

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

## 1. Introduction

The Ministry of Environment intends to review and revise the *Environmental Management Act's* Open Burning Smoke Control Regulation. The review process follows the ministry policy of continuous improvement and the ministry's commitment to review regulations on a regular basis and revise provisions as appropriate.

The *Environmental Management Act* (EMA) was brought into force in July 2004. It prohibits the introduction of waste into the environment in such a manner or quantity as to cause pollution, except in accordance with a regulation, permit, approval, waste management plan, or code of practice issued under the Act.

The Open Burning Smoke Control Regulation (OBSCR) governs burning of vegetative material associated with a range of activities, including land clearing and forestry-related resource management. It sets out the conditions under which the open burning of specified non-prohibited debris material can be authorized, and has not been substantively revised since the regulation was enacted in 1993.

The regulation review process consists of five phases:

1. **Scoping** – including a review of lessons learned through implementation and of advances in science, law and the management of open burning smoke control since the regulation was enacted in 1993.
2. **Policy Intentions Paper for Consultation** (intentions paper) – outlining the ministry's proposed revisions for the regulation and any outstanding issues or questions.
3. **Consultation** – with affected stakeholders and the general public, using the intentions paper and response forms posted on the ministry website, and other means as required.
4. **Drafting** – preparation of legal language for consideration by the Minister and Lieutenant Governor-in-Council.
5. **Implementation** – informing ministry staff and external stakeholders, and developing guidelines and/or best management practices.

The purpose of this intentions paper is to seek responses and comments from stakeholders and the public on the proposed revisions to the regulation. The paper provides: a summary of ministry and government goals; background information regarding open burning, air quality and the regulation of open burning; proposed revisions to the regulation; and information on the development of best management practices and assuring compliance. The paper also describes the avenues for providing comment on the proposed revisions.

The intentions paper and response form for providing comments to the ministry, and links to related legislation, are posted on the ministry's website: [www.env.gov.bc.ca/epdiv/ema\\_codes\\_of\\_practice](http://www.env.gov.bc.ca/epdiv/ema_codes_of_practice). Further information can be accessed by clicking on the address below, or from the Ministry of Environment homepage, by following the Environmental Protection Division and "Air" links (see: [www.env.gov.bc.ca/air/particulates/agttobsc.html](http://www.env.gov.bc.ca/air/particulates/agttobsc.html)).

## 2. Ministry and Government Goals

The ministry provides leadership in environmental management through innovative legislation and programs, compliance activities and shared stewardship initiatives. The mandate of the ministry is to protect human health and safety, and maintain and restore the diversity of native species, ecosystems and habitats. Through partnerships across government, and with First Nations, the private sector and communities, we work to enhance the protection and stewardship of water and air resources, advance sustainable use of environmental resources, and provide exceptional outdoor park and wildlife services and opportunities.

The ministry is working to support the government's objectives – to lead the world in sustainable management, with the best air and water quality, and the best fisheries management, bar none; to lead the way in North America in healthy living and physical fitness; and to create more jobs per capita than anywhere else in Canada.<sup>1</sup>

The development and enactment of the *Environmental Management Act* and its associated regulations facilitates implementation of outcome-based

<sup>1</sup> See: [www.bcbudget.gov.bc.ca/2006/sp/env](http://www.bcbudget.gov.bc.ca/2006/sp/env).

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

regulations that provide clear roles for governments and stakeholders, consistent performance standards, updated fee structures, decreased remedial and legal costs, and a greater focus on those not in compliance with regulatory requirements.

The province is currently developing a number of initiatives addressing air quality in support of government goals. These include:

- ◆ Retrofitting diesel buses;
- ◆ Establishing mandatory emission reductions from heavy duty diesel vehicles;
- ◆ Sponsoring a provincial woodstove exchange program;
- ◆ Initiating “Green Fleets B.C.” – a partnership initiative led by the Fraser Basin Council to reduce fleet emissions in the province;
- ◆ Phasing-out beehive burners;
- ◆ Encouraging industry to adopt improved emission technologies; and
- ◆ Developing new biomass combustion emission limits for industrial operations and electricity generation.

The ministry is presently developing codes of practice and reviewing regulations under the *Environmental Management Act*.<sup>2</sup> The Primary Wood Manufacturing Industry Code of Practice, and the review of the Open Burning Smoke Control Regulation, will be of particular importance for management and control of wood smoke related PM<sub>2.5</sub> in B.C.<sup>3</sup>

These programs are intended to support reduced provincial fine particulate emissions, and to contribute to the achievement of new provincial ambient air quality criteria for PM<sub>2.5</sub> (see section 3.3 below).

## 3. Background Information

### 3.1 Open burning

The term “open burning” is used to describe burning and associated activities undertaken for a variety of reasons, including:

- ◆ Residential or backyard burning (e.g., “burn barrels,” burning of yard and household waste);
- ◆ Land-clearing burning (e.g., residual slash from forestry-related timber harvesting or from site development);
- ◆ Industrial burning (e.g., sawmills, log sorts);
- ◆ Agricultural burning (field burning and other wastes);
- ◆ Construction waste burning; and
- ◆ Resource management open fires used to achieve land management objectives (e.g., forest health, wildlife habitat and range modification, fire hazard reduction).

Burning can be considered a legitimate management tool, as in the case of certain land management objectives, or simply as an easy method of waste disposal. In B.C., resource management open fires are regulated by the *Wildfire Act* and Regulation whereas open burning for waste disposal is regulated either through the Open Burning Smoke Control Regulation or through permits, approvals and solid waste management plans.

Figure 1: Large scale forestry open burning of piled debris



<sup>2</sup> See: [www.env.gov.bc.ca/epdiv/ema\\_codes\\_of\\_practice](http://www.env.gov.bc.ca/epdiv/ema_codes_of_practice).

<sup>3</sup> See: [www.env.gov.bc.ca/epdiv/ema\\_codes\\_of\\_practice/open\\_burning/index.html](http://www.env.gov.bc.ca/epdiv/ema_codes_of_practice/open_burning/index.html).

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

The scope of the Open Burning Smoke Control Regulation is limited to vegetative debris disposal from land clearing and forestry-related operations. The OBSCR is intended to first, and whenever possible, encourage the reduction and reuse of vegetative debris (i.e., “open burning as a last resort”) – with the goals of cleaner air, a healthier environment and lower health costs. If, however, open burning of debris is undertaken, the regulation sets out the conditions that must be satisfied to minimize harmful smoke releases.

### 3.2 Open burning and air quality

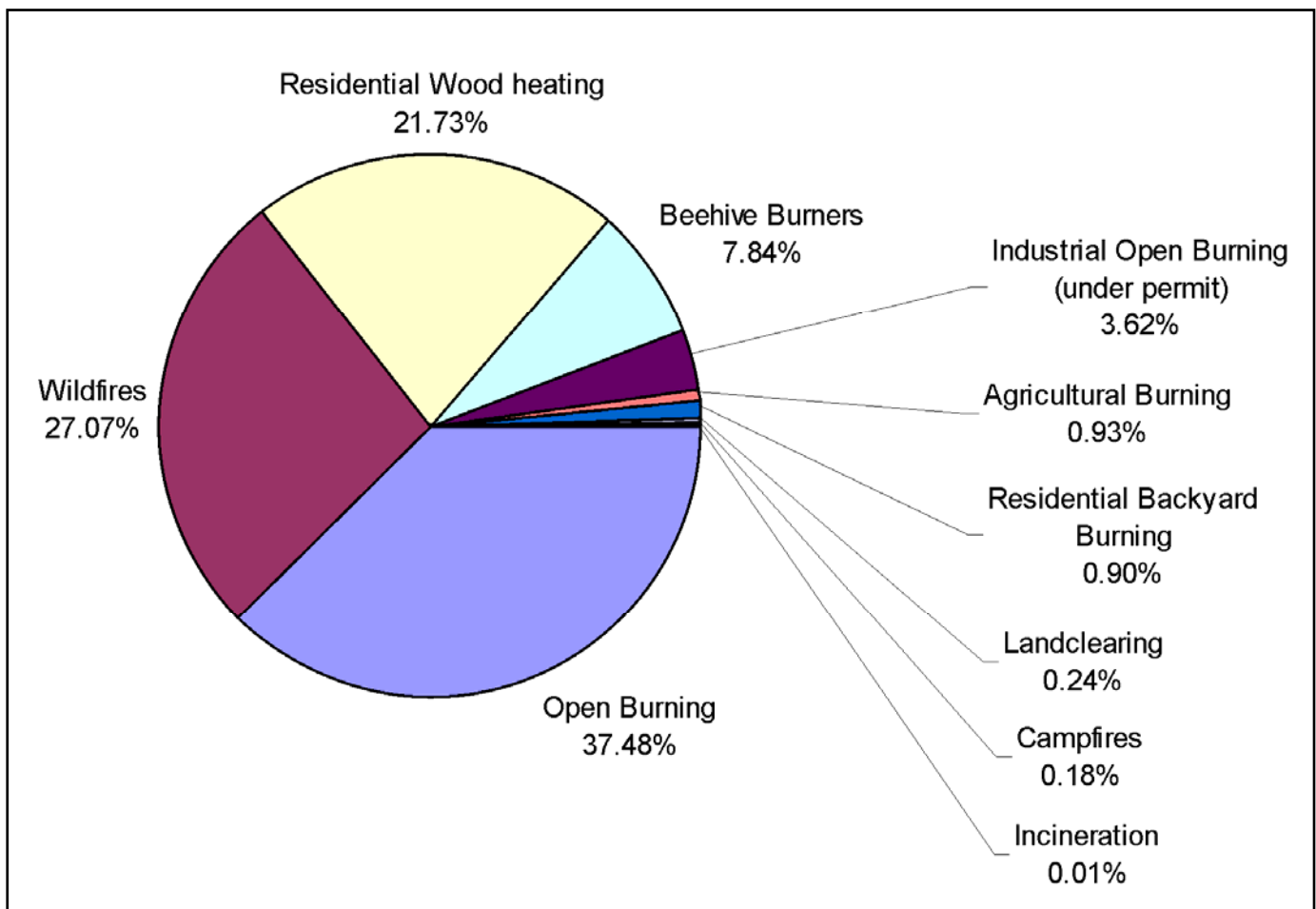
The smoke generated by open burning can have significant impacts on air quality, with associated health and

environmental concerns. In mountainous regions of British Columbia, in particular, many communities are located in valleys that are commonly subject to inversions and periods of stagnant air that increase the potential for impacts from airborne smoke particles.

Air quality concerns include: exposure to particulate matter at concentrations that could lead to detrimental human health and ecosystem effects; ground level ozone; impairment of visibility; and odorous emissions.

The most significant risks to air quality and human health are associated with the emission of fine particulates and in particular, “inhalable” particulates less than 10µm in diameter and “respirable” particulates

Figure 2: Wood smoke emissions (PM<sub>2.5</sub>) for B.C. outside the Lower Fraser Valley (source see footnote 5 on next page)



# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

less than 2.5µm in diameter (by comparison, the average human hair is about 70 µm in diameter). Fine particulates are presently viewed as the most serious kind of air pollution problem in B.C.<sup>4</sup>

Open burning is the largest single source of respirable particulate matter from wood smoke for regions in B.C. outside of the Lower Mainland (see Figure 2 above).<sup>5</sup> Open burning of piled debris can reduce fire hazards, and it is important to acknowledge that fire has been a natural part of the majority of ecosystems in B.C. and that smoke from open fires is an element of a natural process that is vital to healthy ecosystems. However, pile burning has limited ecological benefits. There are also alternatives to disposal for piles near communities that reduce health risks while providing opportunities for synergies with (for example) the bioenergy sector (see section 4.9 B of this intentions paper).

With increasing scientific understanding of the health impacts of wood smoke, open burning is becoming less and less accepted as a method of solid waste disposal and alternatives are being encouraged.<sup>6</sup> The regulation of open burning is increasingly focused on air quality and health protection objectives. These values must be balanced with protection of communities by not allowing a fire hazard to develop.

### 3.3 Protection of air quality in B.C.

The Ministry of Environment sets regulations and undertakes technical support and public education programs aimed to control the sources of smoke in B.C., and to encourage the use of wood and other vegetative

debris as a resource for the secondary wood products industry and the bioenergy sector.

In addition to the Open Burning Smoke Control Regulation, provincial regulations have been enacted addressing solid fuel burning domestic appliances (i.e., wood stoves, fireplace inserts and factory-built fireplaces) and wood residue burners and incinerators (i.e., beehive and silo burners). The ministry has also drafted a model municipal bylaw for regulating backyard burning to support efforts to control smoke for activities under local government jurisdiction.<sup>7</sup>

The ministry has committed to a target of achieving or maintaining Canada-wide Standards (CWS) for PM<sub>2.5</sub> (particulate matter less than 2.5µm in diameter) and ozone in all monitored communities in B.C. by 2010.<sup>8</sup> The ministry has also adopted an interim 24-hour objective of 25µg/m<sup>3</sup> for PM<sub>2.5</sub> and has proposed a framework of provincial ambient air quality criteria for PM<sub>2.5</sub> comprised of:

- ♦ **A 24-hour average objective (25µg/m<sup>3</sup>):** to address day-to-day management issues (e.g., burn bans);
- ♦ **An annual average objective (8µg/m<sup>3</sup>):** to support overall reduction in exposure and facilitate reporting; and
- ♦ **A long-term (planning) goal (6µg/m<sup>3</sup>):** voluntary goal, established in concert with community airshed planning processes, to support continuous improvement and airshed planning.<sup>9</sup>

The ministry undertook public consultations on these air quality criteria in early 2008 (see related links: [www.env.gov.bc.ca/air/airquality/index.html](http://www.env.gov.bc.ca/air/airquality/index.html)).

To achieve these targets, open burning practices and/or establishments with air emissions may be required to

<sup>4</sup> For a more complete description of fine particulates and their impacts on human health in B.C., see the MOE “particulates” website: [www.env.gov.bc.ca/air/particulates/fpwtaah.html](http://www.env.gov.bc.ca/air/particulates/fpwtaah.html). For a summary of health and other impacts of particle pollution see Environment Canada information on the “Clean Air Picture” at: [www.pyr.ec.gc.ca/EN/Air/air\\_clean.shtml](http://www.pyr.ec.gc.ca/EN/Air/air_clean.shtml). The UBC “fire-smoke” website provides comprehensive information on forest fires, smoke-related air quality and its effects on human health [www.firesmoke.ubc.ca/firesmoke\\_and\\_health/default.htm](http://www.firesmoke.ubc.ca/firesmoke_and_health/default.htm). See also the “State of the Air Report 2007” and other resources under the “air quality” link of the B.C. Lung Association: [www.bclung.ca](http://www.bclung.ca).

<sup>5</sup> [Particulate Matter in British Columbia: A Report on PM<sub>10</sub> and PM<sub>2.5</sub> Mass Concentrations up to 2000](#). May 2003.

<sup>6</sup> For further information on solid waste planning and Ministry expectations regarding landfilling, open burning and emissions, see: [www.env.gov.bc.ca/epd/epdpa/mpp/incin\\_landfill.htm](http://www.env.gov.bc.ca/epd/epdpa/mpp/incin_landfill.htm).

<sup>7</sup> See: [www.env.gov.bc.ca/air/particulates/pdfs/bylaw.pdf](http://www.env.gov.bc.ca/air/particulates/pdfs/bylaw.pdf).

<sup>8</sup> See: [www.ccme.ca/ourwork/air.html?category\\_id=99](http://www.ccme.ca/ourwork/air.html?category_id=99). A November 2006 status report provides an overview of B.C.’s progress towards meeting the Canada-wide Standards, see: [www.env.gov.bc.ca/air/airquality/pdfs/canada\\_pm\\_ozone.pdf](http://www.env.gov.bc.ca/air/airquality/pdfs/canada_pm_ozone.pdf).

<sup>9</sup> One of the province’s primary mechanisms for addressing air quality management issues involves airshed planning – intended to provide a multi-stakeholder process for coordinating activities in an airshed – to identify and meet community supported air quality goals.

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

meet more stringent specified air emission requirements, based on: 1) specific air quality concerns within an airshed where an airshed management plan is being developed or implemented; or 2) Canada-wide Standards commitments and provincial ambient air quality criteria. The 24-hour PM<sub>2.5</sub> objective, for example, is now applied to the calculation of the Air Quality Index (AQI) and will guide the issuance of air quality advisories – assisting regional air quality staff in providing the best advice to the public in terms of protection of local air quality. The ministry is also presently working in cooperation with other agencies and organizations to develop and adopt a provincial “Air Quality Health Index” (AQHI) by June 2008 that will address the use of the index and the issuance of advisories.

### 3.4 Legislation related to the Open Burning Smoke Control Regulation

The Open Burning Smoke Control Regulation is enacted under the *Environmental Management Act*, which establishes the process framework, general requirements and enforcement provisions for the regulation. The Act’s Waste Discharge Regulation further clarifies industries and activities subject to EMA. The regulation identifies open burning of vegetative debris and waste as a higher risk activity to the environment, and therefore subject to regulation or permit.

The B.C. *Wildfire Act* and Regulation specify legal obligations when using fire for campfires, backyard burning, industrial and agricultural burning and resource management purposes. The legislation applies to burning in or within one kilometre of forest land or grassland, and to both Crown and private land. It sets out “categories” of fires and definitions of “fire danger classes” to provide a framework of rules governing and restricting use of fire as a management tool.<sup>10</sup>

The *Wildfire Act* and Regulation do not exempt industrial and resource management burning from the Open Burning Smoke Control Regulation. The *Environmental Management Act*, however, does contain limited provisions for exempting certain types of fires (e.g., resource management open fires, carrying out fire control under section 9 of the *Wildfire Act*, the setting of a fire for training purposes under the *Fire Services Act*, and the burning of leaves, foliage, weeds,

crops or stubble for domestic or agricultural purposes or in compliance with the *Weed Control Act*), from particular waste discharge obligations (see EMA section 6).

Municipalities and regional districts have the authority to regulate open burning within their jurisdiction. Many local governments have enacted bylaws that are equivalent to or more prohibitive than the OBSCR and which address residential and backyard burning, as well as open burning from other activities.<sup>11</sup>

### 3.5 History and experience with the Open Burning Smoke Control Regulation

The Open Burning Smoke Control Regulation was introduced in 1993 with the intention of regulating the open burning of land clearing debris and burning in areas of high population density. The regulation requires burn operators to take measures to limit impacts on nearby homes, schools and hospitals, and to ensure that atmospheric conditions are favourable to smoke dispersion (i.e., “good ventilation conditions”) prior to initiating an open burn. The regulation also limits burn duration and the number of burns allowed within municipal boundaries.

Given the large number of open burns that occur in the province each year, the regulation follows an “authorize-by-regulation” approach. Burn operators are not required to obtain a permit to enable smoke emissions from an open burn but rather are expected to follow the requirements set out in the regulation. Note that burn operators are required to comply with the *Wildfire Act* and Regulation, which may involve obtaining a Burn Registration Number from the Ministry of Forests and Range.

The ministry conducted an audit of the regulation in 2004<sup>12</sup> that identified issues involving enforceability, applicability, and effectiveness in protecting human populations from the impacts of smoke. The audit found that: the regulation was being applied to burning practices beyond the initial intended scope;

<sup>10</sup> See: [www.bcwildfire.ca/LegReg](http://www.bcwildfire.ca/LegReg).

<sup>11</sup> See: [www.env.gov.bc.ca/air/particulates/pdfs/bylaw.pdf](http://www.env.gov.bc.ca/air/particulates/pdfs/bylaw.pdf).

<sup>12</sup> Ministry of Water, Land and Air Protection. 2004. Provincial Audit Open Burning Smoke Control Regulation: A Compliance and Effectiveness Assessment September 2003-March 2004. Final Report July 28, 2004.

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

municipalities and regional districts had enacted additional smoke control bylaws with varying requirements (leading to divergent rules and inconsistent levels of health protection); and a significant percentage of burn operators were unaware of or not in compliance with regulatory requirements.

The audit also pointed to significant limitations in the regulation's effectiveness in "preventing pollution" (and protecting human health) "even when all requirements are followed... due to the varying nature of weather, the limited ability to stop smoke from already burning debris, the difficulty in proving pollution and exemptions to burning requirements under the *Waste Management Act* [which was replaced by the *Environmental Management Act* in 2004]." The audit report questioned whether uniform requirements for remote and non-remote locations are appropriate – "the requirements of the regulation can be over protective in remote areas where little chance of impact from smoke exists, and under protective in non-remote areas near populations or where topography and weather have the potential to carry smoke to those populations." As well, the report noted that use of the ventilation index as a decision tool does not address the cumulative effects of smoke from multiple open burns and does not enable identification of an airshed that is apt to be saturated with smoke beyond acceptable levels.

Many of the elements of B.C.'s Open Burning Smoke Control Regulation were modeled on the U.S. experience. The U.S. smoke management programs have been in place considerably longer than B.C.'s and most have undergone significant amendments over the years. There are elements of the U.S. programs that are lacking in the B.C. approach which results in the OBSCR being a less effective tool to manage smoke. For example, none of the U.S. jurisdictions apply a complete authorize-by- regulation approach to open burning; in every state, whether the smoke management program requires burn permits or applies a authorize-by-regulation approach to some types of burning, there is still a requirement for the burn operator to contact a regulatory agency on the day of an intended burn, prior to burning, to find out if open burning is permitted on that day, or whether there are restrictions or prohibitions in place due to poor venting conditions or ambient air quality. In addition, many of the open burning rules (regulation) in the U.S. take into account

the geography and topography of different regions, reflecting the influence on atmospheric dispersion of smoke, and that requirements may need to be more stringent in one locale than the next to adequately protect human populations.

## 4. Proposed Revisions to the Regulation

The ministry established a review team for the revision process that has overseen a jurisdictional review of open burning legislation (that included Alberta, Ontario and northwest U.S. states), developed objectives to assess potential revisions to the regulation and conducted staff workshops involving ministry and other government agency (e.g., Ministry of Forests and Range) staff to develop technical underpinnings to any proposed changes to the regulation. This work has resulted in the proposed revisions to the regulation described in the sections below.

### 4.1 Objectives guiding proposed revisions

The ministry has used the following set of objectives to guide and assess potential changes and guide revision of the regulation:

- ◆ Measures that **reduce or minimize impacts to human health and safety** (the primary objective of the regulation):
  - Reduce the amount of material burned,
  - Reduce the smoke produced during burning,
  - Reduce the effects of smoke on human populations, and/or
  - Accommodate fuel hazard management and community wildfire protection activities;
- ◆ Measures that **enable and encourage compliance with the regulation**:
  - Understandable and practical provisions that support promotion and adoption of good practices, and
  - Clear regulatory direction that enables verification and enforcement by the ministry;
- ◆ Measures that **do not impose undue costs on government agencies or burn operators**:
  - Implementation and monitoring costs to government that are feasible and cost-effective,

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

- Debris managers and burn operators can plan burns more efficiently and effectively, and
- Costs to burn operators of following regulatory provisions support actions that minimize impacts to human health; and
- ◆ Measures are *equitable and consistent*:
  - Regulatory provisions can be applied in an equitable and consistent manner across the province to all debris managers considering open burning, and to all burners governed under the regulation.

## 4.2 Proposed approach to smoke control and the regulation of open burning

The ministry intends to revise the regulation to establish a comprehensive province-wide framework of three “smoke sensitivity zones” (high, moderate and low). Each zone will have specified and consistent standards for parties considering the open burning of vegetative debris. The regulation will also enable a clear and consistent “single window” system for stakeholders to access information and register open burns that meet the requirements set out in the regulation.

The proposed smoke sensitivity zoning framework will be refined and implemented in consultation and coordination with other government agencies, notably the Protection Branch of the ministry of Forests and Range. It will also be consistent with existing management frameworks, such as the Open Fire Tracking System that is used to support the issuance of open fire Burn Registration Numbers under the *Wildfire Act*.

This risk-based province-wide approach supports the ministry’s primary objective of reducing or minimizing impacts to human health, as well as related objectives described in section 4.1. Open burning in the most smoke-sensitive areas of the province, for example, will be very restricted, following specific prohibitions and standards (see section 4.6 below). Clear and accessible information about ministry expectations will support public and burn operator understanding, compliance monitoring and ministry enforcement of the regulation. The existing Open Fire Tracking System will be updated to provide a consistent and accessible service at reasonable or minimal cost to government and burn operators.

## 4.3 Scope, exemptions and changes to definitions

The ministry intends to amend definitions in the Open Burning Smoke Control Regulation to support consistency with related legislation, and to clarify the scope of provisions in the regulation.

For better public understanding, language within the regulation will be revised, where possible, to be more consistent with the *Wildfire Act* and Regulation. For example, the Open Burning Smoke Control Regulation will be structured to utilize the following “categories” of open fires as defined in the *Wildfire Regulation*:

- ◆ Category 2 – an open fire that (a) burns material in one pile not exceeding 2 m in height and 3 m in width, (b) burns material concurrently in 2 piles each not exceeding 2 m in height and 3 m in width, or (c) burns stubble or grass over an area that does not exceed 0.2 ha; and
- ◆ Category 3 – an open fire that burns (a) material concurrently in 3 or more piles each not exceeding 2 m height and 3 m in width, (b) material in one or more piles each exceeding 2 m in height or 3 m in width, (c) one or more windrows, or (d) stubble or grass over an area exceeding 0.2 ha.

Note that the following categories defined in the *Wildfire Regulation* are beyond the scope of the Open Burning Smoke Control Regulation:

- ◆ Category 1 – an open fire that burns piled material no larger than 1 m in height and 1 m in diameter (e.g. campfires and backyard burns); and
- ◆ Resource Management Open Fire – an open fire that (a) burns unplied slash over an area of any size, or (b) is not a category 1, 2 or 3 open fire and is lit, fuelled or used for silviculture treatment, forest health management, wildlife habitat enhancement, fire hazard abatement, ecological restoration or range improvement.

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

Figure 3: Open burning vegetative debris pile



Along with open burning of vegetative debris, including land-clearing burning, and forestry-related open burning of debris piles, the ministry intends to amend the Open Burning Smoke Control Regulation to include open burning of wood waste at remote primary wood manufacturing facilities (e.g., at remote log sort and forwarding facilities).

Open burning activities that would be exempt from the regulation will be limited to those activities specified in section 6 of EMA:

- ◆ Campfires, which are a subset of Category 1 open fires;
- ◆ Resource management open fires;
- ◆ The burning of leaves, foliage, weeds, crops or stubble for domestic or agricultural purposes (as exempted under EMA); and
- ◆ Open burning under approved solid waste management plans.

#### 4.4 Map of open burning sensitivity zones

The ministry will develop a provincial map with three defined zones (high, moderate and low) of smoke sensitivity, built on a science-based approach to define risk to human health. The zones will be established on the basis of population density, topography and

meteorological variables (e.g., predominant wind direction). Detailed mapping will be developed in consultation with regional air quality staff, and assessed by an independent, third party evaluation. High risk zones will include populated areas and their immediate surroundings. Low smoke sensitivity zones will include remote drainage areas where open burning presents a low risk to populated areas or major highway corridors. Moderate risk zones are intermediate areas that are not in the high or low risk zones.

It is the ministry's intention to develop and maintain a current smoke sensitivity zone map that will be easily accessible to the public using web-based formats.

#### 4.5 Use of forced air technology

The ministry wishes to encourage the use of "forced air technology" (i.e., air curtain incinerators, or other appropriate air-assist technology approved by the director) as this technology can substantially reduce emissions when used properly.

The revised regulation will authorize use of forced air technology in specified situations (see section 4.6 below), in accordance with specified standards and requirements consistent with provincial air quality objectives and regulatory measures in other jurisdictions.

Standards will address fuel content, ash disposal, opacity limits, testing and reporting requirements. Fuel content would be limited to vegetative debris (from land clearing, right-of-way maintenance [e.g. hydro, road, etc] – and forestry operations) or clean untreated wood (from remote log sorts and forwarding facilities). Ash from the air curtain incinerators or similar units may be disposed of on site, either by burying it or by applying it on the property in accordance with good agronomic practices (e.g., ash residue should not be applied within 30 metres of a watercourse and no more than 100m<sup>3</sup>/year applied to a single property). The opacity limit (of smoke emissions) would be 10 percent (6-minute average) during operation and 35 percent (6-minute average) during the start up period (within the first 30 minutes of operation). Unit owners and operators will be strongly encouraged to have opacity certification training at least every two years. Ministry compliance and enforcement staff will be qualified to read opacity and will evaluate compliance during site visits. Reporting



# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

requirements will be similar to those required of burn operators conducting open burns without forced air technology (report volume burned). Additional measures governing operation of forced air assisted combustion burners could include operator training and certification.

The ministry is seeking comments and suggestions for operator training and certification requirements. The ministry is interested in training/certification of operators as proper operation is essential for the realization of the emission reduction benefits of this technology. Operator training is available from some manufacturers at reasonable cost and is in the order of one half day of classroom theory with one half day of practical application. Options for training and certification include a program that is “self-organized” and managed by an industry association, or a program that is facilitated by an independent body.

## 4.6 Rules governing open burning

The ministry is proposing to amend the Open Burning Smoke Control Regulation to establish the following sets of rules for specified smoke sensitivity zones. Note that the rules will be specific to open burning as defined in the regulation. For a summary of rules in table form, see appendix A.

### A. General rules (applicable in all zones)

The ministry is proposing the following general rules that would be applicable in all zones:

- ◆ Only vegetative debris is allowed to be burned;
- ◆ Fires must be setback from residences, school grounds, hospitals and continuing care facilities at least the following distances:
  - From residences – 150 m if forced air technology is used, and 500 m if not, and
  - From school grounds, hospitals and continuing care facilities – 500 m if forced air technology is used, and 2 km if not;
- ◆ For category 3 fires,<sup>13</sup> burn operators will be required to obtain “custom ventilation forecasts”<sup>14</sup>

<sup>13</sup> See section 4.3 above for the definition of open fire “categories” (in accordance with the B.C. Wildfire Regulation).

<sup>14</sup> **Custom ventilation forecasts** are venting forecasts tailored to the exact geographical location and elevation of proposed burn

from the Ministry of Environment – favourable forecasts and accompanying custom ventilation (CV) tracking numbers will only be granted if meteorological and air quality conditions, as determined by custom ventilation forecasters, are appropriate for the activity (see section 4.7); and

- ◆ With the exception of debris from primary wood manufacturing facilities, all open burning must occur on land from which the debris originated.

### B. Open burning in a high smoke sensitivity zone

The ministry intends to:

- ◆ Prohibit open burning upon enactment of the regulation, for category 2 and 3 fires that do not use forced air technology;
- ◆ Prohibit open burning upon enactment of the regulation, from primary wood manufacturing facilities; and
- ◆ Allow open burning during a two-year phase out period, for category 2 and 3 fires using forced air technology:

1) Open burning of *category 2 fires using forced air technology* will be allowed during the two-year phase out period, provided the ventilation index<sup>15</sup> (prepared using Environment Canada data and approved by a director or official) is “good” for the day the open burning is to be started, and “good” or “fair” on the second day the debris is anticipated to release smoke.

The smoke release period for these burns will a maximum of 96 hours.

2) Open burning of *category 3 fires using forced air technology* will be allowed during the two-year phase out period. Burning will be allowed on receipt of a favourable custom ventilation forecast.

The smoke release period for these burns will be limited to 96 hours. After 96 hours the burn operator

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sites, unlike the ventilation index forecast which is issued for a community and applied uniformly across a geographical area.

<sup>15</sup> The forecast **ventilation index** is a measure of the atmosphere’s ability to rapidly disperse smoke emissions. See [www.env.gov.bc.ca/epd/epdpa/venting/venting](http://www.env.gov.bc.ca/epd/epdpa/venting/venting).

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

will be required to obtain an updated forecast to ensure that meteorological and air quality conditions remain appropriate for the activity.

## **After two years, open burning in high sensitivity zones will be severely restricted.**

The ministry is aware that in select circumstances there may be specific reasons necessitating open burning in high smoke sensitivity zones. The ministry is exploring legislative mechanisms together with the Ministry of Forests and Range. The ministry is seeking comments and suggestions for procedures that will enable these circumstances:

- ◆ If open burning has been identified to be the only reasonable tool to stop the spread of forest pests and diseases, such as root rot (Note: open burning as a mechanism of disposal of dead trees resulting from pests and diseases, such as mountain pine beetle infestation, will not be enabled.); or
- ◆ Where a local government anticipates the use of open burning as part of fuel treatment for community protection, and methods other than open burning are not reasonable feasible.

Under these circumstances, open burning may take place, subject to an approval from the Ministry. Note that an application for an approval must be submitted to the Ministry of Environment prior to treatment/harvesting. Burning will be authorized subject to conditions set out by the director and will vary on a case-by-case basis.

Note that the ministry estimates that phasing out open burning in the proposed high smoke sensitivity areas is expected to affect open burning practices on less than 4% of the provincial timber harvest land base, and less than 22% of land clearing related open burning.

### **C. Open burning in a moderate smoke sensitivity zone**

1) Open burning of *category 2 fires without forced air* will be allowed provided the ventilation index is “good” for the day the open burning is to be started and “good” or “fair” on the second day the debris is anticipated to release smoke.

The smoke release period for these burns will be limited to 48 hours.

2) Open burning of *category 2 fires using forced air technology* will be allowed provided the ventilation index is “good” or “fair” for the day the open burning is to be started and “good” or “fair” on the second day the debris is anticipated to release smoke.

The smoke release period for these burns will a maximum of 96 hours.

3) Open burning of *category 3 fires without forced air technology* will be allowed on receipt of a favourable custom ventilation forecast.

The smoke release period for these burns will be limited to 48 hours. After 48 hours the burn operator will be required to obtain an updated forecast to ensure that meteorological and air quality conditions remain appropriate for the activity.

4) Open burning of *category 3 fires using forced air technology* will be allowed on receipt of a favourable custom ventilation forecast.

The smoke release period for these burns will be limited to 96 hours. After 96 hours the burn operator will be required to obtain an updated forecast to ensure that meteorological and air quality conditions remain appropriate for the activity.

5) Open burning of *wood waste from primary wood manufacturing facilities without forced air technology* will not be allowed in the moderate smoke sensitivity zone.

6) Open burning of *wood waste from primary wood manufacturing facilities using forced air technology* will be allowed on receipt of a favourable custom ventilation forecast. The designated site must be located no less than 15 km away from the perimeter of a high smoke sensitivity zone.

The smoke release period for these burns will be limited to 96 hours. After 96 hours the burn operator will be required to obtain an updated forecast to ensure that meteorological and air quality conditions remain appropriate for the activity.

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

Open burning of wood waste (at a designated site) is limited to a maximum of four times per calendar year.

## **D. Open burning in a low smoke sensitivity zone**

1) Open burning of *category 2 fires with or without use of forced air technology* will be allowed regardless of the ventilation index, except during open burning bans issued by a government agency.

2) Open burning of *category 3 fires with or without use of forced air technology* will be allowed on receipt of a favourable custom ventilation forecast.

The smoke release period for these burns will be limited to 120 hours. After 120 hours, the burn operator will be required to obtain an updated forecast to ensure that meteorological and air quality conditions remain appropriate for the activity.

3) Open burning of wood waste from primary wood manufacturing facilities *with or without use of forced air technology* will be allowed on receipt of a favourable custom ventilation forecast.

The smoke release period for these burns will be limited to 120 hours. After 120 hours, the burn operator will be required to obtain an updated forecast to ensure that meteorological and air quality conditions remain appropriate for the activity.

Open burning of wood waste (at a designated site) will be limited to a maximum of four times per calendar year.

## **4.7 Process for assessing and authorizing an open burn**

The ministry is presently exploring operational and cost effectiveness considerations involved in providing custom ventilation forecasting (CVF) and call-in burn registration and approval numbers in partnership with the Ministry of Forests and Range.

Operators wishing to initiate open burning for category 3 fires would be required to:

- 1) Obtain a burn registration number from Ministry of Forests and Range (valid for 2 weeks to 3 months);

- 2) Register their intent to burn with the Ministry of Environment;
- 3) Obtain a custom ventilation tracking number, issued subject to receiving a favourable custom ventilation forecast from a Ministry of Environment/Ministry of Forests and Range forecaster – this would be delivered as an email or fax within half a business day from the time the intent is registered (and be valid for 48 to 120 hours); and
- 4) Confirm to the ministry that the open burn has taken place – this is a critical aspect for the province's emissions inventory – additional custom ventilation tracking numbers would not be issued until the operator has fulfilled this requirement.

Steps 1 and 2 could take place concurrently – the Ministries of Environment and Forests and Range are striving to develop a single window for clients to save time and resources. This may be offered as part of a call in system or a web-based application.

The single window approach would support the ministry's objectives of maximizing compliance and consistency, and minimizing inconvenience to burn operators – reinforcing the ministry's primary objective of reducing the effects of smoke to human populations.

Information for potential burn operators and call-in registration and approval of open burns following the rules set out in the regulation may be provided to burn operators on a cost recovery basis.

## **4.8 Powers and penalties**

The ministry intends to add or strengthen provisions in the regulation to improve enforceability, as recommended in previous reviews. Proposed provisions will address the ability of designated ministry officers to:

- ◆ Issue cease and desist orders;
- ◆ Suspend or deny open burning authorization for repeat violators; and
- ◆ Require burners to provide documents (e.g., log books, burn authorization number or operator certification) if requested by ministry staff.

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

## 4.9 Addressing key coordination and implementation issues

### A. Control of wildfires and managing interface burns

The Open Burning Smoke Control Regulation is intended to complement and act in concert with the objectives of the *Wildfire Act* and Regulation, administered by the Ministry of Forests and Range. Control measures and provisions to protect human life (such as the intentional setting of containment burns) in the *Wildfire Act* and Regulations would be enabled by the Open Burning Smoke Control Regulation.

Most community interface areas will be captured within high smoke sensitivity zones. This means that open burning will be phased out in these areas – with limited exceptions (as described in section 4.6.B.). It should be noted however, that resource management open fires, which are exempt from provisions of the Open Burning Smoke Control Regulation under terms of the *Environmental Management Act*, will be allowed to burn slash or other vegetation or woody debris dispersed over an area.

### B. Encouraging alternatives to open burning

The ministry is supportive of any efforts to reduce contaminant levels associated with open burning. For example, the ministry is seeking comments and suggestions for encouraging alternatives to open burning (such as chipping, composting, or co-generation). Any comments regarding additional appropriate incentives (under the Open Burning Smoke Control Regulation or by other regulatory means) to reduce stressors to air quality are welcome.

The regulation is an important tool under the provincial smoke management plan and is intended to complement the provincial Bioenergy Strategy.<sup>16</sup> Restrictions to open burning under the regulation are intended to support adoption of alternatives to open burning, such as chipping, composting and conversion to bioenergy via hog fuel or pellet production. Burning wood for bioenergy is far more desirable than open burning for wood waste disposal, especially in smoke-sensitive areas, as (for example) facility siting and emission controls can greatly reduce health impacts. The Bioenergy Strategy

<sup>16</sup> See: [www.energyplan.gov.bc.ca/bioenergy](http://www.energyplan.gov.bc.ca/bioenergy).

will encourage the development of infrastructure and provide revenue generating opportunities for use of wood residue (as an alternative to open burning).

### C. Cumulative effects

The zoning approach being proposed by the ministry, with open burning requirements targeted to smoke sensitivity zones, is intended to address cumulative effects of air emissions in specific airsheds. The approach would remove a broad range of sources in the most smoke sensitive airsheds, while allowing appropriately managed open burning in specific zones when ventilation conditions are appropriate.

## 4.10 Climate change and open burning

Wood is a renewable energy resource and trees recycle carbon dioxide. Wood burning in managed forests does not usually contribute to the problem of climate change provided that sustainable forest management practices are employed (e.g., replanting).<sup>17</sup>

While it is acknowledged that some alternatives to open burning – such as land filling, composting, or chipping and hauling – may generate more greenhouse gases than open burning (due to secondary life-cycle emissions), the protection of public health from the impacts of inhalable particulates is an equal priority for government.

## 4.11 Consultation with First Nations

Consultation with First Nations with respect to the proposed revisions to the Open Burning Smoke Control Regulation will occur in accordance with legal requirements, ministry policy and government direction.

During implementation, the Ministry will work with First Nations communities to engage in discussions around management of vegetative debris and open burning on a case-by-case basis and consult with interested/affected parties.

## 5. Best Management Practices

The regulation will be supported by guidelines and/or “best management practices” (BMPs) that

<sup>17</sup> See

[www.canren.gc.ca/prod\\_serv/index.asp?CaId=103&PgId=586](http://www.canren.gc.ca/prod_serv/index.asp?CaId=103&PgId=586).

# **Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation**

provide information regarding how burn operators can meet ministry goals for protection of human health and the environment and manage open burns or alternative means of treating wood wastes in a manner that is consistent with the *Environmental Management Act*, regulations and codes of practice. These practices and procedures could be based on existing BMPs developed by the industries and/or developed jointly with government and would not have the force of law. Guidelines or BMPs may be viewed as assistance to persons governed by a regulation in meeting their legal obligations.

Aspects of open burning that may be appropriate for best management practices guidance could include pile construction, curing plans, meteorology of smoke dispersion, how and when to ignite piles, and issues related to specific requirements and exemptions. Best practices for the setup and operation of air curtain incinerators and other forced air technology could also be included. Any best management practices documents prepared for this regulation will complement related documents, such as the smoke control guide being developed for the Wildland Fire Strategy.

## **6. Assuring Compliance**

### **6.1 Compliance promotion**

The ministry will develop a strategy for the promotion of voluntary compliance with the requirements of this regulation, in cooperation with clean air and industry associations, and other interests. Compliance promotion may entail training for ministry staff, as well as information and education for those considering open burning.

### **6.2 Compliance verification**

The ministry's approach to assuring compliance with the Open Burning Smoke Control Regulation will include regular and random compliance reviews and inspections, as well as reviews and inspections in response to identified or potential issues or concerns regarding protection of the environment or human health.

The ministry is committed to using compliance verification data to guide the ongoing management of open burning practices and assure the goals for environmental protection are being met.

### **6.3 Enforcement**

The ministry response to non-compliance will entail written advisories, warnings, directives, tickets and prosecutions. The choice of response will be based on ministry-wide policy, the compliance history for the burn operator and the significance of the impact from the non-compliance occurrence.

## **7. Providing Comment on Proposed Intentions for the Regulation**

The ministry is intending to finalize the Open Burning Regulation by the end of June 2008. Comments regarding the proposed intentions of the ministry are being solicited and will be carefully considered in the review and development process. The ministry welcomes all suggestions with respect to any aspect of the regulation.

Submissions will be compiled and summarized, without specific attribution, by an independent contractor and the summary posted on the ministry website. Following review of comments and submissions, the ministry will complete legal drafting of the regulation for legislative review and implementation.

This intentions paper and a response form with questions based on proposed intentions for the regulation have been posted on the ministry's web site: [www.env.gov.bc.ca/epdiv/ema\\_codes\\_of\\_practice/index.html](http://www.env.gov.bc.ca/epdiv/ema_codes_of_practice/index.html).

Those interested are invited to submit comments using the instructions and questions provided on the response form. Individuals or organizations may also make written submissions to the ministry without following the format set out in the response form – as desired.

**Comments to the ministry should be made on or before June 30, 2008.**

## ***Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation***

All submissions will be reviewed for inclusion in a consultation summary report. Comments received will be treated with confidentiality by ministry staff and contractors when preparing consultation reports. Please note that comments you provide and information that identifies you as the source of those comments may be publicly available if a Freedom of Information (FOI) request is made under the *Freedom of Information and Protection of Privacy Act*.

If you have any questions or comments regarding the consultation process, review the information posted on the ministry website, or contact Cindy Bertram of C. Rankin & Associates, who has been contracted to manage consultation comments, at:

**Email:** [cindybertram@shaw.ca](mailto:cindybertram@shaw.ca)

**Mail:** PO Box 5293  
Victoria, B.C. V8R 6N4

**Fax:** (250) 598-9948

***Thank you for your time and comments!***

# Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation

## APPENDIX A: SUMMARY OF RULES GOVERNING OPEN BURNING

### General Rules for Open Burning (applicable in all zones):

- ◆ Only vegetative debris is allowed to be burned;
- ◆ Fires must be setback from residences, school grounds, hospitals and continuing care facilities at least the following distances:
  - From residences – 150 m if forced air technology is used, and 500 m if not, and
  - From school grounds, hospitals and continuing care facilities – 500 m if forced air technology is used, and 2 km if not;
- ◆ For category 3 fires, burn operators will be required to obtain “custom ventilation forecasts” from the Ministry of Environment – favourable forecasts and accompanying custom ventilation (CV) tracking numbers will only be granted if meteorological and air quality conditions, as determined by custom ventilation forecasters, are appropriate for the activity; and
- ◆ With the exception of debris from primary wood manufacturing facilities, all open burning must occur on land from which the debris originated.

### New Open Burning Decision Matrix:

Fire Type	High Smoke Sensitivity Zone	Moderate Smoke Sensitivity Zone	Low Smoke Sensitivity Zone
Open burning of <i>category 2</i> fires without forced air.	No open burning will be allowed effective immediately once the regulation is enacted.	Open burning is allowed provided the ventilation index is: <ul style="list-style-type: none"> <li>• "good" for the day the open burning is to be started, and</li> <li>• "good" or "fair" on the second day the debris is anticipated to release smoke.</li> </ul> The smoke release period for these burns will be limited to 48 hours.	Open Burning is allowed regardless of the ventilation index, except during open burning bans issued by a government agency.

## **Open Burning Smoke Control Regulation Policy Intentions Paper for Consultation**

<b>Fire Type</b>	<b>High Smoke Sensitivity Zone</b>	<b>Moderate Smoke Sensitivity Zone</b>	<b>Low Smoke Sensitivity Zone</b>
Open burning of <i>category 2</i> fires with forced air.	<p>No open burning will be allowed after two years once the regulation is enacted.</p> <p>During the two-year phase out period, open burning will be allowed provided the ventilation index is:</p> <ul style="list-style-type: none"> <li>• "good" for the day the open burning is to be started, and</li> <li>• "good" or "fair" on the second day the debris is anticipated to release smoke.</li> </ul> <p>The smoke release period for these burns will be limited to 96 hrs.</p>	<p>Open burning is allowed provided the ventilation index is:</p> <ul style="list-style-type: none"> <li>• "good" or "fair" for the day the open burning is to be started, and</li> <li>• "good" or "fair" on the second day the debris is anticipated to release smoke.</li> </ul> <p>The smoke release period for these burns will be limited to 96 hours.</p>	<p>Open Burning is allowed regardless of the ventilation index, except during open burning bans issued by a government agency.</p>
Open burning of <i>category 3</i> fires without forced air.	<p>No open burning will be allowed effective immediately once the regulation is enacted.</p>	<p>Open burning will be allowed on receipt of a favourable custom ventilation forecast.</p> <p>The smoke release period for these burns will be limited to 48 hours.</p>	<p>Open burning will be allowed on receipt of a favourable custom ventilation forecast.</p> <p>The smoke release period for these burns will be limited to 120 hours.</p>
Open burning of <i>category 3</i> fires with forced air.	<p>No open burning will be allowed after two years once the regulation is enacted.</p> <p>During the two-year phase out period, open burning will be allowed on receipt of a favourable custom ventilation forecast.</p> <p>The smoke release period for these burns will be limited to 96 hours.</p>	<p>Open burning will be allowed on receipt of a favourable custom ventilation forecast.</p> <p>The smoke release period for these burns will be limited to 96 hours.</p>	<p>Open burning will be allowed on receipt of a favourable custom ventilation forecast.</p> <p>The smoke release period for these burns will be limited to 120 hours.</p>



## ***Open Burning Smoke Control Regulation*** **Policy Intentions Paper for Consultation**

<b>Fire Type</b>	<b>High Smoke Sensitivity Zone</b>	<b>Moderate Smoke Sensitivity Zone</b>	<b>Low Smoke Sensitivity Zone</b>
Burning of wood waste from primary wood manufacturing facilities without forced air.	Prohibited in high smoke sensitivity zones.	Prohibited in moderate smoke sensitivity zones.	Open burning will be allowed on receipt of a favourable custom ventilation forecast.  The smoke release period for these burns will be limited to 120 hours.  Open burning at these sites may occur a maximum of 4 times per calendar year.
Burning of wood waste from primary wood manufacturing facilities with forced air.	Prohibited in high smoke sensitivity zones.	Facility must be located no less than 15 km away from the perimeter of a high smoke sensitivity zone.  Open burning will be allowed on receipt of a favourable custom ventilation forecast.  The smoke release period for these burns will be limited to 96 hours.  Open burning at these sites may occur a maximum of 4 times per calendar year.	Open burning will be allowed on receipt of a favourable custom ventilation forecast.  The smoke release period for these burns will be limited to 120 hours.  Open burning at these sites may occur a maximum of 4 times per calendar year.