Open Burning Smoke Control Regulation
Policy Intentions Paper for Consultation

1. Introduction

The Ministry of Environment and the Ministry of Healthy Living and Sport (the ministries) are undertaking a review process and intend to revise the *Environmental Management Act's* Open Burning Smoke Control Regulation (OBSCR).

Intentions Paper for Consultation – July 2010

The purpose of this intentions paper is to present the ministries' current intentions for revising the OBSCR and to provide an opportunity for stakeholders and the public to comment on these changes. Subsequently, an amended regulation will be developed in consideration of this input. Implementation of the new regulation is anticipated in advance of the 2011 burning season.

The intentions paper contains:

- Background information regarding open burning, protection of air quality, government goals, experience with the OBSCR, and climate change considerations;
- Proposed revisions to the OBSCR, including:
  - Outlining the objectives guiding proposed revisions,
  - Updating the proposed approach to smoke control and the regulation of open burning,
  - Clarifying the scope and definitions,
  - Defining the primary and secondary smoke sensitivity zones,
  - Adding provisions for the use of air curtain incineration and forced air assistance,
  - Clarifying the rules governing open burning (including general rules, open burning in smoke sensitivity zones and smoke management plans),
  - Defining the process for assessing and authorizing an open burn, and
  - Updating the powers and penalties;
- Proposed support for implementation of the OBSCR, including Best Management Practices and assuring compliance; and
- Information for providing comment on proposed intentions.

The intentions paper, a response form for providing comments to the ministries and links to related legislation are posted on the Ministry of Environment website: www.env.gov.bc.ca/epd/codes. A link to the intentions paper can also be found at www.bcairquality.ca/topics/burning-outdoors.html.

Review process to date

From May-July 2008 the Ministry of Environment posted an intentions paper outlining proposed changes and invited stakeholders to provide feedback and suggestions. Over 100 submissions were received from stakeholders, including municipalities, forestry and agricultural sectors, regional environmental organizations, First Nations and the general public. The intentions paper and summary of public comments are available at: www.env.gov.bc.ca/epd/codes/open_burning/index.htm. Readers desiring additional background information regarding the Open Burning Smoke Control Regulation and associated issues should review these earlier documents.

Following the initial intentions paper, the multi-ministry review team developed and considered options to address concerns and suggestions raised through consultations. Review team members have pursued formal and informal opportunities to review and refine potential options with stakeholders. These discussions and presentations at meetings, conferences and web-based seminars involving forestry and industry sectors, as well as local government, have supported preparation of this intentions paper.

In the fall of 2009, the review team formed a stakeholder reference group to explore the work completed to date and provide further input regarding the regulatory review. This reference group had representation from the Ministries of Environment, Healthy Living and Sport, Forests and Range, Agriculture and Lands, and Community and Rural Development, as well as representatives from industry sectors, local governments, and health care professionals. The reference group offered the opportunity for shared

learning around stakeholder needs and interests. Based on this dialogue, the review team worked collaboratively to develop the proposed revisions to the regulation, described in section 3 of this intentions paper.

The intentions presented in this paper reflect input heard during this process, as well as previous consultation comments.

Balancing Provincial Priorities

The Ministry of Environment and the Ministry of Healthy Living and Sport (the ministries) share responsibility for air quality management in British Columbia (BC). The Ministry of Healthy Living and Sport advises on standards, objectives, and regulations to protect human health while the Ministry of Environment regulates air emissions from a variety of sources using approvals, permits, regulations, guidelines and codes of practice. In addition, the ministries support community based airshed planning – a multi-stakeholder process for identifying and meeting community supported air quality goals through cooperative local measures.

The two ministries are collaborating in developing proposed amendments to the Open Burning Smoke Control Regulation, with input from the Ministry of Forests and Range and the Ministry of Agriculture and Lands. Review of the regulation includes consideration and balancing of provincial government priorities, including:

- Great goal # 4: Lead the world in sustainable environmental management, with the best air and water quality, and the best fisheries management, bar none;
- Great goal # 2: Lead the way in North America in healthy living and physical fitness;
- The BC Air Action Plan and Climate Action Plan to address greenhouse gases and air pollutants;
- The BC Bioenergy Strategy and future opportunities for the use of biomass;
- The "Filmon Report" recommendations on fuel management for community safety and protection; and
- Support thriving forestry and agricultural industries.

2. Background

2.1 Open burning and air quality

We burn organic material (wood and vegetation) for many reasons – to:

- Heat our homes (wood stoves and fireplaces);
- Dispose of debris from gardening, agriculture and land development;
- Reduce logging slash and prepare land for planting;
- Dispose of sawmill wood residue;
- Prevent wildfires;
- Restore or enhance wildlife habitat;
- Improve range for livestock; and
- Enjoy beach and camp fires.

However, what was once considered a harmless or entirely beneficial practice is now recognized as a significant source of air pollution and a health risk.

The smoke (i.e., "air emissions") generated by open burning can have significant impacts on air quality, with associated health and environmental concerns. Factors that affect the degree of pollution associated with burning include: the type and quality of material being burned; the meteorological conditions at the time of burning; and the location of the burn in relation to sensitive receptors. Burning debris that is mixed with soil, stumps, garbage and other contaminants – or that is not seasoned – results in much more emissions than burning clean dry debris. Once smoke enters the atmosphere, its concentration at any one place or time varies with transport and dispersion mechanisms.[1] Effective smoke management involves an understanding of both proper burning techniques and the conditions that impact transport and dispersion of emissions (including local meteorological and topographical features, weather and atmospheric venting conditions). It is very difficult for an operator on the

[1] For more information about smoke meteorology, see www.forestencyclopedia.net/p/p4/p137/p761.

ground to know how smoke from a burn is going to drift and whether it will impact people close by or even further away.

In mountainous regions of BC, many communities are more susceptible to higher pollutant concentrations when weather conditions and topography limit the transport of pollutants away from populated areas.

Figure 1: Open burning vegetative debris pile

The smoke produced from open burning contains tiny particles called particulate matter (PM) and a large array of organic and inorganic compounds – the normal byproducts of wood combustion. Particulate matter that is 2.5 microns or less in diameter, called $PM_{2.5,}$ is small enough to be breathed into the deepest parts of our lungs[2]. It is associated with an array of health problems – from a runny nose and coughing, to bronchitis, asthma, emphysema, pneumonia, and heart disease - and contributes to premature deaths.

Senior citizens, infants and people who already have lung or heart problems are most at risk, but healthy younger adults and children can also be affected.

Research has shown that there is no threshold below which smoke has no health effects. This means it is important to minimize the amount of smoke produced and humans' exposure to it. The majority of health impacts from smoke result from extended exposure to concentrations below the level at which a public advisory would be issued[3].

Smoke causes other problems as well. It can blot out the landscape so effectively that road and air travel are dangerously affected, and beautiful views are hidden. Smoke is also a sign that we are not using our resources wisely: much of the material sent up in smoke could be turned into a valuable product, such as compost, wood chips, particle board, or wood pellets. It can also be used as fuel in biomass incineration or cogeneration plants for the production of electricity and heat.

With growing scientific understanding of the health impacts of wood smoke and the value of wood fiber for beneficial re-use, open burning is becoming less accepted as a method of managing woody debris.[4,5] The regulation of open burning is increasingly focused on air quality and health protection objectives. These values must be balanced however, with protection of communities and the potential use of prescribed fire to reduce risks posed by wildfires.

[2] For a more complete description of fine particulates and their impacts on human health in BC, see "Air Quality and Your Heath" at: www.bcairquality.ca/health/index.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. 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. See also the "State of the Air Report 2009" and other resources under the "air quality" link of the B.C. Lung Association: www.bclung.ca.

[3] Every Breath You Take…. Provincial Health Officer's Annual Report 2003, Air Quality in British Columbia, A Public Health Perspective.

[4] For further information about Ministry of Environment expectations regarding solid waste planning, landfilling, open burning and emissions, see: www.env.gov.bc.ca/epd/epdpa/mpp/incin_landfill.htm.

[5] http://bcairquality.ca/topics/rcbc-alternatives.html

2.2 Protection of air quality in BC

Open burning of piled land clearing debris, forestry harvesting debris and agricultural debris – activities governed under the Open Burning Smoke Control Regulation – are the largest single source of $PM_{2.5}$ in BC outside the Lower Mainland (see Figure 2).

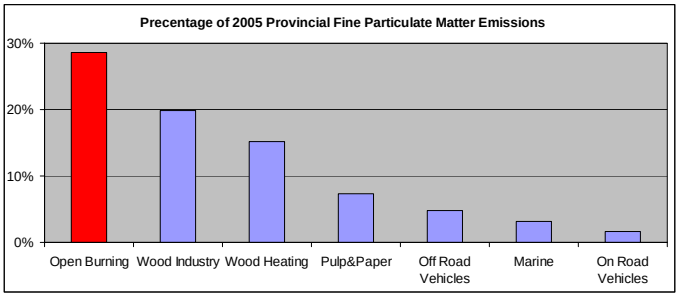

Figure 2: Percentage of $PM_{2.5}$ emissions from different sources in BC[6]

Other major sources of $PM_{2.5}$ include industrial emissions, residential and commercial wood heating, mobile sources and wildfires. Several regulations under the *Environmental Management Act* govern these other sources. New standards for Wood Fired Boilers have been introduced in the Agricultural Waste Control Regulation. The Solid Fuel Burning Domestic Appliance Regulation, which addresses residential wood stoves, is being updated as well.

Resource management open fires[7] – the burning of unpiled debris to achieve ecological land management objectives – are less common sources of open burning and are regulated under the *Wildfire Act* and its regulations. These "broadcast burns" require approved burn plans which address smoke mitigation, as well as fire safety, issues. These burns are exempt under the *Environmental Management Act* from requirements to follow the OBSCR and are out of scope for the OBSCR review.

Reducing the health impacts of emissions from wildfires is best accomplished by fire prevention measures and by effective communication during the wildfire season – advising citizens of air quality and safety concerns. Open burning of piled debris can reduce risk of wildfire. It is also important to acknowledge that fire (and smoke) has been an element of the majority of ecosystems in BC and is a natural process that is vital to healthy ecosystems.

As well as provincial government regulations, local governments also have authority to manage wood smoke. Local government bylaws[8] can address residential woodstove use, small scale backyard burning, open burning and some industrial sources. These bylaws may be more restrictive than provincial requirements.

2.3 Climate change and open burning

Wood is a renewable energy resource and trees recycle carbon dioxide (CO_2). The CO_2 produced from wood burning in managed forests is generally not considered to contribute to the problem of climate change provided that sustainable forest management practices are employed (e.g., replanting).[9] Yet, wood burning generates products of incomplete combustion – carbon monoxide (CO), methane (CH_4), volatile organic compounds (VOCs) and particulate matter (PM) – all of which contribute to global warming to some extent[10] (as well as their key role as health-damaging air pollutants).

Some alternatives to open burning – such as land filling, composting, or chipping and hauling – may generate more greenhouse gases (GHGs) than open burning. However, near to communities, the particulate matter reductions from reduc-

[6] Source: 2005 B.C. Criteria Air Contaminant Emissions Inventory. The provincial air emissions inventory for common air contaminants compiles regional and province-wide information regarding point sources (i.e., industrial facilities), mobile sources (e.g., boats, planes, vehicles) and area sources (e.g., back yard burning, open burning) of emissions. Open burning is the largest source of fine particulate matter emissions in the province, accounting for over a quarter of all these emissions.

[7] See section 3.3 for a complete definition.

[8] Model bylaw guides for managing backyard burning and wood stove emissions are available at: www.bcairquality.ca/topics/municipal-smoke-bylaws.html.

[9] See NRcan, canmetENERGY and bioenergy links at: www.canren.gc.ca/prod_serv/index.asp?CaId=103&PgId=586

[10] See page 205 of the IPCC Fourth Assessment Report: www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter2.pdf.

ing open burning far outweigh the GHG costs of doing so. Recovering some of the material for biofuel can be a benefit because the electricity and/or heat that is generated is an added value that is otherwise lost in an open burn, and biofuels can help displace the use of fossil fuels. Pollutant emissions from centralized waste-to-energy facilities can be controlled to a much lower level than open burns.

2.4 History and experience with the Open Burning Smoke Control Regulation

The OBSCR 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 for the release of smoke emissions from an open burn but rather are expected to follow the requirements set out in the regulation. Burn operators are required to comply with the *Wildfire Act* and its regulations, which may involve obtaining a Burn Registration Number from the Ministry of Forests and Range, as well as any applicable local by-laws.

Revisions to the OBSCR are being proposed in part based on recommendations made in a 2004[11] audit of the regulation. The audit findings were discussed in detail in the first intentions paper. The proposed changes are also being driven by new information about the health effects of low levels of smoke and the desire to make the regulation more effective in protecting population centers from the substantive health impacts of smoke.

3. Proposed revisions to the regulation

Key elements of the proposed revisions:

- Establishing a comprehensive province-wide framework for smoke management – with two zones based on population density
- Revising definitions to ensure consistency with related legislation (such as the *Wildfire Act* and its regulations)
- Expanding the scope of the regulation to include open burning at log sort and forwarding facilities
- Encouraging the use of "air curtain incinerators" to reduce emissions
- Setting general and smoke sensitivity zone-specific rules addressing requirements for planning and undertaking burns
- Enabling development of "smoke management plans" to guide practices in specific areas or regions – in cooperation with stakeholders and government ministries
- Utilizing a "one-window" system (in partnership with the Ministry of Forests and Range) for registering and tracking open fires
- Developing "Best Management Practices" guidelines to support burn operators and other stakeholders in meeting the goal and objectives of the regulation

3.1 Goal and objectives guiding proposed revisions

The overall goal of the review process and proposed revisions to the regulation is to reduce or minimize impacts to human health and safety by reducing air pollution from open burning.

Achieving this goal may involve:

- Reducing the amount of material burned;
- Reducing smoke produced during burning; and
- Reducing the effects of smoke on human populations; while

[11] 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.

- Recognizing the use of fire as a land management tool.

The following set of objectives has been used by the review team to assess potential changes and guide revision of the regulation:

- Regulatory provisions support adoption of best practices and allow for innovation;
- Clear regulatory direction enables verification of compliance and enforcement;
- Implementation and monitoring costs for government and burn operators are feasible (e.g. results-based and minimize administrative burden);
- Debris managers and burn operators can plan burns efficiently and effectively;
- Costs of following provisions are justified for public health improvements and savings to the health care system; and
- Regulatory provisions collectively support government goals and objectives – social, economic and environmental.

3.2 Proposed approach to smoke control and the regulation of open burning

The ministries intend to revise the regulation to establish a comprehensive province-wide framework of two "smoke sensitivity zones" ("primary" zones where the risk to populations is higher and "secondary" zones where the risk is lower but not insignificant). Each zone will have specified and consistent standards for parties considering the open burning of vegetative debris. The regulation will also provide a process for the creation of locally flexible smoke management plans.

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

This risk-based province-wide approach supports government's primary goal of reducing or minimizing impacts to human health, as well as related objectives described in section 3.1 above. Open burning in the most smoke-sensitive areas of the province, for example, will be very restricted and will utilize specific science-based standards (see section 3.6 below). Clear and accessible information about government expectations will support public and burn operator understanding, compliance monitoring and enforcement of the regulation.

3.3 Definitions and scope of the regulation

The ministries intend to amend definitions in the OBSCR so that they are consistent with current legislation and to clarify the scope of provisions in the regulation.

The regulation governs open burning from the following activities:

- Fuel management in the urban/wildland interface;
- Fire hazard abatement to fulfill a contractual obligation for forest licensees;
- Piled burning as part of resource management open fires;
- Pest and disease control – forest health and agricultural applications; and/or
- Debris disposal – by forestry industry, agricultural sector[12], land developers or individual property owners[13].

Along with the above activities currently governed under the regulation, the ministries intend

[12] Includes debris from orchard, vineyard or crop replanting, and piled burning of removed trees/vines/debris from agricultural development or ecosystem management (i.e., squaring up land, expanding cropping area on agricultural land, or removal and burning from ditch lines).

[13] Disposal of whole trees or large scale vegetative debris piles for land development differs from disposal of branches and smaller scale vegetative debris piles associated with yard clean up – the latter are considered backyard burns, and fall under local government jurisdiction.

to amend the OBSCR to include open burning of wood waste at log sort and forwarding facilities.

To support public understanding, language in the regulation will be revised, where possible, to be more consistent with the *Wildfire Act* and its regulations. For example, the OBSCR will be structured to utilize the following "categories" of open fires as defined in the Wildfire Regulation:

- Category 2 – an open fire other than a campfire 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.

Proposed regulatory requirements will be based on the size of the pile, rather than the activity or sector generating the debris.

The following categories of fires defined in the Wildfire Regulation are *outside of the scope of the OBSCR*:

- Category 1 – a campfire that (a) burns piled material no larger than 0.5 m in height and 0.5 m in width, and (b) is lit, fuelled or used by any person for recreational purpose, or by a first nation for a ceremonial purpose.
- Resource Management Open Fire[14] – an open fire that (a) burns unpiled 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.

[14] See section 3.6 D for information about pre-treatment burning of piled debris as part of resource management open fire activities.

Open burning activities that would be exempt from the regulation will be limited to those activities specified in section 6 of the *Environmental Management Act* (EMA):

- Campfires – which are defined as Category 1 open fires;
- Resource management open fires;
- The burning of leaves, foliage[15], weeds, crops or stubble for domestic or agricultural purposes (as exempted under EMA); and
- Open burning under approved solid waste management plans.

3.4 Open burning sensitivity zones

The ministries are proposing to amend the regulation to enable establishment of smoke sensitivity zones based on population density. Areas of the province with a population density of 200 people per square kilometre or more (as provided by the most recent census data) would be categorized as "primary smoke sensitivity" zones (PSS zones). As these areas are more populated, rules for open burning would be more constrained than rules for more remote areas. These standards would also apply to areas within a 10 km radius surrounding the PSS zones. This 10 km buffer is intended to limit impacts from open burning under poor venting conditions (e.g., overnight) on populated areas[16].

Remaining areas of the province would be considered to be secondary smoke sensitivity zones (SSS zones) under the regulation. These zones will be subject to default rules (that can be modified in smoke management plans) reflecting the fact that smoke in these areas can still cause human health concerns. This risk-based model is similar to "category A" and "category B" classifications in the current regulation – defined on the basis of municipal boundaries. Defining primary smoke sensitivi-

[15] To clarify this exemption, foliage will be defined in the regulation to mean vegetation that is removed in the maintenance of cropped plants, or for normal horticultural purposes.

[16] 10 km is considered a reasonable buffer under poor conditions, recognizing that smoke will disperse over a large distance.

ty zones on the basis of population density provides greater protection to more people in the province, will only cover those portions of municipal areas where populations do exist, and will also include populated areas of district municipalities (which are currently classed as "category B" areas). It is expected that over 2/3 of the province's population will be included in the primary smoke sensitivity zones, which will cover approximately 5% of the province's land base.

It is proposed that the zone boundaries would be updated on a regular basis, following updates to census data.

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

3.5 Use of air curtain incinerators and forced air assistance

Applying forced air to a fire can help it to burn hot and efficiently, thereby reducing emissions.

The ministries wish to encourage the use of commercially available "air curtain incinerators" as this technology can substantially reduce emissions when used properly. For the most part, air curtain incinerators will be used within primary smoke sensitivity zones and areas in secondary smoke sensitivity zones where road access is feasible. Air curtain incinerators operate by forcefully projecting a curtain of air across an open chamber or pit in which combustion occurs. Incinerators of this type can be constructed above or below ground and with or without refractory walls and floor.

At log sorts, the use of forced air assistance will be required (rather than encouraged). Recognizing that many of these log sorts are located where road access may restrict the use of air curtain incinerators, other types of forced air assisted devices (i.e., blower fans) will be acceptable. A suitable forced air device must meet the following criteria:

Volume of Wood Waste	Minimum Required Air Flow
< 80 m3	8 000 CFM
80 -150 m3	10 000 CFM
> 150 m3	> 10 000 CFM

The ministries intend to revise the regulation to authorize use of air curtain incinerators and forced air assistance in specified situations (see section 3.6 below) – in accordance with specified standards and requirements consistent with provincial air quality objectives and regulatory measures in other jurisdictions. Any requirements related to registering and reporting open burning via air curtain incineration or forced air assistance would be the same as those required for category 3 burns.

Standards for air curtain incinerators and forced air assisted devices would address fuel content, ash disposal, opacity limits where applicable, testing and reporting requirements. Fuel content would be limited to vegetative debris (from land clearing, right-of-way maintenance – such as hydro lines, roads and rail lines – and forestry operations) or clean untreated wood (from remote log sorts and forwarding facilities). Ash from air curtain incinerators 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 $100m^3$/year applied to a single property). Ash disposal at log sorts must follow Ministry of Environment requirements. The opacity limit (of smoke emissions) for air curtain incinerators would be 10 percent (6 minute average) during operation and 35[17] percent (6 minute average) during the start up period (within the first 30 minutes of operation). Unit owners and operators would be strongly encouraged to have opacity certification training at least every two years. Audits and site visits would be used to determine compliance. Reporting requirements would be similar to those required of burn operators conducting open burns without forced air assistance (report volume burned).

[17] EPA 40 CFR Part 62, Sec. 62.15375.

Additional measures governing operation of air curtain incinerators could include requirements for operator training and/or certification. Proper operation of air curtain incinerators is essential for the realization of the emission reduction benefits. Feedback on this issue from the first intentions paper showed general support for training and certification. This provision could be written into the regulation but not brought into force immediately, in order to allow for the establishment of operator training programs.

Where forced air assistance is not mandated, burners may still wish to employ forced air for best management practices. Where forced air assistance is mandated, burners may wish to utilize air curtain incinerators to achieve maximum reduction of emissions from the burn.

3.6 Rules governing open burning

The ministries are proposing to amend the OBSCR 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.

A. General rules (applicable in both zones)

The ministries are proposing the following general rules – applicable in all smoke sensitivity zones:

- Only vegetative debris and items approved by the director (e.g., tree planting boxes) are allowed to be burned.
- Fires must be setback from residences and businesses, school grounds, hospitals and community care facilities at least the following distances (based on smoke dispersion modeling):
  - From residences and businesses – 150 m if air curtain incineration is used, and 500 m if not, and
  - From school grounds, hospitals and community care facilities – 500 m if air curtain incineration is used, and 1000 m if not.
- With the exception of debris from log sorts and forwarding facilities, all open burning must occur on the same parcel of land from which the debris originated.
- For situations in a woodlot or community forest tenure where the setback distances set out in the regulation (including air curtain incinerator setback distances) cannot be met, the burn operator may: (1) transport the debris to fibre utilization facilities in the area; or (2) transport and open burn the debris at another location within the tenure (on private or Crown land) where the setback distances can be met – the definition of "parcel of land" in the regulation would be revised to ensure that these options are available to woodlot and community forest tenure holders.
- For category 3 fires[18], burn operators will be required to keep records on site for the duration of the burn and retain these records for a period of one year from the date of the burn. These records are necessary for emissions tracking, tracking of conditions that lead to successful/unsuccessful burns, compliance verification, and enforcement. These records will not be required to be submitted unless requested for enforcement purposes. The type of information that would be tracked includes:
  - Burn Registration Number (including contact information and location/ sensitivity zone rating),
  - Smoke management plan identification;
  - Venting forecast and weather conditions at ignition,
  - Volume of debris/estimated pile quantity;
  - Approximate piling date/curing time;
  - Source of debris (land clearing/ forestry/ agriculture, etc.), and
  - Training certification number if applicable.
- While onsite burn records will not routinely be required to be submitted, burn operators conducting category 3 burns will be required to update information in their Burn Registration Number after the burn has been conducted. In

[18] See section 4.3 above for the definition of open fire "categories" (in accordance with the B.C. Wildfire Regulation).

most cases, reporting will be limited to the actual number of piles burned and approximate date they were burned. In primary smoke sensitivity zones (PSS zones), burn operators will also be required to report when the piles stopped smoking and/or when the piles were extinguished.

B. Open burning in a primary smoke sensitivity zone

The ministries intend to allow open burning of category 2 and 3 fires in a primary smoke sensitivity zone during daylight hours only and during optimal venting periods[19] – under the following terms:

1. Open burning *without the use of air curtain incineration* will be allowed for single days where only 5% of the original volume can still be emitting smoke by sunset of that day and no visible smoke can be emitted by sunset of the second day. The venting must be 'good' on the day of ignition and forecast to be 'good' on the second day if smoke is released on the second day.
2. Open burning *using air curtain incinerators* will be allowed for two consecutive calendar days (including overnight operation) when the venting is 'good' on the day of ignition and forecast to be 'fair' or better on the second day. Burning may continue until venting is forecast to be 'poor' or turns 'poor'.

There will be no maximum number of burns per year or maximum periods between burns but Ministry of Environment regional managers may require that no burning occurs during the first good venting day after a period of poor venting to allow accumulated particulate in the airshed to disperse. This temporary burn ban will be communicated online and through the venting index hotline.

[19] Venting should be 'good' on the day of ignition. Venting is 'good' when defined as good through: 1) the 4:00PM Venting Index Forecast issued by Environment Canada; or 2) a custom venting forecast. Under 'good' conditions, ignition can occur no sooner than 2 hours after sunrise. An example of an online sunrise/sunset calendar can be found at: www.earthtools.org.

Open burning of *wood waste from log sorts and forwarding facilities* will not be allowed in PSS zones or within 5 km of the perimeter of a PSS zone. Site specific authorizations (e.g., approvals) may be granted under the *Environmental Management Act*.

The ministries are aware that in a limited set of circumstances there may be specific reasons necessitating open burning in a primary smoke sensitivity zone. To address such situations, the ministry intends to allow exceptions to setback distances and PSS zone criteria for the following activities:

- Community wildfire protection program;
- Management of forest diseased trees;
- Management of agricultural diseased vegetation; or
- "Other" specified circumstances (as approved by the director of the Ministry of Environment).

These exceptions must be recommended or supported by a professional (e.g. agrologist) or official (e.g. fire chief or MoFR official) – and must include 'plans' that document how smoke impacts will be mitigated.

C. Open burning in a secondary smoke sensitivity zone

Open burning of *category 2* and 3 *fires without air curtain incineration* will be allowed for three consecutive calendar days from the day of ignition provided the ventilation index is 'good' on the day of ignition and forecast to be 'fair' or better on the second day. Both the smoke release period and venting requirements may be modified in smoke management plans.

Open burning of *category 2* and 3 *fires using air curtain incineration* will be allowed for three consecutive calendar days (including overnight operation) from the day of ignition provided the ventilation index is 'good' on the day of ignition. Burning may continue beyond the three calendar days until the venting is forecast to be 'poor' or turns 'poor'.

Open burning of *wood waste from log sorts and forwarding facilities using air curtain incineration* will be allowed if the designated site is located 5 km or more from the perimeter of a primary smoke sensitivity zone. Burning will be allowed for three consecutive calendar days from the day of ignition provided the ventilation index is 'good' on the day of ignition. Burning may continue beyond the three calendar days until the venting is forecast to be 'poor' or turns 'poor'.

Open burning of *wood waste from log sorts and forwarding facilities using forced air assistance* will be allowed for designated sites located 15 km or more from the perimeter of a primary smoke sensitivity zone. Burning will be allowed for three consecutive calendar days from the day of ignition provided the ventilation index is 'good' on the day of ignition and forecast to be 'fair' or better on the second day. The ministries are seeking comments and suggestions for requiring a maximum of four burns per year at these sites.

D. Smoke management plans

Currently, several forest districts in the province have smoke management plans that guide the practices of forestry operations and work well to minimize smoke impacts from open burning. In general these plans provide regional flexibility for forestry operators to meet the intent of the OBSCR.

The ministries are proposing to formalize smoke management planning under the OBSCR and broaden the plans to include the interests of other stakeholders. The ministries will provide a template that builds on the best available examples of smoke management plans. Ideally, a plan's area would be by forest district, but larger plan areas could be considered.

While an approved smoke management plan would be an option under the OBSCR, in the case where a plan does not exist, or where a burn operator has not signed on to a plan, the default rules and smoke sensitivity zones would apply.

Venting requirements and smoke release duration within the secondary smoke sensitivity zones could be relaxed *or* tightened under a smoke management plan. Pile burning as pre-treatments to Resource Management Open Fires could also be addressed in a smoke management plan.

Companies or associations who choose to follow a smoke management plan would be required to sign on to the plan as a commitment that they and their employees/members will follow the practices laid out in the plan. A plan could be amended at any time to add or remove signatories.

Smoke management plans under a new OBSCR may be collaboratively created through a multi-stakeholder process and interested parties within the forest district will be consulted. The Ministry of Environment would direct the process and approve final plans – to ensure that human health issues are satisfied and public consultation needs and identified concerns have been addressed. Other parties that may be involved in a process to develop a smoke management plan include:

- Ministry of Forests and Range;
- Ministry of Agriculture and Lands;
- Other ministries as appropriate;
- First Nations;
- Local forest industries/companies;
- Associations (e.g., woodlot, cattleman's, fruit/grape growers, land developers);
- Utility corporations;
- Local government;
- Health authorities;
- Airshed groups/NGOs; and
- Other interested public/user groups.

3.7 Process for assessing and authorizing an open burn

The steps a burn operator needs to take to ensure compliance with all legislation and bylaws related to open burning will vary with the location of the proposed burn.

In all cases, the first step that operators should take is to seek opportunities for debris utilization or alternative disposal methods. The ministries have published an inventory of businesses and facilities that accept household and business vegetative debris in every regional district of the province[20]. More added value opportunities for debris may also become available in the future.

Category 3 open burns outside of municipal boundaries must have a Burn Registration Number from the Ministry of Forests and Range and must comply with the *Wildfire Act* and Regulation as well as the OBSCR. The ministries are presently exploring operational and cost effectiveness considerations involved in collecting category 3 post-burn reports via the Open Fire Tracking System 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). Additional questions about volume of debris, curing time, and origin of debris may be asked at this time;
2) Follow all requirements in the OBSCR, including favorable venting (as determined by the Environment Canada venting index, a custom ventilation forecast, or other as authorized by the Director); and
3) Confirm the actual volume of debris that was open burned – this is a critical aspect for the province's emissions inventory – additional Burn Registration Numbers would not be issued until the operator has fulfilled this requirement.

Category 2 or 3 open burns within local government boundaries must comply with the OBSCR and any local bylaws. In this case, burn operators would seek information about any local requirements to open burn from their local government and follow all requirements in OBSCR, including favorable venting (as determined by the Environment Canada venting index, a custom ventilation forecast, or other as authorized by the Director). The ministries will provide information about OBSCR requirements and education and awareness resources to local governments and the public through the BC air quality website (www.bcairquality.ca).

Burn operators should be able to access all needed information about open burning through a "single window" (hosted by the Ministry of Forests and Range, local government or the Ministry of Healthy Living and Sport through www.bcairquality.ca). A single window approach would support the ministries' objectives of maximizing compliance and consistency and minimizing inconvenience to burn operators – reinforcing the primary objective of reducing the effects of smoke to human populations.

3.8 Powers and penalties

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

- Issue cease and desist orders;
- Suspend or deny Burn Registration Numbers for repeat violators;
- Require burners to provide tracking documents (e.g., log books, burn authorization number or operator certification).

The ministries will also explore the feasibility of issuing tickets for fines of varying amounts depending on the severity of the infraction (e.g., open burning within the setback distances to schools, hospitals or community care facilities, or during poor venting may result in a larger fine than for "administrative" infractions).

[20] See http://bcairquality.ca/topics/rcbc-alternatives.html.

4. Supporting Implementation and Compliance

4.1 Best Management Practices

The regulation will be supported by guidelines and/or "best management practices" (BMPs) that provide information regarding how burn operators can meet government goals for protection of human health and manage burning 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.

BMPs will be incorporated in smoke management plans and exist as standalone guides for all burn operators[21]. BMPs related to agricultural waste disposal in particular will cover management of debris that is currently exempted[22] from the *Environmental Management Act.*

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 assistance devices 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.

4.2 Assuring Compliance

The ministries will develop a strategy for the promotion of voluntary compliance with the requirements of this regulation, in cooperation with industry associations, airshed groups and other interested parties. Compliance promotion may entail training for staff, as well as information and education for those considering open burning. Burn operator training and certification may be written into the OBSCR though not enacted until such a program is developed and available.

The ministries' approach to assuring compliance with the OBSCR 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 human health.

The ministries are committed to using compliance verification data to guide the ongoing management of open burning practices and assure that government goals for air quality are being met.

The Ministry of Environment options for response to non-compliance will include written advisories, warnings, directives, tickets and court proceedings. The choice of response will be guided by ministry-wide compliance policy, the compliance history for the burn operator and the significance of the impact from the non-compliance occurrence. Note that the ministries intend to strengthen the fines and penalties provisions of the regulation (see section 3.8 above).

[21] For an example, see the Woody Debris Management infoflip available at: http://fire.feric.ca/36512008/FinalReport/WoodyDebrisManagementStragegies-InfoFlip.pdf.

[22] The burning of leaves, foliage, weeds, crops or stubble for domestic or agricultural purposes.

5. Providing Comment on Proposed Intentions for the Regulation

The ministries are intending to finalize the OBSCR in advance of the 2011 burning season. Comments regarding the proposed intentions of the ministries are being solicited and will be carefully considered in the review and development process. The ministries welcome all suggestions with respect to any aspect of the regulation.

This intentions paper and a response form with questions based on proposed intentions for the regulation have been posted on: http://www.env.gov.bc.ca/epd/codes/open_burning/index.htm.

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 ministries without following the format set out in the response form – as desired.

Submissions will be compiled and summarized, without specific attribution, by an independent contractor and the summary posted on the Ministry of Environment website and linked to www.bcairquality.ca. Following review of comments and submissions, the ministries will complete legal drafting of the regulation for legislative review and implementation.

Comments to the ministries should be made on or before September 23, 2010.

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

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

Fax: (250) 598-9948

Thank you for your time and comments!

APPENDIX A: SUMMARY OF RULES GOVERNING OPEN BURNING

Type of Burn	General Rules	*PSS Zone Rules	*SSS Zone Rules	Smoke Management Planning
Category 2	• Only vegetative debris can be burned and on the parcel of land from which the debris originated • Fires must be setback 500 m from residences and businesses and 1000 m from school grounds, hospitals and community care facilities	• Open burning is allowed for single days where only 5% of the original volume can still be emitting smoke by sunset of the first day and no visible smoke by sunset of the second day • Venting must be 'good'/'good'	• Open burning is allowed for three consecutive calendar days • Venting must be 'good'/'good' or 'good'/fair'	• In SSS Zones, the smoke release period and venting requirements may be modified in a smoke management plan
Category 3	• Only vegetative debris can be burned and on the parcel of land from which the debris originated • Fires must be setback 500 m from residences and businesses and 1000 m from school grounds, hospitals and community care facilities • Record keeping is required ** • Burn operators are required to update information in their Burn Registration Number after the burn has been conducted	• Open burning is allowed for single days where only 5% of the original volume can still be emitting smoke by sunset of the first day and no visible smoke by sunset of the second day • Venting must be 'good'/'good'	• Open burning is allowed for three consecutive calendar days • Venting must be 'good'/'good' or 'good'/fair'	• In SSS Zones, the smoke release period and venting requirements may be modified in a smoke management plan
Category 3 – Air Curtain Incineration	• Only vegetative debris can be burned and on the parcel of land from which the debris originated • Fires must be setback 150 m from residences and businesses and 500 m from school grounds, hospitals and community care facilities • Record keeping is required ** • Burn operators are required to update information in their Burn Registration Number after the burn has been conducted	• Open burning is allowed for two consecutive calendar days (including overnight operation) • Venting must be 'good'/'good' or 'good'/'fair' • Burning may continue beyond day two until venting is forecast to be 'poor' or turns 'poor'	• Open burning is allowed for three consecutive calendar days (including overnight operation) • Venting must be 'good' on the day of ignition • Burning may continue beyond day three until the venting is forecast to be 'poor' or turns 'poor'	• In SSS Zones, the smoke release period and venting requirements may be modified in a smoke management plan

Log Sort Facilities < 5 km from PSS Zone	• No open burning will be authorized under the OBSCR ***	• N/A	• N/A	• N/A
Log Sort Facilities 5 km to 15 km from PSS Zone	• Only vegetative debris can be burned and air curtain incinerators must be employed • Fires must be setback 150 m from residences and businesses and 500 m from school grounds, hospitals and community care facilities • Record keeping is required ** • Burn operators are required to update information in their Burn Registration Number after the burn has been conducted	• N/A	• Open burning is allowed for three consecutive calendar days (including overnight operation) • Venting must be 'good' on the day of ignition • Burning may continue beyond day three until the venting is forecast to be 'poor' or turns 'poor'	• Rules cannot be modified in a smoke management plan
Log Sort Facilities > 15 km from PSS Zone	• Only vegetative debris can be burned and forced air assistance (i.e., blower fans) must be employed • If air curtain incineration is employed, the above rules apply • Fires must be setback 500 m from residences and businesses and 1000 m from school grounds, hospitals and community care facilities • Record keeping is required ** • Burn operators are required to update information in their Burn Registration Number after the burn has been conducted	• N/A	• Open burning is allowed for three consecutive calendar days • Venting must be 'good'/'good' or 'good'/fair'	• Rules cannot be modified in a smoke management plan

*PSS zone= primary smoke sensitivity zone; *SSS zone = secondary smoke sensitivity zone
**Records are required to be held for at least one year following a burn, including registration information, venting forecast and weather conditions, volume and source of debris burned and applicable training certification requirements
*** Site specific authorizations (e.g., approvals) may be granted under the *Environmental Management Act*