



Ministry of
Forests, Lands and
Natural Resource Operations

WILDFIRE MANAGEMENT BRANCH

Interpretive Bulletin

**on the Application of the Wildfire Regulation
for the Forest Industry**



June 2011

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Note: This bulletin replaces all previous bulletins on this topic. This guidance is not intended to provide legal advice, nor is it intended to fetter the discretion of the minister or delegated decision-makers in making statutory decisions. The views expressed in this bulletin are those of Wildfire Management Branch, and it is the responsibility of the person carrying out the industrial activity to meet the legislative requirements in all circumstances.

Objective and Scope

This bulletin is intended to provide guidance to forest industry and government staff who are seeking to comply with or assess compliance with provisions of the *Wildfire Act* and Wildfire Regulation for wildfire prevention and suppression response associated with industrial activities. This bulletin offers guidance on two ways to comply with regulatory requirements either through the use of:

- 1) a professionally designed wildfire prevention and suppression response; or,
- 2) a defined prevention and suppression response as set out in the attached Appendix A and based upon the previous Forest Fire Prevention and Suppression Regulation (FFPSR) and the current Wildfire Regulation.

The expected outcome of the *Wildfire Act* and Regulation is that fire starts are prevented, but, if a person causes a fire, they are required to extinguish it if practicable, or control the fire to limit fire spread and damage until additional resources arrive or the person is relieved by an official. The person must have enough resources available to ensure that the response to a fire is adequate, timely and commensurate with the fire hazard, in accordance with the legislation.

Background

The *Wildfire Act* and the Wildfire Regulation have provisions for results-based management and they incorporate the concept of professional reliance. The drafting of the Wildfire Regulation moved the legislation to a less prescriptive framework than had been the case under the former *Forest Practices Code of British Columbia Act* (FPC) and the Forest Fire Prevention and Suppression Regulation (FFPSR). This has resulted in a shift from prescribed requirements for all circumstances under the FPC to a requirement under the regulation to assess the fire hazard and prevent fire starts and if a fire starts, to limit fire spread and damage until additional resources arrive or the person is relieved by an official.

Note that the replacement of the FPC wildfire provisions with the results-based approach of the Wildfire Regulation did not signal that the old provisions were inadequate, but were meant to add flexibility for industrial users to adapt their fire preparedness and suppression response to local conditions and circumstances, so long as fire prevention and suppression results were maintained or improved relative to past practice.

In recognition that not all forest operations wish to utilize a professionally designed wildfire prevention and suppression response, and would instead prefer to use a defined prevention and suppression response option, this information is included in Appendix A (page 12). Appendix A provides guidance on basic fire fighting tools, water delivery systems, equipment and fire prevention that can be used to comply with legislation and fulfill the requirements of the Wildfire Regulation. A wildfire prevention and suppression

response option that varies from Appendix A would be considered to be a results-based approach in which reliance on professional advice and the exercise of due diligence would be key.

For a person responsible for complying with the Wildfire Regulation, the challenge is in determining – in advance and in their particular circumstances – when they have, for example, an ‘adequate fire suppression system’ (sections 6, 21, 22) or a sufficient ‘water delivery system...to effectively fight a fire of reasonably foreseeable size’ (section 1). Similarly the sufficiency of fire fighting hand tools and fuel breaks needs to be considered (sections 5, 7). When making these self-assessments, a person needs to consider the fire hazard and exercise reasonable care. It is intended that this bulletin will bring clarity to such issues.

The requirements of the Wildfire Regulation, such as for fire suppression systems, fire fighting hand tools or fuel breaks, are examined in detail during an inspection or a fire investigation. The examination will determine if the level of prevention is appropriate to limit the risk of a wildfire start (prevention) and extinguish if practicable, or contain the fire and limit fire spread and damage (suppression) in consideration of the fire hazard and the ability to respond.

Further, it is the intention of the WMB to relieve a person from carrying out voluntary firefighting within 48 hours subject to legislated priorities such as fire activity, workload demand and available resources. Voluntary firefighting will be compensated for in accordance with [section 17](#) of the *Wildfire Act* and policy 9.1.

Due Diligence

Even if a fire starts or escapes, two defences may be raised including: due diligence and officially induced error. The concept of “*due diligence*” is central to the structure of the results-based forest practices legislative regime. Due diligence means exercising all reasonable care commensurate with the fire hazard. Reasonable care is assessed objectively based on what a prudent person acting reasonably would do in the same circumstances.

Under [section 29\(a\)](#) of the *Wildfire Act*, due diligence is a defence to an alleged contravention of the Act or the Wildfire Regulation. Establishment of a due diligence defence is up to the person conducting an industrial activity and this guidance is not intended to instruct how to do so.

It is recognized that not every fire will be prevented or contained. If a fire starts, or escapes initial attack efforts, an assessment of compliance with the *Wildfire Act* and Regulation will be conducted. If reasonable precautions were taken to prevent a fire from starting and spreading commensurate with the fire hazard and industrial activity, and those precautions would have been sufficient under normal or reasonably foreseeable circumstances to extinguish or suppress the fire until back-up resources arrived, then those precautions will be important considerations in a determination of compliance. In the event that circumstances that were reasonably unforeseeable (e.g. accident, extreme weather event) occur and allow a fire to escape suppression response, due diligence may be a defence against non compliance if it is determined that the measures in place would normally have prevented fire escape.

Results Based Approach and Professional Reliance

Under a results-based approach, professional reliance can be used by a person carrying out industrial activities to assess the risk of a fire start caused by each activity, the potential fire behaviour at the site of the industrial activity¹ at the times when fire starts are most likely, the expected response times, and the likely consequences should a wildfire occur. In this context, the person or their professional needs to determine what constitutes an adequate and sufficient wildfire prevention and suppression response.

Typically the person would rely on a forest professional to identify adequate and sufficient prevention and suppression response measures. If lacking the knowledge, experience, and expertise to identify and fully assess the relevant factors, the advising professional would be compelled to seek the advice of specialists or experienced peers with knowledge of fire behaviour, fuel management, fire response, etc. Wildfire Management Branch staff may provide assessment and peer review of proposed prevention and suppression response in general terms, however, this should not be interpreted as endorsement. The responsibility of meeting legislated requirements remains with the person carrying out the activity.

A professional may utilize a defined wildfire prevention and suppression response (noted in Appendix A) for some or many activities or circumstances. A professional may also utilize alternate measures to meet operational considerations that are expected to lead to the same or better prevention and suppression outcomes.

When varying from the defined prevention and suppression response, Industry is advised to employ due diligence in the development and deployment of alternate measures commensurate with the risk or degree of variation. Evidence of due diligence might include a written rationale or assessment of factors considered, emergency response plans for wildfire, deployment and inventory of suppression resources, fire weather monitoring activities, the opinions of qualified forest professionals, and other considerations.

In a results-based context, terms like “adequate” and “sufficient” may be satisfied when a person has to the extent practicable:

- i. considered and mitigated the circumstances and conditions including the fire hazard that may result in the person’s industrial activity or activities causing a wildfire (prevention), and,
- ii. in consideration of the fire hazard and the ability to respond (suppression), for a particular situation, taken reasonable steps to extinguish or control the fire to limit fire spread and damage until additional resources arrive or the person is relieved by an official.

Fire Hazard

For the purposes of this document, fire hazard is defined as:

¹ For a discussion of the “Site of the Industrial Activity” see page 7.

- ***the risk of a fire starting*** which relates to the risk conditions associated with fuel condition and weather (moisture content, arrangement, and type of fuel as well as past, current and predicted weather conditions);
- ***the hazard associated with an industrial activity*** (high risk activities are particularly hazardous but other activities can be hazardous in high risk conditions), and,
- if a fire were to start,
 - ***the volatility of the fire's behaviour*** meaning the rate of spread in consideration of the fuel characteristics, topography and weather (slope, aspect, wind, temperature, etc.) and,
 - ***the difficulty of controlling the fire*** (distance from other fire control resources, depth and arrangement of fuels, weather, etc.) and,
 - ***the potential threat to values at risk*** (probability and consequence of other values being impacted by the fire including interface, major infrastructure, and other values).

Hand tools

Under section 5 of the Wildfire Regulation, “if there is a risk of a fire starting or spreading ... a person who carries out an industrial activity...” requires “...hand tools...to properly equip each person...” The intent is that when a fire starts, every worker at the site will actively participate in the suppression of the fire and will be suitably equipped to do so.

For the purposes of section 5 of the Wildfire Regulation, one of the first considerations is identifying that there is a risk of a fire igniting and then spreading to cause damage. If there is no risk of a fire starting or spreading (e.g. snow is covering the cutblock and it does not melt) there would be no need to have fire fighting hand tools on site.

It is intended that the number of tools required would be dictated by the number of workers assigned to the site during normal work. It is not intended that each site must have adequate tools to equip each and every person who may subsequently come on site to undertake fire control actions, since additional resources should arrive with their own tools.

Each worker should have access to a tool with which to carry out fire suppression work. “Fire fighting hand tools” are defined in regulation to include shovels, mattocks, pulaskis, fire extinguishers and hand tank pumps, and the components of a water delivery system can also be considered tools. A person working at the end of a nozzle, pulling hose in support or operating a pump would not require an additional hand tool, whereas a person building hand guard would be expected to have a hand tool such as a shovel, mattock or pulaski suitable for the ground conditions. Other tools such as a McLeod tool, hazel hoe or other effective fire fighting tools might be an effective alternative to a mattock or pulaski, if appropriate for the conditions and type of fire suppression expected.

Fire suppression system

The “fire suppression system” obligation does not apply to every industrial activity. The obligation applies to “high risk activities” as defined in section 1(1) of the Wildfire Regulation which are a subset of “industrial activities” as defined in subsection 1(3). In addition to the hand tool requirements, high risk

activities carry additional responsibilities including the obligation under subsection 6(3) (b) (ii) to keep an “adequate fire suppression system” on site when there is a risk of a fire starting or spreading.

Under section 1(1) of the regulation:

***"fire suppression system"** means a system for suppressing fire by delivering*

- (a) water,*
- (b) a suppressant,*
- (c) a surfactant, or*
- (d) any combination of the substances listed in paragraphs (a) to (c)*
and may include a water delivery system

***"water delivery system"** means a system that can*

- (a) deliver a sufficient volume of water to effectively fight a fire of a reasonably foreseeable size, taking all factors into consideration, including the conditions of any area where the water delivery system may need to be used, and*
- (b) deliver water to any place*
 - (i) at the site of an industrial activity,*
 - (ii) on the burn area or site of the high risk activity, or*
 - (iii) reasonably adjacent to the burn area or the site of a high risk activity;*

Note that a water delivery system is a fire suppression system by definition, but that a fire suppression system need not necessarily include a water delivery system. It could be, for example, a system capable of delivering a chemical retardant or even a backhoe capable of covering a fire with soil (a suppressant) for rapid initial attack.

A fire suppression system can potentially take many shapes and forms as dictated by the type of high risk activity and the fire hazard. It may involve any of the application of: water alone, water mixed with a surfactant, a suppressant (e.g. soil, retardant, or foam), or a combination of all three. The system should be practical and reasonable for the activity being carried out, and capable of extinguishing or controlling the fire to limit fire spread and damage until additional resources arrive or the person is relieved by an official. If the fire suppression system involves the delivery of water, it should be nearby, operational and capable of being deployed in a length of time commensurate with current fire hazard.

The proximity and capacity of the fire suppression system should take into consideration the time to arrive to support the operation. As the fire danger rating increases, the available time to deploy a fire suppression system to support the suppression operation decreases. Larger more mobile systems may be located in a central area and serve several high risk activities, while smaller, less mobile fire suppression systems may be located in a strategic position or on the machine itself, for use by the operator.

Along with the fire hazard and values at risk, some other considerations for a fire suppression system may include:

- the ability to be activated quickly;
- the number of high risk activity sites to be serviced;

- the presence or absence of potential fire suppressant materials such as soil

While a fire suppression system could include, for example, a system capable of delivering a chemical retardant or even a backhoe capable of covering a fire with soil (a suppressant) for limited initial attack, for adequate suppression and control as the fire hazard increases, the fire suppression system at the site of the industrial activity should be supported up by a water delivery system that can be quickly deployed to the site to provide a full suppression response if required.

If water is in limited supply, a suppressant or surfactant may be added to the water in a water delivery system to improve its effectiveness. Use of a suppressant or surfactant reduces the rate or volume of water delivery expected from a water delivery system.

A component of a fire suppression system for initial attack may also include an automatic fire suppression system installed in a machine powered by a large engine and designed to extinguish an engine fire if that is the predominant risk of a fire start for that industrial activity. Some mobile logging equipment may have built-in systems for carrying and delivering water; as response is effectively immediate, such systems may be more effective than relying on a larger water delivery system that would be some minutes away and for that situation may be adequate, depending on the fire hazard at the time. As the fire hazard increases, however, it would be expected that an independent water delivery system be available for a full suppression response.

When assessing whether a fire suppression system is adequate, the assessment should focus on whether the system was reasonable for the expected fire hazard of the site. For example, if a gravity-feed water delivery system or a helicopter bucket will provide enough water to effectively extinguish an operations-related fire of the kind that might be reasonably anticipated at the site of the industrial activity, then the system could be considered adequate. In some situations, a backpack water tank may be adequate for the fire hazard. A pump system historically prescribed under the FPC wildfire provisions is considered adequate for low risk situations, although a person carrying out a high risk or any industrial activity should tailor their fire suppression system to suit the expected fire environment for the site.

A reasonable risk of a fire starting and spreading should be assessed based on available information, for example, by using the Canadian Forest Fire Danger Rating System (CFFDRS), probability of ignition models or established local fire history for that industrial activity under the site and environmental conditions present (weather, fuels, topography). For convenience, some Licensees may choose to maintain a prolonged readiness level for a higher fire danger class, rather than consciously escalating or diminishing readiness as circumstances and conditions change.

Fuel breaks

Under section 1(1) of the regulation:

“fuel break” means

- (a) a barrier or a change in fuel type or condition, or*
- (b) a strip of land that has been modified or cleared to prevent fire spread;*

It is important to note that a fuel break does not necessarily mean a bladed guard. Anything – natural, engineered or constructed – that alters, modifies or removes the fuel to limit the chance of a fire spreading ought to be sufficient. For example, snow, water, natural bare rock or high fuel moisture could be an adequate fuel break. A temporary fuel break may be created using a sprinkler system to increase the moisture content of the fuel above its ignition point. The complete removal of all fuel to mineral soil would constitute a fuel break, but its adequacy would be measured in context of the width and the fire environment anticipated. When conducting pile burns, the area around the piles would likely be considered a fuel break if the ignition characteristics of the materials surrounding the pile are significantly lower than the materials in the pile, will not support significant fire spread from the pile and will remain that way for the duration of the burn. The fuel break should ensure that fire spread from the pile remains within the fuel break and does not cause damages or require a suppression response. A fuel break should be within a reasonable distance from the intended pile burn, should be maintained for the duration of the burning, be of adequate scope to address the reasonable risk of the burn (e.g.: adjacent fuel, slope, winds) to escape, and should be properly monitored and maintained. Where the intent is to broadcast all or most of the unburned slash in a cutblock, a resource management open burn should be planned.

In a results-based regime, the sufficiency of a fuel break would be assessed as part of an incident, inspection, or investigation where a fire spreads beyond the fuel break. There may be conditions under which a fuel break may not completely prevent a fire from spreading. If a fire does spread, an investigation may be implemented, but, fire spread may not automatically infer non-compliance with the fuel break requirements. A fuel break will be considered insufficient where it is found that a fire would easily spread beyond the intended burn area under reasonably expected fire conditions and current and predicted weather conditions.

Work Restriction

“High risk activities” include the obligation under Schedule 3 of the Wildfire Regulation to alter activities during periods of moderate, high, and extreme Fire Danger Class.

The meaning of the term “after 3 consecutive days” in Schedule 3 means after the calendar days in which fire weather indices were calculated. In other words, it is sufficient to implement these provisions on the 4th day. For example, on the 3rd day of DGR III calculated at 1:00pm PDT a fire watcher is not required at the end of a normal daytime shift on the 3rd day, but is required after work on the 4th day. “After the fire danger class falls” on the other hand means as soon as the weather data (e.g. sufficient rain is recorded ahead of the 1:00 pm measurement) permits recalculation of the DGR to below the threshold.

Fire watcher

Schedule 3 and subsection 6(4) of the Wildfire Regulation set out the requirements for fire watchers on high risk industrial activities. Note that the fire watcher should not be engaged in other activities that compromise their ability to “actively watch and patrol” or “reasonably see the site of the high risk”. If required, a fire watcher should also be able to carry out fire control activities either with a hand tool or other suppression equipment if practicable.

Site of the industrial activity

The Wildfire Regulation uses terms such as “a site in that area” (section 5); “activity site” (section 6(3)(b)); “site of ...activity” (sections 1, 6(4), 11(1)(b)(ii), 12(2), 13(1)); “location of the activity” (section 6(2)); “site of ...operation” (section 11(1)(b)(ii)). For convenience the term “site of the industrial activity” is used in this document to refer to the use of all of these terms in the regulation.

The site of the industrial activity is the location where the activity is taking place. It includes both stationary activities (i.e. milling, portable chipping and manufacturing) and mobile activities (i.e. mobile logging equipment).

For stationary activities, the site of the industrial activity would be the area in the immediate proximity of the industrial activity.

For mobile sites, the site of the industrial activity would be assessed in terms of the specific location where the industrial activity is taking place, or where the industrial activity has recently taken place on a given day. It is not intended to be the potential area where the industrial activity could take place.

In some circumstances it may not always be clear what the bounds of the site of the industrial activity actually are for interpretation of the regulation. For example, cutblocks are often broken up into multiple portions for biodiversity, riparian protection, appraisal, fuel management, or other reasons and may contain significant internal fuel breaks such as roads, large streams, and leave strips. A helicopter logging operation may involve dozens of widely separated openings or even single stem extractions.

It is important to keep in mind that the rules for industrial activities are intended to ensure that the person conducting the activity is able to provide an effective fire suppression system that extinguishes or contains the fire and limits fire spread and damage until additional resources arrive. It is not intended that the person be responsible for other fire starts in the vicinity not directly related to their own industrial activity (e.g. lightning, public, unrelated industrial activities). In this context, the site of the industrial activity should be thought of as the area in the immediately vicinity of the potential ignition sources (machinery, running cables, workers) associated with the activity.

The intent is that a person can extinguish a fire start quickly, or contain it until additional resources arrive. The minimum resources must be sufficient to carry out this fire suppression response, but does not need to be so robust as to ensure, for example, water delivery to the farthest corner of a large cutblock, unless that is where industrial activities are actually being conducted that day.

For a cable yarding operation, the site of the industrial activity should be thought of a relatively confined bubble zone or buffer area around the potential ignition sources into which fire spread could be anticipated so that fire suppression efforts can deliver a sufficient volume of water and/or suppressant to extinguish or control the fire to limit fire spread and damage until additional resources arrive or the person is relieved by an official. Whatever the activity, the site should be thought of in the context of the potential ignition point(s) and the initial attack of a fire growing from that ignition point with consideration of the conditions (slope, fuel, anticipated fire weather) at and adjacent to that ignition point.

Based upon the fire hazard, a professional may determine that a water delivery system can be shared between activity sites in close proximity to one another. Larger more mobile systems may be located in a

central area and serve several high risk activities, while smaller less mobile systems may be located in strategic positions or on the machine itself for use by the operator. Nevertheless, when covering two (or more) activities with a single system, a key consideration remains that as the fire danger rating increases, the available time to deploy a fire suppression system to any of the activity sites must meet the objective of extinguishing a fire if practicable, or, controlling the fire to limit fire spread and damage until additional resources arrive or the person is relieved by an official.

Representative Weather Data

Subsection 6(2) of the Wildfire Regulation requires the person conducting a high risk activity to determine the Fire Danger Class for the site of the industrial activity during the “fire season” period from March 1 to October 31, except for the days when the ground is covered by snow. The determination of Fire Danger Class relies on calculation of fire weather indices based on representative weather data, with reference to tables appended as Schedules 1 and 2 to the Wildfire Regulation that indicate the Fire Danger Class.

Outside of the fire season period, representative weather data is not generally available from field weather stations, so calculation of Fire Danger Class and related indices for the purposes confirming the assumption of no “risk of a fire starting or spreading” under subsection 1(5) is neither practicable nor expected unless WMB provides general notification that it is a year with unusual weather patterns. Thus neither are the provisions in section 6 for hand tools, fire suppression systems, fire watchers, or work restrictions necessary outside of the fire season.

During the fire season, persons conducting a high risk activity are required to use “representative” weather data for the area to determine the Fire Danger Class for their site of the industrial activity. The onus is on the person carrying out the activity to determine what the representative weather station is for the area. The source of this data could be from the person’s own weather station(s), government weather stations, or from third party weather stations.

A person may need to adjust or adapt the available Fire Danger Class (DGR) estimates from an established weather station for the conditions specific to the site of the activity. If conditions at the site of the activity are similar to a reference weather station then no adjustment or adaptation should be needed. Major factors to consider when judging representativeness could include distance, BEC variant, and large elevation changes. Other potential considerations may include differences in prevailing wind direction and force (exposure), date of snow melt, aspect, or relative proximity to bodies of water (humidity).

Persons conducting high risk activities may wish to establish a portable weather station at or near the site of the industrial activity to determine the Fire Danger Class for the specific area. More information on the establishment of a portable weather station is available from a free publication entitled, “[*Weather Guide for the Canadian Forest Fire Danger Rating System*](#)”.

Due to concerns with ongoing maintenance, theft, vandalism, maintaining data integrity, and management and initial calibration of stations following frequently re-located activities, it may be impractical for persons conducting multiple high risk activities in the same locale or vicinity to maintain a portable weather station at the specific site of each and every activity. Nonetheless, if intending to conduct high risk activities during prolonged periods of higher Fire Danger Class, it is a requirement to have accurate

weather information and to ensure FWI and DGR calculations are representative of the site of the industrial activity. This could include using hand held weather monitoring equipment to verify local FWI and DGR levels.

Where weather stations or instruments are temporarily located at a site of the industrial activity, DGR adjustments would be made by a professional, or a person under the guidance of a professional, in response to changing conditions at the site. When in an adjustment situation, the main condition to be aware of is the possibility that the DGR of the site of the industrial activity needs to be bumped up a Class relative to the reference weather station(s) due to more severe conditions (e.g. temperature, wind or RH) at the site of the industrial activity. An understanding of the effects of weather input data on fire weather indices and DGR is essential.

Periodic weather observations from the site of the industrial activity may be used to correlate with observations at the representative weather station to confirm its representativeness for the site of the industrial activity, or make DGR adjustments. If a professional, or a person under the guidance of a professional, conducting an industrial activity has access to FWI and DGR calculations for their operating area and can demonstrate awareness of the relative appropriateness of the DGR estimate to their site of the industrial activity(s) then the “representativeness” test should be met.

[Fire Danger Class](#) for government forestry weather stations is found under the heading ‘Danger Class Report’. Accurate locations and elevations of the stations are to be found under ‘Weather Stations’. Note that the government’s forestry weather network was designed to support fire preparedness for the government’s fire operations. This weather network was not designed or intended to accurately describe all potential, site-specific fire environments across the province.

More detailed information on fire weather codes and indices of the Canadian Forest Fire Danger Rating System, along with other weather information and fire weather forecast details are available through subscription. Important reference material is contained in the publication entitled “Weather Guide for the Canadian Forest Fire Danger Rating System (Armitage, 2008).

Log forwarding

“Log forwarding” is included as a high risk activity (section 1(1)), and should be interpreted as the use of a self-propelled machine designed to transport or move logs or trees across the ground of a cutblock to roadside. Often this is a self-loading, off-road transporter but may also include a backhoe swinging logs towards a road by “hoe forwarding” or “shovel logging”.

The description of log forwarding contained within the definition of “high risk activity” in the Wildfire Regulation specifically excludes a logging truck being loaded or hauling on a road. Therefore, a self-loading logging truck on a road or landing would not be considered log forwarding. If however the self-loading logging truck drives off the road out into the cutblock, it could be considered log forwarding.

Forwarding (or skidding) operations that are conducted using puncheon or on thick forest floors, where sparks caused by metal parts of the equipment contacting rocks in or on the ground of the running surface are unlikely to occur, are not considered high risk.

Log loading

A log loader operating at roadside is not considered a high risk activity. A loader operating at roadside includes loaders that may be positioned over the roadside ditch, on debris, slash, or operating on undisturbed forest floor material adjacent to the road. Movements of the loader, such as from log deck to log deck, or repositioning between loading trucks, would not be considered a high risk activity.

Where a person decides to operate a tracked machine loading logs off the road in slash, there is an overarching obligation for the person to be duly diligent regarding section 6 of the *Wildfire Act*, which specifies that a person must do so “at a time and in a manner that can reasonably be expected to prevent fires from starting”.

Resources Available

For the purposes of section 13(1)(a) of the Wildfire Regulation, it is important to note that a person conducting the industrial activity is required to make available the person’s workers who are working within 30km by road and the person’s fire fighting tools and heavy equipment if those resources are within 30km by road of the site of the industrial activity. The definition of “worker” in Section 1(1) specifically excludes from this requirement those working at a non-portable timber processing facility (e.g. sawmill), in a clerical or administrative capacity, or on a tug or barge. Note that it is not expected that all available resources be dispatched immediately on a report of a wildfire, but that such resources will be deployed ‘as appropriate given the circumstances and conditions...’ (section 13(2)) until the fire is extinguished, or it becomes impracticable to continue with fire control, or an official relieves the person in writing (*Wildfire Act*, section 6(3)(b)).

The intention of this provision is not to impact stationary processing facilities (mining operations or otherwise). Barge camps, the barge and its employees are not resources that the person must make available for fire control activity. If these facilities, other employees or equipment are required, section 16 of the *Wildfire Act* allows for an official to issue a requisition order that requires a person to supply facilities and equipment that the person owns or has use of and the person’s direct employees for fire control.

Fire Hazard Assessment and Abatement

Fire hazard assessments and fire hazard abatement are key activities in preventing potential wildfire threats arising from fuels left on the land base from harvesting operations. It is essential to carry out assessment and abatement to reduce the risk of wildfires, not only to reduce the impact in the harvested area, but also the impact on adjacent or nearby interface areas, infrastructures, and other values at risk.

The [Wildfire Act](#) requires persons conducting an industrial activity or a prescribed activity ([s. 7](#)) on forest or grass land or within one kilometre of forest land or grass land to conduct fire hazard assessments and abate if required.

The [Wildfire Regulation](#) sets out the prescribed activity or industrial activity and states that if a hazard is made, it must be abated ([s. 11](#) and [s. 12](#)).

Wildfire Regulation amendments now allow for professional reliance options for hazard assessments and abatement for a specific category or persons: “qualified holders”. A qualified holder is a person who has a valid cost sharing or service agreement in place with Wildfire Branch or is the holder of a specified licence under the [Forest Act](#) and is required to pay annual rent under the [Annual Rent Regulation](#).

The existing [section 12](#) hazard abatement requirements will continue to apply for all persons who do not meet qualified holder requirements. Those persons will be required to abate to the extent prescribed in the Regulation.

To assist persons who have fire hazard assessment and abatement obligations, Wildfire Management Branch is preparing *A Guide to Fire Hazard Assessment and Abatement* that will specify how to assess hazards and when to conduct abatement. This guide can assist forest professionals in assessing fire hazards associated with industrial or prescribed activities, and in creating hazard assessment and abatement strategies for a forest licensee or other stakeholder that has an obligation to assess and abate. Note that the due diligence defence of a person that carries out the industrial or prescribed activity may hinge on having followed the professional’s advice, direction and recommendations.

A forest professional working for a qualified holder may choose to use the guide to derive abatement recommendations, or may provide alternate recommendations based on professional consideration of the relevant factors and local application of them to the site of an industrial or prescribed activity. Professional recommendations would include due diligence such as a rationale supporting either an alternate recommendation or an alternate hazard assessment procedure and abatement approach.

Hazard Assessment Period

[Section 11\(3.1\)](#) of the Wildfire Regulation allows a “qualified holder” who carries out an industrial activity or prescribed activity to rely upon a forest professional to specify alternative interval periods for hazard assessments. A professional would consider the type of activity being carried out, the fire hazard and associated risks, the intervals in which the assessments must be completed and the time frames within which to abate once a fire hazard has been identified.

For persons that are not qualified holders assessment time periods specified by [Section 11](#) apply.

Hazard Abatement Period

[Section 12.1](#) of the Wildfire Regulation specifies an abatement period beginning from the date of commencement harvest of 24 months (for interface) and 30 months (for non interface) for a “qualified holder” or as specified by a forest professional for non interface areas. Professional reliance is also used to determine the extent in which to abate.

For persons that are not qualified holders Section 12 abatement time periods and extents apply.

Wildland urban interface areas are required to be assessed and abated in shorter time periods than that of non-interface areas because of the higher values at risk.

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References:

- Armitage, B. L. (2008). Retrieved April 8, 2011, from the Canadian Forest Service, Northern Forestry Centre: <http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/29152.pdf><http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/29152.pdf%20>
- Forest Practices Board report, February 2011, [Fire Preparedness Special Investigation – Summary of Good Practices](#) .

APPENDIX A: DEFINED WILDFIRE PREVENTION AND RESPONSE SYSTEM

Part 1: Purpose

This document provides guidance on a wildfire prevention and fire response system that would apply in most given situations, to meet the requirements of the *Wildfire Act* and the [Wildfire Regulation](#). This guidance is based upon many of the requirements specified in the now repealed Forest Fire Prevention and Suppression Regulation (FFPSR) of the *Forest Practices Code of British Columbia Act* and the current Wildfire Regulation.

Some industrial operators may not have the capacity or resources to professionally design a prevention and suppression response system. The objective of this guidance document is to assist a person conducting industrial activities by providing a description of a default prevention and suppression response that could be used to meet the requirements of a fire preparedness and fire response system for levels of fire hazard typically encountered when conducting an industrial activity during the fire season.

Note that all persons using this guidance document are not relieved of the responsibility and obligations set out in the [Wildfire Act](#) and [Regulation](#) and any other relevant statutes that apply. This wildfire prevention and suppression response guidance should be used in consideration of the fire hazard and a person should consider all of the material factors to be considered when there is a high risk of a fire starting or spreading. For typical operations, these factors include:

- the foreseeable size of the fire, given the fuels, fire danger rating, weather, etc.,
- the quantity of water required to extinguish a fire at a site of the industrial activity ;
- the delivery method, effectiveness and deployment time of fire suppression and water delivery systems;
- access considerations to the site of the fire;
- conditions in the area where the water may be used;
- an adequate quantity of water at the site of the industrial activity.

The expected outcome of the Wildfire Act and Regulation is that fire starts are prevented, but if a person causes a fire, they are required to extinguish it if practicable, or control the fire to limit fire spread and damage until additional resources arrive or the person is relieved by an official. The person must have enough resources available to ensure that the response to a fire is adequate, timely and commensurate with anticipated fire hazards. If conducting a high risk industrial activity a person needs to monitor Fire Danger Class, maintain a fire watch and an adequate fire suppression system, and to follow work restrictions as required by regulation.

Note: Important definitions are included in Part 6 below and they should be reviewed and thoroughly understood.

Part 2: General Requirements

Prior to each fire season there is a requirement to provide contact details to the local Fire Centre.

Before March 1 of each year, a person who, under the *Forest Act*, is the holder of

- (a) a major licence,
- (b) a timber sale licence that is not a major licence,
- (c) a community forest agreement, or
- (d) a woodlot licence
- (e) First Nations Woodland License

must provide an official with a 24 hour a day contact telephone number if the person proposes to carry out an industrial activity on or after March 1 and before November 1 of that year.

Fire Centre Contact Information:

Fire Centre	Telephone Number
Cariboo Fire Centre, Williams Lake	250-989-2600
Coastal Fire Centre, Parksville	250-951-4222
Kamloops Fire Centre, Kamloops	250-554-5500
Northwest Fire Centre, Smithers	250-847-6600
Prince George Fire Centre, Prince George	250-565-6124
Southeast Fire Centre, Castlegar	250-365-4040

Part 3: Industrial Activities

“**industrial activity**” is listed in [section 1\(3\)](#) of the Wildfire Regulation and includes:

- (a) land clearing,
- (b) high risk activities;
- (c) operating equipment or machinery in relation to forest management during
 - (i) road construction, road maintenance and road deactivation,
 - (ii) timber harvesting, including sorting logs,
 - (iii) mechanical modification of forest debris and debris piling,
 - (iv) silviculture treatments, or
 - (v) portable wood chipping, milling, processing or manufacturing;
- (d) operating equipment or machinery in relation to activities other than forest management during
 - (i) debris piling,
 - (ii) road construction, road maintenance or road deactivation,
 - (iii) rock drilling,
 - (iv) mining operations,
 - (v) railway operations,
 - (vi) utility transmission operations, or
 - (vii) portable wood chipping, milling, processing or manufacturing.

1. Fire fighting tools must be available on site

When conducting an industrial operation, sufficient fire fighting hand tools must be available on site during the fire season on or after March 1 and before November 1, if the area is snow free.

If there is a risk of a fire starting or spreading on an area that is

- (a) forest land or grass land, or
- (b) within 300 m of forest land or grass land,

A person who carries out an industrial activity at a site in that area must ensure that fire fighting hand tools are available at that site in a combination and type to properly equip each person who works at the site with a minimum of one fire fighting hand tool per person:

- one round-nosed shovel;
- one pulaski tool or mattock; or
- one hand-tank pump containing at least 18 litres of water.

2. Operation of engines must be done safely

All engines should be operated and maintained in accordance with the manufacturer's specifications in a manner that prevents fires from starting.

Operation of large engine (greater than 7.5 kw or 10 hp)

The person carrying out an industrial activity should provide and ensure that every large engine used in an industrial activity has attached to it, at least the following fire fighting tools:

- one round-nosed shovel; and
- one pulaski tool or mattock; and
- one fire extinguisher with a ULC rating of at least 3A 10BC or an integral vehicle fire suppression system for any engine fires; and
- one fire extinguisher with a ULC rating of at least 1A 5BC for any fire suppression required near the large engine at the activity site,

A person should not operate a large engine unless all of the following conditions are met:

- It is equipped with a safe and effective device for arresting sparks that is an integral part of the exhaust system, and is in good repair.
- A person should not operate a large engine that operates in a stationary capacity unless the site has a fuel break or it has been cleared of combustible material for a distance of at least 3 m in each direction from the large engine.

Small Engines (less than or equal to 7.5 kw or 10 hp):

A person should not operate a small engine unless all of the following conditions are met:

- The muffler has an adequate spark arrester; and,
- The engine or the hot carbon emission being produced by the engine are prevented from coming in contact with combustible material, and there is available at the times when the engine is operated, a fire extinguisher charged with at least 0.225kg (0.5lb.) of fire extinguishing chemical.

Part 4: High Risk Activities

“**high risk activity**” as defined in [section 1](#) of the Wildfire Regulation includes:

- (a) mechanical brushing;
- (b) disk trenching;
- (c) preparation or use of explosives;
- (d) using fire- or spark-producing tools, including cutting tools;
- (e) using or preparing fireworks or pyrotechnics;
- (f) grinding, including rail grinding;
- (g) mechanical land clearing;
- (h) clearing and maintaining rights of way, including grass mowing;
- (i) any of the following activities carried out in a cutblock excluding a road, landing, roadside work area or log sort area in the cutblock:
 - (i) operating a power saw;
 - (ii) mechanical tree felling, woody debris piling or tree processing, including de-limbing;
 - (iii) welding;
 - (iv) portable wood chipping, milling, processing or manufacturing;
 - (v) skidding logs or log forwarding unless it is improbable that the skidding or forwarding will result in the equipment contacting rock;
 - (vi) yarding logs using cable systems;”

Requirements for High Risk Activities:

1. Determine Danger Class

A person who carries out a high risk activity on or within 300 m of forest land or grass land on or after March 1 and before November 1, unless the area is snow covered, must determine the Fire Danger Class.

(See Below - **Part 5: Determination of Restriction on High Risk Activities**).

2. Follow Danger Class Restrictions and Durations

(See Below - **Part 5: Determination of Restriction on High Risk Activities**).

3. Keep Fire Fighting Tools and An Adequate Fire Suppression System At The Activity Site

If there is a risk of a fire starting or spreading then fire fighting tools and an adequate fire suppression system must be kept at the activity site. During the fire season on or after March 1 and before November 1, this may occur anytime that an area is snow free.

A “**fire suppression system**” means a system for suppressing fire by delivering

- (a) water,
- (b) a suppressant,
- (c) a surfactant, or
- (d) any combination of the substances listed in paragraphs (a) to (c), and may include a water delivery system [[section 1](#), Wildfire Regulation]

Water Delivery System – ground based: a "water delivery system" is defined in [section 1](#) of the Wildfire Regulation and means a system that can:

- (a) deliver a sufficient volume of water to effectively fight a fire, taking all factors into consideration, including the conditions of any area where the water delivery system may need to be used, and,
- (b) deliver water to any place
 - (i) at the site of the industrial activity,
 - (ii) on the burn area or site of the industrial activity, or
 - (iii) adjacent to the burn area or the site of an industrial activity

The water delivery system should be able to deliver water at a sufficient volume and pressure to effectively fight a fire of a reasonably foreseeable size, taking all factors into consideration, including conditions of any activity site where the fire suppression system may need to be used.

For the purposes of this guidance document, a water delivery system consists of a water supply, a water pump or equivalent means of pressurizing water plus the ancillary hoses, attachments and tools necessary for the operation and maintenance of the system if these can deliver, to any place on a worksite:

- water at an effective nozzle pressure of a minimum of 25 psi through a standard 9.50 mm straight bore nozzle opening for 50 minutes, or
- 2,500 litres of liquid, of which 0.5 per cent is a liquid surfactant concentrate that, when added to water and used with a pump, hose and nozzle, is capable of producing foam that will extinguish a fire in ordinary combustibles such as wood, paper or forest products.

A person carrying out an industrial activity that is a saw mill or dryland log sort should provide at least one water delivery system at the saw mill or log sort site.

If it is unreasonable to provide the water delivery system because of the terrain, or lack of available surface water on site, a portable pump unit and a water source of at least 4,500 litres or equivalent (aka use of a liquid surfactant noted above) may be substituted. Note that this could include the cumulative capacity of several smaller water sources, relay and/or other tanks, as alternative options.

"Pump Unit" means water pump including a gravity system that is capable of maintaining a minimum effective nozzle pressure of 25 psi from a standard 9.5 mm nozzle at any place on the site of the industrial activity.

Hand falling/Motor manual (i.e. brush saws) brushing: For hand falling and brush saw operation, each faller or operator should have, at a minimum, a personal fire extinguisher.

Cable logging

Cable logging is also included under the definition contained in [section 1](#) of the Wildfire regulation of a "high risk activity"

A person carrying out an industrial activity that is a cable logging system should

- (a) layout all running lines in straight lines,
- (b) remove branches, brush and shrubs to a width of at least 75 cm on each side of the running line for a minimum distance of 4 m in either direction from each corner block, and
- (c) and provide a hand-tank pump containing at least 18 litres of water and keep it immediately adjacent to each corner block that is in use.

Fire fighting tools - helicopters

If one or more helicopters are normally used in a timber harvesting operation to move personnel and equipment to and from the site of the industrial activity, the person carrying out the timber harvesting operation should keep at a landing spot near the site of the industrial activity, for the exclusive use of each helicopter, a water bucket that is

- of a type designed and adapted for aerial firefighting,
- capable of being attached to a helicopter,
- capable of being both filled and emptied from a helicopter while the helicopter is airborne
- of a capacity near the normal operating load for the type of helicopter used

4. Maintain Fire Watcher and Communication Requirements

Fire watcher

A person who, in accordance with [section 6\(4\)](#), [section 6\(3\)\(a\)](#) and [Schedule 3](#) of the Wildfire Regulation, is required to maintain a fire watcher, must ensure that the fire watcher:

- (a) can reasonably see the site of the high risk activity during the time the fire watcher is required,
- (b) has at least one fire fighting hand tool,
- (c) actively watches and patrols for sparks and fires on the site of the high risk activity,
- (d) immediately carries out fire control and extinguishes the fire, if practicable, and
- (e) has the means on site to report the fire.

(2) If the fire watcher reports a fire to a person carrying out an industrial activity, the person should immediately report the forest fire to a Fire Centre Manager or delegate, district manager, a designated forest official, peace officer or person answering a forest fire reporting number in accordance with the Wildfire Act and regulation.

Communications Equipment

A person who carries out an industrial activity, or who is a fire watcher, should have either an operational two-way radio or telephone so that if a fire starts, assistance may be immediately requested.

5. Other Types of High Risk Industrial Activities

Hot work - welding, cutting or using any other tool that may cause a fire or spark: Hot work activities are included under the definition contained in [section 1](#) of the Wildfire regulation of “high risk activity” in the Wildfire regulation.

- Where there is a reasonable risk of a fire starting and spreading, a person should not perform hot work unless a fire watcher is present.
- Minimum fire watcher requirements following completion of the hot work are outlined in [Schedule 3](#) of the Wildfire regulation

Fire fighting tools - hot work and use of explosives

A person should provide the following fire fighting tools at each activity site where hot work is performed, or if explosives are used at the place from which the blast will be controlled:

- 2 fire extinguishers each with a ULC rating of at least 3A 10BC;
- one round-nosed shovel;
- 2 hand-tank pumps containing at least 18 litres of water each.

Hot work is a “high risk activity” under [section 1\(1\)](#) of the Wildfire Regulation and where there is a risk of a fire starting and spreading, a person should not perform hot work unless a fire watcher is present. Minimum fire watcher requirements are outlined in Column 2 of [Schedule 3](#) of the Wildfire regulation.

Part 5: Determination of Restrictions on High Risk Activities

1. Acquire Local Weather Data

Acquiring local weather data to comply with the Wildfire Regulation is the responsibility of the person conducting the high risk activity and is considered a cost of doing business. With the exception of the Danger Class, WMB does not provide unrestricted access to the weather data from government fire weather stations.

Weather data must be acquired from a representative weather station, whether established by the operator or another party.

The WMB weather network was not designed explicitly to support industrial operations. If in doubt, a person should consult a forest professional or other qualified person in order to determine whether or not a particular station is applicable to the work site, or whether adjustments should be made when considering a number of potential differences and the significance of each, including:

- distance from the weather station;
- elevation;
- date of snowmelt;
- aspect, etc.

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For due diligence, persons conducting high risk industrial operations may wish to document how a particular station is and continues to be representative.

2. Weather Resources available:

A free publication entitled, “[*Weather Guide for the Canadian Forest Fire Danger Rating System 2008*](#)”. [Lawson, B.D.; Armitage, O.B. Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre, Edmonton, Alberta. 84p.] provides guidance on setting up a weather station.

Weather station information is available on the WMB website that provides the latitude and longitude of each weather station and also includes a map of the province showing the location of each weather station. Go to Weather Station page.

Finally, if a person does not possess weather monitoring equipment, then:

- This equipment may be purchased; or
- Weather data information can be provided by WMB by subscription. Weather data and calculated Fire Weather Index values are available from this service. A BCeID will be required, <https://www.bceid.ca/>. Please contact the nearest Fire Centre for more information

3. Determining the Restrictions on high risk activities

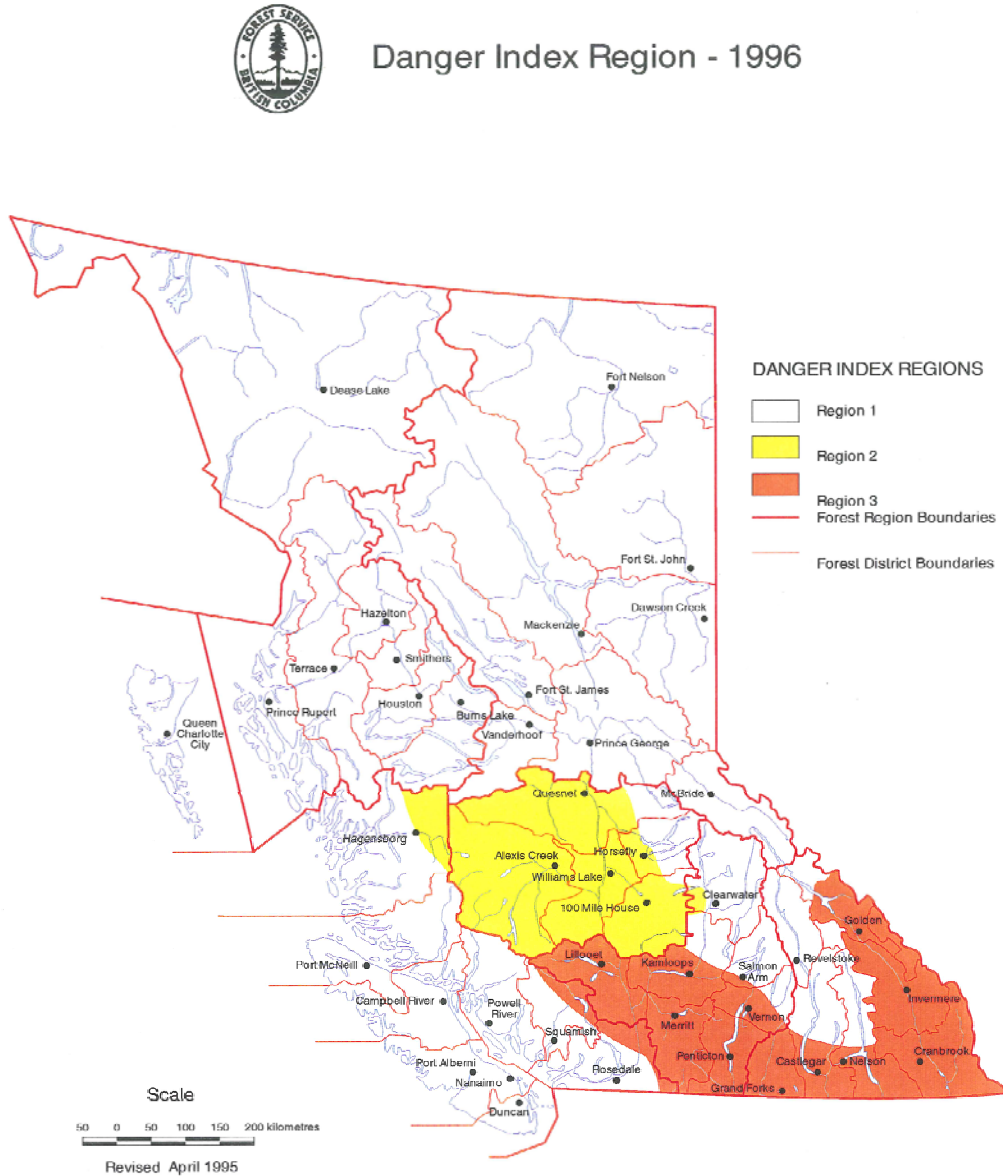
Follow the steps on pages 24-28 below to determine the restrictions on high risk activities for your site:

- A. Determine Fire Danger Region;
- B. Determine Danger Class;
- C. Follow the Applicable Restrictions on High Risk Activities

A. Determine Fire Danger Region

1. First determining the Danger Region from Schedule 1 noted below:

Schedule 1 - Danger Regions



B. Determine the Danger Class:

Identify the buildup index and fire weather index and cross reference these for the applicable Danger Region under schedule 2 to determine the Fire Danger Class.

**Schedule 2
Fire Danger Class**

Danger Region 1

Buildup Index	Fire Weather Index				
	0	1 - 7	8 - 16	17 - 30	31 +
0 — 19	I	II	II	III	III
20 — 42	II	II	III	III	IV
43 — 69	II	III	III	IV	IV
70 — 118	II	III	IV	IV	V
119 +	III	III	IV	V	V

Danger Region 2

Buildup Index	Fire Weather Index				
	0 - 4	5 - 16	17 - 26	27 - 37	38 +
0 — 48	I	II	II	III	III
49 — 85	II	II	III	III	IV
86 — 118	II	III	III	IV	IV
119 — 158	II	III	IV	IV	V
159 +	III	III	IV	V	V

Danger Region 3

Buildup Index	Fire Weather Index				
	0 - 4	5 - 16	17 - 27	28 - 46	47 +
0 — 50	I	II	II	III	III
51 — 90	II	II	III	III	IV
91 — 140	II	III	III	IV	V
141 — 200	II	III	IV	IV	V
210 +	III	III	IV	IV	V

C. Follow the Applicable Restrictions on High Risk Activities

Schedule 3: Restrictions on High Risk Activities

Column 1 Fire Danger Class (DGR)	Column 2 Restriction	Column 3 Duration
III (moderate)	After 3 consecutive days of DGR III or greater, maintain a fire watcher after work for a minimum of one hour	Until after the fire danger class falls below DGR III
IV (high)	Maintain a fire watcher after work for a minimum of 2 hours	Until after the fire danger class falls below DGR III
	After 3 consecutive days of DGR IV, cease activity between 1 p.m. PDT (Pacific Daylight Saving Time) and sunset each day	Until after the fire danger class falls to DGR III for 2 consecutive days, or falls below DGR III
V (extreme)	Cease activity between 1 p.m. PDT (Pacific Daylight Saving Time) and sunset each day and maintain a fire watcher after work for a minimum of 2 hours	Until after the fire danger class falls below DGR IV for 2 or more consecutive days
	After 3 consecutive days of DGR V, cease activity all day	Until after the danger class falls below DGR V for 3 or more consecutive days, or falls below DGR IV

Part 6: Definitions

“Risk of a Fire Starting or Spreading” Fire risk can occur anytime that the area is snow free, however, more precise fire risk calculations can be defined as the fine fuel moisture code exceeding 75, the duff moisture code exceeding 6 or the drought code exceeding 15. As calculation of Fire Danger Class and determination of fire weather indices are not undertaken over the winter months, fire risk is only considered during the fire season March 1 to October 31.

“activity site” The site of the industrial activity is the location where the activity is taking place. It includes both stationary activities (i.e. milling, portable chipping and manufacturing) and mobile activities (i.e. mobile logging equipment).

For stationary activities, the site of the industrial activity would be the area in the immediate proximity of the site of the industrial activity.

For mobile sites, the site of the industrial activity would be assessed in terms of the specific location where the industrial activity is taking place, or where the industrial activity has recently taken place on a given day. It is not intended to be the potential area where the industrial activity could take place.

"fire extinguisher" means a fully charged and operable fire extinguisher bearing the Underwriters' Laboratories of Canada label that rates the extinguisher as suitable for use on class A, B or C fires;

"fuel break" means

- (a) a barrier or a change in fuel type or condition, or
- (b) a strip of land that has been modified or cleared to prevent fire spread;

Note: the intention of the fuel break is so that it can act as a buffer to prevent the spread of fire beyond the fuel break.

"heavy equipment" means crawler tractors, skidders, excavators or other suitable mechanized firefighting equipment;

“hot work” means any work generating significant amounts of heat and includes the cutting, grinding, welding and heating of metals.

“large engine” means an engine having a power greater than 7.5 kw (10 hp) used in an industrial activity but does not include

- a) an engine on or in a watercraft that is in the water,
- (b) an engine in or on a vehicle which is primarily used for the transportation of people, or
- (c) an engine in an aircraft

“multiple activity site” means the location where several industrial activities are taking place. This could include stationary and / or mobile activities.

- For stationary industrial activities, the area is in the immediate proximity.

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- For mobile industrial activities, the area is the specific location where the industrial activity is taking place or where the industrial activity took place that day.
- For the purpose of this guidance, the number of persons working at the multiple activity site is considered to be the sum of the number of persons normally working at each activity.
- It is acceptable to have a centrally located water delivery system at a multiple activity site, provided that all of the conditions are met as defined in the water delivery system section below.

“small engine” means an internal combustion engine having a power of 7.5 kw (10 hp) or less but does not include

- (a) an engine on or in a watercraft that is in the water,
- (b) an engine in or on a vehicle which is primarily used for the transportation of people,
- or
- (c) an engine in an aircraft