

**ONTARIO MINISTRY  
OF  
NATURAL RESOURCES**



**A GUIDE TO HIGH COMPLEXITY  
PRESCRIBED BURN PLANNING**

## Table of Contents

	<b>Page</b>
<b>Forward</b>	4
<b>Part 1</b> <b>Plan Review and Approval Process</b>	4
<b>Part 2</b> <b>Application</b>	4
2.1    Title Page	5
2.2    Map	5
2.3    Topography	5
2.4    General Fuel Description	5
2.5    Other Treatments	6
2.6    Values	6
2.7    Burning Objectives	6
2.8    Timing of the Burn	7
2.9    Desired Results	7
2.10   Reduction of Slash	7
2.11   Reduction of Duff Layer	7
2.12   Mineral Soil Exposure	8
2.13   Reduction in Vegetation	8
2.14   Treatable Area	8
2.15   Acceptable Fire Impacts Outside Treatable Area	8
2.16   Complexity Assessment	8
<b>Part 3</b> <b>Burn Plan</b>	9
3.1    Title Page	9
3.2    Plan Review and Approval	9
<b>3.3    Planning</b>	9
3.3.1   Risk Assessment	
3.3.2   Detailed Fuel Description	9
3.3.3   Boundary Assessment	10
3.3.4   Values	11
3.3.5   Fire Prescription	11
3.3.6   Fire Behaviour Prediction and Impacts	12
3.3.7   Fire Behaviour Predictions Outside Burn Boundary and Values	13
3.3.8   Fire Behaviour Observations	14
3.3.9   Weather	15
3.3.10   Personnel	15
3.3.11   On-Site Visitors	17
3.3.12   Maps	17
3.3.13   Records	18

3.3.14	Schedule of Activities	18
3.3.15	Internal Communications	
<b>3.4</b>	<b>Ignition</b>	19
3.4.1	Approval to Ignite	19
3.4.2	Ignition Method, Pattern and Sequence	19
3.4.3	Personnel and Equipment	20
<b>3.5</b>	<b>Operations</b>	21
3.5.1	Stages of Control	21
3.5.2	Indicators of Problematic Control	21
3.5.3	Strategy	22
3.5.4	Tactics	22
3.5.5	Suppression Outside Treatable Area	22
3.5.6	Resources	22
3.5.7	Declaration of a Wildfire	22
3.5.8	Fire Assessment Report (FAR)	23
<b>3.6</b>	<b>Logistics</b>	23
<b>3.7</b>	<b>Cost Estimate</b>	24
<b>3.8</b>	<b>Safety Plan</b>	24
<b>3.9</b>	<b>External Communications</b>	25
3.9.1	Background	25
3.9.2	Issues	25
3.9.3	Key Audiences	26
3.9.4	Anticipated Reactions	26
3.9.5	Key Messages	26
3.9.6	Methods	26
3.9.7	Responsible Staff	26
3.9.8	Contact List	26
3.9.9	Problematic Control	27
<b>Part 4</b>	<b>Burn Documentation</b>	27
<b>Appendices</b>		
<b>Appendix A</b>	Terms and Conditions	29
<b>Appendix B</b>	Certificate of Insurance	32
<b>Appendix C</b>	Briefing Checklists	33
<b>Appendix D</b>	Example Communication Ad	40
<b>Appendix E</b>	Example letter to MOE	41
<b>Appendix F</b>	Example letter to MOL	42

## **Forward**

This prescribed burn planning guide was developed to assist in the completion of a High Complexity Prescribed Burn Plan. It has been broken down into 4 main parts: Plan Review and Approval Process, Application, Burn Plan and Burn Documentation. In addition, there are several appendices that may be required to be submitted with the plan.

Safety must be the central focus when planning and conducting all High Complexity Prescribed Burn operations. Risks to staff must be identified, and plans to mitigate the risks must be clearly outlined in the plan.

The plan must be written in a clear and concise manner so that any individual involved with the prescribed burn will be able to understand the ideas brought forth by the plan author.

The plan (complete with the application and approvals) must be approved 30 days prior to ignition. The plan must receive approvals from the land owner or manager and MNR regional and district staff as named in the approvals section. The local Fire Management Representative, prior to ignition, can approve minor revisions to the plan if it does not affect safety, control or objectives. Major changes that affect the safety, control or objectives must be resubmitted as an amended burn plan which will require all the necessary approvals. The Proponent/Burn Boss will ensure all burning permits have been issued and are current. In addition to the MNR burning permit, other permits governed under separate legislation may be required (i.e.: Endangered Species Act). The proponent is responsible to ensure that these permits are obtained if required and appended to the plan. In addition, if burning in organized townships and municipalities, the proponent must check to see if they have their own burning regulations and permits. These permits must be obtained and the conditions adhered to.

### **Part 1: Plan Review and Approval Process**

The plan review and approval starts with the application for a high complexity prescribed burn. It will follow the document through the entire process up to and including the approval to ignite. Once the application is approved, it will carry forward to be incorporated with the burn plan. Once the burn application and burn plan have been approved, the plan with original signatures, should reside with the Duty Officer for the year the burn is scheduled. Within four (4) days of planned ignition, the high complexity prescribed burn independent analysis must be completed by an Ontario FBAN and Suppression Specialist (minimum IC 3), which can be the same individual, however cannot be part of the PB planning team. On ignition day, final approval for ignition will be sought by the Burn Boss through the Fire Management Headquarters to the Regional Fire Management Centre once the onsite fire behaviour forecast has been completed. The Regional Fire Executive Officer will determine if the burn is within the conditions set out by the Director, AFFM, and consult the Director prior to ignition time for final approval. Once final approval is given, the Regional Fire Executive Officer will direct the Duty Officer to grant approval to ignite the burn. For a detailed list of Responsibilities and Actions required consult the Prescribed Burn Operations Policy.

## Part 2: Application

The following information must be supplied by the Burn Proponent in order to assist the OMNR in determining if the burn is feasible, safe, cost effective, and in line with current land use/planning guidelines.

### 2.1 Title Page

The title page is the front cover of the prescribed burn application and plan. It will include the following information:

- **Name:** Every high complexity prescribed burn will have a unique name assigned to it. This is usually in reference to a geographical feature associated with the burn. (i.e. lake name, river, township name). A local name will not be used for more than one burn in the same calendar year.
- **Location:** Region, District, basemap, block, township, lot & concession if applicable and the Forest or Wildlife Management Unit / Park / Conservation Authority
- **Size:** Indicate the size of the project area and size of the treatable area in hectares
- **Proponent Name:** Identify the prescribed Burn Proponent
- **Year:** The year the burn is being requested to be ignited

### 2.2 Map

Provide an appropriate scale map of the treatable area. This map, if possible should be 8 ½ x 11” and be electronically imbedded in the application. The map must show: timber and non-timber values, areas of concern, fuel types inside and outside the burn boundary, past and future logging operations, other disturbances or treatments (for example, spray areas), and the anticipated prescribed burn boundary.

### 2.3 Topography

Briefly describe the general soil and topographic features which exist throughout the site, including % slope, length of slope and aspect(s).

### 2.4 General Fuel Descriptions

Discuss, in general terms, the fuels available to burn on site. If there has been or will be a disturbance (for example, logging operations, blowdown, tramping), a description of the type and area of stand disturbance is to be included in the application. The description must be detailed enough to provide the reviewers with enough background for analysis. Include known disturbances and continuous forest fuels surrounding the burn boundary; if the burn is for prairie restoration the percentage of grasses by species and estimated fuel load should be included. Consider areas within 5 km of the burn which may affect suppression strategies.

Describe the vegetation cover after disturbance (i.e., harvesting). This would include the overstory, understory and surface vegetation. Describe any site tailoring which was (will be)

done to meet a specific guideline (for example, a 30m reserve is to be left on the river on the northwest side of the burn).

## 2.5 Other Treatments

Describe any other treatment to enhance the burn, whether it will be applied to a specific section or to the entire burn. Examples include:

### Herbicide Application

- chemical used
- rate of application
- area(s) treated to be treated
- application date
- purpose of spray and (expected) results

### Tramping

- area(s) treated
- method of tramping
- date

### Mowing

- date
- width

### Addition of fuels

- type (i.e. straw/slash)
- reason for adding (i.e. to make fuel bed continuous)

## 2.6 Values

Identify known values and acceptable levels of fire impact within the burn or surrounding area (for example, a 15% fire loss to a wildlife corridor is acceptable; a trapper's cabin near the burn area requires 100% protection). Identify and prioritize all values which the fire may impact.

Include any public or commercial restrictions (for example, an access road to a lake is to be closed no longer than 2 consecutive hours in order to not restrict proponent access to an outfitter's camp, or certain periods of the year when smoke would cause social disruption).

List the expected impacts/acceptable levels to surrounding values from smoke.

## 2.7 Burning Objectives

Clearly state the objective(s) of the prescribed burn plan. Some broad categories under which specific objectives can be identified are:

- Silvicultural site preparation;

- Restoring and maintaining the health, integrity and sustainability of ecosystems;
- Controlling outbreaks of insect and disease;
- Reducing wildfire hazards;
- Research;
- Developing and testing operational fire management and silvicultural techniques;
- Development of staff skills and experience

The above list represents some of the broad categories for conducting a prescribed burn. It is important to expand on the category as much as possible, including target species (i.e. Pj regeneration, type of research information being sought, type of training, etc.)

## **2.8 Timing of the Burn**

State the desired timing, spring, summer, fall, and the reasons for it. It may be critical to conduct a burn within a specified time frame (for example, before "Greenup" or with a seed crop), in order to attain specific results. List any specific dates that the burn cannot take place (i.e. no burning first week of moose season, etc.). If it is imperative that the burn take place because it is the second of a back-to-back burn that is required for ecosystem restoration, this should be noted.

The year(s) of the burn must be stated and if the burn is not conducted consider if it can be held over to another year. If not, the impact of not doing the burn should be stated.

If the burn cannot be carried out in the planned year and is carried over to the following year(s), it must be reviewed and approved each year that the burn is scheduled to be conducted.

## **2.9 Desired Results**

List all the desired results in a quantifiable way so that success can be measured.

## **2.10 Reduction of Slash**

Slash reduction should be described by size class: Fine fuels are 0-6.99 cm, and coarse fuels are 7.0+ cm. If reduction requirements are best stated otherwise, convert to these size classes so that the objective for slash removal can be linked to the fire weather indices in order to set the prescription.

Express the amount of slash to be removed in percent (for example, 70% of the fine fuels and 20% of the coarse fuels to be removed). If the burn is not a silvicultural burn, (i.e. not for removal of slash after harvesting) state the desired reduction of leaf litter, matted grass, species mortality, etc. that you are seeking.

### **2.11 Reduction of the Duff Layer**

Express the amount of duff to be removed in centimetres. This will aid the PB planners in determining the fire prescription for the site. If the objective requires a certain amount of duff to remain on the site, the overall duff depth must be determined in order to identify the amount to be removed.

### **2.12 Mineral Soil Exposure**

Express the amount of mineral soil exposure required after the burn as a percentage. This will include any mineral soil exposure which already exists. If any adverse effects of mineral soil exposure are known, this information is required in the application.

### **2.13 Reduction in Vegetation**

Express the amount of existing vegetation (for example, alder, hazel nut, grass, and cherry,) that currently exists on the site that is to be removed and express in percent. This should be stated as, “50% reduction of the shrubs and saplings less than 2 cm in diameter”, or, “70% reduction in cool season grasses”.

On herb rich sites where plants are well established, fire will have a very limited effect after "greenup". The effect of the fire on this vegetation will vary due to site features (for example, exposure, drainage, amount of mechanical disturbance, and available cured fuel). It is best to discuss those effects during an on-site visit before the application is submitted. The benefits of pre-burn treatments to these fuels should be discussed.

### **2.14 Treatable Area**

Clearly identify the area either in hectares or by percent of the project area that you want fire applied to. The total project area is the broad area of the prescribed burn, but the treatable area may be smaller areas located within the total project area.

There may be a need to describe an acceptable range (for example, out of an area of 200 ha, there is a requirement to have 60% meet a specific objective, 20% can have a lesser result and the remaining 20% can be left untreated).

### **2.15 Acceptable Fire Impacts Outside Treatable Area**

List the areas immediately adjacent to the burn boundary, or areas in the total project area that are excluded from the treatable area, that can or cannot have fire impact on them (i.e. shoreline reserve must have 100% protection; plantation to the east side of the burn can have only a 50% fire impact). The information provided in this section will be used in developing ignition and suppression strategies and developing the criteria for problematic control.

## **2.16 Complexity Assessment**

Submit a completed complexity assessment for the burn. The assessment is a guide to determining if the burn is actually low or high complexity.

## **Part 3: Burn Plan**

The following sections outline the minimum required information for any high complexity prescribed burn. As burns vary greatly in degree of complexity, so will the plan that has to be produced. A simple burn will require a short plan, while a highly complex burn will usually require in-depth detail. At all stages of the plan, risks must be identified with mitigation measures that have, or will be enacted to reduce or manage those risks to an acceptable level.

### **3.1 Title Page**

The title page of the burn plan will be the same as the application and can be used here.

### **3.2 Plan Review and Approval Process**

Insert the approval/authorization sheets, complete with the original signatures from the application after the title page. This sheet will stay with the burn plan until final signatures are obtained for approval to ignite. This will stay with the plan and be archived with the burn plan once the burn is complete.

For burns that are on a Sustainable Forest Management License area (SFL), the Local Citizen's Advisory Committee has to have the opportunity to inspect the plan prior to the final approval.

### **3.3 Planning**

#### **3.3.1 Risk Assessment**

All high complexity prescribed burns are subject to a risk assessment. This assessment starts early in the planning stage, and is a living document that must be updated as the planning process progresses, up to the point of ignition. Follow the Guide to Completing the Risk Assessment for further direction.

#### **3.3.2 Detailed Fuel Description**

Provide a detailed description of the fuel complexes on site. Fuel age, species, arrangement, and distribution must be determined. Duff depth distributions should be determined and included, where applicable. This information is essential in helping to properly set the fire prescription.

The following points should be addressed in describing these fuels:

- Fuel Complex** The depth, arrangement, and continuity for slash fuel complexes should be characterized using Great Lakes Forestry Centre Report 0-X-287 *"Measurement and Description of Fuels and Fire Behaviour on Prescribed Burns: A Handbook"* by McRae et al (1979). The fuel complex should be defined in terms of; forest floor cover (needle litter, grass), organic layer (duff), surface fuels (herbaceous cover, down woody material), ladder fuels (low, tall, dead, living), stand structure (stocking, crown closure, height to live crown) and composition (species). In the case of burns in Red Oak, White Pine understory and Tallgrass Prairie, refer to the expert systems in the PB toolbox.
  
- Fuel Loading** Pre-burn sampling quantifies the initial loading and depth of fuels, which aids in the prescription setting. Fuel loading for slash, foliage and duff are collected and summed to calculate total fuel loading; it is recommended that 1 plot for every 20 hectares be established. Sampling methods presented in *Great Lakes Forestry Centre Report 0-X-287*, are used for slash fuels. Fuel loading must also be determined for other fuel types such as grass. Plot locations must be identified on a map to facilitate post burn assessment. The results of the fuel loading sample plots should be part of the burn plan and be incorporated into Part 4, Burn Documentation.

### 3.3.3 Boundary Assessment

Assess the burn boundary using the Prescribed Burn Boundary Assessment and describe the mitigation measures that have, or will have to be implemented to reduce any risk to an acceptable level.

Use the following table to summarize the burn boundary assessment. At this point, all boundaries should be sufficiently adequate to stop the fire from escaping. If not, more mitigation measures will have to be put in place (i.e. boundary type may have to change from “natural lowland” to “sprinkler line”).

**Example of Boundary Assessment Summary Table:**

<b>Boundary Segment</b>	<b>Fuel Type Outside</b>	<b>Topography % Slope/Aspect</b>	<b>Fire Intensity Inside</b>	<b>Boundary Width(m)</b>	<b>Boundary Type</b>	<b>Spotting Fuel Type Inside</b>
<b>1</b>	<b>C3</b>	<b>30% south aspect</b>	<b>FIC 3</b>	<b>2.5</b>	<b>Bulldozed line</b>	<b>Some birch</b>
<b>2</b>	<b>O1a</b>	<b>Flat</b>	<b>FIC 4</b>	<b>10</b>	<b>Sprinkler line</b>	<b>none</b>
<b>3</b>	<b>M1 50%</b>	<b>20% north aspect</b>	<b>FIC 4</b>	<b>3</b>	<b>Natural - creek</b>	<b>Pj seed trees</b>

### 3.3.4 Values

Identify and analyze the risk to values (in order of priority) from escaped fire or smoke within and surrounding the prescribed burn site, expanding on the prescribed burn application if necessary. Typically a 5 km area is used for fire escape on immediate values, but other values further than 5 km may have to be evaluated for smoke impact. Classify all areas surrounding these values according to the fuel types in the CFFDRS, and include topography (slope and aspect) and direction in relation to the burn in degrees. Indicate if slope is upslope (+) or down slope (-) from the burn boundary. Indicate any mitigating factors that are required to protect/address concerns PRIOR to ignition. This will require a site visit and knowledge and understanding of the ignition and suppression plans, once they are finalized.

#### Example Table of Values:

Value	FBP Fuel Type	Location in relation to Burn (km)	Topography %Slope/Aspect	Mitigating Factors
<b>1 Trap Cabin</b>	<b>C2</b>	<b>275° – 0.3</b>	<b>8 (+) / S</b>	<b>Sprinklers</b>
<b>2 Cut Wood</b>	<b>S1, C3</b>	<b>180° – 2</b>	<b>Flat</b>	<b>Remove wood</b>
<b>3 Eagle Nest</b>	<b>C3, C2, M2</b>	<b>090° – 4</b>	<b>Rolling</b>	<b>Monitor Smoke</b>
<b>4 Secondary Hwy</b>	<b>M2, C2</b>	<b>090° – 5</b>	<b>Rolling/Variable</b>	<b>Monitor Smoke</b>

### 3.3.5 Fire Prescription:

The fire weather, and fuel moisture conditions necessary to achieve the desired results while minimizing the risk must be described in terms of the Canadian Forest Fire Weather Index System.

The prescription developed will be based on the most common or most important fuel complex. During prescription development, address constraints such as wind speed and direction, anticipated fire behaviour, smoke management issues, and potentially negative environmental impacts.

List the season (pre-green up vs. green up) and index ranges, required for the burn to meet the desired objectives. Rationalize which indices are to be used in the prescription setting process.

The frequency of occurrence of prescriptions should be checked using the PBWX program. PBWX calculates the probability of that prescription occurring and the expected number of days during each fire season that prescription setting will occur for the prescribed burn site. The PBWX results will be included in this section of the plan with direction provided

concerning preparation requirements based on those probabilities. For example, if the PBWX program indicates that there is normally only two burning days per year that meet this prescription, it will be important to be prepared to do this burn as soon as the low end of the indices range is met. The results of the report will be appended to the burn plan.

For slash fuels, as a guide, the plan author should refer to the Great Lakes Forest Research Centre Reports *O-X-316 “Preliminary Fuel Consumption Guidelines for Prescribed Burning in Ontario Slash Fuel Complexes”* and/or *O-X-367 “Prescribed Burning of Boreal Mixedwood Slash in the Ontario Clay Belt Region.”*

References for setting prescriptions for White Pine Understory and Red Oak can be found in the PB toolbox.

### 3.3.6 Fire Behaviour Prediction and Impacts

Produce fire behaviour predictions for both the low and high end of the prescription range. The analysis will include predictions of maximum spotting distance. Predictions must be made for each fuel type present on the site using the CFFDRS. Every effort must be made to address the following fire behaviour items:

- Fire Intensity: Areas of concern should be identified where fire intensities may increase due to converging flame fronts (ignition pattern impacts). Flame length provides a visual estimate of fire intensity, and a measure of suppression requirements. Predict average flame lengths for each fuel complex and any specific areas where problems may occur. If fire intensities are predicted to be >4000kW/m (Rank 5) the day of ignition, a dedicated helicopter will be required for the Operations Chief.
- Fuel Consumption: Determine the predicted amount of fuel consumption. This is an important part of the prescription setting process.
- Rate of Spread: Determine the average rate of spread for each fuel complex and any specific areas of concern. This may not be possible with some ignition patterns, where the rate at which the fire will cover the area is determined by the rate at which ignition is applied.
- Ease of Ignition Provide a general statement of expected fire behaviour soon after ignition and provide an estimate of spotting potential.
- Reburn Potential Include long range predictions for the burning off of green islands within the burn or reburn for the days after ignition. Provide an estimate of probability of occurrence. Specific thought should be given to piles near the burn boundary, and green areas within the burn.

Fuel type S-1 (Jack pine Slash) from the Canadian Forest Fire Danger rating System (CFFDRS) is the benchmark for predicting rates of spread in slash fuels. For claybelt

mixedwood sites, use Great Lakes Forest Research Centre Report 0-X-367 "*Prescribed Burning of Boreal Mixedwood Slash in the Ontario Claybelt Region*", McRae (1985). Rates of spread should be adjusted following the Fire Behaviour Prediction System.

Address any concerns regarding potential impacts of indraft, particularly where mass ignition is planned. Any such concerns should address turbulence, spotting, site disturbance, safety and fire whirls.

The planning team will describe in this section how fire behaviour predictions will be made on each day of the burn until it is declared out.

The example below shows the fire behaviour predictions with a west wind. Separate tables will be required for each 90° quadrant of acceptable wind direction identified in the prescription. For example, if the prescription indicates that a wind direction of 0-360° is acceptable then four tables would be required. If 180° of wind is acceptable, then two tables will be required.

**Example Table for Fire Behaviour Prediction and Impacts**

	FBP Fuel Type	Prescription								
		Wind W @ 0-15 km/hr, FFMC 79-89, BUI 20-40, ISI 3-10 (Fire behaviour has been slope adjusted, fuels are in Greenup)								
		Head Fire ROS(m/min)/FI Class		Back Fire ROS(m/min)/FI Class		Flank Fire ROS(m/min)/FI Class		Max Spot Dist.(m)	Spot Fire POI %	Fuel Cons. Kg/m <sup>2</sup>
		Low	High	Low	High	Low	High			
Burn Interior	S1	2/2	15/5	0.7/1	2.8/3	1.0/2	3.5/4	250	82	2.0/6.6
Boundary Segment 1	C2	N/A	N/A	0.5/1	1.8/2	N/A	N/A	120	30	2.0/6.6

**3.3.7 Fire Behaviour Predictions outside the Burn Boundary and Values**

Fire behaviour predictions must be made for all fuel types outside of and adjacent to the burn boundary, and around identified values. Maximum spotting distances based on the high end of the prescription must be made for all areas. Include with these predictions, spot fire probability of ignition and predicted 1 hour spot fire size and perimeter. Smoke concerns must be addressed by estimating drift and direction for the burn prescription. This information may affect prescription criteria, basecamp placement, helispots, suppression planning, and the communications plan. All predictions should be properly recorded and included with the prescribed burn plan (see example table). At this point, the FBP fuel type outside the burn boundary as identified in the boundary assessment summary (sec.3.3.2) and the values summary (sec 3.3.3.) should be incorporated into these tables, as fire type (i.e. head fire vs. backing fire) will change depending upon the wind direction.

**Example Table of Fire Behaviour Predictions outside Burn Boundary and Values**

	Fuel Type Outside	HF ROS m/min	HFI(kW/m)/ FI Class	Max Spotting(m)	POI	1hr Size/Perimeter	*Projected Fire Growth After Ignition (ha)
Boundary Segment 1	C2	16.2	15,833 / 5	220	94%	32ha / 2352m	175
Boundary Segment 3	C3	7.3	3850 / 4	150	92%	6.0ha / 1008m	30
Value 1	S1	17.6	34,751 / 5	300	92%	40ha / 2628m	200
Value 2	O1b 75%	13.8	295 / 1	120	98%	27ha / 2610m	135

\*Calculate the potential fire growth (if an escape was to occur) for the remainder of the burning period, after ignition has occurred.

### 3.3.8 Fire Behaviour Observations

Observation and documentation of fire behaviour is necessary for the following reasons:

- Compare actual fire behaviour against predicted for possible case study material and burn documentation.
- Helps to determine if problematic control is happening or is about to
- Learning tool for future prescribed burns in similar fuel complexes

Accuracy of fire behaviour parameters such as rate of spread and flame length, will be governed by the ignition pattern and smoke cover. Where accurate measurements cannot be made, subjective descriptions of the fire behaviour will be recorded.

Describe how during the delivery of the burn the following will be documented with adequate reference to time and location:

- rate of spread
- estimated flame length
- ignition characteristics (degree of difficulty)
- spotting distance
- fuel complex descriptions in areas where spot fires are occurring
- spot fire area and perimeter growth
- smoke column development (height, direction, drift)
- fire whirls

Recorded fire observations should be assessed against actual weather observations.

### **3.3.9 Weather**

Describe how weather on the burn site will be monitored and how the initial FWI values will be determined (i.e., start up FWI values used from XXX weather station and computed daily thereafter using data from an on-site portable weather station). It is recommended that for more complex burns, an on-site weather station should be established at least 30 days prior to the anticipated burn day. If there is a need for a weather technician on-site, a minisonde, or special weather forecast, include them in this section and ensure that the resource is included on the resource sheet in the Logistics Section.

### **3.3.10 Personnel**

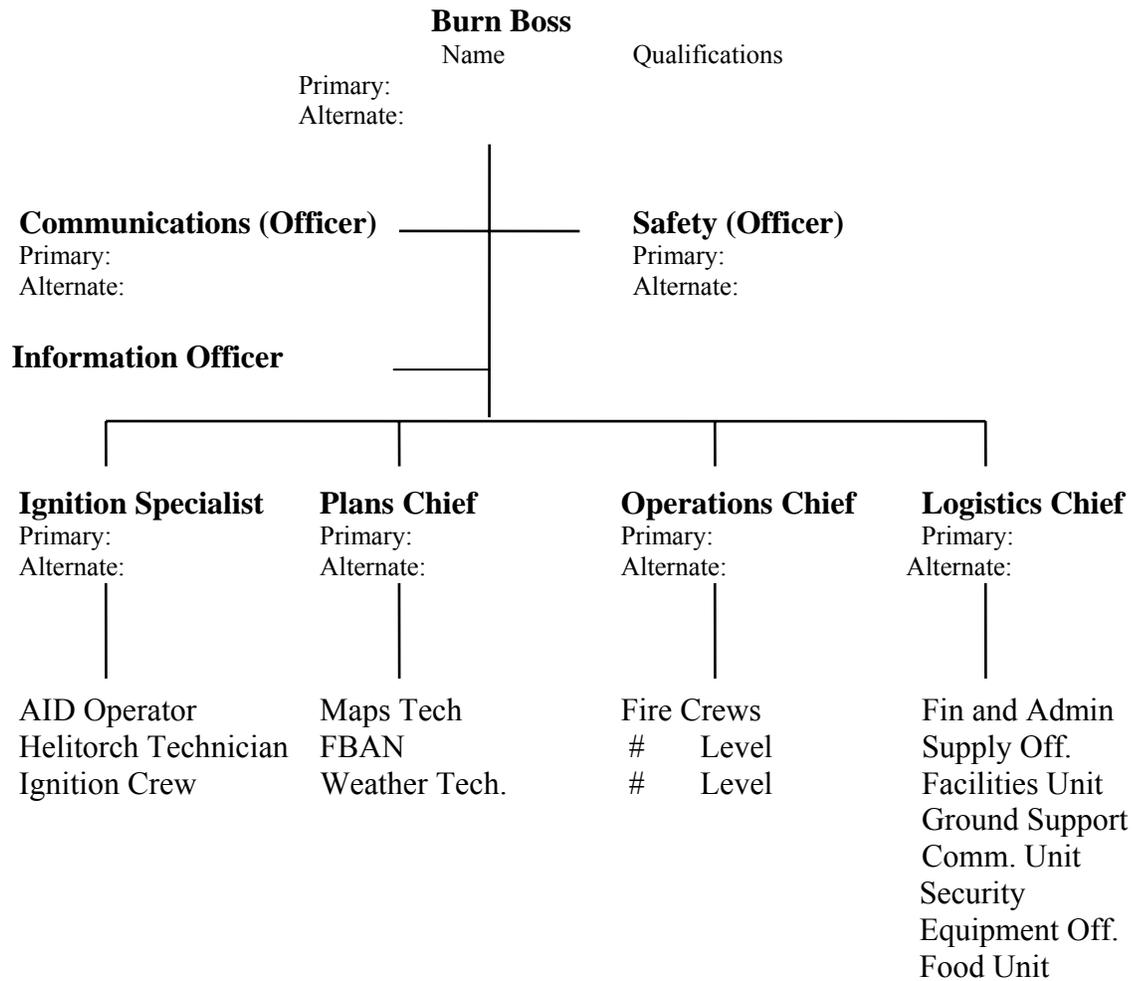
Describe and rationalize the qualification level of the Burn Boss, Operations Chief and Ignition Specialist and whether the complexity level of the burn allows additional duties to be assigned to the Burn Boss. The approval process to change the Burn Boss, any time during the prescribed burn, must be clearly identified (i.e., Fire Management Supervisor approval required).

Prior to the plan being signed off, the people functioning as Planning, Operations, Logistics Chiefs, and Ignition Specialist must be identified. In most instances, an organization chart will be completed once the fire behaviour analysis, ignition, operations, logistics and communications sections are finalized and the total complexity of the burn is clearly understood.

It is critical that a qualified person be left in charge of the burn through to the mop-up stages

Checklists outlining key responsibilities for these functions are found in Appendix C

**Example Prescribed Burn Organization Chart:**



### 3.3.11 On-Site Visitors

Describe how any individuals not involved with the operations of the PB that will be on-site any day of the operation will be dealt with. Describe where all visitors will be positioned safely (i.e., basecamp, staging area) and how they will be kept informed of the prescribed burn operation while on-site. Any visitors wishing access to the burn site must be accompanied and supervised by a qualified person.

### 3.3.12 Maps

List the maps that are included with the plan. The number of maps required is dependent upon burn complexity. A minimum of one map is required. The map must include the area outside the burn boundary, depending upon the complexity of the burn, and extent of suppression strategies. Photo mosaics/ satellite imagery should be used when available. Every effort should be made to have the maps produced in a digital format so they can be electronically embedded in the burn plan.

The following information should be identified:

- Burn boundary and assessment segments
- Values
- Road and water courses
- Suppression tactics
- Heliports, staging areas, basecamp, mixing/loading areas
- Scale and legend
- Safety areas/Escape routes
- Other unique features to the burn (i.e. storm damaged fuel, permanent sample plots)

The following are the prescribed burn codes that are to be used on maps:

- Prescribed burn perimeter (Project area) - solid red
- Water courses - solid blue
- Natural boundaries - solid green
- Constructed boundaries - solid brown
- driveable roads - solid black and identified consecutively (R1, R2)
- Trails - dashed black and identified consecutively (T-1, T-2)
- Values - purple c/w legend
- Block designation use full phonetic symbol (Alpha, Beta etc.)

Other standard map symbols:

XXX	Sprinkler System
P	Pump Site
Ò	Basecamp

R	Rain gauge
n	Weather Station
M	Helitorch mixing site
Ü	Staging Area
Ô	Helispot
▲ 2	Assessment plot and identification number
- >	Hose lines
- - ->	Ignition lines and direction – orange/red
î	Boat Cache
W-1	Winter road and identification number
] [	Bridge
Ó	Camp

### 3.3.13 Records

State how information will be documented for activities before, during and after the burn. This would include preliminary completion of applicable items found in Section 4, Burn Documentation. This function generally is the responsibility of the Plans Chief, if one is assigned, or the Burn Boss on smaller burns.

### 3.3.14 Schedule of Activities

Develop a list of all major activities to be completed for the entire burn period. This is a comprehensive list of who does what and when. Examples of checklists for each function are contained in Appendix L. This schedule will be placed at the beginning of the plan, following the approvals page and updated as activities are completed. A sample format would be:

Work Item	Completion Date	Person Responsible

### 3.3.15 Internal Communications

Internal communications includes all communications between the burn team, before, during and after the burn.

It is the responsibility of the Burn Boss, each section chief and the Ignition Specialist to develop a structured outline for their mandatory pre-burn briefing and after action review. Detail how communications will take place during the burn including radio types and channels and the maintenance of radio logs. Include any specialty communications concerns such as the helitorch operation requiring their own frequency.

### 3.4 Ignition

#### 3.4.1 Approval to Ignite

Approval to ignite will be granted once the Independent Fire Behaviour Analysis and the Prescribed Burn Risk Assessment have been completed. On the actual day of ignition, a fire behaviour forecast must be made for the burn area and adjacent fuel complexes, based on current and forecasted weather, before the Burn Boss can seek final approval to ignite from the SRO/FDO. Refer to the Prescribed Burn Operations Policy for a detailed list of responsibilities and actions required for ignition approval.

#### 3.4.2 Ignition Method, Pattern, and Sequence

In this section describe the ignition method, pattern and sequence, plus the equipment that is to be utilized to ignite the burn.

If multiple wind directions are in the prescription, the information above and a map must be provided for each.

The following is the terminology to be used when preparing the ignition section of the plan.

**Method** Ground Ignition  
Aerial Ignition  
Combination (Aerial/Ground)

**Pattern** Ground Ignition  
Strip Back Fire  
Multiple Strip Back Fire  
Multiple Strip Head Fire  
Strip Flank Fire  
Multiple Strip Flank Fire  
Perimeter Ignition

Aerial Ignition  
Strip Back Fire  
Strip Back Fire  
Strip Flank Fire  
Strip Head Fire  
Centre Fire Ignition  
Combination Ignition

#### **Sequence**

Describe how fire is going to be applied to the site, and in what order. This may involve several different explanations, depending on the acceptable wind direction/speed and approved prescription.

Also, include in this section the expected fire response to the ignition pattern and contingencies that will be employed.

Example 1:

**With Southwest Winds**

A convection column will be established on the hill in Block B using a centre fire ignition pattern with the helitorch. The initial flame height is predicted to be 1m with a rate of spread of 6 m/min. The subsequent lines will be 30m apart until the column is established, and then lines will be laid at intervals that will provide for safe and effective ignition operations.

Contingencies:

If the fire behaviour is less than predicted, the ignition lines will be laid at 20m intervals until the column is established then adjusted to 100m intervals. If the fire behaviour is greater than expected, the ignition line interval will remain at 30m intervals. Increasing line spacing will be done slowly to ensure no erratic fire behaviour occurs. If erratic fire behaviour develops, the application of fire will be reduced or possibly stopped for a short period.

Example 2:

**With Northwest Winds**

The ignition line will be laid at the highest point of the hill in Block A, using the helitorch. The initial flame height is expected to be 0.5m with a rate of spread of 1 m/min. The next ignition line will be started when the top of the hill has burned off and the fire has been contained by suppression resources.

Contingencies:

If the fire behaviour is less than predicted, ignition will continue to anchor to point "C". If the rate of spread is less than 0.3 m/min, the fire will be put out and the burn will be cancelled for the day.

If the rate of spread is between 1 and 1.5 m/min, the ignition line will be operationally slowed down to accommodate suppression and reduce scorch height.

If the rate of spread is greater than 1.5 m/min, ignition will be stopped because of potential scorch damage to the crop trees, and the fire will be put out.

**3.4.3 Personnel and Equipment**

List all the resources required for ignition. This can be located on the resources list for the burn in the Logistics section. If specialized ignition equipment or aircraft is to be used, the specifications of each must be defined.

### 3.5 Operations

Describe the strategies and tactics that will be used to control the burn from the time the burn is ignited until it is called out. Rationalize the information provided by the PB application, the planning section, and the ignition plan as well as utilizing on-site observations and predictions that will occur each day after ignition.

#### 3.5.1 Stages of Control

Every prescribed burn typically has three stages of control, Ignition, Control and Demobilization.

Occasionally, due to unexpected weather or other events, the prescribed burn may enter a fourth stage called Problematic Control.

#### 3.5.2 Indicators of Problematic Control

Describe the criteria that indicate the burn has entered the Problematic Control stage. The following are *suggested* indicators to consider when developing criteria for problematic control for a burn. It is important that *specific indicators for your burn are listed*. If problematic control is clearly recognized and acted on appropriately, few burns should become wildfires.

- Fire is still within the burn boundary but fire behaviour exceeds the predicted fire behaviour and the burn may not stay within the burn boundary.
- Fire has escaped a critical control line and fire behaviour is beyond the capabilities of available resources
- The resources assigned to the PB are not sufficient to meet the current or expected control requirements on any given day of the burn.
- The weather forecasts indicate a long term drying trend (unexpected and after ignition has occurred) which will significantly affect demobilization or indicate the potential for extreme fire behaviour.
- Demobilization is not taking place as planned, and will take much longer.
- Significant unplanned reburn is taking place within the burn after ignition.
- The predicted fire fighting resource requirements will leave the response organization without needed resources (e.g. crews required for PB are also required for initial attack).
- Any other unplanned fire behaviour phenomenon that may challenge on-site suppression resources which are unique to this particular burn.

Once the burn has officially entered the problematic control stage, the Burn Boss/Operations Chief through the SRO, will help co-ordinate suppression resources on site with any incoming resources that have been dispatched to bring the burn back into the control stage.

### **3.5.3 Strategy**

Describe the objective and rationale of the suppression effort from ignition until the fire is declared out. For example, the strategy may be to actively suppress all areas until out, to extinguish completely within 30m of the edge, or to rely on natural or constructed boundaries until the edge is extinguished by natural means.

### **3.5.4 Tactics**

Include specific and detailed direction as to who, what, where, when and how the suppression operations will occur.

Describe any suppression operations work required prior to ignition day, (mitigation measures previously identified for burn boundaries and values) suppression operations on the day of ignition and anticipated mop up activities. Describe how the values identified in the PB Application will be protected and what type of suppression equipment and resources are required for each day of the burn. If aircraft are required, a description of type, proposed uses, duration of use, and items such as landable lakes or any special requirements must also be detailed.

Include details of how the resources will scale down on the burn and what criteria will be used to proceed to the next control stage (for example, the resources on site will be reduced to two crews once an area 30m inside the burn boundary has not shown any signs of burning for two days).

Provide direction and suggested tactics for addressing days where major and minor reburning occurs.

### **3.5.5 Suppression outside the Treatable Area**

Address how fires will be responded to which are either in non-treatment areas within the burn boundary (for example, wildlife corridors) or areas outside the burn boundary. Describe and rationalize the level of response and how it achieves the desired level of fire protection in these areas (some areas may not need a response). Reference should be made to the PB application to determine the level of response that is required based on acceptable fire impacts. If indirect attack from secondary suppression lines is an option, it should be noted here.

### 3.5.6 Resources

Ensure that the complete list of suppression resources required for each day is included in the logistics section resource chart. Resources required for suppression should not be used for any other requirement unless those other uses will not interfere with the suppression operation (i.e., using an IA power pump for dust abatement).

### 3.5.7 Declaration of a Wildfire

Describe the criteria for declaring the PB a wildfire. When the Burn Boss determines that the burn has entered problematic control stage and the resources assigned to the burn cannot control the PB within acceptable levels of fire impact as stated in the plan, the prescribed burn must be declared a wildfire. This decision is made following discussion with the Regional Fire Duty Officer or chief fire official.

### 3.5.8 Fire Assessment Report

Clearly outline the responsibilities for completing the FAR (if the burn will require a response from the OMNR Fire Program) and ensure a copy of the Fire Assessment Report will be available at the burn site. It is recommended that as many sections as possible of the FAR be completed in advance of ignition to expedite delivery to the FDO in case of problematic control.

- describe how the burn has deviated from the plan
- describe expected weather, fire behaviour, and impact on values
- describe control options required to return the burn to the “control stage”
- recommend a course of action that will minimize costs and impacts that were not part of the original plan

Suppression contingencies described in the PB plan should help in completing the sections of the FAR dealing with expected impacts and control options.

## 3.6 Logistics

Describe the level and type of service for the entire period of the burn operation and rationalize the relationship to such things as ignition requirements, suppression requirements, site security and safety requirements as well as efficiency considerations.

List all resources required for all aspects of the burn in this section, and append to the plan. Items to be covered include personnel, transportation, equipment, radios and assigned frequencies, time keeping, budget monitoring, basecamp or staging area location and establishment, meals, accommodation, aircraft loading and landing areas, fuel and safety. A summary of aircraft types, numbers, predicted flying hours per day, number of days, fuelling requirements and special needs such as NOTAMs are to be listed.

The logistics plan must also describe any initial requirements should the Problematic Control stage occur on the burn.

### Sample Resource Requirement Chart

Item	Ignition	Operations	Logistics	Planning	Totals
Power Pumps		12	1		12
Chainsaws	1	3	1		5
Hose		6000	400		6400
Generator 25000w			1		1
Auto Wx Station				1	1
Helitorch	1				1
Petro gel (4l)	8				8

### 3.7 Cost Estimate – for Burns conducted by the OMNR

When completing the cost estimate, ensure that you incorporate all contingencies. The cost estimate should include, for example:

- extra costs associated if the burn is conducted on a statutory holiday
- helicopter rates, if applicable, reflecting the highest rates for a particular aircraft type since you may have little control over the machine that is allocated to your burn by the response system
- additional costs incurred if the burn is carried over or delayed for a day

If the Proponent is not willing to accept the cost of the contingencies built in, you can reevaluate the cost estimate if appropriate, or decline to proceed with the burn. There is no cost to the proponent in this situation.

When preparing the cost estimate, the plan author should reference the Prescribed Burn Agreement.

The unit costs supplied annually by AFFM are to be used to determine the current rates for the cost estimate.

Indicate the steps to be taken to monitor the cost up to the burn day, and indicate who will document the cost on the day of the burn and who is authorized to spend money.

It is strongly recommended that a cost estimate be completed for every burn so that the projected cost is known, and is acceptable to the Burn Proponent. Any format is acceptable as long as it meets the proponent’s needs.

### 3.8 Safety Plan

Prepare a safety plan keeping in mind that safety is paramount on all prescribed burn operations. The Burn Boss is responsible for ensuring that controls are in place to protect staff, partners, property, and the public. The Burn Boss is responsible to have trained and qualified staff at all levels of the prescribed burn organization.

Other controls include ensuring that:

- all personnel involved in prescribed burn operations receive an operational briefing and fully understand their roles and responsibilities before any ignition of the burn occurs;
- effective communications are maintained at all stages of the prescribed burn operation

Describe how safety will be ensured at all stages of the prescribed burn operation. Ensure that any specific safety concerns of ignition and operations are addressed.

Address how common issues will be mitigated and provide specific information on dealing with emergencies or other special safety concerns including those occurring outside of the burn area. ***The complexity of the safety section is in direct relationship to the complexity of the burn operation and associated level of risk.***

Describe how first aid will be provided and the process to be used for emergency response to personal injuries or vehicle or aircraft accidents. Identify whether specific staff and skills are required for the safety function or whether this can be combined with another function. Identify all safety personnel, special safety equipment, preparatory work and areas requiring special attention or inspections for the entire duration of the prescribed burn. Identify any specific requirements should the burn enter the problematic control stage. List the closest clinic/hospital and their contact numbers, with UTM coordinates in case of a requirement for a medivac.

List any specific hazards known in the area (i.e. poison ivy) and the actions to be taken to mitigate them.

Include a safety checklist (example in Appendix C)

### **3.9 External Communications**

Other agencies may have their own process for developing a communications plan and that is acceptable as long as the intent of the sections of the MNR format is met.

#### **3.9.1 Background**

Outline the rationale for the level of communications plan required. Factors such as burn location, PB and wildfire history, objective and complexity of the burn, and degree of public use and interest in the area should be considered.

#### **3.9.2 Issues**

Address any specific concerns resulting from any sessions where the possible application of prescribed burning on the area may have been already discussed in a public forum such as in a Forest Management Plan, or open house. Include any issues that the ignition and ongoing suppression action of this PB could create among any of your key audiences that would require particular communications treatment and response.

### **3.9.3 Key Audiences**

List all of the audiences with whom you want to communicate your messages, considering both the "need to know" and the "nice to know" audiences, and break them down into internal and external groups. Some of the mandatory audiences for MNR burns are:

- MNR Fire Management
- Ministry of Labour
- Ministry of Environment
- Municipalities

### **3.9.4 Anticipated Reactions**

Describe the overall anticipated positive and negative reactions from various key audiences. Develop the messages and strategies to prevent or address the negative reactions.

### **3.9.5 Key Messages**

List the key messages you want to convey in your communications. Include messages on the importance, value and role of prescribed burning, and the details of the specific PB. List partnerships where they apply. It is important to have messages following the PB which describes that the burn was completed and the results.

### **3.9.6 Methods**

Identify the methods that will be used to communicate the messages to the identified audiences. These might include news releases, personal and form letters, radio and television appearances, newspaper feature articles, and paid advertising. Factors to consider include populations, demographics, area land uses, burn profile, and available media outlets.

### **3.9.7 Responsible Staff**

List who is responsible for carrying out each of the identified communications methods for each identified audience. Ensure the list encompasses the responsibilities for days following ignition and particularly should the PB enter problematic control or be declared a wildfire.

### **3.9.8 Contact List**

Develop a list of contacts according to the identified audience groups. Addresses, and more importantly, phone or fax numbers, and e-mail are included. Much of this information may be available on the district mailing list or from the resource management plan contact list.

**An example table for contact, contact method, timing, and responsible staff**

<b>External Contacts</b>	<b>Contact Method</b>	<b>Timing</b>	<b>Responsible Staff</b>
Trappers	Information letter	30 days prior to ignition	Burn Boss
Resort/Lodges	Information letter/phone	30 days prior to ignition	Burn Boss
MOL & MOE	Letter/phone	2 months / 48hrs	Burn Boss
<b>Internal Contacts</b>	<b>Contact Method</b>	<b>Timing</b>	<b>Responsible Staff</b>
District Office	Phone	Ongoing	Burn Boss/SRO
Fire Duty Officer	Phone	Ongoing/Day of Ignition	Burn Boss/SRO

### 3.9.9 Problematic Control Notification

Clearly describe the protocol and responsibility for ensuring information is properly disseminated in order for other processes to start in the case of problematic control.

Describe the process for the following:

- What is the process for notifying upper management in the agency(s) conducting the burn and the proponent, and what information will be provided and by whom?
- What is the process for notifying the wildfire suppression agencies of the situation, what are the contact numbers, what information is required and who is responsible?
- Has the Regional Fire Information Specialist been advised of the problematic control status of the fire?
- Who are the main audiences at this stage, how will they be contacted, what messages will be delivered, who will approve the messages? Who will be responsible for ensuring contact has been made?
- How will the media be handled should they wish interviews or site visits?
- Will the staffing of the communications section change once the PB enters problematic control or becomes a wildfire?
- What will be the process for notifying the audiences that the burn has returned to normal operations and that the problematic control stage has passed?

## Part 4: Burn Documentation

### High Complexity Prescribed Burn Documentation

This section details both preburn and postburn documentation requirements for all high complexity prescribed burns, on crown and private lands managed by the OMNR in the province of Ontario.

Within 10 days of ignition, an electronic file of the burn plan, including scanned images of the completed approvals and authorization sheets, will be forwarded to the Forest Fire Management Section for inclusion in the current year's PB files.

Part of the prescribed burn evaluation is conducted to document the prevailing conditions before ignition occurs. Evaluation of the burn results determines the success of the prescribed burn in meeting its objectives. Reviews are conducted on some burns to evaluate the PB program and make improvements for future burns. Post burn documentation should be completed and filed within 60 days of the burn being declared out.

## APPENDIX A

### Terms and Conditions for Conducting High Complexity Prescribed Burns

The following terms and conditions are requirements for any person wishing to conduct a High Complexity Prescribed Burn under authority of a fire permit, issued under the Forest Fires Prevention Act. Failure to meet these conditions will result in the cancellation of the permit.

As part of the issuance of this permit the permit holder agrees to the following:

#### Definitions

"Minister" means the Ontario Minister of Natural Resources.

"Ministry" means the Ontario Ministry of Natural Resources.

"Fire Permit" means the fire permit issued under the authority of the Forest Fires Prevention Act and Ontario Regulation 207/96.

"Permittee" means the person(s) being issued the Fire Permit and includes the person(s) responsible for planning and conducting the Prescribed Burn operation and the manager for the land base that the Prescribed Burn is being conducted on.

"Prescribed Burn" means an operation as described in the Aviation Forest Fire Management Policy and Procedure Manual under "Prescribed Burning".

"Prescribed Burn Manual" means the manual that sets standards and procedures for the planning and conducting of a prescribed burn as referenced in Ministry Policy FM: 2:10.

"High Complexity Prescribed Burn Plan" means a plan that complies in total with the requirements of the Ministry's Prescribed Burn Manual.

"Indemnified Parties" means Her Majesty the Queen in right of Ontario, her ministers, appointees and employees.

#### Terms and Conditions

1. The Permittee requires an approved Prescribed Burn Plan, prepared and approved in accordance with the Prescribed Burn Planning Manual.
2. The Permittee will be responsible for all direct costs incurred by the Ministry for approval of the Prescribed Burn Plan.
3. The Permittee will conduct the Prescribed Burn in accordance with the approved Prescribed Burn Plan.
4. Where the Permittee is of the opinion that the approved Prescribed Burn Plan ought to be expanded, reduced or modified, the Permittee will immediately advise the Ministry accordingly and obtain written approval for any variations of the Plan, as outlined in the Prescribed Burn Planning Manual.

5. All personnel involved with the Prescribed Burn will be trained and certified to conduct the Prescribed Burn in accordance with the Ministry's Prescribed Burn Planning Manual. Certifications of key positions required for the Prescribed Burn and those of the Permittee, their employees and/or contractors filling these positions will be listed in an attached schedule to the Prescribed Burn Plan.
6. A Ministry employee may be on-site at any stage of the Prescribed Burn Operation and the Permittee will allow Ministry employees access to the Prescribed Burn Area.
7. The Permittee is responsible for contacting all Regulatory agencies within an adequate time frame prior to igniting the burn as outlined in the Prescribed Burn Planning Manual.
8. The Permittee is responsible for contacting all known parties with a vested interest in the burn, including the general public, in an adequate time frame prior to ignition of the burn as outlined in the Prescribed Burn Planning Manual.
9. The Permittee will notify the Ministry of its intent to ignite the burn at least 48 hours prior to actual ignition.
10. On the day of the burn, the Permittee will seek final approval from the Ministry to ignite the burn and will only begin ignition after approval is given.
11. The Permittee will closely monitor ignition and report progress in accordance with Ministry standards in an attached schedule of the approved Prescribed Burn Plan.
12. The Permittee will closely monitor control stages of the burn in accordance with Ministry standards and report such to the Ministry in a timely fashion. This is required until the Prescribed Burn is declared out. In the event that a fire starts, even after it has been declared out does not remove liability from the Permittee.
13. In the event the Prescribed Burn escapes its boundaries or threatens to become uncontrolled; wildfire response will be consistent with Ministry Guidelines. The Permittee must report that the Prescribed Burn is not under control without undue delay. Declaration of the Prescribed Burn as a wildfire does not remove liability from the Permittee. The Permittee is obligated to take suppression action described in the Prescribed Burn Plan. The Ministry will not reimburse the Permittee for their suppression costs incurred to suppress or limit the spread of any fire related to this permit. If the Ministry must respond to and help extinguish a fire related to this Permit, and the Permittee is in compliance with the approved plan and exercises due diligence in their efforts to suppress the fire excursion, the Ministry will not pursue recovery of suppression costs incurred by the Ministry.
14. In the event the Prescribed Burn escapes its boundaries and requires a wildfire response, a Review Panel will be appointed by the Ministry to review the circumstances of the escape.
15. The Permittee agrees to indemnify and hold harmless the Ministry, its officers, employees and agents from any and all claims, demands, expenses, actions, causes of action and for any liability for damages to property and injury to persons (including death) howsoever caused, arising from or attributable to anything done or omitted to be done by the Permittee, its officers, employees, agents and contractors in the course of

carrying out the Prescribed Burn. This indemnity shall survive the termination or expiry of the Permit.

16. The Permittee hereby agrees to put in effect and maintain for the duration of the Permit at its own cost and expense, with insurers acceptable to the Risk Management & Insurance Services (RMIS) of Shared Services Bureau, all the necessary and appropriate insurance that a prudent person in the business of the Permittee would maintain including, but not limited to, the following:

Commercial general liability insurance on an occurrence basis for third party bodily injury, personal injury and property damage, to an inclusive limit of not less than **\$5,000,000** per occurrence, **\$5,000,000** products and completed operations aggregate. The policy is to include the following:

- the Indemnified Parties as additional insured's with respect to liability arising in the course of performance of the Permittee's obligations under, or otherwise in connection with, the permit
- liability coverage
- cross-liability clause
- employer's liability coverage
- 30 day written notice of cancellation, termination or material change

17. The Permittee shall be knowledgeable of, and abide by, the provisions of all legislative enactment, by-laws and regulations in regard to health and safety, and the Occupational Health and Safety Act of Ontario.
18. In the event that any of the terms and conditions contained within are determined invalid, unlawful, or unenforceable to any extent, such term or condition shall be severed from the remaining terms and conditions which shall continue to be valid to the fullest extent of the law.
19. Nothing in the Fire Permit, Terms and Conditions, or Prescribed Burn Plan removes the obligation of the Permittee to comply with all federal and provincial laws, rules, orders and regulations and all by-laws of all relevant authorities.

## APPENDIX B

### Certificate of Insurance

#### **Proof of Insurance**

The Permittee shall provide the Ministry with proof of the insurance required by this Agreement in the form of valid certificates of insurance that reference this approved plan and confirm the required coverage, on or before the commencement of this permit, and renewal replacements on or before the expiry of any such insurance. Upon the request of the Ministry, a copy of each insurance policy shall be made available to it. The Permittee shall ensure that each of its subcontractors complies with the insurance requirements set out in this permit by obtaining similar types of insurance and providing the Permittee with proof of the acquisition and maintenance of such insurance.

#### **Proof of W.S.I.B. Coverage**

If the Permittee is subject to the Workplace Safety and Insurance Act (WSIA), it shall submit a valid clearance certificate of WSIB coverage to the Ministry prior to the commencement date of the Agreement. In addition, the Permittee shall, from time to time at the request of the Ministry, provide additional WSIB clearance certificates. The Permittee covenants and agrees to pay when due, and to ensure that each of its subcontractors pays when due, all amounts required to be paid by it/its subcontractors, from time to time during the Term of the Permit, under the WSIA, failing which the Ministry shall have the right, in addition to and not in substitution for any other right it may have pursuant to the Permit or otherwise at law or in equity, to pay to the Workplace Safety and Insurance Board any amount due pursuant to the WSIA and unpaid by the Permittee or its subcontractors and to deduct such amount from any amount due and owing from time to time to the Permittee pursuant to the Permit together with all costs incurred by the Ministry in connection therewith.

### APPENDIX C

<b>Burn Boss Checklist</b>	<b>Date Completed</b>	<b>Initials</b>
Preliminary briefing conducted		
• Safety		
• status of schedule of activities		
• status of communications plan ( is it complete)		
Copy of burn plan on site		
Organization chart displayed in appropriate location(s)		
Basecamp location adequate		
Resource availability meets requirements		
All resources on site		
Communications between District/Region and prescribed burn established and satisfactory		
Regional AMO/Duty Officer have coordinates of burn		
Proponent kept informed on progress of the burn		
Adjoining Districts advised		
Industry/public/other affected agencies advised		
Ministry of the Environment/Ministry of Labour advised (48 hours prior to ignition)		
On-site briefing conducted		
Site inspections (by all key staff) completed and problems rectified		
Everyone clearly understands their job		
Criteria for problematic control understood by staff		
Communications link with headquarters established (radio check)		
Crews scheduled to minimize overtime		
Debriefing sessions planned		
Ensure cost tracking is in place		
Onsite fire behaviour prediction run for PB site and adjacent fuel complex on ignition day prior to requesting approval to ignite		
Approval to ignite the burn has been received		
Burn is being conducted as per approved plan		
Burn progress and situation reports being forwarded to headquarters		
Demobilization implemented		
Reviewed other section chief checklists		
Appropriate Signage in Place		
Visitors in safe area and supervised		
FBAN/Suppression Specialist to conduct an onsite analysis or prediction of the expected fire behaviour for the prescribed burn area and adjacent fuel complexes and challenge the assumptions of the planning team		

<b>Planning Checklist</b>	<b>Date Completed</b>	<b>Initials</b>
Staff have been briefed		
Master map has been made of the area		
All pertinent information identified on the map		
Operational maps distributed to staff, proponent, pilots and visitors		
Prepared a briefing organization chart		
Safety inspections completed		
Arrangements made to record weather parameters and fire weather indices		
Arrangements made for special weather forecast if required		
Established a system to provide weather and indices as required to the Burn Boss, Operations Chief and Ignition Specialist		
Satellite imagery/aerial photos available		
Arrangements made to maintain a continuous progress report as burning occurs		
Established a system to document events prior to, during, and after the burn and maintain records for burn documentation		
Established a base camp communication system that will provide sufficient coverage from staging area to base camp to fire and base camp to district		
Briefed with respect to hazards in the area such as industrial operations, tourist camps, equipment, area of unlimited spread, etc.		
All public relations programs have been dealt with		
All pertinent information such as weather indices, weather forecasts, resource charts, and organization charts have been posted		
Keeping a record indicating the location of staff involved		
Ensure on site visitors are supervised and in a safe location		
On site visitors know who to report to, locations for observations, and how they will be kept informed on burn progress		

<b>Ignition Checklist</b>	<b>Date Completed</b>	<b>Initials</b>
Obtain map of the area. <u>NOTE</u> : Although information relating to the suppression and ignition sections must be noted on separate maps in the Prescribed Burn Plan, it may be advisable to combine this information on one map for use on ignition day.		
Crews have been briefed and understand plan thoroughly		
Coordinate actions/timing with Operations		
Check latest weather/indices		
Areas of ignition are clearly defined		
Ignition methods determined		
Ignition patterns/sequence decided in relation to fire behaviour/weather		
Ignition devices on site and in good working order (on-site testing)		
Ample torch fuel/petro-gel available at mixing site		
Incendiaries in sufficient supply		
Operator/torch technician on site		
Instruction manuals available (primo, northern helitorch)		
Ignition dry run completed including starting points, telecommunications, check points, contingencies		
Understand ignition procedure if problematic control stage develops		
Helicopter has necessary certification		
Safety inspections completed		
Safety factors addressed including efforts to avoid "dead man's curve" when flying (i.e. gain altitude when flying from mixing site to burn)		
All radio communications equipment checked		
Radio check-in prior to ignition		
Permission to ignite received		

Operations Checklist	Date Completed	Initials
Obtain map of the area - see note under "Ignition Boss Checklist"		
Each fire crew leader has a map and a radio		
Crews have been briefed and understand plan thoroughly including fire impacts		
Establish coordination effort between self and Ignition Boss		
Suppression equipment is on-site, in place and operative (on-site testing if required)		
Back-up equipment and resources are available		
Have clear lines been constructed between anchor points		
Suppression strategy meets fire behaviour predictions		
Suppression tactics agree with ignition process		
Helispots are suitable for requirements		
Will natural barriers hold		
All hazards have been recognized		
All radio communications equipment has been checked		
Direct communication link with ignition boss established		
Crews in appropriate location relative to ignition		
Radio check-in prior to ignition		
Demobilization resources are adequate and addresses long range predicted fire behaviour predictions		
Indicators of problematic control clearly understood		
Safety inspections completed		

<b>Logistics Checklist</b>	<b>Date Completed</b>	<b>Initials</b>
Resources ordered and on site		
Proper food handling and storage		
Obtain map of the area		
Staff have been briefed on their duties, work hours		
Record keeping established		
Method for cost recording has been established		
Food preparation area inspected		
Preparations for meals and adequate accommodations have been made		
Base camp or staging area established		
Hygiene facilities adequate (latrines, washing)		
Designate fuel caches for vehicles, aircraft and equipment		
Equipment locations on-site and back-ups are known		
Transportation for moving resources has been established		
Line of communications with headquarters established		
Records kept of equipment		
Heliport managed		
Plans in place to respond to problematic control stage		
Safety inspections have been completed		

Safety Checklist	Date Completed	Initials
All workers have received direction and instruction in the safe performance of their duties.		
Liaison as required with Ministry of Labour		
Briefed on responsibilities by the Burn Boss		
Obtain a map of the area		
Familiar with the organization		
Reviewed the camp location with respect to safety hazards		
Drinking water available		
Sanitary facilities set up in accordance with health standards		
Aware of any problem areas in the burn		
Recognize excessive work hours when people may become exhausted		
Ensure proper working apparel/PPE is in use		
All pieces of equipment meet safety standards		
Helicopter areas meet safety standards		
Communications network established		
Vehicles in safe operating condition		
First aid and safety station established and suitably equipped		
Identify those responsible for providing first aid		
Emergency response for medical aid or downed aircraft in place		
Know where all crews are positioned		
Checked all safe areas and trails out of the burn		

<b>Fire Behaviour Analyst Checklist</b>	<b>Date Completed</b>	<b>Initials</b>
Obtain necessary maps of the area/burn		
Obtain the necessary weather data including long range weather forecasts		
Fire Behaviour Predictions completed for day of the burn and verified with the plan prior to requesting approval to ignite		
Information is passed on to the Plans Section for future reference and reports		
Discuss the burn, as it progresses, with the Burn Boss, Ignition Specialist and Operations Chief to obtain data for confirmation of predicted fire behaviour		
Have access to forecast indices, in order, to develop a fire behaviour prediction for the following day.		
Prepared to give a comprehensive package on anticipated fire behaviour at the on-site briefing		
Fire behaviour predictions completed for next 3 to 10 days		
Predictions completed for treatment area, boundaries, areas outside treatment area, and fuels surrounding values		
Understand role in the event PB reaches problematic control stage		

## APPENDIX D

### Sample Advertisement

# Prescribed Burn

Name of Burn and Forest

The **Ontario Ministry of Natural Resources**, \_\_\_\_\_ **District** and **Insert Company Name**, wishes to inform residents of a prescribed burn to be conducted on approximately \_\_\_ hectares of Crown Land in the \_\_\_\_\_ Area of the \_\_\_\_\_ Forest.

The prescribed burn is planned in order to prepare the site for tree planting; remove undesirable plants that compete with desired species for nutrients; control insect pests and diseases; create ashes that make nutrients more readily available to the ecosystem and for enhanced plant growth.

The prescribed burn is scheduled for ignition between \_\_\_\_\_ and \_\_\_\_\_.

The prescribed burn will be carried out under the strict guidelines of the OMNR's *Prescribed Burn Manual*, and will be controlled by trained Ministry fire suppression staff. Access to the burn areas will be restricted to authorized personnel when the prescribed burn is ignited and will continue for the duration of the prescribed burn.

The prescribed burn plan is available for public viewing, during normal office hours, Monday to Friday at the ministry's \_\_\_\_\_ District Office.

(INSERT MAP HERE)

For further information, please contact any of the following individuals during normal office hours. Collect calls will be accepted.

#### **Ontario Ministry of Natural Resources Contacts:**

#### **Forest Company Contacts**

## APPENDIX E

### Sample Letter to MOE

May , 200

Mr./Ms (*name*)  
Sr. Environmental Officer  
Ministry of the Environment  
Regional Office

Dear, (*name*)

In accordance with the prescribed burn guidelines implemented by the Ministry of Natural Resources, the Ministry of the Environment must be kept informed about any planned prescribed burns. The Ministry of the Environment must also be advised of the actual ignition date and hour at a reasonable time beforehand, and any Ministry of the Environment restrictions that may affect the igniting of prescribed burns must also be strictly adhered to.

The Fire Management team of the Ministry of Natural Resources, (*district name*), and (*company/proponent name*) are planning to conduct a prescribed burn during the (*year*) fire season.

The (*prescribed burn name*) is scheduled for ignition between (*date*) and (*date*). The actual ignition dates are at present undetermined, as ignition will be dependant upon a precise range of weather parameters; however, notification will be provided within 48 to 72 hours in advance, when suitable burning opportunities develop.

Please refer to the attached map for more information regarding the exact location of the project.

If you have any comments or concerns, please contact myself or (*name*) Fire Management Supervisor (*district name*)

Yours truly,

(*District Manager Name*  
*And information*)

## APPENDIX F

### Sample Letter to MOL

May , 200

Mr./Ms (*name*)  
District Manager  
Ministry of Labour  
Regional Office

Dear, (*name*)

The Fire Management team of the Ministry of Natural Resources, (*district name*), and (*company/proponent name*) are planning to conduct a prescribed burn during the (*year*) fire season.

The (*prescribed burn name*) is scheduled for ignition between (*date*) and (*date*). The actual ignition dates are at present undetermined, as ignition will be dependant upon a precise range of weather parameters.

Please refer to the attached map for more information regarding the exact location of the project.

As in the past, we are inviting one of your inspectors to be in attendance to view procedures and practices carried out at prescribed burns. You will be notified in advance, as much as possible, should you wish to have one of your staff attend.

A copy of the burn plan may be made available upon request. If you have any questions or concerns regarding this prescribed burn project, please contact myself or (*name*) Fire Management Supervisor (*district name*)

Yours truly,

(*District Manager Name*  
*And information*)