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# S A W M I L L   A I R   A U T H O R I Z A T I O N C O M P L I A N C E   A U D I T   R E P O R T

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*Environmental Management Act*



August 2017



## Executive Summary

The Sawmill Air Authorization Compliance Audit (the audit) set out to evaluate sawmills operating within the Province of British Columbia (BC) during 2015 and to determine their level of compliance with the monitoring and/or reporting requirement section(s) in their air authorizations issued under the *Environmental Management Act* (EMA). The objectives of the audit were to:

1. Determine overall industry compliance rates with air authorizations and other regulatory requirements;
2. Determine industry compliance rates for operating, monitoring and reporting requirements; and
3. Provide recommendations to improve compliance with the sawmill industry.

The sawmill sector has been a vital component of the British Columbia (BC) economy since the 1880s (Pinkerton & Benner, 2013). Today, the province is a world leader in sustainable forestry; however, the sawmill sector is not without its challenges. For instance, sawmills contribute to industrial emissions of particulate matter, smog-forming chemicals, nuisance odour and fugitive dust (BC Air Quality website, 2017). These emissions contribute to poor air quality which has adverse effects on human health and the environment.

There are currently 104 sawmill air authorizations in BC; 81 have monitoring and/or reporting requirements. Of these, 38 authorizations were assessed to determine whether or not authorization holders were in compliance during the 2015 reporting year.

The overall industry compliance rate is 26%; while the sector compliance rate was low for 2015, the majority of non-compliances were administrative in nature. Factors leading to the observed non-compliance rates included:

- Failure to understand monitoring and reporting requirements;
- Failure to submit reports on time and with the required information; and
- Failure to ensure that the authorization accurately reflects the current operations at the facility.

Given the results of the audit and the feedback from industry representatives during post inspection follow-ups, the following recommendations have been made:

### For the Sawmill Industry

1. Ensure authorization monitoring and reporting requirements are frequently reviewed to ensure that monitoring data and reports are submitted on time and that the submissions include the required information and parameters;<sup>1</sup>
2. Periodically review facility works to confirm that the authorization reflects current operations and that there are no unauthorized discharges; and

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<sup>1</sup> It is the responsibility of authorization holders to apply for an authorization amendment to reflect the changes to authorized works, quantity and quality of the discharge, monitoring and reporting requirements or other terms and conditions.

**Compliance Promotion and On-site Inspections**

3. This audit was limited to a desktop exercise and focused on the monitoring and reporting sections of the air authorizations. Conduct on-site inspection of all sawmills in the Province in 2017-18.

**Wood Processing Code of Practice**

4. Establish a single set of air emission standards for BC; and
5. Provide a clear, common and equitable regulatory framework for BC's wood processing industry.

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## Introduction

The sawmill sector has been a vital component of the British Columbia (BC) economy since the 1880s (Pinkerton & Benner, 2013). Today, the province is a world leader in sustainable forestry; however, the sawmill sector is not without its challenges. For instance, sawmills contribute to industrial emissions of particulate matter, smog-forming chemicals, nuisance odour and fugitive dust (BC Air Quality website, 2017). These emissions contribute to poor air quality which has adverse effects on human health and the environment.

Recent Ministry of Environment and Climate Change Strategy initiatives to improve provincial air quality include: the proposed [Wood Processing Industry Code of Practice](#) that will apply to the majority of BC sawmills; the December 31, 2016 final shut down date for all wood residue (“bee hive”) burners in the province; and the Wood Residue Burner and Incinerator Regulation (WRBIR) which came into effect on January 1, 1996.

Wood residue burners were once commonly used in BC sawmills to dispose of the wood waste generated during the milling process (Mihalyo, 1997). The WRBIR established the phase-out dates and operating conditions for specified burners and set emission limits and fees for the discharge of associated particulate matter for all wood residue burner facilities in the Province. Since its establishment, wood residue burners have been gradually phased-out across BC.

Environmental regulations are in place to improve environmental outcomes and increase human health and safety. The Sawmill Air Authorization Compliance Audit (the audit) was conducted to assess sawmills compliance with monitoring and reporting requirements. 38 of 104 sawmill operations were inspected. Since sawmill air emission discharge authorizations are not standardized, the requirements assessed to determine compliance vary according to each authorization.

In addition to the results of compliance rates with air authorizations, this audit report provides information on the following:

- Observations resulting from a review of all 104 sawmill authorizations;
- Observations regarding the proposed Wood Processing Code of Practice; and
- An update on the status of wood residue burners in BC.

### PLEASE NOTE:

The term “sawmill” refers to sawmills, planer mills, wood residue burners and open burn authorizations that are associated with authorized sawmill facilities.



Figure 1 – Smoky Wood Residue Burner (ENV inspection files)



Figure 2 - Sawmill Cyclone (ENV inspection files)

## Regulatory Context

The Ministry of Environment and Climate Change Strategy (ministry) is responsible for the protection, management and conservation of BC's water, land, air and living resources. In order to fulfil its mandate, the ministry issues authorizations under EMA. EMA and the Waste Discharge Regulation (WDR) are the principle legislative tools for managing air quality in BC. EMA prohibits the introduction of waste into the environment in a way that will cause pollution, except in accordance with a regulation, authorization, approval or code of practice issued under the Act; the WDR defines what industries, activities and operations require authorizations to discharge or release waste under EMA.



Figure 3 - BC Forest (FLNRO, 2017)

Sawmill air authorization requirements help to regulate BC air quality. Please refer to [Appendix 1](#) for a list of key legislation that is applicable to BC sawmills.

## Audit Approach

There are currently 104 sawmill air authorizations in BC (see Figure 5 on the following page). 81 authorizations have monitoring and/or reporting requirements. Of these, 38 authorizations from 27 companies operating across BC were randomly selected and assessed for compliance with their authorization monitoring and/or reporting conditions ([Appendix 2](#)).

Compliance was determined through a thorough examination of each sawmill authorization's monitoring and/or reporting requirements. This included a desktop review of the required reports and data for the 2015 reporting year to determine if:

- a) Authorization holders submitted the required reports and data for 2015; and
- b) The information submitted meets the standards specified in the authorization.

It is important to note that inspections are a "point-in-time" assessment of authorization requirements.

In addition to the compliance inspections, all 104 sawmill air authorizations were reviewed to assess overall industry trends and observations regarding recent ministry initiatives in the forestry sector (i.e. the proposed Wood Processing Code of Practice and the final shut down date for wood residue burners). Please refer to the [Results of Audit](#) section for details.



Figure 4 – Sawmill Log Sorting Equipment (ENV inspection files)





Figure 5 - Sawmill Air Authorizations in BC

## Compliance Determinations

Each inspection included information on the following:

- The authorization requirements that were assessed for compliance;
- Compliance determinations;
- Compliance history; and
- Compliance and enforcement responses (if applicable).

A critical component of each inspection is its compliance determination. The four compliance determinations are outlined in Table 1.

### WHAT IS A COMPLIANCE DETERMINATION?

A compliance determination indicates whether or not an authorization holder is fulfilling the requirements of their authorization.

**Table 1 - Compliance Determination**

Compliance Determinations	
"In"	The authorization holder was determined to be in compliance with the requirements of Sections and/or Subsections of the authorization.
"Out"	The authorization holder did not meet all of the requirements of Sections and/or Subsections of the authorization.
"Not Determined"	The information necessary to determine compliance was missing.
"Not Applicable"	The requirements of Sections and/or Subsections of the authorization were not applicable.

## Compliance and Enforcement Response Determinations

The [Compliance and Enforcement Policy and Procedure](#) sets out how ministry staff assesses and responds to non-compliance. It provides consistency, clarity and predictability regarding the consequences of non-compliance, and ensures that ministry resources are directed to the highest priorities.

Please refer to Table 2 on the following page for a list of the compliance and enforcement response determinations used in the audit.



**Figure 6 - Hog System Cyclone (ENV inspection files)**

**Table 2- Compliance and Enforcement Response Determinations (ENV, 2014)**

<b>Compliance and Enforcement Response Determinations</b>	
<b>Notice</b>	<p>While not technically an enforcement response, notices are a valuable compliance tool that document compliance and inform authorization holders of the outcome of inspections.</p> <p>A notice is issued when an authorization holder is found to be “In” compliance with the authorization requirements assessed during the inspection.</p>
<b>Advisory</b>	<p>An advisory is often the first enforcement response taken in cases of minor to moderate non-compliance when there is a high likelihood of achieving compliance.</p> <p>An advisory notifies the authorization holder that they are “Out” of compliance with a specific regulatory requirement and often recommends a course of action that is expected to achieve compliance.</p>
<b>Warning</b>	<p>Similar to an advisory, a warning notifies the authorization holder that they are “Out” of compliance with a specific regulatory requirement; however, the warning differs from an advisory in that it warns of the possibility of an escalating response should non-compliance continue.</p>
<b>Administrative Monetary Penalty (AMP)</b>	<p>An AMP is a monetary fine imposed by a ministry official in response to non-compliance.</p>

## Audit Limitations

Eighty-one sawmill air authorizations have monitoring and/or reporting requirements. Of these, 48 authorizations include monitoring and/or reporting requirements that are enforceable. Enforceable requirements are those sections of an authorization that can be assessed for compliance during an inspection.



**Figure 7 - Sawmill Stack (ENV inspection files)**



**Figure 8 - Planermill Shavings Cyclone (ENV inspection files)**



## Results of Audit

### Overall Results

Twenty-six percent of sawmill air authorizations were “In” compliance with their 2015 monitoring and reporting requirements while 71% were “Out” of compliance with at least one requirement (Figure 9).

While the sector compliance rate was low for 2015, the majority of non-compliances were administrative in nature. For example, of the authorizations that require the submission of annual reports, 60% submitted the 2015 annual report on time.

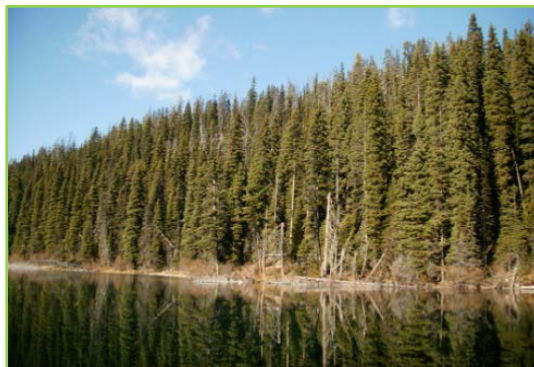


Figure 9 - BC Forest (FLNRO, 2017)

While the sector compliance rate was low for 2015, the majority of non-compliances were administrative in nature. For example, of the authorizations that require the submission of annual reports, 60% submitted the 2015 annual report on time.

### Breakdown of Inspection Results

The monitoring and reporting requirements are broken down by subsections:

1. Emission source monitoring and/or reporting requirements (emissions sources);
2. Particulate matter limits (particulate matter);
3. Authorized rate of discharge (rate of discharge);
4. Site specific management plans; and
5. Submission of annual reports (annual reports).

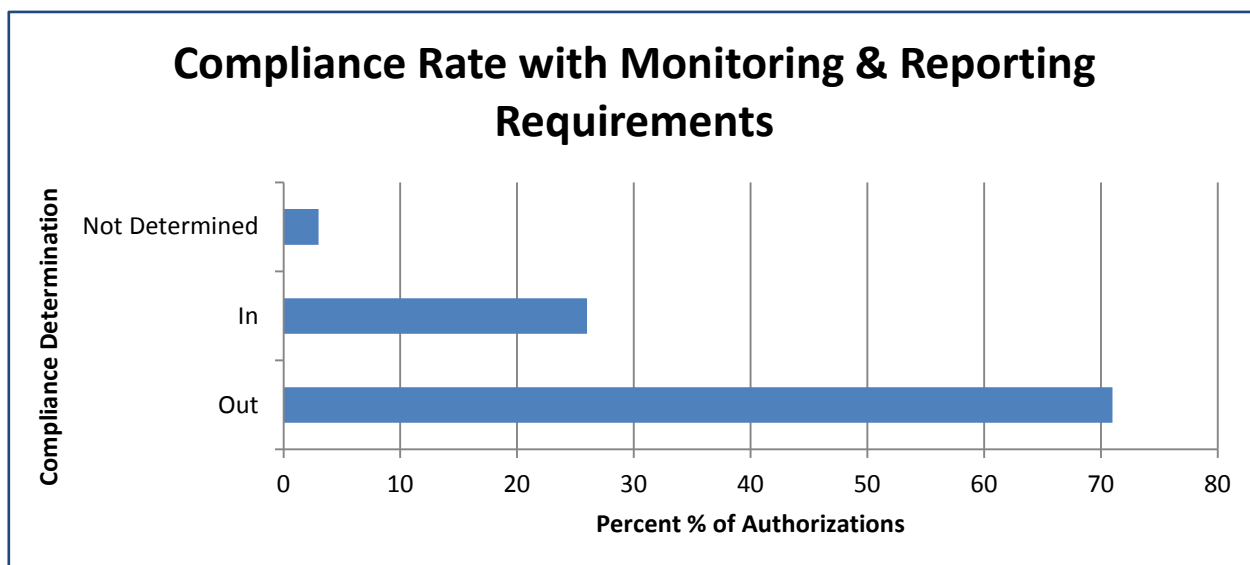


Figure 10 - Compliance with Monitoring and Reporting Requirements

Example requirements are provided for each subsection. The examples were randomly selected from the authorizations included in the audit.

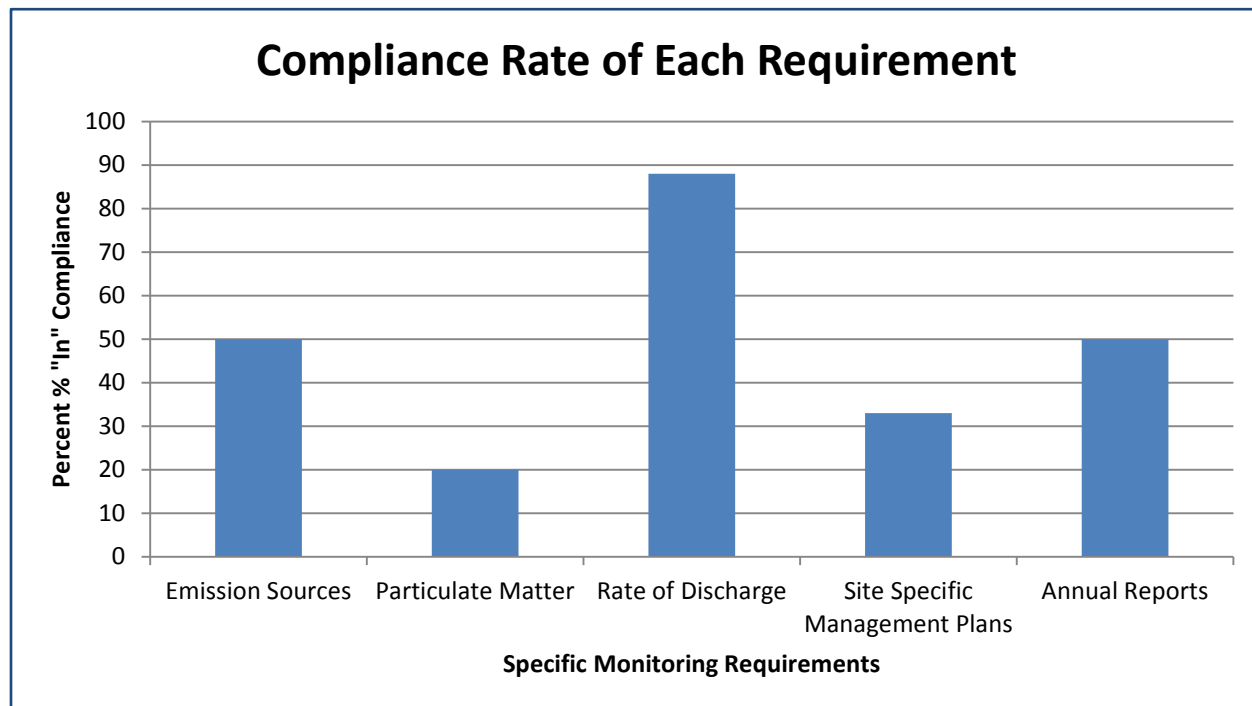


Figure 11 - Compliance Rate of each Monitoring Requirement

#### 1. Emission sources

Thirty-seven percent of the authorizations that were assessed for compliance included emission source monitoring and reporting requirements.

Example requirement:

*“Once per year, unless otherwise directed by the Director, carry out source testing of the No.2 dry electrostatic precipitator for particulate matter.”*

Findings:

- 50% were “In” compliance;
- 86% submitted the required emission source monitoring results;
- Of the authorization holders who submitted emission source monitoring results, 92% included all of the required information; and 60% were in compliance with authorization limits (e.g. particulate matter, rate of discharge, etc.).

#### EXAMPLES OF SAWMILL AIR EMISSION SOURCES

- Dryer stacks;
- Dust collection systems;
- Thermal energy system stacks;
- Wood waste incinerators;
- Electrostatic precipitators;
- Cyclones;
- Baghouses.



Figure 12 - Cyclone (ENV inspection files)

## 2. Particulate matter

Particulate matter (PM) is “a complex mixture of extremely small particles and liquid droplets that get into the air” (USEPA, 2017).

When particles that are 10 micrometers or less in diameter (PM<sub>10</sub>) become airborne they are a significant risk to humans because they are small enough to be inhaled into the lungs (ENV, 2008). A micrometre (µm) is a millionth of a metre (see Figure 13).

There are many sources of PM including: construction sites, unpaved roads, automobiles, fires, industry, etc.

Fifty-three percent of the authorizations that were assessed for compliance included particulate matter monitoring and/or reporting requirements.

Example requirement:

*“The characteristics of the discharge must not exceed a maximum of 230 milligrams of particulate matter per cubic meter [of air]...”*

Findings:

- 20% were “In” compliance;
- 60% submitted the required particulate matter monitoring results; and of these, 64% were in compliance with particulate matter limits.

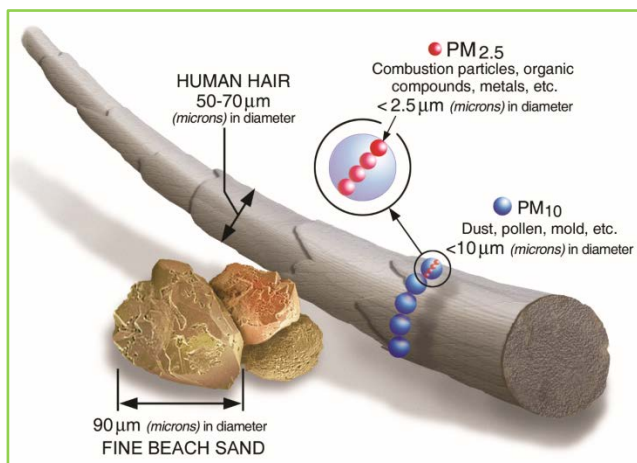


Figure 13 - Size Comparisons for Particulate Matter Particles (USEPA, 2017)



Figure 14 - Hazy Castlegar, BC (OurBC, 2017)



Figure 15 - Burn Pile (ENV inspection files)

### 3. Rate of discharge

Twenty-one percent of the authorizations assessed for compliance included emission source rate of discharge limits.

Example requirement:

*“The maximum authorized rate of discharge is 8.9 milligrams per cubic meter per second.”*

Findings:

- 88% were “In” compliance.



Figure 16 - BC Sawmill (ENV inspection files)

### 4. Site specific management plans

Sixteen percent of the authorizations that were assessed for compliance included site specific management plan requirements (e.g. Continuous Improvement Plan, Fugitive Dust Control Plan, Air Episode Management Plan, Dust Monitoring Plan, etc.).

Example requirement:

*“A Continuous Improvement plan for the Wood Residue Fired Furnaces must be included in the Annual Report. This plan must outline what steps the [authorization holder] will take to reduce particulate emissions from the furnaces. This plan must include, but is not limited to, what modifications will be made (pollution control equipment added), when they will be made (timeline for implementation) and what effect the changes are expected to make to the overall discharge from the furnaces (particulate matter concentration)...”*



Figure 17 - BC Sawmill (ENV inspection files)

Findings:

- 33% were “In” compliance (i.e. the authorization holder submitted the required management plans on time).

## 5. Annual reports

Fifty-three percent of the authorizations that were assessed for compliance included annual report requirements.

Example requirement:

*“An Annual Report for the preceding year must be submitted to the Director, before March 31 of each calendar year. The report must include the following information:*

- a. Source monitoring and analytical data tabulated, graphically represented and clearly explained;*
- b. Detailed review of source monitoring data with suitable interpretation of trends in total particulate contaminants for the preceding year.*
- c. Dry Kilns operation and annual production rates in Mfbm.*
- d. Performance evaluation of all authorized works and identification of any necessary changes.*
- e. Planned changes, upgrades and improvements to the site, facility, and works for the upcoming year and an implementation schedule for any alterations to the treatment and disposal works.”*

Findings:

- 50% were “In” compliance
- 60% submitted the 2015 annual report on time; and
- Of the authorization holders who submitted annual reports, 80% included the required information.

### Inspection Outcomes

After each authorization holder was assessed for compliance, the [Compliance Decision Matrix](#) was used to determine the appropriate enforcement response (Appendix 3).

The ministry uses [Compliance and Enforcement Response Determinations](#) to base its enforcement responses on the severity of actual or potential impacts to the environment, human health or public safety, the factual circumstances of the alleged contravention and the compliance history of the authorization holder (ENV, 2016).

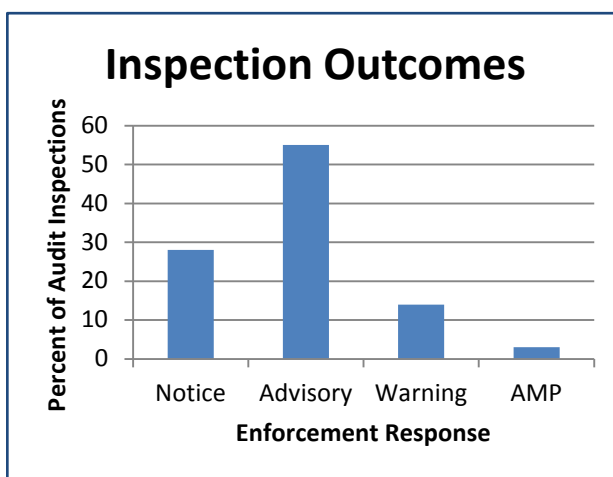


Figure 18 - Audit Inspection Outcomes

- The majority of the audit inspections were either “In” compliance or required the issuance of a first level enforcement response (advisory or warning) (see Figure 18). One inspection was recommended for an Administrative Monetary Penalty (AMP).



## Sawmill Air Authorization Overview

All 104 sawmill air authorizations were reviewed. The review determined that authorization requirements are inconsistent. For example:

- a. 16% of authorizations include monitoring requirements; however they do not have reporting requirements; instead, the information associated with the required monitoring is only required to be submitted if a designated ministry official requests the information; and
- b. 39% of authorizations include monitoring and/or reporting requirements that require the regular submission of data/reports by due dates specified in the authorization.

The review also determined that:

- 30 sawmill air authorizations were amended in 2015 and 2016; and
- Numerous authorizations are out-of-date.

Sawmill authorizations are considered to be out-of-date when specific components of the facility and/or the milling processes change, resulting in discrepancies between what is authorized and what is currently on site.

Out-of-date authorizations result in a higher rate of non-compliance. This is because it is the responsibility of authorization holders to apply for an authorization amendment to reflect changes to authorized works, quantity and quality of the discharge, monitoring and reporting requirements and/or other terms and conditions.

Information regarding the authorization amendment process can be found on the ministry [website](#).



Figure 19 - Konus Kessel Stacks (ENV inspection files)



Figure 20 - Konus Silo High Pressure Cyclone (ENV inspection files)

## Proposed Wood Processing Code of Practice

The proposed [Wood Processing Code of Practice](#) (the code) will apply to all primary wood processing facilities producing greater than 50 million board feet of lumber annually, as well as select secondary wood processing facilities. Consequently, the code will apply to the majority of sawmill air authorizations.

### Key Components of the Code

- ✓ Standardized particulate and opacity limits for air emissions.
- ✓ Development and implementation of site-specific Environmental Management Plans.
- ✓ Clear and consistent requirements.
- ✓ Standardized monitoring and reporting requirements for industry.
- ✓ A 10-year transition/phase-in process for existing facilities.
- ✓ All new facilities must meet the requirements of the Code upon registration.

A file review determined that sawmill air authorization requirements are inconsistent. For example, particulate and opacity requirements are not standardized and none of the authorizations inspected as part of the audit required Environmental Management Plans or air quality modelling. Based on these observations, the implementation of the proposed code will positively impact compliance rates by providing a clear, common and equitable regulatory framework for BC's wood processing industry.

#### WHAT IS OPACITY?

Opacity is a measure of the impenetrability of a medium (e.g. air) to light.

At sawmills, opacity is caused by fine particulate matter and aerosol in air emissions.

## Status of Wood Residue Burners in British Columbia

### Background

Wood residue burners were once commonly used in sawmills to dispose of the wood waste generated during the milling process (Mihalyo, 1997). However, the following factors have significantly decreased the use of wood residue burners in BC:

- An increase in the value placed on wood fibre;
- An increase in the number of wood processing facilities that use wood waste to make products (e.g. pellet industry, pulp industry, etc.);
- Wood residue burners and other sources of particulate matter contribute to human health problems including increased deaths, hospitalizations, emergency visits, etc. (Cleanair, 2017).
- Stricter legislation;
- Government and industry stakeholders are committed to developing and maintaining a sustainable forest sector; etc.



Figure 21 - Sawmill Wood Waste Pile (ENV inspection files)

Consequently, wood residue burners are now an outdated approach to dealing with mill waste.

he [Wood Residue Burner and Incinerator Regulation](#) (WRBIR) came into effect on January 1, 1996. The WRBIR established the phase-out dates and operating conditions for specified burners and set emission limits and fees for the discharge of associated particulate matter for all wood residue burner facilities in the province. Since its establishment, wood residue burners have been gradually phased-out across BC. For example, between 2015 and 2016, the number of authorized wood residue burners dropped from 20 to 11 as authorizations were cancelled or amended to remove the wood residue burner authorization.

On December 31, 2016, the authorization to operate a Schedule 1 wood residue burner within BC was extinguished. However, section 2(4) of the WRBIR states that a burner facility operator may apply to a director for a temporary extension. Section 2(4) is for temporary circumstances beyond the reasonable control of the operator and is not intended for use to delay the phase out of a burner.



Figure 22 - Decommissioned Wood Residue Burner (ENV inspection files)

See [Appendix 4](#) for an overview of the fundamental sections of the WRBIR.

## Audit Results

The audit assessed authorized wood residue burners in BC to determine whether they were in compliance with their monitoring and/or reporting requirements during the 2015 reporting year.

Findings:

- On January 1, 2015 there were 20 authorized wood residue burners in BC;
- Some burners were not in use in 2015;
- The burners that were in use were assessed for compliance;
- 45% of authorized burners were “Out” of compliance (Figure 23).

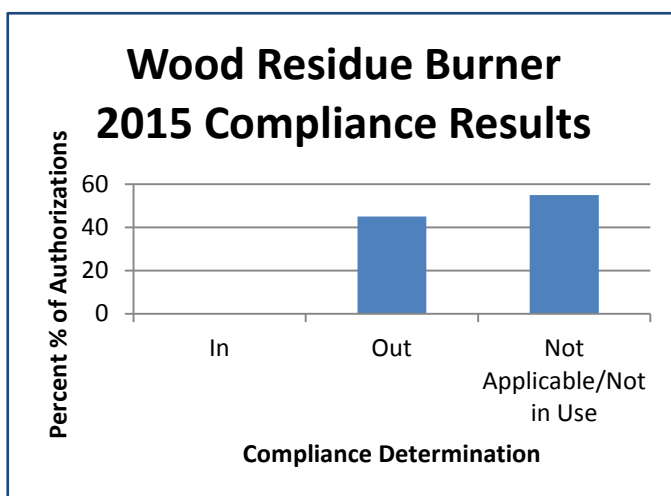


Figure 23 - Wood Residue Burner Compliance with 2015 Monitoring & Reporting Requirements

## Conclusion and Recommendations

The objectives of the audit were to:

1. Determine overall industry compliance rates with air authorizations and other regulatory requirements;
2. Determine industry compliance rates for operating, monitoring and reporting requirements; and
3. Provide recommendations to improve compliance with the sawmill industry.



Figure 24 - Log Pile (FLNRO, 2017)

### Audit results:

- 26% of the authorizations that were inspected as part of this audit were “In” compliance with their 2015 monitoring and reporting requirements while 71% were “Out” of compliance with at least one requirement.<sup>2</sup>
- Many authorizations that require the submission of reports were found to be “Out” of compliance due to failing to meet submission deadlines. For example:
  - 40% of authorization holders with annual report requirements failed to submit the 2015 annual report on time; and
  - 67% of authorization holders with management plan requirements did not submit the plans on time.
- The majority of non-compliances were administrative in nature. For example:
  - 83% of the inspections resulted in the issuance of a notice or an advisory.

### Sector overview:

- Sawmill air authorization requirements are inconsistent.
- Numerous authorizations are out-of-date as site facilities and operations have changed.
- 59% of sawmill air authorizations have unenforceable monitoring and/or reporting requirements.
- Given the above observations, the implementation of the proposed Wood Processing Code of Practice may positively impact compliance rates by providing a clear, common and equitable regulatory framework for BC’s wood processing industry.
- Wood residue burners were once commonly used in sawmills to dispose of the wood waste generated during the milling process (Mihalyo, 1997). The use of wood residue burners significantly increases particulate matter emissions at sawmills.

<sup>2</sup> The audit results for 3 percent of the authorizations inspected as part of the audit were “undetermined” or “not applicable”.

- The WRBIR established December 31, 2016 as the final phase-out date for authorized wood residue burners across BC. Consequently, sawmills must now find other ways to deal with their wood waste.

Based on these results, audit recommendations include the following:

#### **For the Sawmill Industry**

1. Ensure authorization monitoring and reporting requirements are frequently reviewed to ensure that monitoring data and reports are submitted on time and that the submissions include the required information and parameters;<sup>3</sup>
2. Periodically review facility works to confirm that the authorization reflects current operations and that there are no unauthorized discharges; and

#### **Compliance Promotion and On-site Inspections**

3. This audit was limited to a desktop exercise and focused on the monitoring and reporting sections of the air authorizations. Conduct on-site inspection of all sawmills in the Province in 2017-18.

#### **Wood Processing Code of Practice**

4. Establish a single set of air emission standards for BC; and
5. Provide a clear, common and equitable regulatory framework for BC's wood processing industry.

By working together, the Ministry of Environment and Climate Change Strategy and sawmill stakeholders will create a more predictable and environmentally sustainable sector that will continue to play a vital role in the BC economy.

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<sup>3</sup> It is the responsibility of authorization holders to apply for an authorization amendment to reflect the changes to authorized works, quantity and quality of the discharge, monitoring and reporting requirements or other terms and conditions.



## References

- Cleanair.ca. (Cleanair). 2017. Beehive Burners Pollution. <[http://www.cleanair.ca/case\\_beehive.html](http://www.cleanair.ca/case_beehive.html)> [Accessed June 20, 2017].
- Environmental Management Act*. 2017. <[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/03053\\_00](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/03053_00)> [Accessed December 1, 2016].
- Environmental Management Act*, Wood Residue Burner and Incinerator Regulation. 2017. <[http://www.bclaws.ca/civix/document/id/complete/statreg/519\\_95](http://www.bclaws.ca/civix/document/id/complete/statreg/519_95)> [Accessed February 14, 2017].
- Mihalyo, Daniel. 1997. Wood Burners. New York: Princeton Architectural Press.
- Ministry of Environment and Climate Change Strategy (ENV). 2016. Compliance Inspections Report 2015: *Environmental Management Act*. <[http://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/reporting/reporting-documents/compliance-inspec/compliance\\_inspections\\_report\\_2015.pdf](http://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/reporting/reporting-documents/compliance-inspec/compliance_inspections_report_2015.pdf)> [Accessed March 2, 2017].
- Ministry of Environment and Climate Change Strategy (ENV). 2015. Wood Processing Industry Policy Intentions Paper. <<http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/pulp-paper-wood/wood-processing-intentions-paper-public-posting.pdf>> [Accessed December 1, 2016].
- Ministry of Environment and Climate Change Strategy (ENV). 2014. Compliance and Enforcement Policy and Procedure Version 3. <[http://www.env.gov.bc.ca/main/prgs/docs/ce\\_policy\\_and\\_procedure.pdf](http://www.env.gov.bc.ca/main/prgs/docs/ce_policy_and_procedure.pdf)> [Accessed December 1, 2016].
- Ministry of Environment and Climate Change Strategy (ENV). 2009. Wood Residue Burner and Incinerator Regulation Ministry Intentions Paper. <<http://www.env.gov.bc.ca/epd/codes/wrbir/wrbir-intentions.pdf>> [Accessed March 6, 2017].
- Ministry of Environment and Climate Change Strategy (ENV). 2008. Ambient Air Quality Monitoring Report Castlegar, British Columbia. Particulate Matter – 1990 to 2007. <<http://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/reports-pub/castlegar-07.pdf>> [Accessed June 20, 2017].
- Ministry of Forests, Lands and Natural Resource Operations (FLNRO). 2017. Timber Tenures Overview. <[https://www.for.gov.bc.ca/drm/services/tenures\\_overview.htm](https://www.for.gov.bc.ca/drm/services/tenures_overview.htm)> [Accessed March 30, 2017].
- Ministry of Forests, Lands and Natural Resource Operations. 2017. Programs and Services: Stewardship. <<https://www.for.gov.bc.ca/drm/services/stewardship.htm>> [Accessed March 30, 2017].

- Office of the Ombudsperson. 2014. Striking a Balance: The Challenges of Using a Professional Reliance Model in Environmental Protection – British Columbia’s Riparian Areas Regulation. The Office of the Ombudsperson, Victoria, BC. Public Report No. 5. Pp. 1-129.
- OurBC.com (OurBC). 2017. Castlegar.< [http://ourbc.com/travel\\_bc/bc\\_cities/bc\\_rookies/castlegar.htm](http://ourbc.com/travel_bc/bc_cities/bc_rookies/castlegar.htm)> [Accessed June 21, 2017].
- Pinkerton, E. W. and J. Benner. 2013. Small sawmills persevere while the majors close: evaluating resilience and desirable timber allocation in British Columbia, Canada. Ecology and Society. Vol. 18: 1. <<http://www.ecologyandsociety.org/vol18/iss2/art34/>> [Accessed February 14, 2017].
- Province of British Columbia (BC). 2017. BC Jobs Plan: 5-Year Update. <[https://bcjobsplan.gov.bc.ca/app/uploads/sites/21/2017/02/JobsPlan\\_5YearUpdate\\_Web-Feb17.pdf](https://bcjobsplan.gov.bc.ca/app/uploads/sites/21/2017/02/JobsPlan_5YearUpdate_Web-Feb17.pdf)> [Accessed March 6, 2017].
- Province of British Columbia Website (BC Air Quality website). 2017. BC Air Quality. How Business and Industry Contribute to Air Pollution. < <http://www.bcairquality.ca/101/industry-pollution.html> > [Accessed March 2, 2017].
- Province of British Columbia Website. 2017. Environmental Protection & Sustainability. Waste Management. Waste Discharge Authorizations. <<http://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization>> [Accessed February 14, 2017].
- United States Environmental Protection Agency website (USEPA). 2017. Particulate Matter (PM) Basics. <<https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>> [Accessed June 20, 2017].





## Appendix 1 – Key Legislation

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## Appendix 1 – Key Legislation

Legislation	Applicable Sections
<b>Environmental Management Act</b>	<p>6 (2) Subject to subsection (5), a person must not introduce or cause or allow waste to be introduced into the environment in the course of conducting a prescribed industry, trade or business.</p> <p>6 (3) Subject to subsection (5), a person must not introduce or cause or allow to be introduced into the environment, waste produced by a prescribed activity or operation.</p>
<b>Waste Discharge Regulation</b>	Schedule 2, 1 (1) “wood processing industry – primary” means establishments, except establishments that are wood processing industry – secondary establishments, engaged in manufacturing lumber or lumber products, including, but not limited to, finger-jointing products, prefabricated buildings, furniture, chopsticks and pellets.
<b>Authorization</b>	Sawmill authorizations are site-specific and therefore authorization requirements vary. Please see <a href="#">Appendix 2</a> for a list of sawmill air authorizations in BC.
<b>Wood Residue Burner and Incinerator Regulation</b>	<p>2 (1) A person must not use a burner facility to dispose of wood residue, unless the person is authorized under subsection (2) or (6).</p> <p>2 (2) Subject to subsection (3), a burner facility operator who holds an authorization identified in Schedule 1 may use, in accordance with the terms and conditions of the authorization, a burner facility to dispose of wood residue until December 31, 2016.</p> <p>2(4) Subject to subsection (5),</p> <ul style="list-style-type: none"> <li>(a) a burner facility operator who holds an authorization identified in Schedule 1, and</li> <li>(b) a burner facility operator who does not hold an authorization identified in Schedule 1 but who, on December 31, 1995, had a valid authorization authorizing the operation of the burner facility</li> </ul> <p>may apply to a director to use a burner facility to dispose of wood residue on the grounds that there is no alternative means of disposing of wood residue because of an emergency, labour dispute or work stoppage.</p> <p>2(6) On receiving an application under subsection (4), a director may authorize the applicant’s use of a burner facility, if the director is satisfied that the ground on which the application is made have been established.</p>
<b>Proposed Wood Processing Industry Code of Practice</b>	To be determined. Refer to the <a href="#">Wood Processing Industry Policy Intentions Paper</a> for more information.



## Appendix 2 – List of Authorized Sawmills in British Columbia

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## Appendix 2 – List of Authorized Sawmills in British Columbia

This list is accurate as of December 2016. Authorizations that were included in the audit are highlighted in blue.

For your information, publicly viewable authorizations can be found [here](#).

Sawmill Air Authorizations in British Columbia	
Authorization Number	Company Name
1543	Canadian Forest Products Ltd.
1548	West Fraser Mills Ltd.
1615	West Fraser Mills Ltd.
1676	Canadian Forest Products Ltd.
1691	West Fraser Mills Ltd. doing business as (DBA) Pacific Inland Resources
1699	Canadian Forest Products Ltd.
1722	Conifex Mackenzie Forest Products Inc.
1730	L and M Lumber Ltd.
1750	J.H. Huscroft Ltd.
1793	Kalesnikoff Lumber Co. Ltd.
1846	Weyerhaeuser Company Ltd.
1869	Lakeland Mills Ltd.
1881	Interfor Corporation
1916	Greenwood Forest Products Ltd.
1935	Galloway Lumber Company Ltd.
1937	Canoe Forest Products Ltd.
1954	Canadian Forest Products Ltd.
1955	Canadian Forest Products Ltd.
1997	Downie Timber Ltd.
2001	Tolko Industries Ltd.
2026	600928 B.C. Ltd. DBA Valley Wood Lumby
2122	Gorman Bros. Lumber Ltd.
2190	Canadian Forest Products Ltd.
2268	Conifex Inc.
2410	Aspen Planers Ltd.
2412	Ardeu Wood Products Ltd.
2414	Aspen Planers Ltd.
2484	Tolko Industries Ltd.
2574	Canadian Forest Products Ltd.
2684	Canadian Forest Products Ltd.
2696	Western Forest Products Inc.
2717	Tolko Industries Ltd.
2747	Hauer Bros. Lumber Ltd.
2853	Western Forest Products Inc.
3008	Roc Holdings Ltd. DBA Skeena Sawmills Ltd.
3019	Decker Lake Forest Products Ltd.

3028	Canadian Forest Products Ltd.
3034	Canadian Forest Products Ltd.
3039	Wynndel Box & Lumber Company Ltd.
3051	Western Forest Products Inc.
3057	Conifex Mackenzie Forest Products Inc.
3104	Valemount Community Forest Company Ltd.
3124	Canadian Forest Products Ltd.
3133	Nechako Lumber Co. Ltd.
3283	Tolko Industries Ltd.
3335	Apollo Forest Products Ltd.
3339	Totem Construction Materials Supplies (Canada) Co. Ltd.
3403	West Fraser Mills Ltd. DBA Chetwynd Forest Industries
3446	Interfor Corporation
3478	Canadian Forest Products Ltd.
3679	Tolko Industries Ltd.
3803	Linde Bros. Lumber Ltd.
3877	Western Forest Products Inc.
3898	Dunkley Lumber Ltd.
4122	Babine Forest Products Ltd.
4138	Wynndel Box & Lumber Company Ltd.
4171	0934527 B.C. Ltd. DBA Kitwanga Forest Products
4215	West Fraser Mills Ltd.
4396	Western Forest Products Inc.
4574	Aspen Planers Ltd.
4680	Carrier Lumber Ltd.
4697	North Enderby Timber Ltd.
5350	C. & C. Wood Products Ltd.
5490	Interfor Corporation
5625	West Fraser Mills Ltd.
6139	Bear Lumber Ltd.
7139	WoodEx Industries Ltd.
7149	Western Forest Products Inc.
7512	West Fraser Mills Ltd.
7547	Jones Ties and Poles 1973 Ltd.
7605	Western Forest Products Inc.
7841	Quest Wood Products
7937	Paulcan Enterprises Ltd.
8003	Western Forest Products Ltd.
8029	West Chilcotin Forest Products Ltd.
8244	H. A. Holland
9082	Chemainus Forest Products Ltd.
10724	Herridge Trucking & Sawmilling Ltd.
10836	Atco Wood Products Ltd.
10837	Western Forest Products Inc.
11396	Edge Grain Forest Products Inc.
11587	Western Forest Products Inc.



11672	Boards by George Lumber Inc.
11688	Hamill Creek Timber Homes Inc.
11817	427123 B.C. Ltd. DBA Eggers Forest Products.
12672	Timberwest Forest Corp.
12869	Chimney Creek Lumber Co. Ltd.
12888	519709 B.C. Ltd.
13210	Copper Canyon Timber Ltd.
13257	Western Forest Products Inc.
14212	Errington Cedar Products Ltd.
14416	Jemico Enterprises Ltd.
14452	Coulson Manufacturing Ltd.
16047	Mirax Lumber Products Ltd.
16540	Porcupine Wood Products Ltd.
17202	Canadian Bavarian Millwork & Lumber Ltd.
17802	Buff Lumber Ltd.
18096	428801 BC Ltd.
18152	Teal Cedar Products Ltd.
100200	Trudeau's Custom Cutting Ltd.
105284	Sigurdson Forest Products Ltd.
105331	Trans North Developments Ltd. DBA Trans North Timber
105692	Vaagen Fibre Canada, ULC
107194	Long Hoh Enterprises Canada Ltd.



## Appendix 3 – Non-Compliance Decision Matrix

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## Appendix 3 – Compliance Decision Matrix

The Non-Compliance Decision Matrix is a risk-based guidance tool for assessing the variability and severity of factors influencing the selection of compliance tools (Figure 26). These factors include:

- escalating levels of environmental, human health or safety impacts (Figure 27); and
- diminishing likelihood of achieving compliance (Figure 28).

The Non-Compliance Decision Matrix helps to ensure a consistent and principled approach to assessing and responding to regulatory non-compliance; it is to be used with discretion by ministry staff when considering the context and specifics of individual cases of non-compliance.

**Figure 25 - Non-Compliance Decision Matrix**

		ESCALATING ENVIRONMENTAL, HUMAN HEALTH OR SAFETY (ACTUAL OR POTENTIAL)				
		LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
DIMINISHING LIKELIHOOD OF COMPLIANCE (COMPLIANCE HISTORY/WILLINGNESS AND CAPACITY TO COMPLY)	CATEGORY A (HIGH)	ADVISORY	ADVISORY - WARNING	WARNING - ORDER - ADMIN SANCTION - AP	ORDER - ADMIN SANCTION - AP - INVESTIGATION	INVESTIGATION
	CATEGORY B	ADVISORY - WARNING	WARNING - AP	INVESTIGATION		
	CATEGORY C	WARNING - AP	WARNING - ORDER			
	CATEGORY D	WARNING - ORDER - ADMIN SANCTION - AP	ADMIN SANCTION - AP - INVESTIGATION			
	CATEGORY E (LOW)	ORDER - ADMIN SANCTION - AP - INVESTIGATION				

Note: An investigation is always necessary prior to issuance of a **ticket**, recommendation of **formal charges** or use of **restorative justice** therefore these tools are not shown on the matrix. Depending on the outcome, an investigation could also culminate in the issuance of a warning, administrative sanction or penalty, or an order.

**Figure 26 - Levels of Escalating Environmental, Human Health or Safety Impacts (Actual or Potential)**

<b>LEVEL 1</b>
<ul style="list-style-type: none"><li>• Non-compliance that does not result or is unlikely to result in any environmental, human health or safety impact; or</li><li>• Minor administrative non-compliance.</li></ul>
<b>LEVEL 2</b>
<ul style="list-style-type: none"><li>• Non-compliance resulting in a minor, temporary impact to the environment or minor, temporary threat to human health or safety; or</li><li>• Significant administrative non-compliance.</li></ul>
<b>LEVEL 3</b>
<ul style="list-style-type: none"><li>• Non-compliance resulting in a moderate, temporary impact to the environment or moderate, temporary threat to human health or safety.</li></ul>
<b>LEVEL 4</b>
<ul style="list-style-type: none"><li>• Non-compliance resulting in a significant impact to the environment or significant threat to human health or safety (may be temporary or permanent).</li></ul>
<b>LEVEL 5</b>
<ul style="list-style-type: none"><li>• Known or likely human health impact that is severe in effect, i.e. resulting in hospitalization and/or long term human health consequences.</li></ul>

**Figure 27 - Categories of Likelihood of Compliance (Compliance History/Willingness and Capacity to Comply)**

<b>CATEGORY A - Indications of future and ongoing compliance are very high</b> <ul style="list-style-type: none"><li>• No previous occurrences of non-compliance;</li><li>• Good demonstrated awareness of and/or capacity to meet regulatory requirement; and/or</li><li>• Offender has a reasonable and cooperative attitude.</li></ul>
<b>CATEGORY B - Indications of future and ongoing compliance are uncertain</b> <ul style="list-style-type: none"><li>• Few previous occurrences of non-compliance; and/or</li><li>• Questionable awareness of and/or capacity to meet regulatory requirement.</li></ul>
<b>CATEGORY C - Indications of future and ongoing compliance are unlikely</b> <ul style="list-style-type: none"><li>• Numerous previous occurrences of non-compliance; and/or</li><li>• Little or no awareness of and/or capacity to meet regulatory requirement.</li></ul>
<b>CATEGORY D - No indication of future and ongoing compliance</b> <ul style="list-style-type: none"><li>• Wilful violation of ministry regulatory requirement; and/or</li><li>• Little or no demonstrated willingness or capacity to meet regulatory requirement.</li></ul>
<b>CATEGORY E - No indication of future and ongoing compliance</b> <ul style="list-style-type: none"><li>• Hindering or obstructing a ministry official;</li><li>• Refusing to furnish required information; and/or</li><li>• Intentionally including false or misleading information in any required document.</li></ul>





## Appendix 4 – Overview of the Wood Residue Burner and Incinerator Regulation

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## Appendix 4 – Overview of the WRBIR

Wood Residue Burner and Incinerator Regulation	
Section 2(1)	A person must not use a burner facility to dispose of wood residue, unless the person is authorized under subsection (2) or (6).
Section 2(2)	Subject to subsection (3), a burner facility operator who holds an authorization identified in Schedule 1 may use, in accordance with the terms and conditions of the authorization, a burner facility to dispose of wood residue until December 31, 2016.
Section 2(4)	<p>Subject to subsection (5),</p> <ul style="list-style-type: none"> <li>(a) a burner facility operator who holds an authorization identified in Schedule 1, and</li> <li>(b) a burner facility operator who does not hold an authorization identified in Schedule 1 but who, on December 31, 1995, had a valid authorization authorizing the operation of the burner facility</li> </ul> <p>may apply to a director to use a burner facility to dispose of wood residue on the grounds that there is no alternative means of disposing of wood residue because of an emergency, labour dispute or work stoppage.</p>
Section 2(6)	On receiving an application under subsection (4), a director may authorize the applicant's use of a burner facility, if the director is satisfied that the ground on which the application is made have been established.