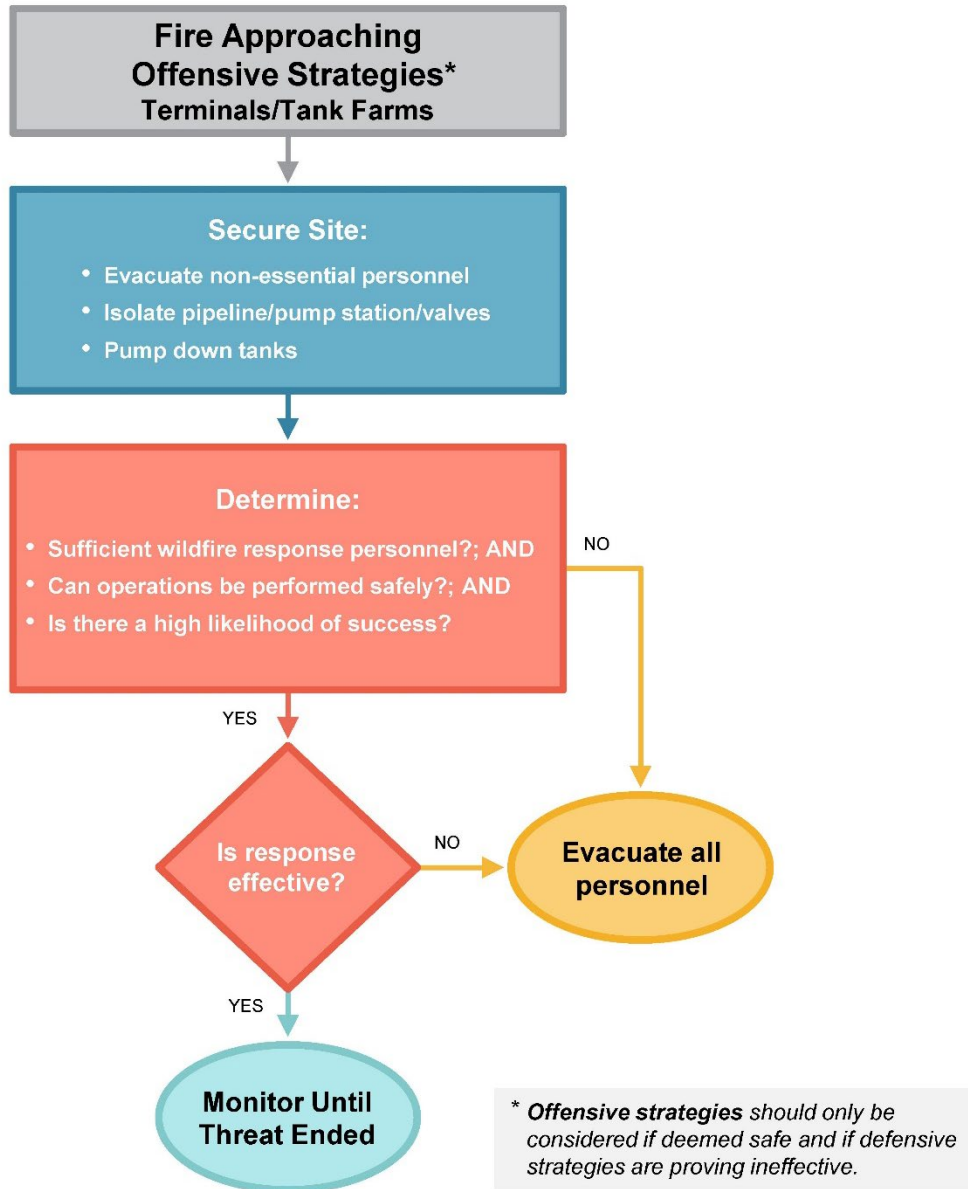


FIGURE 8 - OFFENSIVE STRATEGIES - FIRE APPROACHING

7.0 POST FIRE CONSIDERATIONS

When returning to the location after the fire, ensure the following:

1. The Incident Commander has given the clearance to return.
2. The road is safe to travel.
3. Communications have been established.
4. Appropriate firefighting equipment is available.
5. A 20m perimeter from the site should be checked and any open or smoldering fires extinguished.
6. A damage assessment should be completed to identify any impacts fire may have had on infrastructure.
7. Any fire damaged trees should be assessed and removed from the work area if deemed a potential hazard.
8. Environmental assessment conducted for impacts arising from the use of fire gel or foam.
9. Remove any gel/foam that has been used by following the removal procedures found in [Appendix 5](#) and [Appendix 6](#).

APPENDICES

Appendix 1 – Fire Watch Procedures

A fire watch is a temporary measure intended to ensure continuous and systematic surveillance of a building or area by one (1) or more qualified individuals for the purposes of identifying and controlling fire hazards, detecting early signs of unwanted fire, raising an alarm of fire, and immediately notifying emergency fire responders.

Personnel conducting a fire watch shall:

1. Be aware of area hazards as well as hazards associated with the hot work;
2. Equipped with reliable two-way communications;
3. Ensure safe conditions are maintained during the hot work;
4. Stop the hot work operations when unsafe conditions develop;
5. Be equipped with fire extinguishing equipment and trained in its use;
6. Be familiar with the facilities and procedures for sounding an alarm in the event of a fire; and
7. Not be performing any other duties when acting as a Fire Watch.

The sole duty of personnel assigned to fire watch is to keep watch for fires, and if necessary, alert other personnel to the presence of a fire and to summon the emergency fire responders.

A fire watch shall be maintained until such time as work has been completed in the risk area and the threat of a fire is no longer present.

Appendix 2 – Wildfire Trailer

- The trailer must be pulled with a ¾ ton or larger truck
- Ensure trailer inventory is complete prior to departure
- Load fire gel from storage prior to departure
- Arrange for fuel (gasoline) delivery for equipment to site of the incident (fuel is not to be stored or transported in trailer)
- Travel to location after making arrangements as noted above

7.1.1 *Returning Wildfire Trailer to Storage*

After use:

- Rinse proportioner, hose and appliances with clean water
 - This is accomplished by running clean water through for 60 seconds
- Clean the proportioner by opening the bale and twist the pattern sleeve to the closed position
- Turn the metering valve to the flush position
- Push red button inside metering dial
- Flow water until clear
- Refill the water tank
- Refuel pump only (do not store or transport spare fuel in trailer)
- Drain pump of water to prevent corrosion or freezing
- Complete inventory of the trailer. Request/replace any missing or damaged items
- Ensure the inventory of fire gel is replaced or requested if no inventory is available
- Any unused fire gel should be placed back into storage
- Trailer is placed back in storage

7.1.2 *Wildfire Trailer Equipment*

The wildfire trailer houses various pieces of equipment including pumps, gel, hoses, and tools as pictured below.

Wildfire trailers are physically located at Blue River, Hope and Jasper Stations as well as Kamloops Terminal and a complete list of wildfire equipment can be found in the inventory lists located in the respective district folders at the below link:

[Wildfire Trailer Inventory Lists.](#)

Appendix 3 – Structure Protection Unit (SPU)

- The trailer must be pulled with a ¾ ton or larger truck
- Ensure trailer inventory is complete prior to departure
- Load gel from storage prior to departure
- Arrange for fuel (gasoline) delivery for equipment to site of the incident (fuel is not to be stored or transported in trailer)

7.1.3 *Returning SPU to Storage*

After use:

- Rinse all hoses and appliances with clean water
 - This is accomplished by running clean water through for 60 seconds.
- Refuel pump only (do not store or transport spare fuel in trailer)
- Drain pump of water to prevent corrosion or freezing
- Complete inventory of the trailer. Request/replace any missing or damaged items
- Ensure the inventory of Gel/Foam is replaced or requested if no inventory is available
- Trailer is placed back in storage

7.1.4 *SPU Trailer Inventory*

The SPU trailer houses various pieces of equipment including pumps, gel, foam, hoses, sprinklers, water tanks and tools as pictured below.

Wildfire trailers are physically located at Jasper Stations and Kamloops Terminal, a complete list of SPU trailer equipment can be found in the inventory lists located at

[SPU Trailer Inventory Lists](#).

Appendix 4 – Sprinkler/BlitzFire/FireBozz Cooling Application Procedures

Set up of Sprinkler/Exposure lines

1. Equipment:
 - Minimum 40,000 gallons water on site
 - Fixed or portable fire pump set up/available
2. Personnel:
 - Cooling water should be applied with a minimum of 2-person crew:
 - One member will be a driver/spotter who stays alert to changing conditions
 - The other member will be the applicator
3. Setup:
 - Attach 2.5" fire hose to hydrant
 - Extend hose to 15 meters of site border/vegetation boundary fire side
 - Attach sprinkler/blitzfire monitor/firebozz system along perimeter (as shown in pictures below)
 1. Start flow to sprinklers adjust for a minimum 180-degree coverage per sprinkler
 2. Monitor water levels, continue filling reservoir from identified water source
 3. Adjust sprinklers/blitzfiref/firebozz as necessary



Appendix 5 – Fire Blocking Gel Application Procedures

Always read manufacturers product instructions/guide before using.

Operation of the Fire Gel/Foam Skid

- Locate trailer and layout out hose to prepare to apply product
 - Only lay out enough to apply to assets as required.
 - Use a leapfrog effect by moving the trailer around to provide full coverage
- Attach hose to pump
- Attach hose to nozzle/proportioner
- Start pump
 - Turn Red switch to on
 - Turn fuel on
 - Set choke
 - Open throttle to half
 - Warm engine and shut off choke
- Open supply line from tank to pump
- Throttle pump up to generate 100 psi minimum to ensure proper operation of proportioner/nozzle
- Apply gel to Structures, Tanks, Assets or Ground Cover starting with areas that are within 10 meters of vegetation as described in the application instructions.
- Apply with a Fog Pattern or power fog if longer reach/height is required
- The nozzle pattern is changed by twisting the pattern sleeve, clockwise for straight stream, continue clockwise to flush and off, counterclockwise for fog

Application of Fire Gel on Structures, Tanks and Other Assets

- Ensure proper protective equipment is worn.
 - Minimum of rubber gloves and eye protection.
 - If the product has the potential to blow back onto staff, a waterproof coat to prevent skin exposure and respirator should be worn to prevent inhalation of vapor or mist.
- Vigorously shake each container of Gel prior to use
- Remove cap and the inner clear seal from the container
- Attach nozzle/proportioner directly to a 5 litre container, and tighten or use pick up tube and dip tube to attach to 20 litre containers
- Use backpack to carry 20 litre pails

- Set the proportioner to 3% for application on structures, tanks other assets requiring protection.
 - At 3% proportioning each gallon (approx. 4 litres) covers 800-1000 square feet
- Apply gel to all surfaces needing covering.
 - Start at the highest point, working down
 - Spray the gel in light coats to build up to a 1/8" thick layer on all surfaces and 1/4" on glass
- Start with the side or roof that will be exposed to the approaching fire, then the adjoining sides and the other side of roof. If time permits the last side may be coated as well. Also ensure under the eaves is coated
- Mist the blanket with water after it has set up to allow foam to absorb more moisture and extend protection time. The nozzle/proportioner can be used to wet the fire gel by turning the proportioning controller to 0%/OFF position

Ground Application

- Ensure proper protective equipment is worn.
 - Minimum of rubber gloves and eye protection.
 - If the product has the potential to blow back onto staff, a waterproof coat to prevent skin exposure and respirator should be worn to prevent inhalation of vapor or mist.
- Vigorously shake each container of Gel prior to use
- Remove cap and the inner clear seal from the container
- Attach nozzle/proportioner directly to a 5 litre container, and tighten or use pick up tube and dip tube to attach to 20 litre containers
- Use backpack to carry 20 litre pails
- Ground application requires 0.1% to 1% solution set the proportioner to the correct percentage by turning the selector valve to the correct %. At 1% proportioning each gallon (approx. 4 litres) will cover 2400-3000 square feet
- Apply gel to all vegetation inside the facility perimeter
- Apply the gel to the surrounding vegetation, creating a protected area of at least 50 feet (15 meters) outside the fence line.
- Gel may be applied to trees and power poles as well if they are in the 50-foot (15 meter) perimeter

Cleaning Product Off After Application

Options to clean coated surfaces:

Option 1

If returning within 72 hours, it is possible to clean the coated surfaces with water out of a hose. Using a pressure washer for clean-up is not needed, as this may cause unnecessary damage. The correct method is to first wet the dried-out gel and let it re-hydrate prior to washing off. The gel will be more transparent than the original application. **Capture all wastewater and correctly dispose of it.** Begin at one area and work around the entire building, as this will give the gel time to hydrate, allowing it to be hosed off very easily. Some small amounts may not come off completely; repeat option 1 or try option 2 below.

Option 2

If returning after 3-4 days, the gel should be left to dry completely and not re-hydrated. As the gel dries it turns to a dry flaky material. Using a whisk broom or a rag, the dried gel can be simply brushed off. The dried gel can now be collected and placed into a garbage bag and taken to an incinerator for disposal.

After completing either option 1 or 2, should it rain, a small amount of gel may appear in a spot that was missed during the initial cleaning. Simply return to the spot and rinse it off with a garden hose.

Cleaning Released Concentrates

In the event of a gel concentrate release, it is recommended that the released concentrate be contained through barrier/dam and soaked up with absorbent material: **Do not flush with water.** If liquid has been released in large quantities clean up promptly by scoop or vacuum. Keep in suitable and closed containers for disposal. Disposal must be in accordance with local, state, and federal regulations. **After cleaning,** flush away traces with water.

Storage

The shelf life of Gel is 5 years, stored out of the direct sunlight and kept between 5 and 20°C. The solution is an emulsification and should be shaken prior to use.

Appendix 6 – Fire Blocking Foam Application Procedures

Always read manufacturers product instructions/guide before using.

Operation of the Foam Skid

- Locate trailer and layout out hose to prepare to apply product. Only lay out enough to apply to assets as required. Use a leapfrog effect by moving the trailer around to provide full coverage.
- Attach hose to pump.
- Attach hose to Nozzle/proportioner:
 - Start pump
 - Turn Red switch to on
 - Turn fuel on
 - Set choke
 - Open throttle to half
- Warm engine and shut off choke.
- Open supply line from tank to pump.
- Throttle pump up to generate 100 psi minimum to ensure proper operation of proportioner/nozzle.
- Begin applying barrier foam to Structures, Tanks, Assets or Ground Cover as described in the application instructions. Apply with a Fog Pattern or power fog if longer reach/height is required.
- The nozzle pattern is changed by twisting the pattern sleeve, clockwise for straight stream, continue clockwise to flush and off, counterclockwise for fog.

Application of Fire Foam on Structures, Tanks, and other Assets

- Ensure proper protective equipment is worn.
 - Minimum of chemical resistant rubber gloves and eye protection.
 - If the product has the potential to blow back onto staff, a waterproof coat to prevent skin exposure and respirator should be worn to prevent inhalation of vapor or mist.
- Vigorously shake each container of foam prior to use
- Remove cap and the inner clear seal from the container
- Attach nozzle/proportioner directly to a 5 litre container, and tighten or use pick up tube and dip tube to attach to 20 litre containers
- Use backpack to carry 20 litre pails
- Set the proportioner to 1% for application on structures, tanks and other assets requiring protection.
At 1% proportioning each gallon (approx. 4 litres) cover 2390 - 2990 square feet

- Begin to apply foam to all surfaces needing covering. Always remember to start at the highest point, working down. Spray the foam like you would apply spray paint, in light coats to build up to a 3mm thick layer on all surfaces and 6mm on glass
- Start with the side or roof that will be exposed to the approaching fire. Then the adjoining sides and the other side of roof. If time permits the last side may be coated as well. Also ensure under the eaves is coated
- To extend protection time, mist the blanket with water after it has set up to allow foam to absorb more moisture. The nozzle/proportioner can be used to wet the foam by turning the proportioning controller to 0%/OFF position

Ground Application

- Ensure proper protective equipment is worn.
 - Minimum of rubber gloves and eye protection.
 - If the product has the potential to blow back onto staff, a waterproof coat to prevent skin exposure and respirator should be worn to prevent inhalation of vapor or mist.
- Vigorously shake each container of foam prior to use
- Remove cap and the inner clear seal from the container
- Attach nozzle/proportioner directly to a 5 litre container, and tighten or use pick up tube and dip tube to attach to 20 litre containers
- To be mobile with 20 litre pails use backpack to carry pails
- Ground application requires 0.1% solution set the proportioner to the correct percentage by turning the selector valve to the correct %. At .1% proportioning each gallon (approx. 4 litres) will cover 23900 - 29900 square feet
- Apply foam to all vegetation inside the facility perimeter
- Apply the foam to the surrounding vegetation creating a protected area of a minimum of 15 meters outside the fence line
- Foam may be applied to trees and power poles as well if they are in the 15-meter perimeter

Cleaning Product off after Application

Once the threat of fire has passed the following clean up information will apply.

Foam solution applied on vegetation for fire suppression activities does not require clean-up. The foam will collapse within a few hours, at most, and the released foam solution will penetrate the soil where it will biodegrade.

If applied on hard surfaces like driveways and sidewalks, it can be flushed with plenty of water, low velocity water streams will more successfully flush an area without forming additional foam.

When the foam solution is used for structural protection, it can be washed off with water. Water will be released from the foam and the product residues will then be biodegraded in the soil.

If used within a structure then the foam can be picked up in the same manner as water, if this is the case then surfaces that came in contact with the foam solution should be washed with plain water to remove any residues prior to repainting.

Cleaning Released Concentrates

In the event of a foam concentrate release, it is recommended that the released concentrate be:

- Dammed up (**Do not flush with water**)
- Soaked up with inert absorbent material, sweep or shovel spills into appropriate container for disposal
- If liquid has been released in large quantities clean up promptly by scoop or vacuum
- Keep in suitable and closed containers for disposal
- Disposal must be in accordance with local, Provincial/State, and federal regulations
- **After cleaning**, flush away traces with water

Storage

The shelf life of Foam is 5 years. It is stored out of the direct sunlight and kept between 5 and 20 °C. The solution is an emulsification and should be shaken prior to use.