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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