

## A Short History of Air Quality and Community Health Controversies in Williams Lake, British Columbia

The burning of rail ties in Williams Lake has become a very significant local environmental and health issue in recent years. The concerns over air quality are in large part borne out of a current context of global air pollution. In May 2018, a report by the World Health Organization showed that 9 out of 10 people in the world breathe polluted air (<http://www.who.int/airpollution/data/cities/en/>). This data shows that air pollution in the twenty first is becoming an increasingly prevalent problem throughout the world. On a smaller scale, air quality issues have plagued Williams Lake in a variety of capacities throughout its history. Fundamentally, as a topographical bowl, Williams Lake has been prone to the festering of smog, airborne particulate matter, and smoke. This geography has shaped the air quality and health experiences in the municipality and the outlying areas for over a century. Beginning with smog and soot particulate matter in the early years of the forestry industry and developing in the era of the beehive burners, each paradigm has been met with an antithesis, creating new opportunities and solutions. When examining the issue of the burning of rail ties in Williams Lake, it is important to keep this geography and history in mind.

The arrival of the forest industry en masse in the 1940s brought with it many jobs and opportunities but also greater pollution. In the early 1940s, when Lignum operated a mill on the outskirts of the municipality, the mill burned stockpiles of wood shavings in the winter time when most people were indoors. This created a notorious smog problem in the municipality. One winter, an air inversion forced the burned shavings and smoke into the bowl of the city. Snow storms also allegedly carried soot in from the mill and blanketed residents' homes with smoldering soot and snow. Fine particulates, especially ones that contain heavy metals, from the fly ash can damage plants, buildings, and human organs. Many community members demanded a solution which then took the form of the beehive burners and solved the problem of waste handling but created the new problem of fly ash.

Throughout the late twentieth century, the forest industry grew and mergers of smaller mills led to the centralization of industrial resources near urban areas like Williams Lake, which exacerbated the prevalence of fly ash. Earlier in the twentieth century, small bush mills were much more common sights throughout the Cariboo region but over time many were faced with the issue of getting their product to market more efficiently. Many of the bush mills had poor log recovery factors, meaning that they cut a very low volume of wood from a cubic meter of logs. The provincial government in the 1950s began to require debarking and wood chipping to make wood production more efficient. One P&T logging department member said "the regulations requiring debarkers and chippers really

affected the little bush mills – in the early 40s there were some 50 bush mills working in the area. Within 10 years there were barely a dozen” (Williams Lake: The Heart of the Cariboo, p. 174). Many of the small bush mills were forced to consolidate and become part of larger saw mills in mid-century. This made the industry more efficient but also required more intensive waste treatment, leading to more intensive beehive burner use and ultimately more fly ash.

The prevalence of fly ash became a staple of Williams Lake and its immediate area but it took extreme lows in air quality conditions for residents to act on the problem. The beehive burners operated from the 1960s to the early 1990s. Over the course of the year in 1987, 10 kg of fly ash fell on an average city block every month. Residents reported that many of them had to regularly scrape layers of ash off their cars in the morning before going to work over the course of the year. The situation became a public health crisis, prompting then-mayor Ray Woods to put together an action plan and committee, called the Fly Ash Abatement Committee, to find a solution and restore healthy air quality to the city. Provincial legislation in the early 1990s also pushed the phase out of the beehive burners in favour of different technologies.

The beehive burners had earned a reputation of unpredictability and inefficiency which, in conjunction with the rise of new biomass power plants, led to their eventual demise. In 1993 EPCOR constructed the North West Energy Plant in Williams Lake, which is one of the largest biomass power plants in North America. Under a contract that extends to 2018, they produced electricity for BC Hydro. This plant was originally designed to help solve the problem of fly ash that was plaguing the municipality and outlying areas. Through the processing of wood waste from local saw mills, the mills had no need for their beehive burners and began phasing them out in the early 1990s. The last beehive burner closed in 1995, ending the fly ash problem.

Despite the end of the beehive burners and the fly ash, air quality concerns continued into the twenty-first century. With the accelerating impact of global climate change and the greenhouse effect, forest fires became much more vociferous and uncontrollable. In 2003 smoke from wildfires along the North Thompson River caused air quality advisories as far as Williams Lake. In 2010, smoke from wildfires in the Chilcotin region also brought numerous air quality advisories to the area in addition to evacuation alerts and orders, to be repeated much more extensively in 2017. While this air quality problem was not, at least not directly, human caused, the topography of Williams Lake was once again to blame for poor air quality.

The issue of community health has become even more pronounced in the second decade of the twenty-first century. In 2016, community members began

to organize against the prospect of rail tie burning in Williams Lake. Many residents were concerned that the prevalence of sulphur oxides and other volatile organic compounds that festered in the air around the municipality would be damaging to community health. In 2011, CN Rail and CP Rail estimated that they had 800,000 railway ties ready for disposal in Western Canada. Many older stockpiles of rail ties contained creosote, creosote borate, or in some cases pentachlorophenol (PCP). Creosote is a wood preservative made from coal tar. In many EU jurisdictions, materials laced with substances like creosote and PCP are considered hazardous waste, though that is not the case in Canada. Nevertheless, since 2016 many residents have been working to resist the burning of rail ties, arguing in part that contemporary environmental legislation has a limited definition of “renewable” or “clean” energy and does not fit more widely accepted definitions of “renewable” or “clean” energy.

Williams Lake has had no shortage of air pollution controversies over its brief history as a municipality. These experiences in many ways are in line with the concerns and issues surrounding air pollution throughout Canada and the planet as a whole. Regardless of the resolution on the burning of rail ties in Williams Lake, the municipality’s topography has played a significant role in shaping public reactions to air quality and pollution over the past century and will undoubtedly continue to do so in the twenty-first century.

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#### HARD FACTS to consider:

At the recent Environmental Appeal Board, representatives from Atlantic Power states that they expect the plant to burn 25 to 33% rail ties annually, which is up to 200,000 tonnes of rail ties annually.

In a study published in 2011, CN and CP Rail estimate that there would be approximately 1.45 million ties (130,500 tonnes) available for disposal from all over Western Canada each year for 10 years. This suggests that AP would be burning the equivalent of all the newly retired railway ties by CN and CP Rail in Western Canada each year, AND also disposing of some or all stockpiled rail ties in Western Canada. These stockpiled ties may include PCP treated ties.

If AP burns up to 200,000 tonnes of railway ties a year, that is approximate to 2.8 million railway ties per year. These 2.8 million railway ties will be shipped to Williams Lake every year, from all around Western Canada. Which means that WL will be exposed to SO<sub>2</sub> (exposure to sulphur dioxide is known to cause respiratory symptoms & disease, can influence habitat suitability for both plants and animals), PAH (polycyclic aromatic hydrocarbon which are associated with

cancer as well as being linked to cardiovascular disease and poor fetal development) and HCl (hydrochloric acid which is a known corrosive & irritant).

British Columbia currently operates under Ambient Air Quality Objectives which are not legally binding. Instead these objectives are used to gauge current and historical air quality. Guide decisions on environmental impact assessments and authorizations, guide air shed planning efforts (currently WL & surrounding areas Air Shed Management Plan has expired in 2016 and needs to be reviewed and re-instated), inform regulatory development and develop and apply episode management strategies.

Oregon State and Washington State does not allow rail ties to be burned for energy. California also has strict regulations regarding the disposal of rail ties, and do not seem to be burning them for energy either. The UK and Germany have strict regulations over the disposal of rail ties.

In Canada, Kamloops has rallied against a biomass plant being built to burn rail ties for energy. Currently, the only other place in Canada that burns rail ties is in Trois-Rivieres, Quebec. However, they last reported that they were burning rail ties in 2011-2012 and have not commented if they are burning rail ties currently. As of 2004, it seemed that most rail ties in Canada were being shipped to incinerates in Pennsylvania and Michigan.

In 2017 and 2018 WL air shed was devastated by the impacts of the wildfires and this said to be the norm going forward - dry hot summers with fires. If WL were to allow for rail ties to be considered as part of the fibre supply for AP we would be putting our population at risk of developing respiratory issues and perhaps even cancers. Earlier this month Pinnacle Pellet Plant applied for an application to increase their operations by 100%.

WL is situated in a topographic bowls that experiences heavy inversions and poor dispersion. Can you imagine if AP is located at one end of our valley burning ties, Pinnacle Pellet at the other end and wildfires on top, what kind of recipe we would be creating in our air shed.

This is our leaders last chance to have a say in the permit to operate AP. I am asking you as our leaders in the community to consider applying the precautionary principle and write a letter to both the Minister of Energy & Mines, BC Hydro thanking them for keeping the plant open by agreeing to purchase energy however, the agreement cannot include a provision that would allow for rail ties to be burned at the plant. Such an agreement would go against the intent behind the Clean Energy Act and the very point of keeping the biomass plant open: to protect the community from forest fires and ensure better air quality.