



Chapter 6: Forest Harvest Debris Burning **2009 Addendum**

Chapter 6 of the BVLD Clean Air Plan addresses air pollution resulting from the burning of slash piles left behind after logging operations, as well as broadcast burning and fall-and-burn activities that are sometimes carried out as part of forest management efforts. This year AMS had the opportunity to conduct a Woody Debris Inventory that focused on roughly quantifying the volume and character of slash burned each year. Simultaneously, there has been interest in the BVLD Airshed to establish both a bio-energy plant and a pellet plant, each planning to use forest harvest debris as the source material.

Since the Plan was written in 2004 economic and forest-health events have affected the amount of forest harvest debris burning. The Mountain Pine Beetle (MPB) spread very quickly through the eastern portions of the BVLD from 2004 - 2006, causing widespread tree mortality. This has led to a reduction in “Fall and Burn” activities and an increase in harvesting, as small beetle control patches have become larger harvestable areas. Many forest companies increased harvesting rates between 2006 and 2008 in an effort to salvage the dead trees while they still have value in the marketplace. The Custom Venting Forecasting (CVF) Program and other smoke control efforts (see the strategies below) have been employed in an attempt to reduce the frequency and severity of air quality episodes associated with this increased harvesting and open burning activity. Unlike the situation in the east, western portions of the airshed (such as the Bulkley TSA, which is just now seeing more widespread impacts from the MPB), didn’t see the same increase in general harvesting; however, these areas saw an increase in “Fall and Burn” activities, as attempts were made to protect these forests from MPB. Conversely, the global economic situation has led to rotating mill closures in the last year or so, which has reduced the numbers of debris piles produced and offset the accelerated levels of harvest & debris pile accumulation in non-closure areas.

Chapter 6 identifies three goals and a number of strategies to reduce emissions from forest harvest debris burning. Table 6.1 describes the strategies that were implemented over the past five years, and Table 6.2 reports back on the indicators listed in *Table 6-1* of the Plan.

Table 6.1: Update of Strategies Implemented 2004-2008

Goals	Strategies
1. Reduce air quality episodes from forest debris harvest burning and	Conduct public education in conjunction with MOE. In 2008 the Ministry of Environment published an information brochure on the Open Burning Smoke Control Regulation (OBSCR) for distribution when responding to questions or complaints, or conducting stakeholder outreach. The Ministry of Environment also maintains

reduce impacts from this burning at any time

a 1-800 venting hotline, and has made numerous presentations at public and private events including AMS meetings, the annual AMS Burn Operators Forum and other workshops.

Coordinate burning operations to avoid overloading the airshed.

The Custom Venting Forecasting (CVF) Program (a partnership between the Ministry of Environment, the AMS and licensees) was created in 2003 to help coordinate burning activities. Through the CVF Program, forest licensees can sign up to receive a site-specific venting forecast for their burn location. Through the program, the forecaster can consider site-specific conditions and risk factors when deciding how many piles can be burned so as to avoid overloading the airshed.

The annual Burn Operator Forum in September also provides a venue for information sharing and coordination of burning operations (see discussion under Resource Management Subcommittee below).

Enforce applicable regulations and burn plans (now called smoke management plans).

While the AMS does not have regulatory authority to enforce legislation, the Ministry of Environment (Environmental Protection Division and Conservation Officer Service) has directed resources to OBSCR compliance and enforcement. In 2003-04 the Ministry of Environment conducted a province-wide audit of open burning, and since then the Ministry has conducted annual helicopter compliance flights during poor (venting and) air quality periods. The Ministry also responds to all complaints, and attends the site to issue tickets and take enforcement action on a risk-based approach.

The Ministry of Environment worked with Ministry of Forest and Range officials in local forest districts to create smoke management plans in 2004. The Skeena-Stikine and Nadina Forest Districts developed plans approved by Forest District Managers that relax venting requirements for open burning in remote areas while also reducing smoke impacts from open burning near communities.

Legislation (OBSCR) changes are now underway that intend to greatly minimize exposure to smoke from the burning of forest harvest debris (& other sources) within a distance radius from populated centres. The intent is for smoke emitters to find alternate means of disposing of material in high sensitivity zones where smoke is most likely to impact human health. In the case where no alternatives are feasible, smoke release periods will be reduced so that overnight smouldering of burn piles is diminished. It may be as late as 2015 before this is completely implemented and enforced.

Continue operation of Resource Management Burning Regional Working Group Subcommittee.

The Resource Management Burning Regional Working Group Subcommittee was re-named the Woody Debris Management Subcommittee in 2008, and it remains in operation today. The Terms of Reference for the Committee (which were updated in 2008) describe how the subcommittee monitors implementation of strategies in Chapter 6 and 7 of the Clean Air Plan, and plans the Burn Operators Forum.

The AMS hosts an annual Burn Operators Forum which focuses on: 1) reviewing results of the previous burning season in terms of air quality impacts and compliance; 2) sharing existing and emerging best practices for forest debris management; and, 3) creating an inventory of burns planned for the upcoming burn season. The forum also provides an important opportunity for burn operators to interact with the Custom Venting Forecaster, and discuss updates to the Clean Air Plan.

Continually explore alternatives to reduce emissions.

Debris burning reduction attempts by industry have included: selecting debris piles in remote locations that will not be burned; selecting piles suitable for wildlife that will also not be burned; bundling and transporting the material to a location where it can be chipped; and creating plantable spots through the debris without burning it. Each of these methods potentially increase the level of fire risk in the forest and thus a suitable method has not been agreed upon for widespread use. The degree of fire risk is thought to decline for all methods within a year or two of logging, as the fine fuels decompose. A combination of the above methods is probably the best solution for reducing burn pile emissions. It should be noted that a level of risk is also created in the burning of debris piles. Wildfires have been caused during the ignition of debris piles, and after smouldering piles have re-ignited in the Spring.

The fire risk from debris piles and the determination of what is sufficient hazard abatement is very subjective, and it is not specifically addressed in the existing legislation.

The Woody Debris Management Committee should consider developing a list of recommendations for updating Smoke Management Plans and the Forest and Range Practices Act, Wildfire Regulation - section 12, regarding fire hazard abatement. This section should be amended, to reflect the current research available on

- fire risk,
- determining what is a sufficient level of fire hazard abatement,
- the health hazards of wood smoke,
- the impacts of burning on climate change,
- the losses to ecosystem structure and diversity from removing woody debris, and
- negative public opinion with regards to open burning.

To facilitate the diversion and use of wood debris in general, the AMS worked with the Ministry of Environment and Community Futures Development Corporation to organize a Wood Residue Workshop in April 2008. The workshop was a great opportunity for wood residue producers, consumers, and interested entrepreneurs to learn about alternative uses of wood residue through various presenters, displays and demonstrations. As well, the workshop provided a forum for networking and encouraged partnerships in pursuing value-added projects or businesses.

Subsequent to the workshop, the AMS completed a Woody Debris Inventory in 2009 to help match up businesses that want woody debris with businesses that are burning or landfilling woody debris. The inventory resulted in the development of a database of known woody debris generators and an inventory of available woody debris from forestry operations, landclearing operations, and sawmills (the inventory includes specific characteristics of the debris, as well as the volume available, location, moisture content, instructions regarding access, etc.). The final report also includes an overview of available markets for woody debris, and provides recommendations for marketing this resource.

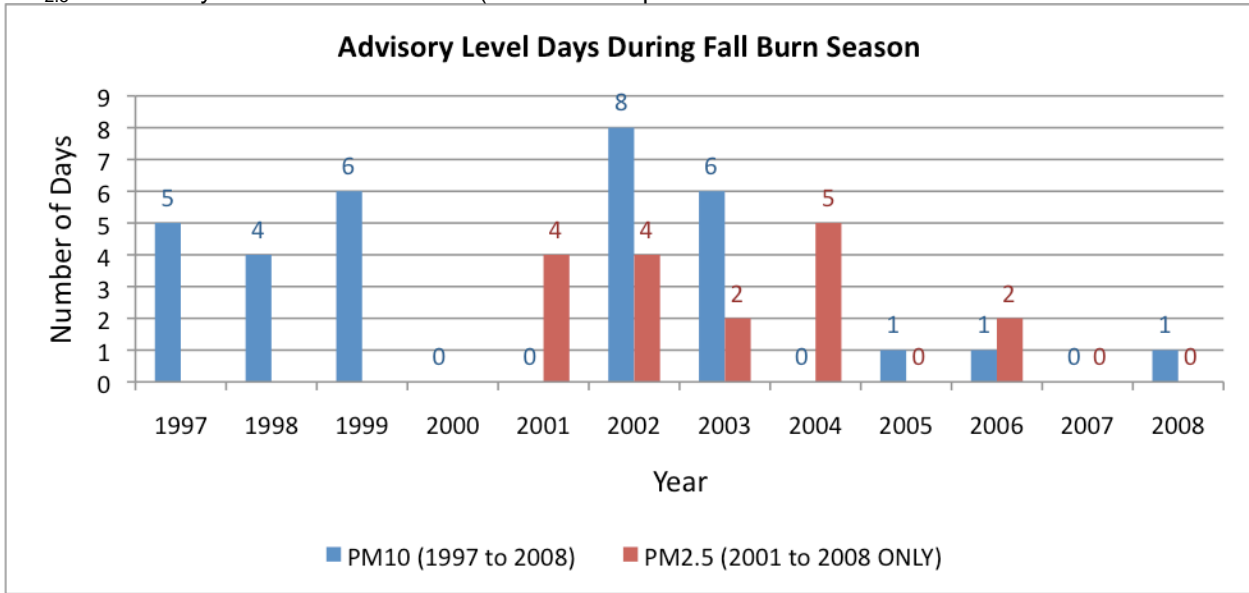
In 2009, NEWPRO (Smithers) began using wood from forestry burn piles as a fibre source for its particleboard product. A grinding machine was taken out to cutblocks, to process the logs and load chip trucks. This alternative use of debris appears to be feasible within 3hr cycle time to their mill. In addition, in the Burns Lake area, two pellet plants are in the final stages of approval in late 2009. Wood waste material generated from harvesting and land clearing activities in the local Burns Lake area will be used as a fibre source for these plants, and it is expected this will dramatically reduce the amount burned in burn piles where this material can be economically taken to the plants. The AMS is optimistic activities like this could become more widespread in the coming years.

<p>2. Provide a proactive response when air quality is deteriorating</p>	<p>Do not initiate burning during burn bans, regardless of venting conditions.</p> <p>Burn operators have generally cooperated and haven't initiated burning when air quality is deteriorating.</p>
<p>3. Reduce smoke impacts on light aircraft</p>	<p>Ensure that the maximum number of piles being burned does not exceed allowable amounts.</p> <p>Through the use of smoke management plans and the Custom Venting Forecasting Program (see above), attempts have been made to control the maximum number of piles being burned.</p> <p>Improve communication.</p> <p>When the Custom Venting Forecasting Program was established, an email notification process was also implemented to improve communication between burn operators and other stakeholders (such as light aircraft operators). The email system successfully allowed burn operators to track one another's activities (and where possible, coordinate their schedules to minimize impacts of their activities), and provided a warning of burn activities to aircraft operators, so they could adjust their schedules, flight paths, etc.</p>

Table 6.2: Indicator Results

Goals	Indicators
<p>1. Reduce air quality episodes from forest debris harvest burning and reduce impacts from this burning at any time; and</p> <p>2. Provide a proactive response when air quality is deteriorating</p>	<p>% Potential Episode Days during forest harvest debris burning season.</p> <p>This indicator has been replaced with "Number of Advisory-Level Days". Figure 6.1 illustrates the number of advisory-level days during the fall open burning season, which is defined as October and November for the purpose of this indicator (since other sources such as woodstoves become prevalent emission sources in the BVLVD Airshed later in the season). PM_{2.5} is the best indicator of emissions from open burning, but because only 3 years of complete PM_{2.5} data are available, PM₁₀ results are also included.</p> <p>There does appear to be an improvement in the Number of "Advisory-Level Days" for PM₁₀ and PM_{2.5} in the past five years. The average number of Advisory-Level Days (based on PM₁₀ prior to 2004 was 4.1 and the average from 2004-2008 was 0.6. This is a remarkable improvement!</p>
<p>3. Reduce smoke impacts on light aircraft</p>	<p>Complaints from charter companies.</p> <p>The Ministry of Environment has a formal tracking system for tracking air quality complaints. That said MOE staff estimate that only a couple of complaints were received during the early years of plan implementation, with nothing in recent years. This suggests that smoke impacts have been reduced, or charter companies are not bothering to register complaints. In the next version of the plan, a different indicator should be considered (perhaps a survey of light aircraft operators?).</p>

Figure 6.1 – Advisory-Level Days During Fall Open Burning Season. This figure shows the number of days during the fall open burning season (defined as October and November) when the 24-hour average concentration of PM₁₀ exceeded 50 µg/m³ or PM_{2.5} exceeded 25 µg/m³ in Burns Lake, Houston or Smithers. There appears to be improvements in results for PM₁₀ or PM_{2.5} in the past five years, likely as a result of actions described above. It should be noted, however, that 2006 to 2008 are the only years with complete datasets for PM_{2.5}. Prior to 2006, PM_{2.5} data is only available for Houston (with the exception of 2004 which includes data from Smithers as well).



Future Direction:

The AMS believes that significant gains have been made in reducing emissions from forest debris harvesting over the past five years, through Open Burning Smoke Control compliance promotion and enforcement, the Custom Venting Forecasting Service, and active investigation into alternative uses of woody debris. In the coming years, the AMS is committed to continuing its efforts to promote value-added alternatives such as incorporation of closed loop systems such that all residuals and by-products of economic activities are cycled back into nature or the economy. In addition, the AMS will do what it can to encourage companies to utilize existing pulpwood sources (such as dead standing pine and forest harvest burn piles) in their operations, thus reducing the number of new pulpwood blocks to be harvested.