



# Environmental Appeal Board

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## **DECISION NOS. 2016-EMA-130(c); 2016-EMA-144(c), 145(c), 146(c), 147(c) and 149(c) (Group File: 2016-EMA-G05)**

In the matter of six appeals under section 100 of the *Environmental Management Act*, S.B.C. 2003, c. 53.

<b>BETWEEN:</b>	John Pickford John Henry Dressler Rodger Hamilton Ellis O'Toole Angie Delainey Tricia McLellan	<b>APPELLANTS</b>
<b>AND:</b>	Director, <i>Environmental Management Act</i>	<b>RESPONDENT</b>
<b>AND:</b>	Atlantic Power Preferred Equity Ltd.	<b>THIRD PARTY</b>
<b>BEFORE:</b>	A Panel of the Environmental Appeal Board Alan Andison, Chair	
<b>DATE:</b>	Conducted by way of written submissions concluding on November 2, 2018	
<b>APPEARING:</b>	For the Appellants: John Pickford John Henry Dressler Rodger Hamilton For the Appellants: Ellis O'Toole Angie Delainey Tricia McLellan For the Respondent: For the Third Party:	John Pickford John Henry Dressler Rodger Hamilton  William J. Andrews, Counsel  Johnny Van Camp, Counsel Meghan Butler, Counsel Jonathan McLean, Counsel Jonathan Buysen, Counsel

## **APPEALS**

[1] The Appellants filed six separate appeals against the September 6, 2016 decision (the "Amendment") of Brady Nelless, Delegate of the Director, *Environmental Management Act* (the "Director"), Ministry of Environment (the "Ministry"), to amend Air Emissions Permit #8808 (the "Air Permit"). The Air Permit is held by Atlantic Power Preferred Equity Ltd. ("Atlantic"), and authorizes

Atlantic to discharge emissions to the air from a biomass-fueled electricity generating facility (the "Facility") in Williams Lake, BC.

[2] Section 103 of the *Environmental Management Act*, S.B.C. 2003, c. 53 (the "Act") provides the Board with the following powers in deciding appeals:

**Powers of appeal board in deciding appeal**

**103** On an appeal under this Division, the appeal board may

- (a) send the matter back to the person who made the decision, with directions,
- (b) confirm, reverse or vary the decision being appealed, or
- (c) make any decision that the person whose decision is appealed could have made, and that the appeal board considers appropriate in the circumstances

[3] In general, the Appellants request that the Amendment be reversed, or alternatively, that the Amendment be varied to include numerous amendments to address their concerns regarding the storage, handling and incineration of rail ties.

[4] The appeal was heard by way of written submissions.

**BACKGROUND**

*Atlantic's Facility and air emissions permit*

[5] The Facility has operated since 1993, and Atlantic has owned and operated the Facility since 2011. The Facility is equipped with a boiler that was designed to burn wood biomass. The boiler operates at temperatures in excess of 2,500°F, and heats water to produce steam that drives a turbine, which has the capacity to generate 66-megawatts of electricity. The Facility supplies power to BC Hydro under a long-term energy purchase agreement. Flue gas from the boiler flows through an electrostatic precipitator which is designed to remove particulate matter from the flue gas. Emissions are discharged from a stack that is 60.7 metres high.

[6] Atlantic is authorized to discharge the Facility's emissions to the air under the Air Permit, which the Ministry originally issued in 1991. The Air Permit addresses a number of subjects including the operating parameters of the discharge, the authorized works, monitoring and reporting requirements, and the authorized types of fuel.

[7] In 2001, the Facility's owner at the time, TransCanada Limited ("TransCanada"), decided to apply for a permit amendment to allow the Facility to burn used rail ties as a minor fuel source. In support of its application, TransCanada retained Lanfranco and Associates Inc. ("Lanfranco"), environmental consultants, to test and report on the concentrations and other characteristics of certain air emissions from the boiler's stack. From April 3 to 6, 2001, five 60-minute test burns were conducted: two baseline tests using regular wood waste as fuel; and, three tests using 100% rail ties (supplied by CN Rail) as fuel.

[8] In November 2001, Lanfranco provided TransCanada with a report (the "Lanfranco Report") describing the methodology for the tests, the test results, and an analysis of the test results. The Lanfranco Report states at page 1 that the substances investigated were: particulate matter, trace metals, hydrogen chloride (HCl), sulphur oxides (SO<sub>x</sub>), polychlorinated dibenzodioxins (dioxins) and polychlorinated dibenzofurans (furans), polyaromatic hydrocarbons (PAH), and chlorophenols. It also states that a representative of the Ministry was onsite during the testing.

[9] The results of the five test burns are summarized on page 1 of the Lanfranco Report. The concentrations of particulates and PAH in stack emissions were slightly lower, but SO<sub>x</sub> and HCl emissions were higher, when burning 100% rail ties. Concentrations of chlorophenols and dioxins and furans were also slightly higher when burning 100% rail ties.

[10] Specifically, particulates averaged 6.2 mg/m<sup>3</sup> when burning regular fuel, and 2.3 mg/m<sup>3</sup> when burning 100% rail ties. PAH averaged 0.063 micrograms per cubic metre (µg/m<sup>3</sup>) when burning regular fuel, and 0.058 µg/m<sup>3</sup> when burning 100% rail ties. Chlorophenols averaged 0.010 µg/m<sup>3</sup> when burning regular fuel, and 0.091 µg/m<sup>3</sup> when burning 100% rail ties. Dioxins and furans averaged 0.0013 nanograms per cubic metre (ng/m<sup>3</sup>) when burning regular fuel, and 0.0034 ng/m<sup>3</sup> when burning 100% rail ties. SO<sub>x</sub> emissions averaged 1.0 mg/m<sup>3</sup> when burning regular fuel, and 172 mg/m<sup>3</sup> when burning 100% rail ties. Similarly, when burning regular fuel, HCl emissions were less than 0.1 mg/m<sup>3</sup>, and averaged 59.8 mg/m<sup>3</sup> when burning 100% rail ties.

[11] Table 6 in the Lanfranco Report provides the Facility's continuous emissions monitoring ("CEM") system data for nitrogen oxides (NO<sub>x</sub>) emissions in the stack, which ranged from 126 to 140 parts per million (ppm) during the test dates of April 3 to 6, 2001.

[12] The Lanfranco Report is discussed in more detail later in this decision.

[13] In January 2003, the Ministry granted an amendment to the Air Permit, allowing the incineration of rail ties. No restriction was placed on the amount of rail ties that could be incinerated.

[14] Between 2004 and 2010, rail ties made up less than 5% of the total biomass in the Facility's fuel supply. During that time, the Facility contracted CN Rail to supply ground-up rail ties. CN Rail used a grinder located in Williams Lake. The grinding process led to public complaints about dust, noise, and odour. According to Atlantic, the Facility has not incinerated any rail ties since 2010.

[15] In October 2010, the Ministry amended the Air Permit to impose a 5% annual limit on the amount of rail ties that could be incinerated at the Facility.

[16] On November 12, 2012, the Air Permit was amended to make minor revisions, none of which are relevant to the present appeals. This was the last amendment before the Amendment that is the subject of these appeals.

[17] Thus, prior to the Amendment, the Air Permit provided that the authorized fuel at the Facility was "untreated wood residue", and "wood residue treated with

creosote and/or a creosote-pentachlorophenol blended preservative (treated wood)" (e.g., rail ties), provided that:

- The treated wood component did not exceed 5% of the total biomass fuel supply calculated on an annual basis;
- The treated wood was well mixed with untreated wood waste prior to incineration;
- The incineration of wood residue treated with metal derived preservatives is prohibited;

[underlining added]

[18] Also, prior to the Amendment, the Air Permit contained the following requirements regarding emissions from the Facility's boiler:

- 1.1.1 The maximum rate of discharge is 110 m<sup>3</sup>/second, on a dry basis.
- 1.1.2 The authorized discharge period is continuous.
- 1.1.3 The characteristics of the discharge shall be equivalent to or better than:

Total Particulate Matter *corrected to 8% O <sub>2</sub>	Maximum: 50 mg/m <sup>3</sup> *
Nitrogen Oxides *1 hour average, as NO <sub>2</sub> corrected to 8% O <sub>2</sub>	Maximum: 320 mg/m <sup>3</sup> *
Opacity	Maximum: 10%*

[19] "O<sub>2</sub>" is the symbol for oxygen (in nature, oxygen usually exists in the form of two oxygen atoms), and "NO<sub>2</sub>" is the symbol for nitrogen dioxide.

[20] Prior to the Amendment, the Air Permit required continuous emission monitoring of the NO<sub>x</sub> emissions, and annual sampling of total particulate matter ("TPM") emissions. The monitoring data had to be reported to the Director.

[21] According to Atlantic, the Facility's energy purchase agreement with BC Hydro will expire in June 2019, and Atlantic and BC Hydro have expressed an interest in extending that agreement for 10 years. In support of negotiations to renew the energy purchase agreement, Atlantic wanted a secure alternative fuel supply for the Facility, in light of a diminishing local supply of wood waste biomass. According to Atlantic, used rail ties are readily available, but Atlantic needs to use more than 5% rail ties in its fuel supply for this to be an economical fuel source, as Atlantic will need to invest in infrastructure to handle and shred the rail ties.

[22] In 2014, Atlantic concluded that rail ties were the best available alternative fuel source for the Facility, and decided to pursue an amendment to the Air Permit that would allow up to 50% rail ties as biomass in its fuel supply, on an annual basis. According to Atlantic, the actual percentage of rail ties is expected to be much less than 50% at times, and may be closer to 25%, but the percentage will fluctuate seasonally with the availability of rail ties, and may increase as the availability of wood residues from sawmills declines over time.

*Application to amend the Air Permit*

[23] In July 2015, Atlantic applied for an amendment to its Air Permit. The application was revised in June 2016, following an initial phase of public notification and consultation. Atlantic's revised application sought to allow up to 50% treated rail ties in the Facility's total biomass fuel supply on an annual basis. It also sought to include clean construction and demolition waste, and non-hazardous biomass waste originating in the Cariboo Regional District, as authorized fuel, and to be able to accept for incineration up to 872 litres per day of hydrocarbon contaminated absorbent material originating from accidental spills.

[24] In support of its application, Atlantic provided a number of reports to the Ministry.

[25] Atlantic retained RWDI Air Inc. ("RWDI") to conduct air dispersion modelling of the Facility's emissions over a 25 km by 25 km area. RWDI used a computer model called CALPUFF, which is approved under the Ministry's Guidelines for Air Dispersion Modelling in British Columbia. For input to the model, RWDI used the emissions data recorded during the 2001 tests conducted by Lanfranco. RWDI's emission modelling methodology and initial conclusions were provided to the Ministry in a report dated September 8, 2015, which indicated that SO<sub>x</sub> and NO<sub>x</sub> could exceed BC Ambient Air Quality Objectives ("BC AAQOs"). That report was reviewed by Ministry staff, who provided feedback. RWDI then made adjustments to its emission modelling, including correcting an error in stack based elevation (the original model had the stack 11 metres too low), using the standard flow rate for NO<sub>x</sub> rather than the flow rate measured in the 2001 tests, converting NO<sub>x</sub> to NO<sub>2</sub> using hourly ambient ozone concentrations rather than the annual hourly maximum ozone concentration, and using the permitted level of TPM flow and concentration rather than the data from the 2001 tests. Once those corrections were made, the updated modelling results were provided in a report dated April 22, 2016, which indicated that the BC AAQOs would be met even when the fuel consisted of 100% rail ties. These results were also reviewed by Ministry staff, who provided further feedback. Ultimately, RWDI's modelling process resulted in several documents which are collectively referred to as the "Air Dispersion Modelling Report".

[26] In summary, RWDI's Air Dispersion Modelling Report predicted that, with the exception of NO<sub>2</sub>, ambient air contaminant levels within the study area would be below the BC AAQOs or the Ontario Ambient Air Quality Objectives ("Ontario AAQOs") if the Facility burned 50% or 100% rail ties as fuel. The modelling results predicted that the ambient concentrations of TPM, PM<sub>2.5</sub>, PM<sub>10</sub>, and SO<sub>2</sub> would be below the applicable BC AAQOs when burning 50% or 100% rail ties. In addition, the ambient concentrations of HCl, dioxins and furans, PAH, various metals, and chlorophenol would be below the Ontario AAQOs (there are no BC AAQOs for those substances).

[27] To estimate NO<sub>2</sub> concentrations, RWDI converted the Facility's CEM NO<sub>x</sub> data to NO<sub>2</sub> using the hourly average ozone concentrations recorded during 2012 at the Columneetza air monitoring station, located approximately 2.5 km southeast of the Facility. This calculation predicted an NO<sub>2</sub> exceedance in certain areas near the Facility based on the maximum one-hour average ozone concentration measured during 2012 at the Columneetza station. However, NO<sub>2</sub> levels were predicted to be below the BC AAQO when RWDI used the 98<sup>th</sup> percentile hourly average ozone

concentration at Columneetza (as opposed to the annual maximum hourly average). RWDI's modelling predicted that the concentration of NO<sub>2</sub> would be the same when burning either 50% or 100% rail ties as fuel. RWDI concluded that burning rail ties would have "no or very little effect" on NO<sub>x</sub> emissions from the Facility.

[28] In January 2016, Intrinsik Environmental Sciences Inc. ("Intrinsik") prepared a screening-level human health risk assessment of the proposed amendment (the "First Intrinsik Report"), on behalf of Atlantic. According to that report's Executive Summary, potential primary health risks from exposure to the chemicals of potential concern ("COPCs") by inhalation were assessed based on the results of RWDI's emission modelling assuming 100% rail ties as fuel, by comparing: (1) the predicted ground-level air concentrations (using one-hour and annual averages) of COPCs at the maximum point of impingement ("MPOI") (i.e., the location where the highest concentration of each COPC was expected to occur) for averaging times representing acute/short-term exposure (10 minutes, one hour, 24 hours) and chronic/long-term exposure (one year); and (2) exposure limits for the COPCs that have been established by regulatory authorities responsible for protecting public health (e.g., the Ministry, Environment Canada, Health Canada, United States Environmental Protection Agency). Health risks associated with secondary pathways of exposure to COPCs, such as through deposition from the air to the ground, were also considered.

[29] The First Intrinsik Report considered the following COPCs: NO<sub>2</sub> (based on NO<sub>x</sub> measurements); TPM; PM<sub>2.5</sub> and PM<sub>10</sub> (based on TPM measurements); SO<sub>2</sub>, PAH, HCl, chlorophenol, dioxins and furans, and various metals. It considered potential risks associated with those COPCs individually, and a "respiratory irritants mixture" consisting of NO<sub>2</sub>, SO<sub>2</sub>, HCl, cadmium, chromium (total), nickel, and vanadium.

[30] The First Intrinsik Report concluded as follows at page 29:

With very few exceptions, the health risk estimates for the non-cancer COPC at the MPOI were predicted to be below 1.0, indicating that estimated short-term and long-term inhalation exposures were less than the health-based exposure limits. Risk estimates less than or equal to 1.0 are associated with low health risk, and therefore adverse health effects would not be expected. The only exceedances of the limits at the MPOI were predicted for short-term inhalation exposure to NO<sub>2</sub> and SO<sub>2</sub> acting both singly and in combination with part of the respiratory irritants mixture. The predicted short-term NO<sub>2</sub> and SO<sub>2</sub> concentrations are unlikely to result in adverse health effects on their own or as part of a mixture due to:

- The conservatism incorporated into the short-term ground-level air concentrations of NO<sub>2</sub> and SO<sub>2</sub>;
- The areal extent of the predicted exceedances;
- The likelihood of an exceedance occurring; and
- The levels of exposure that have resulted in observed adverse health effects in humans, as documented in the most recent scientific literature.

In all cases, the cancer risk estimates were predicted to be less than one in 100,000 (i.e., one extra cancer case in a population of 100,000 people),

indicating that the chemical emissions from the [Facility] burning 100% rail ties are associated with a negligible level of health risk, as defined by [the Ministry] and Health Canada.

Concentrations of the COPC were predicted in soil and compared with BC's CSR [Contaminated Sites Regulation] numerical standards and background soil concentrations in the Cariboo Region. The predicted maximum concentrations of each of the COPC in soil were well below both the BC soil standards and regional background soil concentrations, suggesting that the proposed increase in the rail ties used to fuel the [Facility] would not be expected to result in an increase in health risks to the neighbouring area.

[31] In a letter dated May 26, 2016, Intrinsik provided a revised human health risk assessment (the "Second Intrinsik Report"), based on the Facility burning 50% rail ties, rather than 100% rail ties (which was assumed in the First Intrinsik Report). The Second Intrinsik Report also used revised air dispersion modelling results from RWDI that took into account: an 11-metre correction to the base height of the Facility's stack; a revised NO<sub>x</sub> emission rate reflecting the Facility's standard flow rate, rather than the flow rate measured during the 2001 test; conversion of NO<sub>x</sub> to NO<sub>2</sub> using hourly ozone concentrations, rather than the annual one-hour maximum concentration; and, a revised TPM emission rate reflecting the permitted maximum (i.e., 50 mg/m<sup>3</sup>), rather than the rate derived from the 2001 test.

[32] The Second Intrinsik Report concluded on page 2 that burning 50% rail ties, rather than 100% rail ties:

... only influences the predicted ground-level air concentrations for those [COPCs] that would be emitted from the [Facility] in appreciable quantities during the burning of rail ties and not during the burning of wood waste (i.e., sulphur dioxide (SO<sub>2</sub>), metals and metalloids, polycyclic aromatic hydrocarbons (PAHs), and chlorinated compounds). However, the predicted ground-level concentrations for NO<sub>2</sub> and particulate matter (PM), which would be emitted in the same quantities when burning rail ties or wood waste, remain the same regardless of the scenario under consideration.

[33] Thus, compared to the 100% rail ties scenario, the 50% rail ties scenario resulted in lower acute health risks quotients for all COPCs except TPM, PM<sub>2.5</sub>, PM<sub>10</sub>, although the acute health risks quotients for all COPCs except the respiratory irritants mixture remained below 1.0. The acute health risk quotient for the respiratory irritants mixture improved by declining to 1.6 when burning 50% rail ties, compared to 3.0 when burning 100% rail ties. The chronic health risks quotients for all COPCs remained below 1.0, and declined for all COPCs except TPM and PM<sub>2.5</sub> (PM<sub>10</sub> was not included in that analysis). The chronic incremental lifetime cancer risks for all COPCs also declined under the 50% rail ties scenario.

[34] At the Ministry's request, Atlantic also commissioned RWDI to prepare a "Best Achievable Technology Study", dated May 17, 2016 (the "BAT Report"), which considered the technology available for controlling the Facility's emissions of SO<sub>2</sub>, HCl, and NO<sub>2</sub>. The BAT Report compared the costs and effectiveness of wet scrubbing and dry scrubbing systems to reduce SO<sub>2</sub> and HCl emissions, and

selective non-catalytic reduction and selective catalytic reduction systems to reduce NO<sub>2</sub> emissions. The BAT Report concluded that the best achievable technology in this case was emission limits, given that the applicable AAQOs are not expected to be exceeded if the Facility burns 50% rail ties, and the high costs of the emission reduction systems that were considered.

[35] The BAT Report concluded as follows at page 14:

...

Dispersion modelling conducted for [the Facility] showed the plant is able to achieve compliance with the B.C. AAQOs based on 50% rail ties and operating at full capacity. Implementation of control technology systems are not required in order to maintain compliance with B.C. AAQOs.

...

The best ranked add-on system costs are far above the cost of removal for those emissions from other sources. Given that, the recommended BAT for [the Facility] is emission control limits. ... The current [Facility] air permit includes a NO<sub>x</sub> emission limit which will remain in place. The [Ministry] could consider adding an SO<sub>2</sub> stack emissions limit to the revised permit to further ensure that SO<sub>2</sub> emissions are at or below the quantities evaluated herein.

*Atlantic's notifications and consultations regarding the proposed amendment*

[36] The Ministry considered Atlantic's application to be seeking a "significant amendment" which triggered certain public notification requirements under the *Public Notification Regulation*, B.C. Reg. 2002/94 (the "*Regulation*"). As a result, Atlantic was required to give written notice of its application to the local municipality and regional district, post notice of the application at the Facility, and publish notice of the application in the BC Gazette and the local newspaper. In addition, Atlantic was required to consult various government agencies, First Nations, and other stakeholders. Atlantic also hosted a public meeting.

[37] In response to its initial notification and consultation efforts, Atlantic received a lot of feedback, which was documented in a May 2, 2016 report provided to the Director (the "*Consultation Report*"). Atlantic also prepared a Technical Assessment dated May 31, 2016, which summarized and responded to the issues raised in the feedback, based on technical information and studies.

[38] During June through August 2016, Atlantic made further notification and consultation efforts that were documented in a report dated June 30, 2016 (the "*Notification Record*"), and a letter dated August 12, 2016, which were submitted to the Director. The second phase of notification and consultation was intended to provide an opportunity for stakeholders and the public to review and comment on the revised application that Atlantic prepared in June 2016, and the information provided in response to the first phase of notification and consultation. The second phase included posting an updated application notice in the local newspaper, and hosting a second public meeting, which resulted in more feedback.

[39] In addition, the Director received comments directly from the public regarding Atlantic's application. Pursuant to section 7 of the *Regulation*, "a person

who may be adversely affected" by the application may notify the Director in writing, stating how that person is affected. Some of the Appellants sent emails to the Director raising concerns about the adverse impact of burning rail ties on local air quality and the environment. Under subsection 7(2) of the *Regulation*, the Director "may" take such information into consideration.

*The Ministry's review of Atlantic's application*

[40] On May 25, 2016, Ralph Adams, an Air Quality Meteorologist with the Ministry, prepared a report for the Director that reviewed RWDI's Air Dispersion Modelling Report (the "Adams Review"), including RWDI's methodology and results. His review did not assess the data from the 2001 tests, which was input into the modelling.

[41] Under the heading "Discussion", the Adams Review states:

... I have found no errors or omissions that would significantly affect the output from the models. ... the isopleth maps showing the distribution of pollutant maxima are realistically aligned with prevailing winds. The model output also clearly shows the influence of topography. The maximum ground level concentrations tend to occur 1 to 2 km to the North West of the stack on the sparsely inhabited hillside. This behavior is expected when dealing with a hot buoyant plume from a stack close to elevated terrain. ...

[underlining added]

[42] In conclusion, the Adams Review states:

My review leads me to conclude that, should the amendment be granted and the firing of railway ties increased to 50%, there would be an increase in concentrations of some contaminants (SO<sub>2</sub>, HCl and PAH) in the airshed, but none of these increases would exceed current air quality objectives. The predicted increases in all other contaminants expected to change due to the amendment all result in ambient concentrations that are less than 0.5% and most [are] less than 0.01% of the appropriate AAQO; therefore, I have not included them in my review. Two other contaminants of concern in the airshed are PM<sub>2.5</sub> and NO<sub>2</sub>, in both cases these are not expected to change due to the proposed increase in railway tie firing rate and I have not included them in my review.

...

The other contaminants that are predicted to increase due to the proposed amendment are HCl and PAH. The predicted maximum increase for these contaminants, without background concentrations added, would result in predicted levels that are 30 and 10% of the applicable AAQO for HCl and PAH respectively. There are no ambient measurements of these contaminants in the Williams Lake airshed. I have not been able to locate any measurements of ambient HCl and PAH for any airsheds in the province. Therefore, it is not possible to estimate background levels of these contaminants. However, given the absence of sources of these compounds in the Williams Lake airshed, it is very unlikely that there would be existing levels high enough to result in

exceedances even if the increases due to changes at the Atlantic Power facility occur.

While my review indicates that it is unlikely that the proposed changes at the Atlantic facility would result in any significant changes in ambient air quality in the Williams Lake airshed, there is uncertainty due to the assumption used in the dispersion models, the emission rates used in the modelling, and the lack of background measurements for HCl and PAH. The emission rates used in the modelling are based on the 2001 stack testing conducted at 100% railway tie firing rates. There are therefore two assumptions implicit in the modelling: that the 2001 stack testing is still valid for current conditions, and the assumption that there is a linear relationship between contaminants other than TPM and NO<sub>2</sub> and the firing rate of railway ties.

In my opinion the most reliable way of addressing these uncertainties is through a regimen of stack and ambient monitoring. If the amendment is granted I recommend the following:

- Discharge limits be included in the permit as a method of control.
- That as soon as feasible, stack testing is completed at the maximum firing rate allowed in the amended permit. The initial stack tests would be used to confirm that the emission rates used in the modelling and this assessment are appropriate.
- That an ambient monitoring programme be developed by the proponent, which will be approved by the director, to confirm that ambient levels of SO<sub>2</sub>, PAH and HCl in the airshed are below levels of concern.
- That the proponent be required to participate in an ambient monitoring programme with other stakeholders in the airshed to investigate the spatial variability of PM<sub>2.5</sub> and NO<sub>2</sub>.

[underlining added]

[43] Peter Lawrie, a Senior Environmental Protection Officer with the Ministry, with certification as a 4<sup>th</sup> class Power Engineer, prepared an 80-page report dated September 6, 2016 (the "Lawrie Report"), that assessed Atlantic's application and supporting documents, the comments received through the notification and consultation processes, and the Adams Review. He also considered various scientific studies and Ministry policies.

[44] The Lawrie Report identified the following contaminants of concern associated with the incineration of rail ties: SO<sub>2</sub>, HCl, chlorophenols, dioxins and furans, chlorobenzene, PAH, volatile organic compounds (VOCs), and trace metals. The Lawrie Report discussed, in detail, the potential impacts of handling, storing, shredding, and burning rail ties, including the predicted impacts on ambient concentrations of the contaminants of concern. The Lawrie Report also discussed NO<sub>x</sub> and particulate emissions from the Facility, but noted that emissions of those substances were not expected to change significantly regardless of whether the Facility burned rail ties or regular wood waste. The Adam's Review is an appendix in the Lawrie Report.

[45] The Lawrie Report recommended that Atlantic's application should be granted, subject to the addition of new or revised emission limits and other conditions to the Air Permit, as recommended by Mr. Adams. The Lawrie Report is discussed in more detail later in this decision.

*The Amendment*

[46] On September 6, 2016, the Director issued the Amendment pursuant to section 16(1)(b) of the *Act*. The Amendment allows the "incineration of up to 50% by wet weight of rail tie material and clean, non-hazardous construction and demolition debris", subject to various conditions.

[47] The Amendment contains revised or new emission limits for numerous substances. The Amendment sets emission limits for numerous substances that were not previously regulated in the Air Permit, including HCl, SO<sub>x</sub> (as SO<sub>2</sub>), PAH, certain metals, total dioxins and furans, and chlorophenol. The maximum rate of discharge for NO<sub>x</sub> (as NO<sub>2</sub>) remained at 320 mg/m<sup>3</sup>, but the maximum rate of TPM discharge was reduced to 20 mg/m<sup>3</sup> from 50 mg/m<sup>3</sup>.

[48] The Amendment also sets new monitoring and reporting requirements. In addition to requiring continuous monitoring of NO<sub>2</sub> emissions and opacity at the stack, which the Air Permit previously required, Atlantic must continuously monitor SO<sub>2</sub> and HCl emissions at the stack. Particulate matter, which was previously monitored at the stack annually, must now be tested quarterly and annually. Reports on monitoring data must be provided to the Director by March 31 of each year, and must be publicly available at the Williams Lake Public Library within 30 days of submission to the Ministry.

[49] Furthermore, the Amendment requires Atlantic to conduct a "verification trial" using greater than 40% rail tie material (by wet weight) within 30 days of completing testing of the rail tie shredder system for up to 3,500 wet tonnes of rail ties and construction debris. During the verification trial, Atlantic must record data on various emission parameters, including a size fractionation test of particulates to determine PM<sub>2.5</sub> and PM<sub>10</sub> content. The results must be provided to the Director.

[50] Another new requirement in the Amendment is that Atlantic must participate in an ambient monitoring program. Atlantic must submit an ambient air quality monitoring plan, prepared by a qualified professional, to the Director for approval, and must implement the plan before incinerating rail ties at the Facility.

[51] In addition, the Amendment adds new requirements in relation to rail tie handling and storage. For example, the Amendment requires that: rail tie material must be received at the facility in an un-shredded state unless prior written permission is obtained from the Director; Atlantic must implement both a waste acceptance plan and a fire control and prevention plan, certified by a qualified professional, before accepting rail ties at the Facility; un-shredded rail ties must be stored separately from clean biomass, and be protected from precipitation and storm water runoff; a maximum of 3,000 tonnes of shredded rail tie material may be stored at the site and must be in an enclosed bin, protected from the elements; and, fugitive odour and PAH emissions, within the boundaries of the City of Williams

Lake, from the transport, storage and processing of rail tie material must be controlled and suppressed.

*The Appeals*

[52] Nine individuals filed separate appeals against the Amendment. Subsequently, three appeals were withdrawn and dismissed pursuant to section 17(1) of the *Administrative Tribunals Act* ("ATA"); namely, the appeals of Beverly Haskins (2016-EMA-131), Peter Luscombe (2016-EMA-133), and Becky Bravi (2016-EMA-148).

[53] Of the six remaining Appellants, three (Ellis O'Toole, Angie Delainey, and Tricia McLellan) are represented by counsel, and made joint submissions on the appeals. They are referred to in this decision as the "Represented Appellants". John Pickford, John Henry Dressler, and Rodger Hamilton, are self-represented in the appeals.

*Director's preliminary application to dismiss the appeals or strike certain grounds*

[54] On December 9, 2016, the Director applied to dismiss all nine appeals on the basis that the Appellants lacked standing to appeal the Amendment under section 100(1) of the *Act*. The Director also applied to strike certain grounds for appeal and Notices of Appeal.

[55] On March 29, 2017, the Board issued a decision denying the Director's application to dismiss the appeals for lack of standing, but granting, in part, the application to strike portions of some Notices of Appeal (*John Pickford et al v. Director, Environmental Management Act*, Decision Nos. 2016-EMA-130(a), 131(a), 133(1), 144(a) to 149(a)).

*Procedural matters – form of hearing*

[56] On June 1, 2017, the Board ruled that the appeals should be heard by way of an oral hearing. The Board advised that its ruling may be reviewed once the Appellants provided more information about the evidence and arguments they intended to rely on in support of their appeals.

[57] On June 26, 2017, Mr. Hamilton provided his Statement of Points and supporting documents. His documents included letters written by Mr. Hamilton, portions of some of the reports that Atlantic prepared in support of its application for the Amendment, part of the Lawrie Report, and part of the "Williams Lake Airshed Management Plan: 2006 – 2016" (the "2006 Airshed Plan").

[58] On June 29, 2017, the Board received the Represented Appellants' Statement of Points and supporting documents. Their documents included some of the reports that Atlantic prepared in support of its application for the Amendment, portions of the Lawrie Report, and a one-page report by Dr. Peter Jackman (with his *curriculum vitae*) critiquing the Air Dispersion Modelling Report.

[59] On July 2, 2017, the Board received Mr. Dressler's Statement of Points.

[60] On July 7, 2017, the Board received Mr. Pickford's Statement of Points and supporting documents, including some emails from Interior Health Authority, and portions of the Lanfranco Report and the Lawrie Report.

[61] In late 2017 and early 2018, the Director and Atlantic provided copies of their Statements of Points, the documents that they intended to tender as evidence at the oral hearing, and legal authorities.

[62] On February 2, 2018, the Director and Atlantic provided notices of their intentions to call expert witnesses. They also provided copies of their expert witnesses' qualifications, and reports containing expert opinion evidence.

[63] In a letter dated March 1, 2018, the Board directed that the appeals would be heard by way of written submissions. The Board's letter acknowledged that several of the Appellants had requested a written hearing, and had advised that they were prepared to argue their appeals without cross-examining the witnesses of the Director or Atlantic.

[64] In a letter dated March 16, 2018, Atlantic advised that it intended to tender as evidence numerous documents prepared by four expert witnesses. The documents were originally disclosed with Atlantic's Statement of Points and notice of expert evidence. Atlantic requested that the Board advise whether Atlantic need not file additional copies of those documents with its written submissions.

[65] In a letter dated March 19, 2018, the Board confirmed that Atlantic's documents would be provided to the hearing panel, and Atlantic need not provide further copies of the documents.

[66] On March 21, 2018, Mr. Hamilton provided his written submissions and supporting documents. The documents included his Notice of Appeal, which refers to several documents available on the internet, Atlantic's 2017 Annual Report for the Air Permit, and a January 6, 2017 letter from Mr. Hamilton to the Board. He advised that he was also relying on his Statement of Points.

[67] On March 26, 2018, Mr. Pickford provided his written submissions and supporting documents. The documents included: a letter dated October 28, 2015 from the Interior Health Authority to Atlantic regarding the proposed amendment; a letter dated August 26, 2016 from the Interior Health Authority to the Director commenting on the proposed amendment; an email dated August 31, 2016 from the Ministry to the Interior Health Authority in response to the August 26, 2016 letter; and, excerpts of several documents including the Lawrie Report and the Lanfranco Report. He advised that he was also relying on his Statement of Points.

[68] On March 29, 2018, Mr. Dressler provided his written submissions. He provided no documents, but referred to a June 2016 report titled "A Summary of Recent Trends in Levels of Particulate Matter", prepared for the Williams Lake Air Quality Roundtable, which was available on the internet.

[69] On April 3, 2018, the Represented Appellants provided their written submissions. They provided no documents, but their submissions referred to several documents that were submitted with their Statement of Points, as well as documents that the Director and Atlantic disclosed with their Statements of Points.

The Represented Appellants' written submissions did not refer to Dr. Jackman's critique of the Air Dispersion Modelling Report.

*Atlantic's preliminary application to dismiss the appeals*

[70] On April 13, 2018, Atlantic applied for an order that the appeals be dismissed on the basis that:

- the Appellants had failed to introduce any evidence from which a reasonable trier of fact could find in the Appellants' favour (i.e., a "no evidence" motion); and
- alternatively, pursuant to section 31(1)(f) of the ATA, there was "no reasonable prospect" that the appeals will succeed (i.e., a "summary dismissal" motion).

[71] Among other things, Atlantic submitted that the Appellants had provided no affidavit evidence, and none of the Appellants were qualified as expert witnesses, yet some of them made unsworn statements purporting to give expert opinions on topics such as stack testing, air modelling, and secondary particulate formation. Atlantic argued that such statements were inadmissible as expert opinion evidence or any other form of opinion evidence. In addition, Atlantic argued that the Appellants had submitted or referred to documents that purported to give expert evidence, but had failed to provide proper notice of expert evidence, and in some cases the authors of the documents were unknown. Atlantic maintained that such documents were inadmissible.

[72] On July 27, 2018, the Board issued a decision denying Atlantic's no evidence motion, and its application to dismiss the appeals under section 31(1)(f) of the ATA, with the exception of a few issues (i.e., issues 14.1, 22, 23, 26) which had been withdrawn by the respective Appellant (Decision Nos. 2016-EMA-130(b), 144(b)-147(b) & 149(b)) [*Second Preliminary Decision*].

[73] Following that decision, Atlantic and the Director filed their written submissions on the merits of the appeals, and the Appellants had an opportunity to provide written reply submissions.

*The parties' positions on the appeals*

[74] In general, the Appellants are concerned that the Amendment does not adequately protect human health and the environment, because: the Amendment will adversely affect air quality in Williams Lake due to increases in the emission of SO<sub>2</sub>, HCl, particulate matter, PAH, and other contaminants; the Amendment does not adequately address dust and odours arising from the transportation and handling of rail ties; the Director erred by relying on incomplete data; and, the monitoring and reporting requirements in the Amendment are inadequate. Some of the Appellants also raise concerns about the notification and consultation process that preceded the Amendment.

[75] In particular, the Represented Appellants submit that the Amendment allows up to 300,000 tonnes of treated rail ties to be incinerated each year at the Facility, which will produce significant incremental emissions of harmful contaminants and

exacerbate the unacceptable air quality already experienced in Williams Lake. They request that the Board reverse the Amendment. Alternatively, the Represented Appellants request that the Board vary the Amendment by making certain improvements (discussed later in this decision) in relation to the burning of rail ties.

[76] Mr. Hamilton raises numerous concerns about the Amendment, including the effects of the emissions from burning, handling, and transporting rail ties. He also submits that the public notification process was flawed, procedurally unfair, and excluded important information. Moreover, he submits that the Director failed to properly consider the risks posed by fine particulate matter in the Williams Lake airshed, and there will be no reduction in particulate emissions from the Facility by burning rail ties. Mr. Hamilton argues that there is no evidence that the 2001 test burns were representative of normal operating conditions, and the verification trial burn required in the Amendment should have been done before the Amendment was granted. Mr. Hamilton requests that the Amendment be “extinguished” until certain conditions are met and uncertainties are resolved, and that a number of amendments be made to the Air Permit to address inadequacies.

[77] Mr. Pickford submits that the Director erred by relying on incomplete or imprecise data, incorrect assumptions, and a lack of ambient data on background pollutants. He submits that the Director also disregarded climate change, and too much time elapsed between the 2001 test burns and RWDI’s modelling. Mr. Pickford requests that the Board rescind the Amendment, and direct Atlantic and the Director to conduct test burns and modelling based on today’s conditions, utilizing actual measurements instead of assumptions, in support of a new application for an amendment.

[78] Mr. Dressler submits that the storage and transportation of rail ties will cause dust and odour, and the Amendment does not impose restrictions that address this concern. He also submits that Atlantic has not identified where rail ties will be transferred from rail cars to trucks for transport to the Facility, and the community was not consulted about this. Mr. Dressler submits that more needs to be done to improve air quality in the Williams Lake airshed. He maintains that particulates build up in the airshed when inversions occur, and smoke from wildfires in 2017 persisted for many weeks. He requests that the Air Permit be rescinded.

[79] The Director submits that the appeals should be dismissed. The Director submits that the Appellants have failed to meet the onus of proving that the public notification process was flawed or did not meet the legislated requirements, or that the Amendment will result in harm to the environment or human health. The Director submits that there is no conflicting evidence before the Board regarding the predicted impacts of the permitted discharges; rather, the Appellants have provided unqualified criticisms. In support of his submissions, the Director provided affidavit evidence, and documents tendered as expert evidence.

[80] Similarly, Atlantic submits that the Appellants have not met their burden of proof, and the appeals should be dismissed. Atlantic maintains that the Appellants purport to provide expert evidence, but their documents do not meet the requirements for admission as expert evidence, and are inadmissible for any purpose. Atlantic submits that the Appellants largely rely on assertions, and have tendered no materials on which the Board could make an informed decision in their

favour. In addition, Atlantic submits that even if the Appellants' documents are admitted as evidence, they do not challenge the affidavits and expert evidence provided by Atlantic and the Director. In support of its submissions, Atlantic provided affidavit evidence, and documents tendered as expert evidence.

## **ISSUES**

[81] The issues to be decided in the appeals are:

1. Whether some of the documents or submissions provided by the Appellants are inadmissible.
2. Whether the public notification process that preceded the Amendment was flawed or failed to comply with the applicable statutory requirements.
3. Whether the Amendment should be reversed because it does not adequately protect the environment and human health, or alternatively, should be varied as requested by the Appellants.

## **RELEVANT LEGISLATION**

[82] The following sections of the *Act* are relevant to these appeals. Other relevant legislation is set out in the body of this decision.

### **Definitions**

**1** (1) In this Act:

...

**"air contaminant"** means a substance that is introduced into the air and that

- (a) injures or is capable of injuring the health or safety of a person,
- (b) injures or is capable of injuring property or any life form,
- (c) interferes with or is capable of interfering with visibility,
- (d) interferes with or is capable of interfering with the normal conduct of business,
- (e) causes or is capable of causing material physical discomfort to a person,  
or
- (f) damages or is capable of damaging the environment;

...

**"environment"** means air, land, water and all other external conditions or influences under which humans, animals and plants live or are developed.

...

### **Amendment of permits and approvals**

**16** (1) A director may, subject to section 14(3), this section and the regulations, for the protection of the environment,

- (a) on the director's own initiative if he or she considers it necessary, or
  - (b) on application by a holder of a permit or an approval,
- amend the requirements of the permit or approval.

...

- (4) A director's power to amend a permit or an approval includes all of the following:
- (a) authorizing or requiring the construction of new works in addition to or instead of works previously authorized or required;
  - (b) authorizing or requiring the repair of, alteration to, improvement of, removal of or addition to existing works;
  - (c) requiring security, altering the security required or changing the type of security required or the conditions of giving security;
  - (d) extending or reducing the term of or renewing the permit or approval;
  - (e) authorizing or requiring a change in the characteristics or components of waste discharged, treated, handled or transported;
  - (f) authorizing or requiring a change in the quantity of waste discharged, treated, handled or transported;
  - (g) authorizing or requiring a change in the location of the discharge, treatment, handling or transportation of the waste;
  - (h) altering the time specified for the construction of works or the time in which to meet other requirements imposed on the holder of the permit or approval;
  - (i) authorizing or requiring a change in the method of discharging, treating, handling or transporting the waste;
  - (j) changing or imposing any procedure or requirement that was imposed or could have been imposed under section 14 or 15.

## **DISCUSSION AND ANALYSIS**

### **1. Whether some of the documents or submissions provided by the Appellants are inadmissible.**

#### *The parties' submissions*

[83] Atlantic submits that the Appellants refer to documents that purport to provide expert evidence, such as the 2006 Airshed Plan and a June 21, 2005 report titled, "CALPUFF Modelling for Williams Lake Airshed", that was prepared for the Ministry by Levelton Consultants Ltd. (the "2005 Levelton Report"). Atlantic argues that such documents are inadmissible as expert evidence or for any other purpose, because the Appellants gave no notice of their intention to rely on those documents as expert evidence, and neither the authors of those reports nor their qualifications are known. Furthermore, Atlantic submits that if such documents are admissible,

they should be given virtually no weight, because they provide background information, at best.

[84] In addition, Atlantic submits that Mr. Hamilton's and Mr. Pickford's submissions contain unsworn statements that purport to give expert opinion evidence on secondary particulate formation, stack testing, air modelling, climate conditions, and best achievable technology. Yet, they are not experts, and Mr. Hamilton stated that he "does not have qualified professional status nor [does he] have any special training or experience that would make [him] an expert on these issues." Atlantic submits that the Appellants' opinions on expert matters are inadmissible, and to the extent that they are admissible as a form of written evidence, they should be given little or no weight in relation to the technical merits of the Amendment.

[85] Atlantic also submits that the Appellants have advised that they do not contest the qualifications of the experts tendered by the Director and Atlantic, and they have abandoned their right to cross-examine those witnesses or otherwise challenge their opinions. Atlantic submits, therefore, that those expert opinions are unchallenged and must be accepted.

[86] The Director did not directly address this issue.

[87] The Represented Appellants submit that Atlantic has taken an excessively formal approach to the admissibility of evidence. The Represented Appellants note that the Board stated in para. 88 of the *Second Preliminary Decision* that section 40 of the ATA "provides the Board with a broad discretion to accept information, regardless of whether it would be admissible in the courts."

[88] Mr. Pickford submits that his materials include documents that are publicly available, or are relied on by the Director and Atlantic. He submits that the documents are not proprietary to one party, and should be given full weight and consideration by the Board. In response to the argument that the Appellants are not experts and there is no challenge to the Director's and Atlantic's expert evidence, he submits that the inadequacies in the documents that supported Atlantic's application are recognizable to a person of average intelligence, and the conclusions in Atlantic's and the Director's expert evidence are, in fact, being challenged in these appeals.

[89] Mr. Hamilton and Mr. Dressler filed no reply submissions, and did not address this issue.

#### *The Panel's findings*

[90] In denying Atlantic's "no evidence" motion in the *Second Preliminary Decision*, the Board addressed the admissibility of the Appellants' documents and unsworn statements. At para. 103 of the *Second Preliminary Decision*, the Board cautioned that its findings were for the purpose of deciding the "no evidence" motion, and had no bearing on the merits of the appeals. Nevertheless, the Panel finds that the principles underlying the Board's findings in the *Second Preliminary Decision* regarding the admissibility of the Appellants' documents and unsworn statements are equally applicable to Atlantic's present challenge, which is largely a reiteration of its previous arguments.

[91] At paras. 88, 93, 96 and 99 of the *Second Preliminary Decision*, the Board stated:

Regarding what constitutes admissible "evidence", section 40 of the *ATA* provides the Board with a broad discretion to accept information, regardless of whether it would be admissible in the courts. ...

...

... although the Board encourages parties to provide affidavit evidence when hearings are conducted in writing, such evidence is not mandatory. The appeal process, whether conducted orally or in writing, is intended to be less formal and more accessible than the court process, and the Board takes a more flexible approach to admitting evidence than the courts do. Consistent with section 40 of the *ATA*, the Board will generally admit an unsworn statement into the evidentiary record, subject to any concerns about relevance, privilege, or procedural fairness. The fact that a statement is unsworn, as opposed to sworn, may be reflected in the weight it is accorded when the Board assesses the merits of the appeals.

...

The Panel finds that all of the Appellants have provided unsworn statements, and all of their written submissions refer to documents, portions of documents, or internet links to documents that one or more Appellant provided or referred to in their written submissions or their Statement of Points. ... On their face, those documents appear to be relevant to at least some of the Appellants' grounds for appeal and assertions regarding the Amendment Decision, and admissible under section 40 of the *ATA*.

...

In the present appeals, the documents referred to in the Appellants' written submissions were disclosed (in whole or in part, or an internet link was provided) either with their written submissions or Statements of Points. In either case, the Director and Atlantic have had ample opportunity to review, and consider their responses to, the Appellants' documents and submissions. In the circumstances, there is no prejudice to the Director or Atlantic if the Board admits documents that were previously disclosed in the Appellants' Statements of Points, but were not re-filed with their written submissions.

[92] In addition, regarding the Atlantic's concern that the Appellants were purporting to improperly introduce expert evidence, the Board held at paras. 100 to 102:

... None of the Appellants have asserted that their submissions, or the documents they refer to, contain expert opinion evidence. Although the Represented Appellants provided a one-page report by Dr. Peter Jackman (and his *curriculum vitae*) with their Statement of Points, they do not refer to it in their written submissions, and they no longer appear to rely on it. Although some of the documents that the Appellants refer to and discuss in their submissions are technical in nature, none of the Appellants claim to be offering expert opinion evidence. The fact that the Appellants are not qualified as

expert witnesses does not preclude them from commenting or making submissions on technical documents. ...

Thus, any concerns regarding an Appellant's qualifications with regard to their comments on technical information would be taken into account by the Board when deciding how much weight should be accorded to the comments. Also, in terms of procedural fairness, the Panel finds that the Director and Atlantic have had ample time to review and prepare responses to the Appellants' 'non-expert' comments on the technical documents.

Atlantic and the Director also raise objections regarding the admissibility of the Appellants' documents based on concerns about hearsay and/or unreliability. As stated above, the Board takes a more flexible approach to admitting evidence than the courts do, and is not bound by the rules and legal principles on the admissibility of hearsay evidence that apply in court proceedings.

[93] The Panel adopts and applies these findings. The Panel finds that the Appellants are not attempting to tender expert evidence, and therefore, the requirements for admission of expert opinion evidence do not apply. In addition, the Panel finds that the Appellants documents and unsworn statements are admissible based on section 40 of the *ATA*, and there will be no prejudice to the Director or Atlantic if the Board admits these materials. Concerns about the author or reliability of the documents, or the Appellants' qualifications to comment on technical matters, have been taken into account by the Panel when deciding how much weight to accord to the Appellants' evidence.

[94] In addition, the Panel rejects Atlantic's submission that the conclusions in Atlantic's and the Director's expert reports must be accepted because they are unchallenged. The Panel is not obliged to unquestioningly accept the opinions the other parties' expert reports, despite the fact that the Appellants have presented no opposing expert evidence. In the *Second Preliminary Decision*, the Board found that it is not obliged to unquestioningly accept expert evidence, given the *de novo* nature of hearings before the Board, the Board's decision-making powers on appeal, and the courts' recognition that the Board is an expert tribunal (e.g., see: *Lindelauf v. British Columbia*, 2017 BCSC 626, at para. 43; *Shawnigan Residents' Association v. British Columbia (Director, Environmental Management Act)*, 2017 BCSC 107, at para. 74; and, *Greater Vancouver (Regional District) v. Darvonda Nurseries Ltd.*, 2008 BCSC 1251, at para. 59). The fact that Atlantic and the Director tendered expert reports, but the Appellants did not, does not necessarily mean that the Panel must accept or agree with all of their expert evidence. When weighing expert evidence, the Board will consider the qualifications, knowledge and experience of the expert reports' authors, as it relates to the opinions they are offering and the issues they are addressing.

**2. Whether the public notification process that preceded the Amendment was flawed or failed to comply with the applicable statutory requirements.**

*The parties' submissions*

[95] Mr. Hamilton submits that the public notification process was superficial and misleading. He argues that Atlantic failed to provide accurate notice of the characteristics and volume of the potential pollution-causing substances, contrary to sections 2(1)(f), 2(1)(g), and 4(2) of the *Regulation*, and the Director failed to ensure that Atlantic complied with those requirements. In particular, Atlantic's notices failed to describe the increase in the emissions of SO<sub>2</sub> and HCl, and that the Amendment would include authorization to burn rail ties treated with pentachlorophenol. He submits that Atlantic's public notices also failed to describe the volume of rail ties proposed for incineration on an annual basis, which could be up to 300,000 tonnes per year based on the Facility's capacity to incinerate up to 600,000 tonnes of biomass per year. He maintains that the only notice that accurately identified the amount of rail ties proposed for incineration was distributed to 12 recipients.

[96] Mr. Pickford submits that there are inconsistencies between the information that Atlantic provided to stakeholders, and the actual terms of the Amendment. He submits that Atlantic distributed a fact sheet and information package to stakeholders which stated that Atlantic anticipated "burning 15-25% rail ties on an average annual basis but if needed, the plant may need to burn a 50/50 mix of rail ties and traditional wood fibre on a periodic basis." He submits that, in contrast, the Amendment allows up to 100% rail tie burning, within the 50% annual average limit. He also argues that the Director did not adequately consider the public opposition to rail tie burning.

[97] Mr. Dressler submits that Atlantic has not identified the location for offloading rail ties onto trucks for transport to the Facility, and there was no community consultation on this subject. He submits that the location should have been identified and included in the community consultation process, as the offloading process creates significant dust that enters the Williams Lake airshed.

[98] The Represented Appellants submit that although Atlantic requested approval to burn rail ties comprising up to 50% of its annual feedstock, Atlantic repeatedly told people that it intended to burn up to a maximum of 100,000 tonnes of rail ties per year. For example, the Represented Appellants note that Appendix C in the Consultation Report states at page 26:

600,000 tonnes of wood waste is the maximum quantity of wood waste that could be burned by [the Facility]. In recent years the total annual quantity of wood waste consumed has been closer to 400,000 tonnes. We expect the lower annual consumption to continue or be reduced further. We expect that the plant would consume between 55,000 and 85,000 tonnes of rail ties per year, up to a maximum of approximately 100,000 tonnes per year. 85,000 tonnes of rail ties per year would be equivalent to about 1.2 million rail ties per year (~14 whole ties per tonne).

[99] The Director submits that Atlantic's two public notices stated that Atlantic was applying to "raise the limit on waste rail ties as a proportion of the authorized fuel from the current 5% to 50%". Although no specific wood preservatives were mentioned in those notices, the Director maintains that the second public notice specifically referred to documents available on the Ministry's website and the Williams Lake public library, which addressed the incineration of pentachlorophenol treated rail ties. The second public notice listed the specific discharges expected from burning treated rail ties, and stated that the requested amendment was to "Increase treated wood component from 5% to 50% of the total biomass fuel supply." The Director maintains that, regardless of Atlantic's statements elsewhere regarding its expected usage of rail ties, Atlantic's application and public notices stated that it sought an increase to 50% of the annual fuel supply.

[100] In addition, the Director submits that he has no jurisdiction to regulate the transfer of rail ties from rail cars to trucks, as railways are a matter of federal jurisdiction under section 92(1)(a) of the *Constitution Act, 1867*, 303 & 31 Victoria, c. 3 (U.K.). In any event, the Director maintains that the Amendment added conditions in section 2.10 of the Air Permit that are intended to control fugitive odour and PAH associated with transporting rail ties within the City of Williams Lake.

[101] Atlantic submits that the location where rail ties will be unloaded was addressed in the public consultation process, and Atlantic received feedback which it acted on. For example, Atlantic submits that in a letter dated October 6, 2016, Mr. Hamilton expressed the opinion that the unloading location should not be the CN Rail yard at the west end of Williams Lake. Atlantic points out that, in Mr. Hamilton's Statement of Points, he noted that Atlantic agreed not to use that location. Atlantic submits that it and the rail tie supplier continue to assess possible locations within the industrial area to unload rail ties as close as possible to the Facility.

[102] In addition, Atlantic submits that it met, and exceeded, the applicable notification and consultation requirements. Atlantic argues that, contrary to Mr. Hamilton's submissions, section 2(1) of the *Regulation* only applies to applications for permits or approvals, and not to applications for amendments. Rather, section 2(2) of the *Regulation* applies to a significant amendment of a permit, and it does not require the applicant to disclose the characteristics and volume of the potential pollution-causing substances.

[103] In any event, Atlantic submits that the characteristics and volume of the potential pollution-causing substances were disclosed in the second public notice, which listed the expected contaminant emission quantities associated with the amendment application.

[104] Finally, Atlantic submits that the Director considered the public feedback that was received, and he was not obliged to make a decision that everyone agreed with. Atlantic maintains that the purpose of the public consultation process is to inform stakeholders and give consideration to their feedback, which is what occurred in this case.

*The Panel's findings*

[105] Regarding the purpose of the public notification requirements in the *Regulation*, the Board has previously held that the purpose of the *Regulation* is to provide notice to local residents and stakeholders of an application, and to solicit input on any issues or concerns they may have regarding environmental impacts, in order to increase the likelihood the decision-maker has all of the relevant information: *Harris et al v. Director, Environmental Management Act* (Decision Nos. 2008-EMA-009(a), 010(a), 011(a), 013(a), June 10, 2010); *Shawnigan Residents Association et al v. Director, Environmental Management Act* (Decision Nos. 2013-EMA-015(c), 019(d), 020(b), 021(b), March 20, 2015) [*Shawnigan*], at para. 196. The Panel agrees that the purpose of public notification is to inform and solicit input from the public and relevant stakeholders about an application, so that the Director is aware of the nature and extent of any public concerns, and may consider those concerns and determine whether they were addressed to his satisfaction.

[106] The Panel finds that section 2(1) of the *Regulation* only applies to applications for permits or approvals, not to applications for amendments, and it requires an applicant to provide certain information to the Director. It does not require public notification of an application. Section 2(2) of the *Regulation* applies to a significant amendment of a permit, but again, it requires an applicant to provide certain information the Director. It does not address public notification.

[107] Section 4(2) of the *Regulation* provides certain mandatory public notice requirements for permit amendments:

- 4 (2) Every person who applies for an amendment to a permit or approval must give notice of the application as set out in Column 4 of Schedule A.

[108] In accordance with section 4(2) and Column 4 of Schedule A of the *Regulation*, Atlantic was required to post notice of its application on-site at the Facility, in local newspapers, in the BC Gazette, and to give notice to local municipalities and regional districts. The evidence before the Panel, which is discussed below, establishes that Atlantic did all of those things, not once but twice. In addition, Atlantic went beyond the statutory requirements by responding to those who provided comments during the notification and consultation process, and hosting two public open houses.

[109] Sections 6 (2) and (3) of the *Regulation* address the publication of notices in newspapers:

- 6 (2) If Schedule A requires that an application be published in one or more local newspapers, a director will specify the newspaper or newspapers in which the application must be published.
- (3) For the purposes of subsection (2), the applicant must, at the applicant's expense, publish the application in an advertisement that
  - (a) is at least 10 centimetres in width,
  - (b) is at least 100 square centimetres in area,
  - (c) is entitled "ENVIRONMENTAL PROTECTION NOTICE" in a minimum type size of 12 points, and

(d) has the text of the application in a minimum type size of 8 points.

[underlining added]

[110] In particular, section 6(3)(d) of the *Regulation* requires that the published notice must contain "the text of the application". Atlantic's first published newspaper notice (published in October 2015) stated that the application sought to "Raise the limit on waste rail ties as a proportion of the authorized fuel from the current 5% to 50%", among other things. In its simplest form, this is what Atlantic's application was requesting, but the information about the increase in rail ties as a proportion of fuel could have been more detailed, and the notice did not list the predicted emissions, which was a key aspect of the application. Despite the absence of more detailed information, some stakeholders asked questions about the chemicals used to treat rail ties and the expected emissions. For example, an October 28, 2015 letter from the Interior Health Authority states, in part:

It is my understanding that railway ties are treated with creosote or pentachlorophenol .... Are you able to supply Plant temperature specifications in comparison to those adequate to destroy chemicals (example dioxins and furans, or other) to thereby render stack emissions of non-concern in this context?

[111] An October 14, 2015 email from the Cariboo Chilcotin Conservation Society stated, in part:

... one of our directors was wondering where more emissions reports might be found, and thought [there was] a lack of information available here (that we have seen) on the potential chemistry. Direction to this information, possibly online or in a pdf, would be valuable in our making informed inquiries and comments.

[112] Mr. Pickford and Mr. Hamilton also provided comments to Atlantic in November 2015.

[113] Atlantic received a great deal of feedback in response to the first phase of consultation, as documented in the Consultation Report, which was provided to the Director. Atlantic also prepared the May 31, 2016 Technical Assessment in response to issues raised in the feedback. Atlantic responded to every person or organization that provided comments during the initial phase of consultation. Atlantic also made copies of RWDI's emission modelling available at the Williams Lake public library, and sent copies directly to those who asked about emissions.

[114] In addition to Atlantic's notification and consultation efforts, the Ministry maintained a webpage dedicated to Atlantic's application, where copies of various reports that were being considered by the Ministry were publicly accessible.

[115] Partly due to the extensive feedback that was received, Atlantic made further notification efforts, as documented in the Notification Record and a letter dated August 12, 2016, which were submitted to the Director. Atlantic published a second newspaper notice (on June 22, 2016) that contained detailed information about the predicted quantities of the key contaminants of concern that would be emitted if the application was granted. The second published notice stated that the application sought to "Increase treated wood component from 5% to 50% of the

total biomass fuel supply." This is consistent with the "text of the application" that Atlantic had submitted to the Ministry, as required by section 6(3)(d) of the *Regulation*. Atlantic's application proposed to add a clause to the Air Permit which would state: "The treated wood component shall not exceed 50% of the total biomass fuel supply on an annual basis." The second published notice also included the rate of discharge and the tonnes per year of the contaminants of concern, and compared those emissions to what was previously authorized under the Air Permit.

[116] In addition, the second notice informed the public that more information about the application was available at the Williams Lake public library and on Atlantic's and the Ministry's websites, and this information included RWDI's dispersion modelling, the Intrinsic Reports, the Consultation Report, and the Technical Report. Those public-available documents provided detailed information about the volume of rail ties proposed for incineration on an annual basis, the substances used to treat the rail ties, the predicted characteristics and volume of emissions associated with the proposed amendment, and the predicted impacts on human health. For example, pages 12 and 13 of the Consultation Report provide a table showing the wording of the proposed amendments to the Air Permit, and compared them to the existing provisions in the Air Permit. Although Atlantic stated in some parts of its public materials that it expected to burn less than 50% rail ties, those same materials were also clear that Atlantic's application was requesting approval to burn up to 50% rail ties in its annual fuel supply.

[117] Although neither of the published newspaper notices identified the location where rail ties would be offloaded from rail cars to trucks, the Panel finds that the Consultation Report, which was referenced in the second newspaper notice, discussed the location of that activity. Appendix C in the Consultation Report is a "Questions and Answers" document, which states at pages 26 and 28:

Our project proposes to receive used rail ties at a rail yard location in an industrial area of the City. The ties will be loaded onto trucks and transported to our plant primarily by highway and then a short distance on Mackenzie avenue North. ...

[118] In any event, the Panel finds that section 2.10 of the Amendment includes requirements that address public concerns about the potential emissions arising from offloading rail ties to trucks for transport to the Facility. Section 2.10 requires Atlantic to control and suppress fugitive odour and PAH emissions, within the boundaries of the City of Williams Lake, from the transport, storage and processing of rail tie feedstock. Section 2.10 also provides that the Director may suspend the authorization to incinerate rail ties if the Director determines that odour or PAH emissions become a nuisance.

[119] For all of these reasons, the Panel finds that any deficiencies in Atlantic's first published notice with respect to providing "the text of the application", as required by 6(3)(d) of the *Regulation*, were remedied by Atlantic's second published notice.

[120] In the second phase of consultation, Atlantic also held another public open house, and meetings with stakeholders such as the Interior Health Authority and the Williams Lake Air Quality Roundtable, which went beyond the requirements of the *Regulation*.

[121] The Panel finds that the public notification process that occurred in this instance met the overall purpose of the *Regulation*, stated above. The evidence before the Panel indicates that, through the two phases of notification and consultation, the public and key stakeholders had access to sufficient information to provide informed comments and questions in response to Atlantic's amendment application, including information about the quantity of rail ties that Atlantic proposed to use as fuel at the Facility, the preservatives used to treat the rail ties, the predicted emissions from burning rail ties, and the potential impacts of the emissions on human health. The evidence, including the Lawrie Report and affidavit sworn by the Director, also establishes that the Director was aware of, and took into account, all of the feedback received through the two phases of notification and consultation before granting the Amendment. In his affidavit, he attests that he "continued to accept and consider public comments up until the time I made my decision on September 6, 2016."

[122] In summary, the Panel concludes that the public notification and consultation process that preceded the Amendment complied with, and exceeded, the applicable requirements in the *Regulation*. In addition, the Panel finds that Atlantic provided sufficient information about the amendment application for the public and key stakeholders to provide informed feedback, which the Director considered before granting the Amendment. The Panel finds that the public notification and consultation process was not flawed or misleading.

**3. Whether the Amendment should be reversed because it does not adequately protect the environment and human health, or alternatively, should be varied as requested by the Appellants.**

*The Represented Appellants' submissions*

[123] The Represented Appellants submit that section 16(1) of the *Act* provides the Director with the authority to amend a permit "for the protection of the environment". The Represented Appellants argue that the large-scale burning of rail ties contaminated with creosote or pentachlorophenol is inconsistent with the protection of the environment, and the Amendment will allow significant incremental emissions of harmful contaminants into the Williams Lake airshed. Burning rail ties in the proposed quantities would result in the emission of more, and more toxic, contaminants than burning untreated wood waste, and would exacerbate the unacceptable air quality situation already experienced in Williams Lake.

[124] Specifically, the Represented Appellants submit that incinerating rail ties will lead to significantly increased emissions of SO<sub>x</sub>, HCl, and PAH, as well as increased emissions of chlorophenols, dioxins and furans, chlorobenzene, PAH, VOCs, and metals. The Represented Appellants also submit that Atlantic was not required to utilize the best "available" technology to mitigate these increases, as these technologies were deemed unaffordable. The Represented Appellants maintain that when the Facility burned 3 to 4% rail ties between 2004 and 2010, public complaints about odours were attributed to PAH. The Represented Appellants submit that the Amendment will result in increased PAH emissions, and there is a lack of data about ambient levels of PAH or HCl in the Williams Lake airshed.

[125] Alternatively, if the Board declines to reverse the Amendment, the Represented Appellants submit that the Board should make nine improvements to the Air Permit:

- reduce the annual proportion of rail ties in the Facility's fuel supply from 50% to 25%, given that Atlantic's public notification materials stated that it expected to burn up to 25% (100,000 tonnes) of rail ties per year (although Atlantic's appeal submissions state that it expects to burn 25 to 33% rail ties annually, or up to 200,000 tonnes of rail ties per year), and Atlantic may apply for another amendment if it needs to incinerate more rail ties in the future;
- despite the fact that the SO<sub>2</sub> limit may be viewed as a proxy for a daily limit, add a daily limit on the percentage of rail ties that may be used as fuel supply to prevent the use of 100% rail ties in the feedstock, as Atlantic's submissions indicate that the system feeding the boiler will ensure that no more than 50% rail ties are included at any given time;
- add a requirement that the Director must approve the results of the verification trial burn, and that new dispersion modelling must be completed if the verification trial emission results exceed the 2001 test burn results;
- add a requirement that the ambient monitoring plan must specifically address at least HCl, PAH, SO<sub>2</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, dioxins, and furans, and investigate the spatial variability of PM<sub>2.5</sub> and NO<sub>2</sub> in the Williams Lake airshed, which would be consistent with the Adams Review;
- add a specification that combustion residue (ash) must be disposed of at a site "authorized for the purpose" under the Act;
- add a requirement that Atlantic must provide security for costs related to potential future cleanup costs associated with unburned rail tie fuel and contaminants produced during the combustion of rail ties;
- add a requirement that Atlantic must maintain a log of public complaints that it receives regarding fugitive odour, dust, noise or other nuisances associated with rail tie feedstock, along with Atlantic's response to the complaints, and include the log in Atlantic's annual report for the Air Permit;
- add a requirement that Atlantic's annual report for the Air Permit contain an account of hydrocarbon contaminated material incinerated during the year, including quantities and circumstances; and
- add a requirement that Atlantic's annual report for the Air Permit be available to the public on the internet.

*Mr. Hamilton's submissions*

[126] Mr. Hamilton raises several concerns regarding particulate emissions. Mr. Hamilton submits that the Director failed to consider the 2006 Airshed Plan and the 2005 Levelton Report, which he brought to the Director's attention in 2016 during the public notification process, as those documents discuss ambient concentrations of particulates in the Williams Lake airshed. He also submits that the Director should have considered 2016 and 2017 reports by the BC Lung Association, which

discuss health risks associated with increases in PM<sub>2.5</sub> concentrations. Mr. Hamilton also submits that the burning of rail ties will cause increased SO<sub>2</sub> emissions, and the Director failed to quantify the contribution of those emissions to the secondary formation of PM<sub>2.5</sub>.

[127] In addition, Mr. Hamilton submits that the Director should not have relied on the 2001 test burn results, as there is no evidence that the 2001 test burn was representative of normal operating conditions, and the Adams Review noted that there was uncertainty in RWDI's dispersion modelling because it relied on the 2001 test burn. He further submits that the verification trial required in the Amendment should have been required before, and not after, the Amendment was granted.

[128] Mr. Hamilton submits that Atlantic's annual reports for the Air Permit should include details on how much waste oil is incinerated, where it came from, when it was incinerated, and what measures were taken to ensure compliance with section 41(5) of the *Hazardous Waste Regulation* (which provides specifications for the use of waste oil as fuel). He also submits that on-line reporting of all compliance and reporting records should be required.

[129] Mr. Hamilton also questions the adequacy of the monitoring requirements in the Amendment. In particular, he questions the requirement that Atlantic sample emissions under operating conditions that are "as close as reasonably practical to the 90<sup>th</sup> percentile for the 100 operating days prior to" the sampling date and "greater than the average for steam demand and rail tie construction demolition debris proportion for the previous full operating days." He argues that these requirements do not adequately ensure that sampling is representative of operating conditions under full load, at or near maximum fuel feed rates, and that sampling should include maximum rail tie proportions and power production values.

[130] Finally, Mr. Hamilton argues that the Amendment includes an arbitrary and unnecessary increase of 2,000 tonnes in the maximum amount of rail ties that may be stored. He argues that rail ties are flammable, and the limit should be reduced to 20,000 tonnes from 22,000 tonnes to reflect the amount that Atlantic requested.

*Mr. Pickford's submissions*

[131] Mr. Pickford submits that the verification trial burn should have been conducted before, and not after, the Amendment was granted, and should be conducted using 100% rail ties. He also submits that the air dispersion modelling process should be repeated using data from a new and more precise test burn, rather than relying on the 2001 test burn, and should take into account ambient levels of SO<sub>2</sub> and HCl. Mr. Pickford maintains that the Adams Review acknowledged a degree of uncertainty in RWDI's dispersion modelling due to the assumptions that the 2001 test results were valid for current conditions, and there was a linear relationship between the proportion of rail ties burned and the level of emissions (except for TPM and NO<sub>2</sub>). Mr. Pickford also submits that during the 2001 test burn, there was no record of the amount of rail ties used, the boiler capacity that was used, or the boiler's output (i.e., steam load).

[132] In addition, Mr. Pickford submits that:

- the Amendment allows the Facility to operate for two 30-day periods (a total of 60 days) after non-compliant stack samples are found, before emissions must cease, which is too long;
- the Facility should be required to install scrubbers that would reduce SO<sub>2</sub> and HCl emissions by 95% in order to protect the community;
- the Amendment should not have removed the previous requirement in the Air Permit that the CEM systems be maintained and audited in accordance with Canada EPS 1/PG/7 protocols;
- the Amendment does not prevent burning up to 100% rail ties at any given time, contrary to what the public was led to believe, and this should have been reflected in the Second Intrinsic Report;
- RWDI's dispersion modelling, and the Director, failed to consider the effects of climate change and PM<sub>2.5</sub> from wildfires which occurred in the Williams Lake area in 2017 and 2018.

[133] Mr. Pickford requests that the Board rescind the Amendment, and direct Atlantic to conduct test burns and modelling based on today's conditions, using actual measurements instead of assumptions, in support of a new application for an amendment. Alternatively, he requests that the Air Permit should be amended to limit rail ties to a maximum of 25% of the fuel at any time, and to correct the ambiguities that he has identified.

*Mr. Dressler's submissions*

[134] Mr. Dressler submits that the storage and transportation of rail ties in the City of Williams Lake will cause dust and odour, and the Amendment does not impose restrictions to address this. He also submits that more needs to be done to improve air quality in the Williams Lake airshed. He maintains that according to a June 2016 report titled "Air Quality in Williams Lake - A Summary of Recent Trends in Levels of Particulate Matter", prepared for the Williams Lake Air Quality Roundtable, particulates build up in the airshed when inversions occur, which is a concern for human health. He also submits that smoke from wildfires in 2017 persisted in the airshed for many weeks. He requests that the Air Permit be rescinded.

*The Director's submissions*

[135] The Director submits that the Board has previously held that a "cautious and technically rigorous approach" should be taken when assessing a permit amendment, recognizing that any harm caused by emissions should be ameliorated or eliminated where possible, but not all harm will be eliminated: *Emily Toews and Elisabeth Stannus v. Director, Environmental Management Act*, Decision Nos. 2013-EMA-007(g) and 2013-EMA-010(g), December 23, 2015 [Toews], at para. 235. The Director maintains that controlling emissions under the *Act* is a matter of striking a balance of between allowing industrial development and the environment's capacity to safely accept contaminants: *Shawnigan*, at para. 284; *Lynda Gagne et al v. Director, Environmental Management Act*, Decision Nos. 2013-

EMA-005(a) and 2013-EMA-007(a) to 2013-EMA-012(a), October 21, 2013  
[Gagne], at para. 54.

[136] The Director acknowledges that increased discharges of some contaminants are expected as a result of the Amendment, but he maintains that these increases are cautiously controlled through the conditions in the Amendment, to achieve a balance between allowing the Facility's operations to continue and protecting human health and the environment. The Director submits that the conditions in the Amendment designed to protect the environment include increased reporting requirements, a verification trial to test the veracity of assumptions made in the Air Dispersion Modelling Report, continuous monitoring of certain contaminants, and the express limits placed on contaminants of concern. He maintains that the Air Dispersion Modelling Report and the Intrinsic Reports indicate that the Amendment will result in no significant impacts on human health or the environment. He argues that the Appellants have provided no evidence to prove that the conclusions in the reports that the Director relied on are flawed.

[137] The Director disagrees with the allegation that the air quality in the Williams Lake airshed is already unacceptable and will be exacerbated by the emissions authorized under the Amendment. The Director submits that the Amendment will not cause an increase in PM<sub>2.5</sub> or NO<sub>2</sub> levels in the airshed. Moreover, both the Air Dispersion Modelling Report and the Adams Review concluded that the Facility's emissions will not cause an exceedance of the BC or Ontario AAQOs if the Facility burns 50% rail ties, or even 100% rail ties. The Director argues that the Appellants have offered no expert evidence to refute those conclusions, and there is no evidence to suggest that the 2001 trial burn results are inaccurate or unreliable. Moreover, the requirement to conduct the verification trial at greater than 40% rail ties will determine whether the assumptions made in using the 2001 test burn data were appropriate. The Director notes that the Air Permit may be further amended if necessary, based on the results of the verification trial, to ensure that emissions remain within the permitted limits.

[138] In addition, the Director submits that despite the lack of ambient data for HCl and PAH, it is reasonable to assume that ambient levels of those substances are low, given that there are no other known sources of those emissions in the Williams Lake airshed. Moreover, the Amendment requires Atlantic to prepare and implement an ambient monitoring plan that must be acceptable to the Director, which gives him the discretion to determine appropriate parameters for monitoring.

[139] Based on the results of the Air Dispersion Modelling Report, the Director argues that there is no need to order Atlantic to install scrubbers or other technology to mitigate the Facility's emissions. The Director notes that the Ministry's policy called for a study into best "achievable" technology (not best "available" technology), which the policy defines as "the technology that can achieve the best waste discharge standards and has shown to be economically feasible". The Director argues that the BAT Report was consistent with that policy, and that he accepted the BAT Report's conclusion that the best achievable technology in this case was to impose emission limits, which will protect human health and the environment based on the Intrinsic Reports.

[140] In addition, the Director submits that the Amendment contains conditions that will control fugitive dust and PAH emissions, such as requirements to receive whole rail ties, and to control and suppress odour when shredding rail ties, at the Facility.

[141] The Director also submits that according to an April 22, 2016 memo from RWDI to Mr. Adams, and page 39 of the Lawrie Report, the formation of secondary particulate matter is not a concern.

[142] The Director submits that it is unnecessary to impose a daily limit on the proportion of rail ties that may be used as fuel. He emphasizes that it is the discharge limits that are important, and not the fuel input at any given time, as long as the annual limit on the percentage of rail ties that may be used as fuel is met. Atlantic must continuously monitor SO<sub>x</sub> as SO<sub>2</sub>, NO<sub>x</sub> and NO<sub>2</sub>, and HCl when rail ties are used as feedstock, and must do quarterly stack tests for the other contaminants of concern. The Director submits that the continuous monitoring of SO<sub>2</sub> and HCl are new requirements, imposed in the Amendment, that will improve the protection of the environment. Regardless of the percentage of rail ties used at any given time, Atlantic must comply with the emission limits, which are protective of the environment and human health according to both the Air Dispersion Modelling Report and the Intrinsic Reports.

[143] The Director submits that the verification trial will test the accuracy of the assumption that there is a linear relationship between the percentage of rail ties incinerated and certain emissions, which is consistent with the Ministry's adaptive management approach. If the assumption proves to be incorrect, Atlantic would have to reduce the percentage of rail ties it uses, in order to comply with the emission limits, and the Director could also take remedial steps. The Director further submits that the Ministry chose to have the verification trial conducted at "greater than" 40% rail ties, rather than 50%, as a cautionary measure to eliminate the risk that the discharge limits might be exceeded during the trial.

[144] The Director submits that posting financial security is typically a requirement of landfill permits, not air emission permits. The Ministry's policy is that financial security "is held to ensure compliance ... and/or to meet any costs or expenses incurred by [the Ministry] taking action to prevent or minimize environmental harm or remediate the environment in relation to the activity for which financial security has been given". The Director submits that no security was required in this case because there will be no waste left to manage once the permitted air discharges cease, and the Ministry will incur no expenses to manage any remaining waste. The Director also notes that the First Intrinsic Report concluded that BC soil standards would be met if the Facility burned 100% rail ties.

[145] The Director also addressed the Appellants' suggestion that the Air Permit be amended to require Atlantic to keep a log of public complaints. He submits that the public already has three ways to formally report complaints of odour and other environmental concerns related to the Facility: calling the Ministry's toll-free "RAPP" phone number; completing an online form on the Ministry's website; or, contacting the nearest Conservation Officer Service office, where complaints are logged and investigated, as appropriate, by the Ministry's Compliance and Enforcement Branch.

[146] Further, the Director addressed the authorization in the Amendment to allow Atlantic to burn up to 872 litres of “hydrocarbon contaminated absorbent material” per day, provided that the material meets the prescribed specifications for use as fuel. The Director submits that this is consistent with the use of waste oil as fuel under the *Hazardous Waste Regulation*. He submits that no record-keeping is required under that regulation unless waste oil is used as fuel without approval. This provision in the Amendment allows Atlantic to burn waste oil that meets the prescribed specifications without having to obtain individual approvals to burn waste oil.

[147] The Director notes that, prior to the Amendment, there was no requirement for Atlantic to make the Facility’s annual reports for the Air Permit publicly available. The Amendment now requires these reports to be available for public viewing at the Williams Lake library within 30 days of submission to the Director. The Director maintains that making such reports publicly available at the same time that they are provided to him creates a risk that the public may be misinformed, as he may send a report back to the permit holder for correction or additional explanation. The 30-day window allows time for corrections or clarifications to be made before the report becomes publicly available.

[148] Regarding the authorization to store 22,000 wet tonnes of whole rail ties at the Facility, versus Atlantic’s application to store 20,000 tonnes, the Director submits that he applied a 10% “safety margin”. He maintains that this is reasonable given that the Amendment requires rail ties to be stored separately from other biomass, in an area protected from precipitation and runoff, with added measures for fire prevention and control.

[149] The Director concedes that it is reasonable to require Atlantic to notify the Director when commissioning (i.e., the trial period) begins, and although it is not reflected in the Amendment, he understood that Atlantic would give advance notice of its plan to start commissioning.

[150] The Director submits that, when sampling stack emissions, there is no appreciable difference between the 90<sup>th</sup> percentile requirement in the Amendment, and the 95<sup>th</sup> percentile suggested by some of the Appellants. The Director also submits that sampling at the 90<sup>th</sup> percentile is consistent with the Ministry’s practices for stack testing, and the Amendment sets the required operating conditions for testing.

[151] The Director also explained why he imposed the two 30-day periods for Atlantic to do re-tests in the event of failed stack sampling tests. The Director submits that these periods recognize that Atlantic may be unable to retain qualified professionals to perform re-tests immediately after a failed test, as the tests are not conducted by Atlantic’s staff. The Director submits that the Amendment requires Atlantic to notify him immediately if an emission limit is exceeded. He notes that he may amend the Air Permit if he is unsatisfied with how the monitoring and reporting requirements are working, and he may direct Atlantic to immediately cease operations at the Facility if an exceedance is not remedied.

[152] The Director advises that the requirement to maintain and audit the Facility’s CEM systems in accordance with Environment Canada’s EPS 1/PG/7 protocols and

specifications were removed from the Air Permit because the same requirements are incorporated into the Amendment, which requires Atlantic to comply with a Ministry document that contains the same requirement.

[153] The Director argues that it is unnecessary to add a specification that combustion residue (ash) must be disposed of at a site “authorized for the purpose” under the *Act*, given that the Air Permit states that ash “must be disposed of on a site and in a manner approved by the Director”.

[154] In support of those submissions, the Director provided affidavits sworn by Mr. Adams, Mr. Lawrie, and the Director.

*Atlantic’s submissions*

[155] Atlantic submits that the Appellants have tendered no evidence that the Williams Lake airshed contains unacceptable levels of air pollution. Atlantic submits that the 2006 Community Plan and the 2005 Levelton Report are not evidence of current air quality conditions or the predicted contaminant concentrations post-Amendment; rather, they provide evidence of contaminant concentrations in 2005 and 2006. Moreover, Atlantic maintains that the main objective of the 2006 Community Plan was reducing particulates in the airshed, and the Amendment advanced this objective by reducing the Facility’s allowable TPM emissions from 50 mg/m<sup>3</sup> to 20 mg/m<sup>3</sup>.

[156] Atlantic submits that the Air Dispersion Modelling Report concluded that ambient concentrations of NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> in the Williams Lake airshed are below the applicable AAQOs, and burning rail ties in accordance with the Amendment will not increase those emissions. Atlantic also submits that the Ministry began to monitor ambient concentrations of SO<sub>2</sub> at the Columneetza station in November 2016, and SO<sub>2</sub> levels are negligible, as documented in a January 22, 2018 report by Intrinsik titled “Comprehensive Human Health Risk Assessment of the Chemical Emissions from the Atlantic Power Williams Lake Power Plant” (the “Comprehensive Health Risk Assessment”).

[157] Atlantic submits that the Comprehensive Health Risk Assessment concludes that the incineration of rail ties would result in “low” or “negligible” risks to human health, based on a comprehensive analysis including risks associated with both inhalation and secondary exposure (through skin contact with soil or ingestion of locally grown food).

[158] Atlantic also refers to a screening-level ecological risk assessment report by Intrinsik, dated January 22, 2018 (the “Ecological Risk Assessment”), which assessed the potential impacts on air, soil, and surface water resulting from the Facility’s emissions under the Amendment. The Ecological Risk Assessment concluded that the predicted concentrations of COPCs (i.e., NO<sub>2</sub> (based on NO<sub>x</sub> measurements), TPM, PM<sub>2.5</sub> and PM<sub>10</sub> (based on TPM measurements), SO<sub>2</sub>, PAH, HCl, chlorophenol, dioxins and furans, and various metals) in soil, surface water, and air would be well below ecologically-based guidelines.

[159] Based on the documentary evidence, Atlantic submits that although SO<sub>2</sub> and HCl emissions are expected to increase when the Facility burns 50% rail ties, the emissions permitted under the Amendment are not expected to harm human health

or the environment. Atlantic argues that the Appellants have provided no evidence to contradict that conclusion. Moreover, Atlantic submits that the Amendment imposes new limits on SO<sub>2</sub> and HCL emissions which must be continuously monitored, in order to protect the environment.

[160] Atlantic submits that the Appellants' concerns focus on fine particulates in the airshed, but the Appellants provided no evidence that fine particulates are expected to increase, or increase to levels that would be harmful, as a result of the Amendment. Atlantic submits that, when burning 50% rail ties, the Facility's contribution to the 24-hour average concentration of PM<sub>2.5</sub> at the maximum point of impingement (i.e., the point of highest concentration in the airshed) is predicted to be 0.32 µg/m<sup>3</sup>, which will lead to a total ambient concentration of 23.6 µg/m<sup>3</sup> when combined with existing ambient levels of PM<sub>2.5</sub>, according to the Air Dispersion Modelling Report. Atlantic submits that this is below the BC AAQO of 25 µg/m<sup>3</sup>. Moreover, the emission of particulates from the Facility is not expected to change, regardless of whether it burns rail ties or traditional wood waste, according to the Adams Review and the Air Dispersion Modelling Report. Based on this evidence, Atlantic submits that the Facility is not a large contributor to fine particulates in the airshed, regardless of the percentage of rail ties in its fuel mix. Moreover, Atlantic submits that the Amendment reduces the limit on the Facility's TPM emissions from 50 mg/m<sup>3</sup> to 20 mg/m<sup>3</sup>, which is protective of the environment.

[161] In response to the Appellants' argument that Atlantic should be required to use the best "available" technology, Atlantic submits that the Ministry's policy requires consideration of the best "achievable" technology, taking into account effectiveness in controlling emissions as well as cost effectiveness in emissions reduction. Atlantic submits that the BAT Report was prepared in accordance with that policy, and concluded that the best achievable technology was emission control limits, which were implemented in the Amendment. Atlantic submits that the Appellants have tendered no evidence to contradict that conclusion.

[162] Atlantic argues that it would have served no purpose to conduct the verification trial before granting the Amendment, because the terms of the Amendment's emission limits and monitoring requirements ensure that contaminant levels are within acceptable parameters. If the verification trial does not reflect the expected emission levels, the Director may further amend the Air Permit. In addition, Atlantic submits that conducting the verification trial at 40% rather than 50% rail ties is consistent with a "cautious" approach, as it allows room for error if the assumption of a linear relationship between emission levels and the percentage of rail ties being burned is incorrect. Atlantic confirms that the verification burn will be conducted within the normal operating conditions of the Facility and its boiler.

[163] Atlantic addressed the risk of the secondary formation of PM<sub>2.5</sub> from SO<sub>x</sub> and NO<sub>x</sub> emissions, and submits that the Air Dispersion Modelling Report concluded that the conditions for secondary PM<sub>2.5</sub> formation are generally not present in the Williams Lake airshed. RWDI's memo dated April 22, 2016, which was part of the Air Dispersion Modelling Report, states that "due to a relatively isolated single source combined with typical reaction rates and transport times, the [NO<sub>x</sub> and SO<sub>x</sub>] emissions [from the Facility] will usually be dispersed before they have a chance to form appreciable amount[s] of secondary Particulate Matter". Atlantic notes that

the Lawrie Report states on page 40 that RWDI's conclusion regarding secondary particulate formation is "supported by the scientific literature". Atlantic also notes that the 2005 Levelton Report states on page 29 that "The model results do not show high levels of secondary particulate".

[164] In reply to the Appellants' argument that only 25% rail ties should be permitted in the annual feedstock, Atlantic submits that although the Facility will initially consume approximately 100,000 tonnes of rail ties annually, and its total annual feedstock in 2017 was approximately 455,000 tonnes, the Facility may burn up to 50% rail ties on some days, depending on the availability of fuels. Atlantic submits that it sought authorization to burn up to 50% rail ties annually to provide flexibility due to variability in its fuel supply, an expected decrease in the availability of wood waste from sawmills, and because the Air Modelling Dispersion Report and the First and Second Intrinsic Reports predicted that the impacts when burning 50% rail ties would be low or negligible. In any event, Atlantic submits that the most important consideration in protecting human health and the environment is the Facility's compliance with the emission limits in the Amendment, and not whether the Facility burns a particular percentage of rail ties on an annual or daily basis.

[165] In support of its submissions, Atlantic provided affidavits sworn by Alan Lanfranco, Mark Lanfranco, Mark Blezzard, Terrance Shannon, and Frances Nelson. Their experience and qualifications are discussed below. Numerous documents are attached to their affidavits as exhibits, some of which are discussed below.

[166] Alan Lanfranco was the owner and president of Lanfranco when the 2001 test burn was conducted, and he signed off the Lanfranco Report. He attests that the 2001 test was conducted by certified technicians in the fields of air quality, stack testing and reporting, and a representative of the Ministry was present to monitor the procedures. He states that he reviewed the methodology, results, and conclusions in the Lanfranco Report, and has no reason to believe that the results in the Report are anything other than true and accurate based on the tests and observations that were made at the time. He also states that the sampling and laboratory methods that were utilized, as documented in the Lanfranco Report, are substantially the same today, and the Report's findings are not invalidated by changes in techniques or science.

[167] Mark Lanfranco is the current owner and president of Lanfranco, and has worked at Lanfranco since 1999. Attached to his affidavit are the 2015, 2016, and 2017 Emission Compliance Survey Monitoring Reports for the Air Permit, which were prepared by Lanfranco. He attests that he reviewed the accuracy of content and conclusions in those reports, and believes that they are accurate based on the tests and observations made at the time.

[168] Mark Blezzard is the Facility's Plant Manager, a licensed Professional Engineer, and a 1<sup>st</sup> class Steam Engineer, who oversees the Facility's day-to-day operations. He states that the boiler operates at or above 2,500 °F, which is above the temperature that destroys dioxins and furans, and pentachlorophenols. He also states that flue gas from the boiler flows through an electrostatic precipitator which is designed to remove particulates from the flue gas. He explains that the Facility's CEM equipment continuously monitor particulate, NO<sub>x</sub>, carbon monoxide, and

oxygen emissions, and additional CEM monitors will be added before the Facility burns rail ties. Mr. Blezzard attests that there have been no material changes in the Facility's design, equipment or configuration since the 2001 test, and the Facility's equipment continues to operate as it did in 2001. He states that the rail ties incinerated in 2001 are reflective of those that will be incinerated under the Amendment.

[169] In addition, Mr. Blezzard states that the average flow rate during the 2001 tests, as reported in the Lanfranco Report, was 5,870 standard cubic metres per minute ( $\text{Sm}^3/\text{min.}$ ) when burning regular wood waste, and 5,710  $\text{Sm}^3/\text{min.}$  when burning rail ties. At the time, the Air Permit allowed a maximum of 6,000  $\text{Sm}^3/\text{min.}$  On that basis, he advises that, during the 2001 test, the average flow rate was nearly 98% of the permitted maximum when burning regular fuel, and slightly over 95% when burning rail ties. Thus, the boiler was burning at over 90% of its rated capacity of fuel input during the 2001 tests. Mr. Blezzard states that those flow rates are within the normal operating range for the boiler, as confirmed in the 2015, 2016, and 2017 Emission Compliance Survey Monitoring Reports. Those Reports state that the average flow rates during annual stack tests conducted in 2015, 2016, and 2017 were 5,730, 5,610, and 5,760  $\text{Sm}^3/\text{min.}$ , respectively. Mr. Blezzard states that there will always be some variation in flow rate and steam production due to factors such as the volume, density, and moisture content of fuel.

[170] Mr. Blezzard explains that the variability in flow rate and steam production is why the Amendment requires emissions sampling under steam load and fuel composition operating conditions that are "as close as reasonably practical to the 90<sup>th</sup> percentile for the 100 operating days prior to the date of sampling and greater than the average for steam demand and rail tie/construction demolition debris proportion for the previous 30 full operating days". He also explains that the Ministry provided guidance that "as close as reasonably practical" means +/- 10% of the 90<sup>th</sup> percentile, which is a typical industry standard. Mr. Blezzard states that the Facility has a good record of compliance, and would not "play games" with fuel inputs or the testing regime to avoid the requirements in the Air Permit.

[171] Mr. Blezzard also described the system that will be installed at the Facility to offload rail ties from trucks, store rail ties in a covered area, and shred the rail ties on-site as needed using a slow-speed shredder designed to minimize dust. He attests that small volumes of shredded rail ties will be stored in an enclosed silo or bin to minimize odour, dust, run-off, and fire risk. Shredded rail ties will be transported to the boiler via covered conveyors, and mixed with regular fuel. Scales will be used to control the percentage of rail tie material mixed into the fuel stream, to ensure that no more than 50% is rail ties at any given time. He attests that this system will cost over \$11 million.

[172] Terrance Shannon is Atlantic's Director of Environmental Health and Safety, and has worked in various capacities in the environmental and energy industries since 1976. He provided details regarding the steps that Atlantic took, and the supporting documents that its consultants prepared, as part of the application process for the Amendment. He discussed the 2017 Annual Report for the Air Permit, which is attached to his affidavit as an exhibit. He also discussed Atlantic's plans for participation in the ambient monitoring program required by the

Amendment. He attests that new monitoring stations will be installed in Williams Lake, and the parameters to be monitored will include PM<sub>2.5</sub>, SO<sub>2</sub>, and HCl.

[173] Frances Nelson is the Facility's Business Manager, and provided details regarding the plans for handling rail ties at the Facility, and the factors affecting the percentage of rail ties that the Facility intends to burn. She attests that although the Facility has the capacity to burn 600,000 tonnes of fuel annually, it has consumed less than that in recent years, and burned 455,000 tonnes in 2017. She explained that the Facility expects to consume approximately 100,000 tonnes of rail ties annually, which would be approximately 25% of the fuel requirements in recent years. She states that Atlantic expects that the annual percentage of rail ties to increase if other sources of fuel, such as sawmill wood waste, decrease. She also advises that the availability of rail ties is seasonal. She explains that, for these reasons, the annual proportion of rail ties may be as high as 33%, and the daily proportion could be as high as 50% at times, so Atlantic sought flexibility to use up to 50% rail ties in its application for the Amendment. She attests that "at no time will the volume of Rail Ties exceed 50% of the fuel mix, as that would run the risk of exceeding the emission limits set in the Amended Permit."

*Reply submissions*

[174] In reply, the Represented Appellants submit that the effects of wildfires on air quality in Williams Lake should not be ignored, as they are a major source of PM<sub>2.5</sub>, they are expected to be more frequent due to climate change, and they had a significant effect on air quality in Williams Lake in 2014 and 2017. The Represented Appellants maintain that wildfires were the predominant cause of Williams Lake's poor air quality in 2017, and burning rail ties will exacerbate the air pollution situation in Williams Lake.

[175] In addition, the Represented Appellants submit that allowing an increase in air contaminants, so long as ambient levels remain below AAQOs, is unacceptable, as the AAQOs do not define protection of the environment. They submit that the AAQOs should not be viewed as a level to pollute up to; rather, levels should stay well below the AAQOs, which is not the case for the predicted levels of PM<sub>10</sub> 24-hour (46.5 µg/m<sup>3</sup>, with an AAQO of 50 µg/m<sup>3</sup>), PM<sub>2.5</sub> 24-hour (23.6 µg/m<sup>3</sup>, with an AAQO of 25 µg/m<sup>3</sup>), and PM<sub>2.5</sub> annual (5.83 µg/m<sup>3</sup>, with an AAQO of 8 µg/m<sup>3</sup>). The Represented Appellants note that these figures do not include expected ambient levels during wildfires.

[176] Mr. Pickford's reply submissions reiterate many of the points raised in his previous submissions. Among other things, he submits that the verification trial should be conducted using 100% rail ties and should be monitored by Ministry staff, and data from the verification trial should be used to repeat the air dispersion modelling. He challenges the accuracy of the data in the Lanfranco Report, and the lack of information about the amount or weight of rail ties that were burned or the percentage of plant capacity that was used. He criticizes the Air Dispersion Modelling Report and the First and Second Intrinsic Reports for being based on data from the 2001 test burn, and for not including actual data on ambient levels of SO<sub>2</sub> and HCl in the Williams Lake airshed. He submits that these uncertainties should have been addressed before the Amendment was granted.

[177] In addition, Mr. Pickford submit that the effects of wildfires on air quality in Williams Lake should not be considered an anomaly, as wildfires are expected to be the “new normal” due to climate change. He submits that the effects of wildfires and climate change should have been considered by the Director.

[178] The other Appellants provided no reply submissions.

*The Panel's findings*

[179] The Board has previously recognized that the *Act* deals with competing objectives - permitting waste to be introduced into the environment, while also seeking to protect the environment. At para. 54 of *Gagne*, the Board stated:

... the Panel finds that environmental protection is one of the objects of the *Act*. However, the Panel finds that this is not the only object of the *Act*. The *Act* also contains a scheme for authorizing the discharge of waste into the environment by various human activities, including industries that produce goods, services, employment, and other benefits to society. ... Although waste discharges may cause harm to the environment, the Legislature has recognized that waste is produced by certain human activities, and the *Act* provides a scheme for regulating waste discharges.

[180] At para. 233 of *Toews*, the Board discussed its previous findings in *Shawnigan*, which adopted the analysis in *Xats'ull First Nation v. Director, Environmental Management Act* (Decision No. 2006-EMA-006(a), May 9, 2008), at paras. 108 to 11:

There is a tension inherent in this scheme. The tension is between protecting the environment and authorizing the introduction of waste into that same environment. Although the government has a broad goal or policy of protecting the quality of the environment for present and future generations, it is also faced with a society that generates a great deal of waste that needs to be disposed of. This waste includes “effluent” that, by definition, may injure or be capable of injuring the health or safety of a person, property or a life form, or may damage or be capable of damaging the environment. How can this waste be disposed of in a manner and still protect the environment?

...

Thus, the *Act* is not an example of a zero tolerance, or zero harm approach. Permits may be issued allowing waste into the environment (defined as the air, land, water and all other external conditions or influences under which humans, animals and plants live or are developed). The environmental impact of the waste is to be controlled, ameliorated and, where possible, eliminated.

[181] The Board has also consistently held that a “cautious” approach should be adopted in assessing applications to emit waste under the *Act*: *Shawnigan* at pages 50 to 52; and, *Toews* at para. 235. At paras. 232 to 233 of *Toews*, the Board stated:

... the Panel agrees with the Board’s findings in previous cases that a “cautious” approach, involving a comprehensive technical analysis of the potential harm that the proposed emission may cause to human health and

the environment, should be adopted in assessing applications for permits to emit waste, and amendments to such permits, under the *EMA*. That approach was summarized in *Shawnigan* at para. 284, as follows:

... a cautious approach is not the same as a “zero tolerance” approach. The *Act* provides a legislative scheme that authorizes the introduction of waste into the environment provided that any risk to the environment can be properly controlled, ameliorated and, to the extent possible, eliminated.

[182] The Panel agrees with the Board’s previous decisions, and adopts the “cautious” approach described above. The Panel takes a cautious and technically rigorous approach in assessing the potential risks of harm to human health or the environment that may arise from the Amendment, bearing in mind that the legislative scheme authorizes the introduction of waste into the environment provided that any risk to the environment or human health can be properly controlled, ameliorated and, to the extent possible, eliminated.

[183] The Appellants have the burden of providing evidence to establish, on a balance of probabilities, the facts that they assert with respect to the alleged harm that may be caused by the Amendment.

Reliability and accuracy of the Lanfranco Report and 2001 test results

[184] Some of the Appellants criticize the Lanfranco Report and the 2001 test results as being unreliable, inaccurate, or not reflective of the Facility’s current or normal operating conditions. It is important to consider those concerns given that the Air Dispersion Modelling Report, the risk assessments prepared Intrinsik, and any assessment of those documents rely, at least in part, on the data from the 2001 tests documented in the Lanfranco Report (along with other factors such as the background concentrations of the contaminants, and the applicable AAQOs).

[185] The Lawrie Report states at page 8:

Since the original [2001] trial the facility has not changed the works or process in such an [sic] manner that the trial outcome would be changed significantly nor has there been a radical change in testing methodology.

[186] That statement is consistent with the affidavit evidence provided by Atlantic’s witnesses.

[187] Specifically, Alan Lanfranco attested that the 2001 test procedures were conducted by certified technicians in the fields of air quality, stack testing and reporting. He confirmed that, as stated in the Lanfranco Report, a Ministry representative was present to monitor the test procedures. He also stated that the sampling and laboratory methods that were utilized are substantially the same today, and the Lanfranco Report’s findings are not invalidated by changes in techniques or science.

[188] Mr. Blezzard, the Facility’s Plant Manager and an engineer, attested that there have been no material changes in the Facility’s design, equipment or configuration since the 2001 test, and the Facility’s equipment operates as it did in 2001. He also stated that the rail ties incinerated in 2001 are reflective of those that will be incinerated in accordance with the Amendment. In addition, Mr.

Blezzard stated that the average flow rate during the 2001 tests was 5,870 Sm<sup>3</sup>/min. when burning regular wood waste, and 5,710 Sm<sup>3</sup>/min. when burning rail ties. Thus, the flow rate was nearly 98% of the permitted maximum of 6,000 Sm<sup>3</sup>/min. when burning regular fuel, and slightly over 95% when burning rail ties. The Panel finds that those flow rates are within the normal operating range for the boiler. According to the 2015, 2016, and 2017 Emission Compliance Survey Monitoring Reports, the average flow rates during stack tests conducted in 2015, 2016, and 2017 were 5,730, 5,610, and 5,760 Sm<sup>3</sup>/min., respectively. The Panel notes that the Air Permit currently states that "the rate of discharge is estimated to be 5,800 m<sup>3</sup>/second".

[189] According to Mr. Blezzard's evidence, there is normally some variation in flow rate and steam production due to factors such as the volume, density, and moisture content of fuel, and this is why the Amendment requires emissions sampling under steam load and fuel composition operating conditions that are "as close as reasonably practical to the 90<sup>th</sup> percentile for the 100 operating days prior to the date of sampling and greater than the average for steam demand and rail tie/construction demolition debris proportion for the previous 30 full operating days". He also explains that the Ministry provided guidance that "as close as reasonably practical" means +/- 10% of the 90<sup>th</sup> percentile, which is a typical industry standard.

[190] The Panel finds that the Appellants have asked a number of questions and raised concerns about the accuracy and reliability of the 2001 test results, but provided no evidence that would draw into doubt the evidence provided by Atlantic's witnesses. The Appellants have provided no evidence that the operation of the Facility's boiler and associated equipment during the 2001 tests performed in a manner that is materially different than today, or that the tests were not conducted under reasonably similar boiler operating conditions. The evidence provided by Atlantic answers many of the questions raised by the Appellants regarding the accuracy, reliability, and applicability of the results in the Lanfranco Report.

[191] Based on the evidence, the Panel concludes that the 2001 test results, as documented in the Lanfranco Report, provide a reasonable basis for predicting the likely emissions from the Facility when burning 50% rail ties, for the purposes of preparing the Air Dispersion Modelling Reports and associated reports that address the potential impacts of the emissions authorized under the Amendment.

Particulate emissions (TPM, PM<sub>2.5</sub>, PM<sub>10</sub>)

[192] Many of the Appellants' concerns about air quality in the Williams Lake airshed focus on the ambient concentrations of particulates, and especially PM<sub>2.5</sub>. The 2006 Airshed Plan identified PM<sub>10</sub> and PM<sub>2.5</sub> as priority air pollutants in the Williams Lake area. At page 22, the 2006 Airshed Plan states that "the main thing that drives poor air quality episodes in the Williams Lake area is fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).". The BC Lung Association reports provided by some of the Appellants indicate that the concentration of PM<sub>2.5</sub> in the Williams Lake airshed exceeded the BC AAQO at certain times in recent years, due to smoke from large wildfires.

[193] While the Panel is concerned about these air quality incidents involving fine particulates, the evidence indicates that the Facility emits low levels of particulates, and contributes a very small proportion of the particulates to the Williams Lake airshed. The evidence also indicates that burning rail ties will make virtually no difference to the amount of particulates emitted by the Facility.

[194] According to the summary results from the 2001 tests, as documented in the Lanfranco Report, particulates averaged  $6.2 \text{ mg/m}^3$  when burning regular fuel, and  $2.3 \text{ mg/m}^3$  when burning 100% rail ties. Those figures are based on 11%  $\text{O}_2$  volume, and the provincial requirement at the time was  $20 \text{ mg/m}^3$  at 11%  $\text{O}_2$ . Thus, particulate emissions actually decreased slightly when burning rail ties, according to the 2001 test results.

[195] The stack tests documented in the 2015, 2016, and 2017 Emission Compliance Survey Monitoring Reports reflect the Facility's emissions when burning regular wood waste, since no rail ties were burned during those years. When adjusted to 8%  $\text{O}_2$  for comparison to the TPM limit in the Air Permit ( $50 \text{ mg/m}^3$  at 8%  $\text{O}_2$  in 2015, and  $20 \text{ mg/m}^3$  at 8%  $\text{O}_2$  in 2016 and 2017), particulates averaged  $4.3$ ,  $6.3$ , and  $3.9 \text{ mg/m}^3$  in 2015, 2016, and 2017 respectively when burning regular wood waste. These levels are consistent with the levels recorded when burning regular wood waste during the 2001 tests. The Lanfranco Report and the 2015, 2016, and 2017 Emission Compliance Survey Monitoring Reports indicate that the flow rate was also similar between the 2001 tests and the tests conducted in 2015, 2016, and 2017. Thus, the average particulate emissions when burning regular wood waste under similar operating conditions, both in 2001 and from 2015 to 2017, appear to be marginally higher than the average particulate emissions when the Facility tested burning 100% rail ties in 2001.

[196] Based on the results in the Lanfranco Report, the Air Dispersion Modelling Report concluded that burning rail ties as 50%, or even 100%, of the Facility's fuel will not increase the Facility's emissions of TPM,  $\text{PM}_{10}$ , or  $\text{PM}_{2.5}$ , and there would be no significant impact on ambient levels of particulates in the airshed.

[197] The Lawrie Report considered particulate emissions at pages 38 - 40:

According to the Williams Lake Airshed Plan,  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  are priority air pollutants in the Williams Lake area. During the consultation period, stakeholders frequently identified poor air quality during meteorological inversion conditions and the impact that had on ambient particulate levels.

Particulate emissions were tested as part of the 2001 trial indicated no discernable difference between rail tie and conventional biomass. All tests were well below permit limit of  $50 \text{ mg/m}^3$  and the facility's low particulate emission concentration of  $2.3 \text{ mg/m}^3$  ( $3.3 \text{ mg/m}^3$  when corrected to 20 degrees C and 8%  $\text{O}_2$ ) during the 100% rail tie test was significantly below the BC guideline of  $20 \text{ mg/m}^3$ .

...

RWDI modelled Total Particulate,  $\text{PM}_{2.5}$  and  $\text{PM}_{10}$  using the existing permitted total emission rate and found that the maximum predicted 24 hour and annual

average were below the B.C. AAQO when background concentrations were taken into account.

The draft permit includes a reduction in total particulate limit to 20 mg/m<sup>3</sup> at 8% oxygen. This is in congruence with the SSPG. [20 mg/m<sup>3</sup> is the Ministry's recommended limit for TPM when permitting new bio-mass fired electrical power facilities generating greater than 40 megawatts]

[underlining added]

[198] The main evidence before the Panel regarding the secondary formation of particulates from SO<sub>x</sub> and NO<sub>x</sub> emissions consists of the 2005 Levelton Report, the Lawrie Report, and RWDI's April 22, 2016 memo, which was part of the Air Dispersion Modelling Report. All of those documents concluded that the secondary formation of particulates from such emissions is not a significant concern in the Williams Lake airshed. Specifically, the 2005 Levelton Report, which some of the Appellants referred to, states on page 29 that "The model results do not show high levels of secondary particulate". RWDI's April 22, 2016 memo concluded that SO<sub>x</sub> and NO<sub>x</sub>, which are precursors to secondary particulate formation, are from an isolated source, and the meteorological conditions favour dispersion of the precursors before chemical reactions could occur to form secondary particulates. In addition, RWDI's April 22, 2016 memo notes that the Facility's emissions of one of the precursors, NO<sub>x</sub>, will not change significantly when rail ties are used as fuel.

[199] The Lawrie Report states on page 40 that RWDI's assessment regarding secondary particulate formation is "supported by the scientific literature". The Lawrie Report briefly discusses two scientific studies on the subject of secondary particulate formation.

[200] Based on the evidence, the Panel finds that although PM<sub>2.5</sub> and PM<sub>10</sub> are contaminants of concern in the Williams Lake airshed, the Appellants' evidence indicates that exceedances of the BC AAQOs for PM<sub>2.5</sub> and PM<sub>10</sub> in recent years were caused by smoke from wildfires, and not by the Facility's emissions. Based on the evidence, the Panel finds that the Facility is a minor contributor to particulates in the airshed, and the Facility's particulate emissions will be virtually unchanged if it burns rail ties, even taking into account the possibility of secondary particulate formation. The Panel finds that reversing the Amendment, or reducing the proportion of rail ties that may be burned at the Facility to less than 50%, would have no little or no impact on the amount of particulates emitted by the Facility, or on ambient concentrations of particulates in the Williams Lake airshed. Thus, the remedies sought by the Appellants would have little or no impact on their concerns regarding TPM, PM<sub>2.5</sub> and PM<sub>10</sub> levels in the Williams Lake airshed.

#### Sulphur dioxide (SO<sub>2</sub>) emissions

[201] The evidence indicates that allowing the Facility to burn 50% rail ties will cause an increase in the Facility's SO<sub>2</sub> emissions. The Air Dispersion Modelling Report predicted that, if the Facility burns 50% rail ties, the contaminant that would have the highest increase in ambient concentration is SO<sub>2</sub>. The Air Dispersion Modelling Report predicted that the average hourly SO<sub>2</sub> output from the Facility when burning 50% rail ties would be 93.7 µg/m<sup>3</sup>.

[202] The Adams Review considered the predicted increase in SO<sub>2</sub>. The Adams Review was prepared before the Ministry began to monitor SO<sub>2</sub> concentrations in the Williams Lake airshed. Therefore, the Adams Review estimated background SO<sub>2</sub> concentrations in the Williams Lake airshed based on measurements in other communities in the BC interior, and the modelling results in the 2005 Levelton Report. The Adams Report estimated a background concentration of 60 µg/m<sup>3</sup>, (based on the 99<sup>th</sup> percentile of the daily hourly maximum). Adding this estimated background concentration to RWDI's predicted average hourly SO<sub>2</sub> output from the Facility when burning 50% rail ties resulted in a predicted maximum ambient SO<sub>2</sub> concentration of 154 µg/m<sup>3</sup>, which is below the BC AAQO (which was stated to be 200 µg/m<sup>3</sup> in the Adams Report, but according to the Ministry's website is 196 µg/m<sup>3</sup> based on the 98<sup>th</sup> percentile of the daily one-hour maximum). The Adams Review concluded:

The contaminant that results in the highest increase is SO<sub>2</sub>, where firing of 50% railway ties, without background [concentrations of SO<sub>2</sub>], is estimated to result in maximum ambient concentrations that are 47% of the interim BC objective of 200 µgm<sup>3</sup>. There are no background measurements of SO<sub>2</sub> available for the Williams Lake airshed; however, using conservative estimates of background SO<sub>2</sub> concentrations based on measurements in other BC communities and the results of the [2005] Levelton report, it is unlikely that BC interim AAQO for SO<sub>2</sub> would be exceeded even at the point of maximum impingement on elevated terrain to the NW of the Atlantic facility.

[underlining added]

[203] Regarding SO<sub>2</sub>, the Lawrie Report states at pages 29 - 30:

The revised RWDI modelling also extrapolated what ambient levels of SO<sub>2</sub> would look like given a maximum of 50% rail ties assuming direct relationship of tie volume to SO<sub>2</sub> creation. The predicted results were less than half the AAQO. As actual sulphur content of the ties will vary with the treatment, a cautionary approach would be to set a maximum SO<sub>2</sub> discharge limit rather than specify a percentage of rail ties that may be incinerated on a daily basis.

...

Based on the modelling and the operational processes, SO<sub>x</sub> is the parameter limiting how much rail tie material may be safely incinerated and can act as a surrogate for other pollutants (except particulate). Continuous emission monitoring technology (CEMs) for SO<sub>x</sub> is proven and readily available and can be used both as an operating control and for compliance verification. While the proponent has requested authorization to burn up to 50% rail ties, adopting a maximum limit of 110 mg/m<sup>3</sup> daily average and 193 mg/m<sup>3</sup> hourly using CEMs data is a more accurate and reliable and less prescriptive method of controlling emissions than an estimation of the amount and proportion of fuel burned. While the actual amount of rail tie material incinerated may exceed 50% for rail ties with lower sulphur content, the waste discharge is managed at the levels determined to be protective.

[underlining added]

[204] The Panel has the benefit of new evidence – the ambient SO<sub>2</sub> concentrations measured at the Columneetza station during 2017. The Comprehensive Health Risk Assessment states on page 21 that the background concentration of SO<sub>2</sub>, based on the 98<sup>th</sup> percentile of 1-hour concentrations measured from January 1 to December 31, 2017, was 3.1 µg/m<sup>3</sup>. This is much lower than the background concentration estimated in the Adams Review. When the actual background concentration of SO<sub>2</sub> is combined with the predicted SO<sub>2</sub> output if the Facility burns 50% rail ties, the predicted total ambient concentration of SO<sub>2</sub> is 96.8 µg/m<sup>3</sup>, which is less than 50% of the BC AAQO.

[205] The Comprehensive Health Risk Assessment states at pages 21 – 22 that it assessed the potential human health risk associated with acute (short-term) exposure to SO<sub>2</sub> based on the 99<sup>th</sup> percentile of the daily one-hour maximum concentrations over the year, if the Facility burns 50% rail ties. On page 31, the Comprehensive Health Risk Assessment indicates that it assumed that respiratory irritation would occur during acute exposure at a concentration of 200 µg/m<sup>3</sup>, averaged over one hour. The Comprehensive Health Risk Assessment concluded on pages 39 - 40 that the acute inhalation risk associated with SO<sub>2</sub> exposure at the highest predicted annual air concentrations would be 0.16 for the residents of the community, and 0.22 for residents of agricultural areas, both of which correspond to a “low” (<1.0) risk of adverse health effects.

[206] Based on either the estimated background concentrations used in the Adams Review (60 µg/m<sup>3</sup>), or the actual background concentrations of SO<sub>2</sub> recorded in 2017 (3.1 µg/m<sup>3</sup>), the Panel finds that the additional SO<sub>2</sub> emissions produced when the Facility burns 50% rail ties will not cause an exceedance of the BC AAQO for SO<sub>2</sub> in the Williams Lake airshed. The total combined SO<sub>2</sub> concentration is predicted to be well below the BC AAQO, and the health impacts are predicted to be low. The Panel finds that there is a substantial margin of safety for the protection of human health and the environment, even if the assumption of a linear relationship between the percentage of rail ties burned and the increase in SO<sub>2</sub> emissions from the Facility is incorrect. Furthermore, the Amendment added an emission limit for SO<sub>2</sub>, and a requirement to continuously monitor the Facility's SO<sub>2</sub> emissions when burning rail ties, which provide added protection for human health and the environment.

#### Hydrogen chloride (HCl) emissions

[207] The evidence indicates that allowing the Facility to burn 50% rail ties will also increase its emissions of HCl. The Lanfranco Report states that HCl concentrations increased from an average of <0.1 mg/m<sup>3</sup> when burning regular wood waste, to an average of 59.8 mg/m<sup>3</sup> when burning 100% rail ties. The Air Dispersion Modelling Report predicted that maximum hourly ground level concentrations of HCl would be 11.8 µg/m<sup>3</sup> if the Facility burned 100% rail ties. BC has no AAQO for HCl, so the Air Dispersion Modelling Report, Adams Review, and Lawrie Report considered the Ontario AAQO of 20 µg/m<sup>3</sup> (24-hour average) for HCl.

[208] The Adams Review used 50% of the HCl ambient concentration that was used in the Air Dispersion Modelling Report, based on the assumption that the Facility's emissions of HCl when burning 50% rail ties would be half of the level when burning 100% rail ties. Thus, the Adams Review considered a maximum

hourly ground level concentration of HCl of  $5.9 \mu\text{g}/\text{m}^3$  if the Facility burned 50% rail ties. The Adams Review concluded that the predicted maximum ground level increase for HCl, without adding background concentrations, would produce ambient levels that are 30% of the Ontario AAQO of  $20 \mu\text{g}/\text{m}^3$ . Although there is no data on ambient concentrations of HCl in the Williams Lake airshed, the Adams Review assumed that existing levels of HCl are low due to the absence of other HCl sources in the airshed. On that basis, the Adams Review concluded that the discharge of HCl from the Facility when burning rail ties would not cause an exceedance of the AAQO.

[209] The Lawrie Report noted that the chloride content of rail ties, and thus the HCl emissions when burning rail ties, will vary because chloride “may come from either the breakdown of the chloro-organics or as a contaminant (e.g. NaCl) in the creosote base”. The Lawrie Report concluded that this variability could be addressed by imposing a limit on HCl emissions, and requiring the Facility to continuously monitoring HCl levels in the emissions. The Facility could adjust the proportion of rail ties in the feedstock accordingly to comply with the emission limit.

[210] Consistent with that rationale, the Amendment requires Atlantic to install CEM technology that will continuously monitor HCl emissions, and imposes a limit of  $78 \text{ mg}/\text{m}^3$  at 8%  $\text{O}_2$  (one-hour rolling average) for HCl. The Lawrie Report explained at page 31 that the HCl limit is based on guidelines in the Ministry’s “Guideline for Emissions from Municipal Solid Waste Combustion”, Subsection 2.09.08, March 29, 2011, and its accompanying report “Waste to Energy: A Technical Review of Municipal Solid Waste Thermal Treatment Practices” (the “SWCG”). The SWCG provides guidance on emission limits for municipal solid waste incineration facilities in BC, and provides a limit of  $60 \mu\text{g}/\text{m}^3$  at 11%  $\text{O}_2$  (CEM  $\frac{1}{2}$  hour average) for HCl. The Lawrie Report notes that the permitted limit for HCl is below the Canadian Council of Ministers of the Environment guideline of  $100 \text{ mg}/\text{m}^3$ .

[211] The Comprehensive Health Risk Assessment concluded on pages 40 - 41 that the acute inhalation risk associated with HCl exposure at the highest predicted annual air concentrations is 0.025 for the residents of the community, and 0.023 for residents of agricultural areas. The chronic inhalation risk associated with HCl exposure at the highest predicted annual air concentrations is 0.019 for the residents of the community, and 0.059 for residents of agricultural areas. All of these values correspond to a “low” (<1.0) risk of adverse human health effects.

[212] Based on this evidence, the ambient concentrations of HCl if the Facility burns 50% rail ties are predicted to be 70% below the Ontario AAQO, without background concentrations, and the predicted health impacts are predicted to be low. The Panel finds that there is a wide margin of safety regarding ambient HCl concentrations when the Facility burns 50% rail ties, even if: (1) the assumption of a linear relationship between the percentage of rail ties burned and the increase in HCl emissions from the Facility is incorrect; and, (2) there are low-level background concentrations of HCl in the Williams Lake airshed, despite there being no other known source of HCl in the airshed. Furthermore, the Amendment added an emission limit for HCl, and a requirement to continuously monitor the Facility’s HCl

emissions when burning rail ties, which provide added protection for human health and the environment.

PAH, dioxins and furans, other chlorinated organic compounds, and trace metal emissions

[213] There is evidence before the Panel that PAH, dioxins and furans, chlorophenols, chlorobenzenes, and VOCs can largely be destroyed in the Facility's boiler. The Lawrie Report states on page 3:

The boiler design has sufficient time, temperature, turbulence and pollution control works to destroy chlorinate organic contaminants [dioxins and furans, chlorophenols, chlorobenzenes, VOCs, and PAH] and prevent reformation.

[214] On page 33, the Lawrie Report explains how chlorophenol and dioxins and furans can be virtually eliminated from emissions if subjected to high enough heat for a certain period of time:

In 1987 Environment Canada and the BC Ministry of Environment conducted a test burn of hogfuel mixtures containing up to 400µg/g chlorophenol at the Prince George- Northwood pulp mill. The results of the test were that greater than 99.9993% of [dioxins and furans] and 99.9971% of chlorophenols were destroyed at temperatures above 920°C and a combustion gas residency time of 3.2 seconds. Dioxins, furans and the most toxic aromatic hydrocarbon, benzo(a)pyrene were below detection limits in the accompanying ambient air testing.

[215] At page 34 of the Lawrie Report, it states:

A minimum temperature of 1000 degrees C as measured at a point acceptable to the Director has been included in the draft permit as have the SWCG limits for Chlorophenols, PAH and total dioxins and furans to be protective of the environment.

[216] The affidavit from Mr. Blezzard, the Facility's Plant Manager, states that the boiler operates at or above 2,500°F, which is equal to over 1,300°C.

[217] The results in the Lanfranco Report show no increases in PAH or trace metals in the Facility's emissions when burning 100% rail ties. There was an increase in chlorophenols and dioxin and furans associated with burning 100% rail ties, but the levels of those substances were still low compared to emission guidelines. These results are discussed below.

[218] Specifically, the Lanfranco Report states that the PAH levels decreased slightly from an average of 0.063 mg/m<sup>3</sup> when burning regular wood waste, to an average of 0.058 mg/m<sup>3</sup> when burning 100% rail ties. The Air Dispersion Modelling Report predicted that maximum hourly ground level concentrations of PAH would be 0.00001 µg/m<sup>3</sup> if the Facility burned 100% rail ties. The Adams Review applied 50% of that figure, assuming that the Facility's emissions of PAH when burning 50% rail ties would be half of the levels recorded when burning 100% rail ties. This resulted in maximum hourly ground level PAH concentration of 0.000005 µg/m<sup>3</sup> if the Facility burns 50% rail ties. BC has no AAQO for PAH, so the Air Dispersion

Modelling Report, Adams Review, and Lawrie Report considered the Ontario AAQO of  $0.00005 \mu\text{g}/\text{m}^3$  (24-hour average) for PAH.

[219] The Adams Review noted that the predicted maximum increase in PAH emissions from the Facility, without adding background concentrations, would produce ambient levels that are 10% of the Ontario AAQO. Although there is no data on ambient concentrations of PAH in the Williams Lake airshed, the Adams Review assumed that the existing ambient levels of PAH are low due to the absence of other PAH sources in the airshed. On that basis, the Adams Review concluded that the discharge of PAH from burning rail ties at the Facility would cause no exceedances of the AAQO.

[220] The Lawrie Report considered that information, and stated at page 35:

... PAHs at the Williams Lake facility can originate from either the incomplete combustion of hydrocarbons, biofuel or rail ties. Control of PAH emissions is through promotion of complete combustion conditions of time, temperature and turbulence. The original trial of 100% rail ties did not identify a significant difference between rail tie and non-rail tie emissions and both were significantly below provincial guidelines by a factor of almost 80x. The draft permit however, includes a minimum temperature and the SWCG limit as additional control measures.

[221] The Amendment requires Atlantic to conduct quarterly and annual monitoring of PAH concentrations in the Facility's emissions, and imposes a PAH emission limit of  $6.5 \mu\text{g}/\text{m}^3$  at 8%  $\text{O}_2$  (hourly average). At page 34, the Lawrie Report indicates that this PAH limit is based on the SWCG limit ( $5 \mu\text{g}/\text{m}^3$  at 11%  $\text{O}_2$ , or  $7 \mu\text{g}/\text{m}^3$  at 8%  $\text{O}_2$  (daily average)). The Amendment also includes a requirement that the boiler must operate at a minimum of  $1,000^\circ\text{C}$  (hourly average) when burning rail ties, to reduce the likelihood of incomplete combustion that can lead to PAH formation.

[222] Regarding the predicted ambient levels of PAH, the Comprehensive Health Risk Assessment states that the chronic inhalation risk associated with PAH exposure at the highest predicted annual air concentrations is 0.000086 for the residents of the community, and 0.00027 for residents of agricultural areas. The incremental cancer risks associated with chronic exposure through inhalation or secondary exposure are also well below 0.01. At pages 42 – 43, the Comprehensive Health Risk Assessment states that these values correspond to an "essentially negligible" risk of adverse human health effects.

[223] Based on the evidence, the Panel finds that PAH emissions are not predicted to increase if the Facility burns rail ties. Moreover, the ambient concentrations of PAH are predicted to be 90% below the Ontario AAQO when the Facility burns 50% rail ties, not including background concentrations, and the predicted health risk associated with PAH emissions is essentially negligible. The Panel finds that there is a wide margin of safety regarding the predicted ambient PAH concentrations, even if: (1) the assumption of a linear relationship between the percentage of rail ties burned and the increase in PAH emissions from the Facility is incorrect; and, (2) there are pre-existing concentrations of PAH in the Williams Lake airshed (despite there being no known pre-existing source of PAH in the airshed). Furthermore, the

Amendment added an emission limit for PAH, and a requirement to monitor the Facility's PAH emissions when burning rail ties, which provide added protection for human health and the environment.

[224] According to the Lanfranco Report, chlorophenol averaged  $0.010 \mu\text{g}/\text{m}^3$  at 11%  $\text{O}_2$  when burning regular fuel, and  $0.091 \mu\text{g}/\text{m}^3$  at 11%  $\text{O}_2$  when burning 100% rail ties. Although chlorophenol emissions increased when 100% burning rail ties, the concentration in the Facility's emissions remained far below the SWCG limit of  $1 \mu\text{g}/\text{m}^3$  at 11%  $\text{O}_2$  (daily average).

[225] The Air Dispersion Modelling Report predicted that if the Facility burned 100% rail ties, the maximum ambient concentration of chlorophenol would be  $0.00002 \mu\text{g}/\text{m}^3$  (24 hour average), not including background concentrations. The Air Dispersion Modelling Report compared this to the Ontario AAQO for pentachlorophenol, which is  $20 \mu\text{g}/\text{m}^3$  (24 hour average) (this assumes all chlorophenol is pentachlorophenol). Thus, the predicted ambient concentration of chlorophenol if the Facility burned 100% rail ties is predicted to be <0.01% of the applicable AAQO. At these levels, the Comprehensive Health Risk Assessment states that the incremental cancer risks associated with chronic exposure through inhalation or secondary exposure are below 0.0001, which correspond to a negligible health risk.

[226] Similarly, the Lanfranco Report states that dioxins and furans averaged  $0.0013 \text{ ng}/\text{m}^3$  at 11%  $\text{O}_2$  when burning regular fuel, and  $0.0034 \text{ ng}/\text{m}^3$  at 11%  $\text{O}_2$  when burning 100% rail ties. Although the quantity of dioxins and furans in the Facility's emissions increased slightly when burning 100% rail ties, it remained well below the SWCG limit of  $0.08 \text{ ng}/\text{m}^3$  at 11%  $\text{O}_2$ .

[227] The Air Dispersion Modelling Report predicted that if the Facility burned 100% rail ties, the maximum ambient concentration of dioxins and furans would be  $<0.0000001 \text{ picograms}^1 \text{ toxic equivalency per cubic metre (pg TEQ}/\text{m}^3)$  (24 hour average), not including background concentrations. The Air Dispersion Modelling Report compared this to the Ontario AAQO for dioxins and furans, which is  $0.01 \text{ pg TEQ}/\text{m}^3$  (24 hour average). Accordingly, the predicted ambient concentration of dioxins and furans if the Facility burned 100% rail ties is predicted to be <0.01% of the applicable AAQO. At these levels, the Comprehensive Health Risk Assessment states that the chronic inhalation health risk quotient for dioxins and furans is 0.0000033 for the residents of the community, and 0.00001 for residents of agricultural areas. The chronic secondary exposure risk quotients are 0.13 for aboriginal residents, and lower for residents of the community or agricultural areas. At pages 42 – 43, the Comprehensive Health Risk Assessment states that these values correspond to an "essentially negligible" risk of adverse human health effects, and no adverse health effects are anticipated.

[228] The Amendment requires that when the Facility is burning rail ties, Atlantic must conduct quarterly and annual monitoring of the Facility's emissions of chlorophenol, and dioxins and furans. The Amendment also imposes an emission limit of  $1.3 \mu\text{g}/\text{m}^3$  at 8%  $\text{O}_2$  (hourly average) for chlorophenol, and  $0.1 \text{ ng}/\text{m}^3$  at

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<sup>1</sup> 1 nanogram equals 1,000 picograms

8% O<sub>2</sub> (hourly average) for dioxins and furans. As stated in the Lawrie Report, these limits are based on the SWCG's limit of 1.3 µg/m<sup>3</sup> at 8% O<sub>2</sub> (daily average) for chlorophenol, and 0.1 ng/m<sup>3</sup> at 8% O<sub>2</sub> (daily average) for dioxins and furans. The Amendment also includes a requirement that the boiler must operate at a minimum of 1,000°C (hourly average) when burning rail ties, to reduce the likelihood that these substances will be present in the emissions.

[229] In summary, the Panel finds that the ambient concentrations of chlorophenol and dioxins and furans are predicted to be <0.01% of the applicable Ontario AAQO even if the Facility burns 100% rail ties, not including background concentrations, and the associated health risks are essentially negligible. This indicates that there is a wide margin of safety even without knowing the background concentrations of these substances, and even if the assumption of a linear relationship between the percentage of rail ties burned and the quantity of these substances emitted is incorrect. The Amendment adds emission limits for chlorophenol and dioxins and furans, a requirement that the boiler maintain a minimum temperature of 1,000°C when burning rail ties, and a requirement that the Facility monitor chlorophenol and dioxins and furans on a quarterly and annual basis, when the Facility is burning rail ties. The Panel finds that these provisions in the Amendment provide additional protection for human health and the environment.

[230] The Lanfranco Report states that the concentrations of trace metals in emissions were "similar for both fuel types". The Lawrie Report states on page 3:

Metals levels are not expected to change with rail ties and clean construction and demolition waste (C&D). Modelling based on a previous trial found that levels would be minimal concern. Wood treated with metal preservatives is prohibited and the amount of foreign material in C&D limited to 1%.

[231] The Lawrie Report discusses trace metal emissions, and considers the limits in the Ontario AAQOs, the SWCG, and the *Hazardous Waste Regulation* for particular metals, at pages 40 – 44:

The draft permit includes the requirement adapted from U.S. EPA 40 CFR 258.2 for a receiving procedure to prevent inclusion of wood treated with metal based preservatives or construction debris contaminated with such things as lead paint to keep metals from being volatilized in the combustion zone.

According to the test results metal concentration[s] were consistently well below both the SWCG and the HWR [*Hazardous Waste Regulation*] limits. Ambient modelling by RWDI found all metals significantly below the Ontario AAQC for protection of health. The modelling information was reviewed by the human health risk assessors (Intrinsic) the risk quotients based on exposure were well below those that would indicate a potential health risk.

...

Limits on metal concentrations are not normally included in waste discharge authorizations for biomass energy systems in BC. While the rail tie material appears to exhibit similar characteristics to the biomass, there is a need to verify that wood treated with metal based preservatives is being excluded and

that the original assumptions of the technical assessment are maintained. Limits on the metal discharges were therefore included in the draft permit, not as authorization to discharge additional metals but, as a control. ...

...

The revised limit for metals included in the draft permit are therefore:

- Class 1: 0.18 mg/m<sup>3</sup>@8% O<sub>2</sub>
- Class 2: 0.03 mg/m<sup>3</sup>@8% O<sub>2</sub>; and
- Class 3: 0.01 mg/m<sup>3</sup>@8% O<sub>2</sub>.

Establishing a limit for the metals class based on this information will ensure that metals emissions are within the parameters of the original modelling and human health risk assessment.

[232] The Comprehensive Health Risk Assessment states that the acute inhalation risk quotients associated with various specific trace metals (arsenic, cadmium, total chromium, mercury, nickel, and vanadium) are all below 0.001, indicating that no health risks are expected from short-term exposure to the expected ambient levels of these substances if the Facility burns 50% rail ties. The health risk quotients associated with chronic exposure to metals, through inhalation or secondary exposure, are all below 0.2. On page 46, the Comprehensive Health Risk Assessment states that risk quotients that are less than or equal to 0.2 equate to “negligible or low” health risks, which means that there are negligible or low health risks associated with long-term exposure to the expected ambient levels of these substances if the Facility burns 50% rail ties.

[233] Based on the evidence, the Panel finds that the levels of trace metals in the Facility’s emissions are not expected to change when burning rail ties, and it would provide no benefit, in terms of protecting human health or the environment, to reduce the percentage of rail ties that the Facility may burn. Even if the Facility burns 50% rail ties, the levels of trace metals in the Facility’s emissions are expected to be low, and the predicted ambient levels of these substances (without knowing background concentrations) are expected to be well below the applicable Ontario AAQOs, and present a negligible to low risk of adverse health impacts.

[234] In any event, consistent with a cautious approach, the Amendment took additional steps to protect human health and the environment from potential harm associated with trace metal emissions. Wood treated with metal preservatives is excluded from being used as fuel, and the amount of foreign material in construction and demolition waste is limited to 1%. The Amendment imposes limits for metals emissions based on the SWCG guidelines and the limits in Schedule 2 of the *Hazardous Waste Regulation* (which sets emission standards for thermal waste treatment facilities). The permitted emission limits for metals are lower than those in Schedule 2 of the *Hazardous Waste Regulation*, and are designed to ensure that rail ties and construction debris treated with metal-based preservatives are excluded from the fuel supply, and that the assumptions made in the reports by RWDI and Intrinsik are maintained.

[235] The 2001 test results included in the Lanfranco Report did not include chlorobenzenes and VOCs. The Lawrie Report discusses chlorobenzenes at page 34:

Chlorobenzenes (CBs) are also compounds that may be generated when organic compounds are burned in the presence of a chlorine source and are thought to be the product of incomplete combustion. ... While not anticipated to be an issue, since CBs were not included in the original trial analysis the SWCG limit is included in the draft permit as a precaution.

A minimum temperature of 1000 degrees C as measured at a point acceptable to the Director has been included in the draft permit as have the SWCG limits for Chlorophenols, PAH and total dioxins and furans to be protective of the environment.

[236] At page 50, the Lawrie Report also states:

... Chlorobenzenes ... are expected to mirror the [dioxin and furan] and PAH results because of the similar destruction and formation properties.

[237] On page 62, the Lawrie Report refers to the SWCG limit for chlorobenzene, which is  $1 \mu\text{g}/\text{m}^3$  at 11%  $\text{O}_2$ , or  $1.3 \mu\text{g}/\text{m}^3$  at 8%  $\text{O}_2$  (daily average).

[238] The Amendment imposes a limit of  $1.3 \mu\text{g}/\text{m}^3$  (hourly average at 8%  $\text{O}_2$ ) based on the SWCG limit, and requires quarterly and annual monitoring of chlorobenzene when the Facility is burning rail ties. The Amendment also imposes a requirement that the boiler maintain a minimum temperature of  $1,000^\circ\text{C}$  when burning rail ties, to help prevent chlorobenzene emissions. The chlorobenzene concentration in emissions must be recorded during the verification trial, which will provide confirmation of the levels of chlorobenzene and whether the emissions comply with the limit in the Amendment. The Panel finds that these requirements in the Amendment provide adequate protection for human health and the environment with respect to the potential risks associated with chlorobenzene emissions when the Facility burns 50% rail ties.

[239] The Lawrie Report states as follows regarding VOCs, at page 35:

... Currently BC's ambient air quality objectives do not include VOCs objectives, nor do the Canadian Ambient Air Quality Standards.

In an energy system like the one at the [Facility], VOCs are typically released during the gas phase of pyrolysis [i.e., chemical decomposition caused by heat] and then broken down to  $\text{CO}_2$  and  $\text{H}_2\text{O}$  during the combustion phase. Comparisons of organic emissions to air from treated wood combustion compared to clean wood found that generally organic emissions are not increased. Like PAH, VOC's emissions from the boiler are an indication of incomplete combustion. In a study by the IEA Clean Coal Centre that maintaining a high combustion temperature ( $>900^\circ\text{C}$ ) as the most effective way to reduce organic emissions from coal fired energy systems. Combustion is also an accepted method for VOC destruction.

From the above it can be concluded that there will not be a substantive increase in VOC emissions as a result of the incineration of rail ties and that

the temperature limit and limits for other organic compounds included in the draft permit are sufficient to ensure control [of] VOC emissions without imposing an emission limit.

[underlining added]

[240] Based on the evidence, the Panel finds that the Facility's emissions of VOCs are not expected to change significantly when burning 50% rail ties versus regular wood waste, and the requirement in the Amendment to maintain a minimum temperature of 1,000°C when burning rail ties will help prevent or reduce VOCs in the Facility's emissions. Although there is no limit on VOC emissions in the Amendment, the Panel finds that it would be difficult to set a limit given that there are currently no BC or Canadian AAQOs for VOCs, and neither the SWCG nor Schedule 2 of the *Hazardous Waste Regulation* specify VOC emission limits. In these circumstances, the Panel finds that the minimum temperature requirement in the Amendment provides adequate protection, and reducing the percentage of rail ties that the Facility may burn would provide no added protection for human health and the environment against the potential risks associated with VOC emissions from the Facility.

#### Verification trial

[241] The Adams Review concluded that RWDI's assumption of a linear relationship between percentage of rail ties burned and the emission of certain contaminants (those that increased when 100% rail ties were burned), was "a reasonable assumption but should be confirmed through source monitoring". Mr. Adams recommended that the verification trial be carried out to test this assumption.

[242] The Amendment requires that, during the verification trial, Atlantic must monitor and report the rate of discharge and concentrations of TPM, metals, dioxins and furans, chlorophenols, chlorobenzenes, and PAH, and prepare a size fractionation test of particulates to determine PM<sub>10</sub> and PM<sub>2.5</sub> content. In addition, the Amendment requires continuous monitoring of SO<sub>2</sub>, NO<sub>2</sub>, and HCl at all times, and monitoring of the other regulated contaminants when burning rail ties. The Panel finds that this will ensure that the levels of these contaminants remain within permitted levels during the verification trial. If an emission limit is exceeded, the Facility will need to adjust the fuel mixture accordingly in order to comply with the emission limit.

[243] The Panel finds that conducting the verification trial using "greater than 40%", rather than 50%, rail ties as fuel reflects a cautious approach, because it allows room for error if the assumption of a linear relationship between emission levels and the percentage of rail ties burned is incorrect.

[244] The Panel finds that it is unnecessary to add a requirement that the Director must approve the results of the verification trial, because the Amendment already requires that the data from the verification trial must be provided to the Director within 45 days of the end of the month in which it is collected. If any of the regulated air contaminants exceed the expected or permitted emission levels during the verification trial, the Director may further amend the Air Permit as needed, such as by reducing the allowable proportion of rail ties.

[245] The Panel concludes that the requirement to conduct the verification trial in accordance with the terms specified in the Amendment is consistent with a cautious approach to granting an amendment to the Air Permit, and the requirements in the Amendment provide adequate protection of human health and the environment during the verification trial.

Best achievable technology

[246] Some of the Appellants argue that the Facility should be required to install the best “available” technology to reduce certain emissions. However, the Ministry’s policy requires consideration of the best “achievable” technology, it defines best achievable technology as “the technology that can achieve the best waste discharge standards and has shown to be economically feasible”. The Ministry’s policy describes how the Ministry uses a BAT evaluation in decision-making:

A BAT evaluation provides Ministry staff with information to support the setting of waste discharge standards, but is not used to prescribe specific technologies or equipment for use. ...

[underlining added]

[247] Consistent with the policy, the BAT Report considered the cost and effectiveness of different technologies that are available for controlling the Facility’s emissions of SO<sub>2</sub>, HCl, and NO<sub>2</sub>. The BAT Report examined wet and dry scrubbing systems to reduce SO<sub>2</sub> and HCl emissions, and selective non-catalytic reduction and selective catalytic reduction systems to reduce NO<sub>2</sub> emissions. The BAT Report stated at page 13:

From a cost perspective, and in consideration of water restrictions, the best ranked add-on control costs are ... an integrated SCR [dry scrubber and integrated selective catalytic reduction] unit. ... Thus, the costs per tonne for the best ranked option are below:

- \$9,2000/tonne-SO<sub>2</sub>;
- \$26,500/tonne-HCL; and
- \$4,200/tonne-NO<sub>2</sub>.

... these costs are far above the cost of removal of these emissions from other sources.

[248] At page 12, the BAT Report states that this dry scrubber and integrated SCR system would cost a total of \$22,034,851, not including operation and maintenance costs.

[249] The BAT Report concluded as follows at page 14:

Dispersion modelling conducted for [the Facility] showed the plant is able to achieve compliance with the B.C. AAQOs based on 50% rail ties and operating at full capacity. Implementation of control technology systems are not required in order to maintain compliance with B.C. AAQOs.

...

The best ranked add-on system costs are far above the cost of removal for those emissions from other sources. Given that, the recommended BAT for [the Facility] is emission control limits. ... The current [Facility] air permit includes a NO<sub>x</sub> emission limit which will remain in place. The [Ministry] could consider adding an SO<sub>2</sub> stack emissions limit to the revised permit to further ensure that SO<sub>2</sub> emissions are at or below the quantities evaluated herein.

[underlining added]

[250] The Lawrie Report reviewed the BAT Report, at page 56:

... Wet scrubbing was eliminated from the review as the water demand of the system was not appropriate for the local supply capacity. Duct sorbent injection (DSI), furnace sorbent injection (FSI), selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) were also reviewed and would have resulted in a prohibitive increase in costs to the facility. The modelling indicated that the incineration of rail tie material would not result in an exceedances of the BC AAQO or the Ontario Ambient Air Quality Criteria for HCL. As a result, RWDI recommended that using emission control limits was a more preferred option.

[251] The Lawrie Report also noted that burning rail ties would not change the Facility's NO<sub>x</sub> emissions, and the Facility's equipment was comparable to best achievable technology. Regarding NO<sub>x</sub>, the Lawrie Report states at pages 37 - 38:

To meet a lower NO<sub>x</sub> permit limit would require the Permittee to make substantive changes to the boiler and the operations. ...

... The proponent reviewed the BAT options and concluded that given ambient NO<sub>x</sub> AAQO would not be exceeded and that since the added incremental cost of treatment would be prohibitive, control limits were the preferred option.

It is therefore recommended that the NO<sub>x</sub> limits in the permit remain unchanged and that additional NO<sub>x</sub> control technology not be required.

[underlining added]

[252] The evidence establishes that no change in the Facility's NO<sub>2</sub> emissions is expected when burning 50% rail ties, and ambient NO<sub>2</sub> concentrations are expected to be below the applicable AAQO.

[253] Unlike NO<sub>2</sub> emissions, SO<sub>2</sub> and HCl emissions are predicted to increase when the Facility burns 50% rail ties. However, the Panel has already concluded that when the Facility burns 50% rail ties, the ambient concentrations of SO<sub>2</sub> and HCl in the airshed are predicted to be a safe margin below the relevant AAQOs, and pose a low risk of adverse effects on human health. The Panel has also found that the emission limits and monitoring requirements in the Amendment provide additional protection for human health and the environment against the risks associated with the Facility's emissions of SO<sub>2</sub> and HCl when burning rail ties.

[254] In these circumstances, even without taking into account the substantial costs of installing additional systems to reduce the Facility's emissions of NO<sub>2</sub>, SO<sub>2</sub>, and HCl, the Panel finds that it is unnecessary for the protection of the environment and human health to require Atlantic to install such systems at the Facility.

Reduce the proportion of rail ties to 25% and add a daily limit

[255] Sections 2.7.1 and 2.7.4 of the amended Air Permit include the following requirement:

- The combined rail tie material and clean construction and demolition debris component does not exceed 50% on a wet weight basis of the total biomass fuel supply calculated on an annual basis;

[underlining added]

[256] Although the SO<sub>2</sub> limit acts as a proxy for a daily limit on the percentage of rail ties that may be burned, the language in the above-noted requirement does not expressly prevent the use of 100% rail ties as fuel at any given time, as long as the 50% annual limit is met.

[257] Atlantic's evidence is that it sought the 50% limit to allow sufficient flexibility in the types of fuel that the Facility may burn, due to the seasonal availability of fuels and an anticipated decrease in the availability of wood waste from sawmills in the region. Atlantic's submissions state that it expects to burn 25 to 33% rail ties annually, and up to 200,000 tonnes of rail ties annually, but it may burn up to 50% rail ties at certain times. Ms. Nelson, the Facility's Business Manager, attested that Atlantic expects the Facility to consume approximately 100,000 tonnes of rail ties annually, which is approximately 25% of its fuel requirements in recent years, but the annual proportion of rail ties may be as high as 33% and the daily proportion could be as high as 50% due to variability in the availability of fuels. She attests that "at no time will the volume of Rail Ties exceed 50% of the fuel mix, as that would run the risk of exceeding the emission limits set in the Amended Permit." Mr. Blezzard attested that the system that feeds fuel into the boiler will mix shredded rail ties with regular wood waste, and scales will control the percentage of rail ties mixed into the fuel stream to ensure that no more than 50% is rail ties at any given time.

[258] The Panel has already found, based on the evidence, that burning rail ties as opposed to regular wood waste at the Facility is expected to have little or no impact on the amount of NO<sub>2</sub>, particulates, PAH, trace metals, or VOCs emitted by the Facility, or the ambient concentrations of those substances in the Williams Lake airshed. This means that reducing the proportion of rail ties that may be burned at the Facility from 50% to a lower percentage would have little impact on the Facility's emissions of those substances. For the contaminants that are expected to increase in the Facility's emissions when rail ties are burned, the Air Modelling Dispersion Report, the health risk assessment reports prepared by Intrinsik, and the Ministry's reviews of those reports concluded that that burning 50% rail ties will have low or negligible impacts on human health and the environment. The Panel has already found that the Facility's emissions when burning 50% rail ties are expected to result in ambient concentrations in the airshed that are a safe margin below the applicable AAQOs, and the emission limits and monitoring requirements in the amended Air Permit provide additional protection for human health and the environment.

[259] The Panel further finds that the Appellants have provided no evidence that reducing the percentage of rail ties that may be burned at the Facility from 50% to

25% is necessary to protect human health and the environment, or would have any significant benefits in that regard. The Appellants have provided no scientific or technical information to support their argument.

[260] However, the Panel finds that it would be reasonable to reduce the maximum percentage of rail ties that may be burned at the Facility on an annual basis from 50% to 35%, given that Atlantic expects to burn 25 to 33% rail ties most of the time. The Panel finds that reducing the annual percentage of rail ties to 35% would still allow Atlantic sufficient flexibility with the fuel mix at the Facility to meet its fuel needs, given the variable availability of rail ties and regular wood waste seasonally and into the future. Given that Atlantic has no plans to burn 50% rail ties on an annual basis in the near future, the Panel finds that imposing a 35% annual limit will not prejudice the Facility's ability to operate in the near future.

[261] The Panel also finds that allowing Atlantic to burn up to 35%, rather than 50%, rail ties annually is consistent with a cautious approach to granting the application for the Amendment, given that some uncertainty exists regarding RWDI's assumption that there is a linear relationship between the firing rate of rail ties and increased emissions of the pollutants that changed when rail ties were used as fuel. All of the analyses regarding the potential health and environmental impacts of burning rail ties at the Facility are based on the assumption that the permitted emissions will reflect 50% of the levels emitted when the Facility burned 100% rail ties. Mr. Adams recommended that this assumption should be confirmed through stack testing, ambient monitoring, and the verification trial, which the Director implemented in the Amendment. However, the Panel finds that those measures will reveal whether this assumption was correct after rail ties are being burned at the Facility, and not before. If RWDI's linear relationship assumption proves to be correct once the data is obtained from the verification trial, stack testing, and ambient monitoring, Atlantic may apply in the future for a further amendment to the Air Permit to raise the annual limit to 50%, if needed. In the meantime, an annual limit of 35% provides an added safety margin for the protection of human health and the environment.

[262] The Panel has considered the fact that Mr. Adams also recommended imposing additional emission limits, which the Director implemented in the Amendment, and that Atlantic and the Director maintain that the most important consideration in protecting human health and the environment is the Facility's compliance with the emission limits, and not whether the Facility burns a particular percentage of rail ties on an annual or daily basis. The Panel agrees that a key aspect of the Amendment, in terms of protecting human health and the environment, is the imposition of numerous new emission limits, together with associated monitoring and reporting requirements, to ensure that the amount of potentially harmful air contaminants emitted by the Facility stays within parameters that are safe for human health and the environment.

[263] However, the Panel finds that all of the impact analyses and Ministry assessments assumed that the Facility will burn no more than 50% rail ties at any given time. Although the emissions limits in the amended Air Permit reflect that assumption, the Panel is concerned that sections 2.7.1 and 2.7.4 of the amended Air Permit do not prevent the use of up to 100% rail ties as fuel at times, as long as

the annual limit is met. The Panel finds that adding a 50% daily limit on the percentage of rail ties that may be burned would add further certainty that the assumptions in the impact analyses will be maintained, and added protection for human health and the environment. The Panel also finds that imposing a 50% daily limit on the percentage of rail ties that may be burned at the Facility would not be onerous for Atlantic to comply with, given Atlantic's evidence that it already intends to limit rail ties to 50% of the feedstock by weight at any given time.

[264] For these reasons, the Panel directs the Director to amend sections 2.7.1 and 2.7.4 of the Air Permit by adding requirements that:

- the combined rail tie material and clean construction and demolition debris component does not exceed 35% on a wet weight basis of the total biomass fuel supply calculated on annual basis; and
- the combined rail tie material and clean construction and demolition debris component does not exceed 50% on a wet weight basis of the total biomass fuel supply calculated on a daily basis.

90<sup>th</sup> versus 95<sup>th</sup> percentile operating conditions for sampling emissions

[265] Section 3.3 of the amended Air Permit specifies the operating conditions for sampling stack emissions, as follows:

The Permittee must sample the emissions from the boiler in section 1.1 under steam load and fuel composition operating conditions that are as close as reasonably practical to the 90<sup>th</sup> percentile for the 100 operating days prior to the date of sampling and greater than the average for steam demand and rail tie construction demolition debris proportion for the previous 30 full operating days.

[underlining added]

[266] Mr. Lawrie attests that "there is no appreciable difference between sampling at the 90<sup>th</sup> percentile versus the 95<sup>th</sup> percentile", and the 90<sup>th</sup> percentile is consistent with the Ministry's practices for stack testing to demonstrate that the Facility can comply with the permitted emission limits during normal operating conditions.

[267] Similarly, Mr. Blezzard attests that sampling at the 90<sup>th</sup> percentile is a typical industry standard. He explains that the 95<sup>th</sup> percentile is not reflective of normal operating conditions in the boiler, as the 95<sup>th</sup> percentile of operating conditions are only achieved or exceeded five or less days out of every 100 operating days. He attests that although Atlantic tries to operate the boiler at close to its full operating capacity, steam production rates will vary depending on factors such as the fuel's consistency, moisture content, and density. Mr. Blezzard also explained that the Ministry has given direction that "as close as reasonably practical to the 90<sup>th</sup> percentile" means within 10% (+/-) of the 90<sup>th</sup> percentile.

[268] The Panel has reviewed Atlantic's 2017 annual report for the Air Permit. At page 4, it states that the 90<sup>th</sup> percentile of steam flow was 603 lb/hr, and steam flow during the stack test was 589 lb/hr (the correct value appears to be 598 lb/hr, as documented in the 2017 Emission Compliance Survey Monitoring Report for the

Air Permit) with a fuel flow of 77.99 tonnes/hr, and generator output of 73.27 megawatts. The dates used for the last 100 full operating days was March 11 to 14, May 16 to July 17, and August 8 to October 10, 2017. The testing was conducted on October 11, 2017.

[269] The Panel has also reviewed the 2015, 2016, and 2017 Emission Compliance Survey Monitoring Reports for the Air Permit, which state that the steam flow was 604.2, 587, and 598 lb/hr, respectively. Fuel feed during the 2015, 2016, and 2017 tests was 78.61, 76.34, and 77.99 tonnes per hour, respectively. Generator output during the 2015, 2016, and 2017 tests was 73.03, 71.5, and 73.27 megawatts, respectively. These values confirm Mr. Blezzard's testimony that steam production rates will vary somewhat under normal operating conditions.

[270] Based on the evidence, the Panel finds that the requirements in section 3.3 of the amended Air Permit are consistent with Ministry guidance, and will ensure that stack sampling is representative of the Facility's typical operating conditions including full load, steam flow, and generator output.

Two 30-day periods (total 60 days) after non-compliant emissions before emissions must cease

[271] Section 3.5 of the Amendment requires Atlantic to "immediately notify the Regional Environmental Protection office" if any stack sampling event is found to exceed the limits identified in the Air Permit. Atlantic must re-test the non-compliant emission source within 30 days of receipt of the failed test result. If the results of any re-test exceed any of the Air Permit limits, Atlantic "must take immediate corrective action and retest within 30 days." If the third test fails, section 3.5 of the Amendment states that "the discharge from the non-compliant emission source must cease until the problem has been corrected, unless authorized in writing, by the Director."

[272] The Panel finds that it is reasonable to allow two 30-day periods for Atlantic to take corrective action and conduct re-tests in the event of failed stack sampling tests. The Panel has already found that the emissions limits in the Air Permit provide a margin of safety for the protection of human health and the environment, relative to the applicable AAQOs and the predicted ambient concentrations of contaminants that are expected to increase when rail ties are used as fuel at the Facility. The Panel finds that the two 30-day periods for Atlantic to take corrective action and re-test the Facility's emissions strike a reasonable balance between protecting human health and the environment, and recognizing that it will take time for Atlantic to determine the cause of a failed test, make adjustments to its operations to attempt to rectify the problem, and retain qualified independent professionals to perform re-tests and determine whether the problem has been rectified.

[273] The Panel also notes that the Director has the power to further amend the Air Permit if necessary, and Atlantic risks being subject to compliance and enforcement measures under the *Act*, including administrative penalties for failure to comply with a requirement of a permit, in the event of non-compliant emissions.

Concerns associated with rail tie transport, storage, and shredding

[274] Mr. Blezzard's affidavit described the system that Atlantic plans to install at the Facility to offload rail ties from trucks, store rail ties, and shred rail ties. He attests that whole rail ties will be loaded on trucks from rail cars at a location in the industrial park, transported to the Facility by truck, and stored whole until they are needed.

[275] The Panel finds that this evidence is consistent with the requirement in section 2.7.1 of the amended Air Permit, which requires that rail ties be "received at the site in an un-shredded state unless prior written authorization is received from the Director". In addition, section 2.10 of the amended Air Permit imposes further requirements for Atlantic to control odour and PAH emissions within the City of Williams Lake, and states as follows:

Fugitive odour and polycyclic aromatic hydrocarbon (PAH) emissions, within the boundaries of the City of Williams Lake, from the transport, storage and processing of rail tie feedstock material must be controlled and suppressed. If, in the opinion of the Director, odour or PAH becomes a nuisance the Director may suspend authorization to incinerate rail ties until satisfied that adequate preventative and mitigative measures have been implemented.

[276] The Panel finds that these requirements in the amended Air Permit will minimize dust, odours, and PAH emissions that were associated with the transportation and shredding of rail ties in the past, which involved shredding rail ties within the City of Williams Lake, and trucking shredded rail ties to the Facility.

[277] Mr. Blezzard also explained that a slow-speed shredder system, designed to minimize dust, will be used at the Facility to shred rail ties as needed. Shredded rail ties will be stored in an enclosed silo or bin to minimize odour, dust, run-off, and fire risk. Shredded rail ties will be transported to the boiler via covered conveyors.

[278] The Panel finds that this evidence is consistent with the requirements in section 2.9 of the amended Air Permit, which requires Atlantic to control fugitive dust within the operational area, and section 2.8 of the amended Air Permit, which states:

The un-shredded rail ties must be contained in an area separate from the clean biomass and protected from precipitation and storm water runoff.

A maximum of 3000 tonnes of shredded rail tie material may be stored on site at any one time and must be in an enclosed bin, protected from the elements.

Prior to the acceptance of rail tie material at the facility the Permittee must prepare, implement and maintain a revised Fire Prevention and Control Plan (FPCP). The FPCP must contain documents plans and procedures to prevent and control spontaneous combustion of stockpiled hog fuel. The plan must be certified by a Qualified Professional that it meets the requirements of the British Columbia Fire Code.

[279] The Panel finds that these requirements in the amended Air Permit are sufficient to mitigate and reduce the risk of dust, odours, PAH emissions, and fire hazard associated with the Facility's storage and shredding of rail ties.

[280] Section 2.7.1 of the amended Air Permit states that "A maximum of 22,000 wet tonnes of whole tie material is on site at any one time". While this is more than the 20,000 tonnes that was requested by Atlantic, the Panel finds that there is no evidence that allowing 22,000 tonnes of whole rail ties to be stored at the Facility poses a greater risk to human health or the environment than the storage of 20,000 tonnes of whole rail ties.

Ambient monitoring program

[281] The recommendations in the Adams Review included requiring Atlantic to:

- develop an ambient monitoring programme acceptable to the Director, to confirm that the ambient levels of SO<sub>2</sub>, PAH and HCl in the airshed meet the applicable AAQOs; and,
- participate in an ambient monitoring programme with other stakeholders in the airshed to investigate the spatial variability of PM<sub>2.5</sub> and NO<sub>2</sub>.

[282] The Panel finds that, contrary to the Represented Appellants' submissions, the Adams Review did not recommend that the ambient monitoring plan address PM<sub>10</sub> or dioxins and furans.

[283] The Panel finds that the Adams Review recommended that Atlantic develop an ambient monitoring program to confirm that ambient levels of SO<sub>2</sub>, PAH and HCl in the airshed meet the applicable AAQOs, because those contaminants are expected to change significantly if the firing rate of railway ties is increased. The Adams Review also recommended that Atlantic participate in an ambient monitoring programme "with other stakeholders" to investigate the spatial variability of PM<sub>2.5</sub> and NO<sub>2</sub>. Although those contaminants are not expected to change significantly if the firing rate of railway ties is increased, the Facility is already emitting significant quantities of NO<sub>2</sub>, and PM<sub>2.5</sub> is a key contaminant of concern in the Williams Lake airshed.

[284] Section 3.2 of the Amendment states that Atlantic "must participate in an ambient monitoring program satisfactory to the Director", and "must submit an ambient monitoring plan prepared by a Qualified Air Quality Meteorologist that is acceptable to the Director and have the plan implemented prior to the incineration of rail tie material at the facility."

[285] Mr. Shannon attests that the current parameters to be monitored include PM<sub>2.5</sub>, SO<sub>2</sub>, and HCl, although this list is subject to confirmation from the Ministry and may be revised. He expects that the ambient monitoring program will involve the installation of new monitoring stations in Williams Lake.

[286] The Panel finds that section 3.2 of the Amendment does not specifically state that the ambient monitoring plan must "confirm that the ambient levels of SO<sub>2</sub>, PAH and HCl in the airshed meet the applicable AAQOs" and "investigate the spatial variability of PM<sub>2.5</sub> and NO<sub>2</sub>" in the Williams Lake airshed, as recommended in the Adams Review. Although Atlantic's evidence is that the current parameters in the ambient monitoring program will include PM<sub>2.5</sub>, SO<sub>2</sub>, and HCl, subject to confirmation from the Ministry, the Panel finds that it is unclear from the language in section 3.2 of the Amendment whether the ambient monitoring plan will fully address the recommendations in the Adams Review.

[287] Consequently, consistent with the recommendations in the Adams Review, the Panel directs the Director to amend section 3.2 of the Air Permit by requiring Atlantic to:

- develop an ambient monitoring programme acceptable to the Director, to confirm that the ambient levels of SO<sub>2</sub>, PAH and HCl in the airshed meet the applicable AAQOs; and,
- participate in an ambient monitoring programme with other stakeholders in the airshed to investigate the spatial variability of PM<sub>2.5</sub> and NO<sub>2</sub>.

Environment Canada's EPS 1/PG/7 protocol

[288] The Panel finds that the Director's submissions address the concern that the Amendment should not have removed the previous requirement in the Air Permit that the Facility's CEMs be maintained and audited in accordance with Environment Canada's EPS 1/PG/7 protocols.

[289] The Director confirmed that the requirement to maintain and audit the Facility's CEMs in accordance with Environment Canada's EPS 1/PG/7 protocols and specifications were removed because the same requirements are incorporated into the Amendment where it requires Atlantic to comply with a Ministry document that contains the same requirements (i.e., the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment and Biological Samples", 2013 Edition (Permittee)", at page 39).

Disposal of ash

[290] Section 2.6 of the amended Air Permit states:

The residue of combustion must be removed from the boiler regularly and must be disposed of on a site and in a manner approved by the Director.

[291] The Panel finds that it is unnecessary to add a requirement in the Air Permit that combustion residue (ash) must be disposed of at a site "authorized for the purpose" under the *Act*. Firstly, the Air Permit already states that ash "must be disposed of on a site and in a manner approved by the Director", and the Panel is satisfied that the Director has not authorized the disposed of ash at a site that is not authorized for that purpose.

[292] Secondly, the Panel notes that concurrent with the Amendment, the Director also amended Atlantic's landfill permit no. 8809, by prohibiting the acceptance of hazardous waste at the landfill where Atlantic disposes of the Facility's ash. As described in the Board's decision in *Ellis O'Toole et al v. Director, Environmental Management*, Decision Nos. 2016-EMA-150(a), 2016-EMA-151(a), 2016-EMA-152(a) and 2016-EMA-153(a) (March 29, 2017), Atlantic's landfill permit includes requirements regarding the characteristics of the waste discharge, and section 2.6 of the landfill permit, as amended, states:

The discharge of material that is classified as a hazardous waste under the Hazardous Waste Regulation is prohibited.

[293] Due to this requirement in Atlantic's landfill permit, any ash that is classified as a hazardous waste would have to be disposed of at a site that is authorized to

accept hazardous waste. Atlantic will know if flyash from the boiler's pollution control equipment is classified as a hazardous waste, because section 3.1.3 of the amended Air Permit requires Atlantic to analyze the ash and determine whether the *Hazardous Waste Regulation* criteria have been exceeded.

Require Atlantic to post security for cleanup costs

[294] The Represented Appellants requested that the Air Permit be amended by adding a requirement that Atlantic provide security for costs to address cleanup costs associated with unburned rail tie fuel and contaminants produced during the combustion of rail ties.

[295] The Ministry's policy is that financial security "is held to ensure compliance ... and/or to meet any costs or expenses incurred by [the Ministry] taking action to prevent or minimize environmental harm or remediate the environment in relation to the activity for which financial security has been given". Intrinsik prepared the Ecological Risk Assessment on behalf of Atlantic, to assess the potential impacts on air, soil, and surface water resulting from the Facility's emissions under the Amendment. The Ecological Risk Assessment concluded that the predicted concentrations of the COPCs (i.e., NO<sub>2</sub> (based on NO<sub>x</sub> measurements), TPM, PM<sub>2.5</sub> and PM<sub>10</sub> (based on TPM measurements), SO<sub>2</sub>, PAH, HCl, chlorophenol, dioxins and furans, and various metals) in soil, surface water, and air would be well below ecologically-based guidelines.

[296] The Panel finds that the Appellants have provided no evidence that the permitted emissions are likely to result in waste that would need to be cleaned up in the future, or that Atlantic would be unable to pay for such cleanup costs even if they arose. The Appellants have also provided no evidence that Atlantic is likely to leave behind unburned rail tie fuel at the Facility for the Ministry to clean up in the future.

[297] Based on the evidence, the Panel finds that there is no basis to require Atlantic to post security for cleanup costs associated with unburned rail tie fuel and contaminants produced during the combustion of rail ties.

Require Atlantic to maintain and publish a log of public complaints

[298] The Appellants requested that the Air Permit be amended to require Atlantic to maintain and publish a log of public complaints that it receives regarding odours and other nuisances associated with rail tie feedstock, along with Atlantic's responses.

[299] The Panel finds that the public already has three ways to report complaints about environmental concerns related to the Facility: calling the Ministry's toll-free "RAPP" phone number; completing an online form on the Ministry's website; or, contacting the nearest Conservation Officer Service office, where complaints are logged and investigated, as appropriate, by the Ministry's Compliance and Enforcement Branch. The Panel finds that these avenues for the public to make complaints provide options that are convenient, will ensure that complaints are recorded by the Ministry, and most importantly, ensure that complaints go directly to the Ministry responsible for ensuring compliance and enforcement with the Air Permit. Accordingly, the Panel finds that it is unnecessary to require Atlantic to

maintain and publish a log of public complaints that it receives regarding odours and other nuisances associated with rail tie feedstock.

Require Atlantic to report on the hydrocarbon contaminated material incinerated

[300] The Panel has considered the Appellants' request that the Air Permit should require Atlantic's annual report for the Air Permit to contain an account of the hydrocarbon contaminated material incinerated during the year, where it came from, and when it was incinerated. The Panel finds that the amended Air Permit and the applicable legislation adequately address this issue.

[301] The Panel notes that section 2.7.2 of the amended Air Permit allows Atlantic to incinerate:

... up to 872 L of hydrocarbon contaminated absorbent material, per day, originating from accidental spills is authorised provided the hydrocarbon material meets the Hazardous Waste Regulation Specification for Use as Fuel. All other materials or quantities require the authorization in accordance with section 52 of the Hazardous Waste Regulation.

[underlining added]

[302] In addition, the Lawrie Report discusses this at page 44, as follows:

The disposal of materials from minor spills is done on a Good Samaritan basis by the proponent for the community and is not viewed as a source of fuel. It is to the public's benefit to have carefully controlled disposal as opposed to illegal dumping.

The proposed amendment includes authorization for the acceptance and incineration of up to 872 L/day (four standard drums) of hydrocarbon contaminated materials originating from accidental spills. Based on a bulk density of 336 kg/m<sup>3</sup> hogged fuel and 70 wet tonnes per hour the oil contaminated materials would only form 0.4% of the feed in a single hour. The amount is miniscule when compared to the amount of biomass burnt during the day and would likely be non-detectable in the emissions. Authorization would be contingent upon the waste oil meeting the HWR [Hazardous Waste Regulation] Section 41(5) Waste Oil Specifications for use as fuel. This measure would screen out non-approved materials such as PCBs while ensuring spill material can be safely disposed at the same time as reducing administrative burden.

[underlining added]

[303] Section 41(5) of the *Hazardous Waste Regulation* authorizes the use of waste oil as fuel, without prior approval, as long as the waste oil meets the prescribed specifications limiting the waste oil's content of certain contaminants.

[304] Section 41(5.1) of the *Hazardous Waste Regulation* provides that a person using waste oil as a fuel without approval must keep a written record, for inspection by an officer, demonstrating that the waste oil meets the specifications under subsection (5).

[305] The Panel finds that section 2.7.2 of the amended Air Permit approves the use of waste oil as fuel as long as the waste oil meets the specifications in section

41(5) of the *Hazardous Waste Regulation*. When approval has been given to use waste oil as fuel, as long as it meets the prescribed specifications, there is no need for record-keeping. The Panel finds that this section of the amended Air Permit is consistent with section 41(5) of the *Hazardous Waste Regulation*, and it is, therefore, unnecessary to require Atlantic's annual report to contain an account of the hydrocarbon contaminated material incinerated during the year.

Require Atlantic's annual report for the Air Permit be available on the internet

[306] The Appellants have requested that Atlantic's annual report for the Air Permit be available to the public on the internet.

[307] The Panel notes that section 3.6 of the amended Air Permit only requires Atlantic's annual report for the Air Permit to be available for public viewing at the Williams Lake library within 30 days of submission to the Ministry. The Director has advised that he may send an annual report back to the permittee for correction or additional explanation, and the 30-day window allows time for corrections or clarifications to be made before the report becomes publicly available.

[308] The Panel finds that it is reasonable to add a requirement to the Air Permit that the annual report also be available to the public on the internet within 30 days of submission to the Ministry. Posting the annual report on the internet within 30 days of submission to the Ministry is consistent with the intent of section 3.6 of the amended Air Permit, would not be onerous for Atlantic to comply with, and makes it easier and more convenient for the public to access the annual report.

[309] Accordingly, the Panel directs the Director to amend section 3.6 of the Air Permit by requiring Atlantic to also make its annual report for the Air Permit available public viewing on the internet within 30 days of submission to the Ministry.

## **DECISION**

[310] In making this decision, the Panel of the Environmental Appeal Board has carefully considered all relevant documents and evidence before it, whether or not specifically reiterated herein.

[311] For the reasons set out above, the Panel finds that the Director's decision to grant the Amendment should be confirmed, subject to the following directions to vary the amended Air Permit. The Panel directs the Director to:

- amend sections 2.7.1 and 2.7.4 of the Air Permit by adding requirements that:
  - the combined rail tie material and clean construction and demolition debris component does not exceed 35% on a wet weight basis of the total biomass fuel supply calculated on an annual basis; and
  - the combined rail tie material and clean construction and demolition debris component does not exceed 50% on a wet weight basis of the total biomass fuel supply calculated on a daily basis.
- amend section 3.2 of the Air Permit by requiring Atlantic to:

- develop an ambient monitoring programme acceptable to the Director, to confirm that the ambient levels of SO<sub>2</sub>, PAH and HCl in the airshed meet the applicable AAQOs; and,
- participate in an ambient monitoring programme with other stakeholders in the airshed to investigate the spatial variability of PM<sub>2.5</sub> and NO<sub>2</sub>.
- amend section 3.6 of the Air Permit by requiring Atlantic to also make its annual report for the Air Permit available public viewing on the internet within 30 days of submission to the Ministry.

[312] Accordingly, the appeals are allowed, in part.

“Alan Andison”

Alan Andison, Chair  
Environmental Appeal Board

April 10, 2019