Forest Fire Prevention

And

Suppression Guidelines

For

Industrial Activities

Forest Fire Prevention and Suppression Guidelines for Industrial Activities

These ***Forest Fire Prevention and Suppression Guidelines for Industrial Activities*** (Guidelines) are issued as directions necessary for the carrying out of the ***FOREST PROTECTION ACT R.S.N.W.T. c.F-10*** under the authority of the **Forest Supervisor** pursuant to section 19(1) of the ***FOREST PROTECTION ACT R.S.N.W.T. c.F-10.***

The Government of the Northwest Territories provides forest fire management services on forested areas, including settlement areas within land claim agreements and within the terms of those agreements. The Guidelines have been prepared to provide direction to forest managers and industrial operators for forest fire prevention and suppression, in areas where operations are taking place during the **closed season** (***FOREST PROTECTION ACT, R.S.N.W.T. c.F-10***, section 10)

The intent of the Guidelines is threefold. First, industrial operations must be conducted so that they do not contribute to the seasonal forest fire load. Second, industrial operations must be able to control and extinguish any fires that occur as a result of their operations. Finally, industrial operators must be able to respond to wildfires that may affect human life and the property of their operations.

Please ensure that these guidelines receive appropriate consideration in operations under your jurisdiction or management.

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FOREST FIRE PREVENTION AND SUPPRESSION GUIDELINES FOR INDUSTRIAL ACTIVITIES

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FOREST FIRE PREVENTION AND SUPPRESSION GUIDELINES FOR INDUSTRIAL ACTIVITIES

INTRODUCTION

The Government of the Northwest Territories provides forest fire management services on forested areas, including settlement lands within land claim agreements, and within the terms of those agreements. The following Guidelines have been prepared to provide direction to forest managers and industrial operators for forest fire prevention and suppression, in areas where operations are taking place during the closed season from May 01 to September 30. These Guidelines are issued under Subsection 19(1) of the *FOREST PROTECTION ACT.*

The intent of these Guidelines is threefold. First, industrial operations must be conducted so that they do not contribute to the seasonal forest fire load. Secondly, industrial operations must be able to control and extinguish any fires that occur as a result of their operations. Finally, industrial operators must be able to respond to wildfires that may affect human life and the property of their operations.

If there is a conflict between these Guidelines and the *FOREST PROTECTION ACT* (FPA), the FORE*ST MANAGEMENT ACT* (FMA), the *MACKENZIE VALLEY RESOURCE MANAGEMENT ACT* (MVRMA), or the regulations made under those Acts, the Acts and or regulations will prevail to the extent of any inconsistencies.

PART 1 – APPLICATION, AUTHORITY AND DEFINITIONS

1. Application

(1) PART 2 - PERSONNEL AND EQUIPMENT, PART 3 - FIRE PREVENTION, and PART 4 - FOREST FIRE SUPPRESSION apply

(a) from May 1 to September 30 each year or where ordered closed, and

(b) to persons and industrial activities in or within 1000 metres of a forest area.

2. Authority

(1) These Guidelines are issued as directions necessary for carrying out the FPA under the authority of the Forest Supervisor pursuant to section 19(1) of the FPA.

3. Definitions

The following terms apply to the Guidelines:

Closed District – means an area declared to be a closed district under paragraph 19(1)(f) of the FPA.

Closed Season – means the period beginning on May 1 and ending on September 30 as referred to in subsection 10(1) or the period established in an order made under subsection 10(2) of the FPA.

Fire Danger Rating – the process of systematically evaluating and integrating the individual and combined factors influencing fire danger represented in the form of fire danger indexes.

Fire Environment – the surrounding conditions, influences, and modifying forces of topography, fuel, and fire weather that determine fire behavior.

Fire Equipment Cache – A supply of fire fighting tools and equipment in planned quantities or standard units at a strategic point for the exclusive use in fire suppression.

Fire Extinguisher – means a fully charged and operable fire extinguisher bearing the Underwriter's Laboratories of Canada (ULC) label that rates the extinguisher as suitable for use on class A, B or C fires.

Fire Hazard – a general term to describe the potential fire behavior, without regard to the state of weather-influenced fuel moisture content, and/or resistance to fireguard construction, for a given fuel type. Such an assessment is based on physical fuel characteristics.

Fire Preparedness Plan – a plan outlining the condition or degree of being able and ready to cope with an anticipated fire situation.

Fire Prevention – activities designed to prevent the occurrence of fires caused by people. Fire prevention activities include public and school education, media campaigns, preparation of community forest fire management and protection plans, and the reduction of fire hazards and risks.

Fire Risk – the probability or chance of fire starting determined by the presence and activities of causative agents (i.e. potential number of ignition agents).

Fire Suppression – all activities concerned with controlling and extinguishing a fire following its detection and may include initial attack, sustained attack, limited action, delayed action, or observation and monitoring.

Fire Watcher – a designated person at a worksite to provide surveillance for forest fires as a result of work at that worksite.

Forest Area –any uncultivated land that, by reason of the existence of trees, grass or other vegetation on the land, possesses timber, forage, recreational, wildlife or other value.

Forest Fire – any wildfire or prescribed fire that is burning in a forested area.

Forest Officer – a forest officer appointed under subsection 17(1) of the FPA, members of the RCMP, or wildlife officers under the Wildlife Act as referred to in subsection 17(2) of the FPA.

Forest Supervisor – means the Forest Supervisor appointed pursuant to Section 16 of the FPA.

Fuel Break – an existing barrier or a change in fuel type or conditions, or a strip of land that has been modified or cleared, that acts as a buffer to prevent the spread of fire.

Heavy Equipment – crawler tractors, skidders, excavators or other similar equipment.

Hot Work – any work generating significant amounts of heat and includes the cutting, grinding, welding, the heating of metals and flaring of gases.

Industrial Activity - includes land clearing, timber harvesting, timber processing, mechanical site preparations and other silviculture treatments, gas or oil well operations, mining, highway maintenance and construction, engineering operations, plant harvesting, manufacturing, milling, railroad operations, trenching, the use of explosives and any prescribed activity within.

Initial Attack – the action taken to halt the spread or potential spread of a fire by the first fire-fighting force to arrive at the fire.

Large Engine – an engine having a power greater than 7.5 kW (10 hp) used in an industrial activity, excluding a water-borne engine, an engine in a vehicle primarily used for the transportation of people, or an engine in a helicopter.

Owner – in relation to an industrial activity means a person who has the right to conduct the industrial activity if the industrial activity is conducted on private land; or a licensee or permittee if the industrial activity is conducted on Crown Land in a Forested Area.

Permit – a permit issued under Section 21 of the FPA.

Person in Charge – a person who is present at the worksite and who is in charge of industrial activities conducted at the worksite, or a person who has been authorized by the owner to represent the owner at the worksite.

Pile – an accumulation of waste material not larger than 25 square metres (m^2) as referred to in section 18 of the *Exemption List Regulations* under the MVRMA.

Portable Pump Unit - means a water pump, not affixed to another machine, that is capable of maintaining a pressure of 1000 kPa (145 psi) while delivering 135 litres of water per minute from 30 metres of hose with

(a) a nozzle having a 9.5 mm (3/8”) opening,

(b) a suction hose,

(c) at least 450 metres of discharge hose having a diameter not less than

(i) 38 mm, (1 1/2”) unlined, or

(ii) 25 mm, (1”) lined, and

(d) the tools and accessories necessary to operate and maintain the water pump and hoses.

Property – land or real estate, including both private and public land or real property.

Small Engine - an internal combustion engine having a power of 7.5 kW (10 hp) or less, excluding a water-borne engine or an engine in a vehicle primarily used for the transportation of people.

Sump – a depression in the ground constructed for the purpose of storing water.

Water Delivery System – a system consisting of a water supply, a water pump or equivalent means of pressurizing water, the ancillary hoses, attachments, and tools necessary for the operation and maintenance of the system, that can deliver to any place on a worksite or burn area,

(a) water at a pressure of 280 kPa (40 psi) and a rate of 90 litres per minute through a 9.50 mm (3/8") bore nozzle opening for 50 minutes or

(b) a 2500 litre stationary or mobile supply of water, of which 0.5 per cent is liquid surfactant concentrate that, when 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.

Windrow – an accumulation of waste material not more than 330 metres in length and not more that 15 metres in width.

Worksite – in the case of an industrial activity other that timber harvesting, the site at which the work is performed, or in the case of timber harvesting, an area of land within which an operation relating to timber harvesting is performed.

PART 2 – PERSONNEL AND EQUIPMENT

4. Fire Watcher

(1) A Fire Watcher is required in all industrial operations to

(a) watch for sparks and fires,

(b) report any fires to a Forest Officer, a peace officer or the Person in Charge at the worksite at which the fire watcher is engaged, and

(c) assist in fighting any fire that occurs in the area being watched by the fire watcher.

(2) If the fire watcher reports a fire, the Person in Charge of an industrial activity must immediately report the forest fire to a Forest Officer, peace officer or person answering a forest fire reporting number.

(3) A Person in Charge of an industrial activity must ensure that a fire watcher has access to the following:

(a) one round-nosed shovel,

(b) one Pulaski tool or mattock,

(c) one hand-tank pump containing at least 18 litres of water, and

(d) a radio or telephone that can be used to report a fire and request assistance.

5. Fire fighting tools – general

(1) If the number of persons who normally work at a worksite is three (3) or less, the person carrying out the industrial activity must ensure that the following fire fighting tools are kept at the worksite:

(a) one round-nosed shovel,

(b) one Pulaski tool or mattock, and

(c) one hand-tank pump containing at least 18 litres of water.

(2) If the number of persons normally working at a worksite is more than three, the person carrying out the industrial activity must ensure that the

following fire fighting tools are kept at the worksite:

(a) one round-nosed shovel, Pulaski tool or mattock for each person,

(b) one hand-tank pump containing at least 18 litres of water for every 3 persons, to a maximum of 8 hand-tank pumps.

(3) For the purpose of Guideline (2), the number of round-nosed shovels must, as nearly as possible, equal the combined number of Pulaski tools and mattocks.

6. Fire fighting tools - Large Engines

(1) A Person in Charge of an industrial activity must ensure that every Large Engine used in an industrial activity has the following fire fighting tools attached to it:

(a) one round-nosed shovel,

(b) one Pulaski tool or mattock,

(c) one fire extinguisher with a ULC rating of at least 1-A, 5-B,C, and

(d) one fire extinguisher with a ULC rating of at least 3-A, 10-B,C or an integral vehicle fire suppression system.

7. Fire fighting tools - Hot Work

(1) A Person in Charge of an industrial activity must ensure that the following fire fighting tools are kept at each worksite where Hot Work is performed:

(a) two fire extinguishers each with a ULC rating of at least 3-A, 10-B, C,

(b) one round-nosed shovel, and

(c) two hand-tank pumps containing at least 18 litres of water each.

8. Fire fighting tools – explosives

(1) If explosives are used in an industrial activity the Person in Charge must ensure that the following fire fighting tools are kept at the place from which the blast will be controlled:

(a) two round-nosed shovels and

(b) two hand-tank pumps containing at least 18 litres of water each.

9. Fire fighting tools – helicopters

(1) If one or more helicopters are normally used in an industrial operation to move personnel and equipment to and from a worksite, the Person in Charge must ensure that there is a landing spot kept near the worksite for the exclusive use of each helicopter, and that the helicopter is equipped with a water bucket that is

(a) of a type designed and adapted for aerial fire fighting,

(b) capable of being attached to a helicopter,

(c) capable of being both filled and emptied from a helicopter while the helicopter is airborne, and

(d) operated by pilots who are knowledgeable about the use of water buckets.

10. Water Delivery Systems

(1) A Person in Charge of an industrial activity that includes an activity in Risk Classification A or B under Schedule 1 must ensure that each worksite has

(a) one Water Delivery System if there are normally 4 to 10 workers working at the worksite, or

(b) two Water Delivery Systems if there are normally 11 or more workers working at the worksite.

(2) For the purpose of Guideline 10(1), if more than one activity is carried on at a worksite, the number of persons working at the worksite is considered to be the sum of the number of persons working at each activity.

(3) A Person in Charge of an industrial activity that is a sawmill must ensure that the sawmill has at least one Water Delivery System.

(4) If a Water Delivery System is required, the Person in Charge of the industrial activity must ensure that at least one person with the knowledge and competence to operate and maintain the Water Delivery System is at the worksite.

(5) If it is unreasonable to provide the Water Delivery System, notwithstanding Guideline 10(1), because of the terrain, size of a worksite, or the lack of available surface water on site, a portable pump unit and a water source of at least 4,500 litres may be substituted.

11. Fire Equipment Cache

(1) The Person in Charge of an activity in Risk Classification A or B under Schedule 1 must ensure that extra equipment is kept at a central Fire Equipment Cache where it can be delivered to any place on each worksite of the industrial activity within 1 hour.

(2) The quantity of extra equipment required by Guideline 11(1) is set out in Columns 2 to 5 of Schedule 2 opposite Column 1, which lists the number of persons who normally work at the worksite.

(3) For the purpose of Guideline 11(2), the number of persons in Column 1 of Schedule 1, is the sum of the persons normally working at all of the worksites referred to in Guideline 11(1). For this purpose, if more than one industrial activity is carried out at a worksite, the number of persons working at the worksite is considered to be the sum of the number of persons normally working at each activity.

PART 3 - FIRE PREVENTION

12. Large Engines

(1) A person must not operate a Large Engine unless it is equipped with a safe and effective device for arresting sparks that is

(a) an integral part of the exhaust system, and

(b) in good repair.

(2) A person must not operate a Large Engine that operates in a stationary capacity unless the site has been cleared of combustible material for a distance of at least three metres in each direction from the Large Engine.

(3) A Person in Charge of an industrial activity must ensure that a large engine meets the requirements under Guideline 12(1) and that combustible material is cleared as required under Guideline 12(2).

13. Small Engines

(1) A person must not operate a Small Engine unless

(a) the muffler on the Small Engine is maintained in good repair, and

(b) there is available at all times a Fire Extinguisher charged with at least 0.225kg (0.5lb.) of fire extinguishing chemical.

(2) A person must not operate a Small Engine if the ability of the muffler to reduce hot carbon emissions has been lessened by modification of the muffler, a spark arrestor or by redirection of the emissions**.**

(3) A Person in Charge of an industrial activity must ensure that a Small Engine is equipped with a muffler that meets the requirements under Guidelines 13(1)(a) and 13(2) and that a Fire Extinguisher is available as required under Guideline 13(1)(b).

14. Hot Work

(1) A person must not perform Hot Work unless a Fire Watcher is present.

(2) The Fire Watcher required under Guideline 14(1) must, in addition to the requirements of Guideline 14(1), remain at the site of the Hot Work for 30 minutes after the Hot Work has ceased, unless a longer period is required under Schedule 3.

(3) Subject to Guideline 14(1), a Fire Watcher is not required if all combustible material is removed for at least ten metres from the place where the Hot Work is performed.

15. Sawmills

(1) At least once in every calendar year, a Person in Charge of a sawmill must dispose of all combustible waste produced by the operation of the sawmill.

16. Combustible material

(1) A Person in Charge of a place that is a camp, mine, sawmill, refuse disposal site or timber processing facility must ensure that an area that extends inward 15 metres from the perimeter of the place is kept clear of combustible material.

(2) A Person in Charge of an industrial activity must ensure that all combustible material cleared from the area referred to in Guideline 16(1) is disposed of at least once in every calendar year.

17. Explosives

(1) A person must not use explosives at the site of an industrial activity unless a Fire Watcher remains at the site where the explosives are used for at least 30 minutes after the explosives have been detonated, unless a longer period is required under Schedule 3.

18. Restrictions on industrial activities

(1) A Person in Charge of an industrial activity must ensure that the activity is conducted in accordance with the requirements set out in Columns 3 and 4 of Schedule 3**,** that are opposite the industrial activity's Risk Classification in Column 2 and Forest Fire Danger Rating in Column 1.

(2) The person carrying out the industrial activity must

(a) determine the industrial activity's Risk Classification from Schedule 1 and

(b) unless exempted by a Forest Officer, obtain the Forest Fire Danger Rating from a Resources, Wildlife and Economic Development (RWED) Regional Duty Officer.

(3) A Forest Officer or RWED Regional Duty Officer can determine the Forest Fire Danger Rating for the industrial activity from data provided by the most representative weather stations.

PART 4 - FOREST FIRE SUPPRESSION

19. Requirement for a Fire Preparedness Plan

(1) The person who is the holder of a license or permit authorizing an industrial activity on Northwest Territory lands must, before carrying out an industrial activity in Risk Classification A or B in Table 1 of Schedule 1,

(a) submit a Fire Preparedness Plan to a Forest Officer for the person's area of operation; if the activity is to be carried out on the area between May 1 and September 31.

(b) obtain a copy of the RWED Regional Duty Officer roster and applicable contact numbers for the purposes of obtaining information and reporting fires.

20. Content of Fire Preparedness Plan

(1) A person who is required under Guideline 19 to prepare a Fire Preparedness Plan, must ensure that the Fire Preparedness Plan specifies the following:

(a) the number of people, types of equipment and the anticipated location of the people and equipment during the carrying out of the industrial activity,

(b) the names of key personnel and how they may be contacted, including the owner and Person-in-Charge,

(c) the names of personnel, who meet the prescribed training qualification,

(d) the tools and equipment available in a Fire Equipment Cache if a cache is required under Guideline 11(1) for that type of industrial activity,

(e) the location of the weather stations that will be used to monitor the weather at the site of the industrial activity,

(f) a schedule of industrial activity including proposed location and timing,

(g) operating procedures in the event of a fire, and

(h) activities which will be undertaken to prevent wildfires.

21. Requirement for a Permit to Burn

(1) A person who lights, fuels or makes use of one or more open fires to burn accumulations of waste material for resource management purposes must do so in accordance with the following conditions:

(a) before any fires are ignited

(i) the person lighting, fueling or making use of the open fires must obtain a Permit to Burn, and

(ii) a fuel break must be established around the fire to prevent the fire from escaping;

(b) during ignition and until all risk of the fires escaping is eliminated there must be at least two adult persons at the burn area who actively patrol to prevent the fire from escaping, and who are equipped with the following:

(i) a round nose shovel,

(ii) either an axe or a Pulaski, and

(iii) a Water Delivery System or a piece of Heavy Equipment that is suitable for fighting fires on the burn area that

(A) is capable of being delivered to the burn area within 1 hour, if the Fire Danger Rating is Moderate or less, or

(B) is located on the burn area, if the Fire Danger Rating is greater than Moderate.

(2) If a fire escapes or threatens to escape from the burn area, in addition to any other requirements of the *FOREST PROTECTION ACT*, the person lighting, fueling or making use of the open fire must provide the requirements specified in one or more of the following paragraphs, in any combination necessary to limit or prevent the escape of the fire

(a) the number of adult persons with suitable fire fighting tools, that are necessary to limit or prevent the escape of the fire,

(b) one Water Delivery System, or

(c) two pieces of heavy equipment suitable for fire fighting on the burn area.

(3) All fires must be extinguished within the specified time under which the Permit to Burn is issued.

22. Initial fire suppression

(1) For the purposes of the *FOREST PROTECTION ACT*, a person carrying out an industrial activity must take appropriate action when a fire is first discovered to

(a) contain or limit the spread of the fire,

(b) extinguish the fire if possible, and

(c) report the fire to the nearest RWED Regional Duty Officer.

(2) The person must commit, if necessary to meet the requirements of Guideline 22(1),

(a) all employees of the person who are working in the area of operation, and

(b) all tools and equipment required by and under this Guideline, and

(c) any other tools and equipment that are available to the person, including helicopters normally used in the industrial activities to move personnel and equipment to and from the area of operation.

23. Site rehabilitation

(1) A person who carries out emergency fire control or fire suppression operations must stabilize all fire access trails, fire guards and other fire suppression works to ensure that natural drainage patterns are maintained

and surface soil erosion is minimized.

(2) Without limiting Guideline 23(1), a person carrying out rehabilitation must include the following activities:

(a) stabilization and re-vegetation of soil disturbed or exposed by Heavy Equipment,

(b) disposal of slash and debris,

(c) stabilization and restoration of the stream channels and stream beds to its original alignment and cross-section, and

(d) stabilization of sump and dam locations.

SCHEDULE 1 FOREST FIRE RISK CLASSIFICATION

I. The activities of industrial operations have the risk classifications assigned to them in Table 1.

II. If an industrial operation includes more than one component activity, each activity is subject to this regulation.

III. An activity not specifically listed in Table 1 is deemed to be risk classification A.

Table 1 - Risk Classification by Activity

Risk Classification A (High)	Risk Classification B (Moderate)	Risk Classification C (Low)
Blasting Bucking – power saw Bucking – tree processor Log barking Log skidding – ground system Log yarding – cable logging Metal cutting, grinding or welding Pipeline construction Rail grinding Sawmilling Silviculture – using small engines Silviculture – using large engines Trail building – using small engines Tree felling	Bucking - at landing Firewood cutting Land clearing Log forwarding Log yarding – helicopter Mining exploration Right of way clearing or maintenance Trenching Wood chipping Wood processing Road right of way grass mowing	Bitumen processing - portable plant Bridge building Drilling Equipment transportation Excavating Fencing Gas or oil well operation Gas Flaring Gravel processing, loading and hauling Guiding, packing or trapping Log sorting or reloading Log hauling Log loading Log scaling Log dumping Mining operations Plant harvesting Power line construction Prospecting Quarrying Railway construction or maintenance Ranch operation Road construction or maintenance Silviculture - using hand tools Surveying or engineering Timber cruising Tourist resort operation Trail building - using hand tools

SCHEDULE 2 QUANTITIES OF EQUIPMENT REQUIRED FOR A FIRE EQUIPMENT CACHE

Column 1 Number of persons	Column 2 Portable Pump Units	Column 3 Shovels	Column 4 Pulaski tools / Mattocks	Column 5 Hand-tank Pumps
1 – 10	0	0	0	0
11 – 20	1	4	4	2
21 – 40	2	6	6	4
41 – 60	3	10	8	6
61 – 80	4	14	10	8
81 – 100	5	20	12	12
101+	6	22	14	14

SCHEDULE 3 RESTRICTIONS ON INDUSTRIAL OPERATIONS

Column 1 Fire Danger Rating (FWI)	Column 2 Risk Classification	Column 3 Restriction	Column 4 Duration
Moderate (6 – 12)	**A or B**	After 3 consecutive days of Moderate maintain a fire watch after work for 1 hour	Until the fire danger class falls below Moderate.
High – Very High (13 – 24)	**A**	Maintain a fire watch after work for 1 hour --- After 3 consecutive days of High or greater, cease activity between 1300 and 1900 hours each day	Until the fire danger class falls below Moderate. --- Until the fire danger class falls to Moderate for 2 consecutive days, or until the fire danger class falls to Low.
	B	Maintain a fire watch after work for 1 hour	Until the fire danger falls below Moderate
Extreme (25+)	**A**	Maintain a fire watch after work for 1 hour. --- After 2 consecutive days of Extreme, cease all activity all day.	Until the fire danger class falls below Moderate --- Until the fire danger class falls below Extreme, then resume the activity except between the hours of 1 p.m. and 9 p.m. local time, or until the fire danger class falls to Moderate.
	B	Maintain a fire watch after work for 1 hour --- After 3 consecutive days of Extreme, cease activity between 1300 and 2100 hours each day	Until the fire danger class falls below Moderate --- Until the fire danger class falls to High for 3 consecutive days, or until the fire danger class falls to Moderate.

SCHEDULE 4 FIRE EQUIPMENT STANDARDS

(Some pump units that are presently available.)

Pump	PSI (3/8" nozzle)	Max Output Vol. Litres/Hour	Max Output Vol. Litres/Min @ 3/8" Nozzle
Ariens 945	N/A	7600*	N/A
Tanaka QCP 121	N/A	6960*	N/A
Tanaka TCP 210	N/A	7600*	N/A
Shindaiwa GP25	35	8800*	N/A
Yamaha YP20G	N/A	32,400***	N/A
Wajax Mini Mark TD48D	55	14,400**	270
Wajax Mark 26	110	20,000**	200
Wajax Mark 3	170	21,600**	240
Hale XL 2000	N/A	135,000****	N/A

Pressure outputs are Manufacture free-flow discharge estimates based on *1" Discharge hose, **1 1/2" Discharge hose, ***2" Discharge hose, ****3" Discharge hose.