One Family's Dreadful Life-Draining Experience of Living Amongst Wood Heaters & Acreage Burning

Our family relocated from medium-density suburban location in Melbourne's north, to semi-rural acreage property within Nillumbik Shire seeking the health and wellbeing benefits of open space, clearance from neighbouring homes and especially for fresher cleaner air. We purchased the property during the summertime (so were not able to witness the dreadful air quality when considering the purchase) and moved in during the winter.

Our family unit was at this time healthy, happy and fully involved in life and community. On moving into the Shire we discovered our life and health was about to be burdened with up to 9 months a year with dreadful acrid smoky air from the wood heaters and open air burning from homes in our suburb. Natural gas is not available in our area and wood heaters are the choice of nearly every home in the suburb including those homes built very recently. Now that energy prices have risen, the reliance on wood heaters over other heating options (even in homes with alternate heating installed) is ever more burdensome. People are not even burning well-seasoned wood that is a recommended species for burning; instead they are burning all sorts of highly unsuitable materials such as fence palings which likely are treated or contaminated with chemicals, renovation off-cuts, demolition materials and unwanted furniture. Despite ourselves paying extraordinarily high prices to run heating via LPG (bottle) gas, we cop the effects of all other wood heaters in our suburb. On top of this we have the added burden of acreage properties burning rubbish including painted and treated timber, plastic, demolition materials, Styrofoam, mattresses, cardboard – all of which I have photographic evidence of. Almost ***every*** burn-off I have witnessed and the piles I have viewed ready for burning contain materials other than green waste – again photographed where I have had the opportunity. I am happy to supply photos for embellishment. The Nillumbik Shire Council allows through their by-laws burning of "Green waste for fire reduction purposes" but this is not controlled, checked, effectively communicated and seldom responded to when alerted to the worst incidences. It occurs almost daily just within a 5km distance from our home and adds an even further burden of toxic air quality on top of the wood heaters; or in the case of warmer weather when heating homes is not required it destroys a day of otherwise clearer air. I have tried to lobby the Council to change by-laws to restrict burning and for it to be better managed - with zero interest from them regarding improvement. Councils are not effective nor have any motivation to control air quality within their Shires. In fact, they have a massive incentive in that they can offer less rubbish removal services if residents burn waste! The area of wood heaters and outdoor burning must be addressed and controlled at a state or federal level via strict enforceable legislation!

Upon moving to the smoky environment, our daughter, aged 5, suddenly had breathing problems which she had never experienced before and was diagnosed with asthma (at a time when many children are growing out of asthma!) which has remained with her to the present day. This, sadly, restricts her participation in sport and leisure activities which furthermore has a detrimental impact on her health, fitness, wellbeing and inclusion in social situations.

Myself personally, having never had breathing problems, never having had asthma and in good health until the point of moving into a smoky neighbourhood, experience varied adverse reactions to exposure to the smoke not only outdoors where it is often at extreme levels, but as it seeps into our home and destroys our indoor air quality as well. The physical effects of exposure to the smoke immediately makes breathing uncomfortable (nose, throat, lung irritation which can go on to last for days), causes irritation to skin, scalp, eyes and even sores in nasal passage and even results in throat infections, and often also causes headaches. This is frightening enough, especially when it is noticeable almost *every single day* from roughly March to October-November, but when I began to look into the possible long-term effects, especially on my children, that was ***truly horrifying***. The effects on our family's stress levels, emotional wellbeing, and the fact that we cannot participate fully and normally in life in our home or community is an enormous burden. It is deeply concerning to the very core of a parent when daily they are worried about not being able to protect their children from long-term damage and possible disease from something they simply cannot control or have any impact on despite desperately trying to do so.

I began to look into the dangers of such wood smoke pollution and any solutions we could enact for our family and our household. We have spent tens of thousands of dollars trying to deal with the issues, trying to seal doors and windows better (yet trapping the toxins inside our home when there is seldom a pollution-free timeslot to open any windows!), adding a whole-of-house ventilation system which has turned out to be ineffective while smoke can still seep through the tiniest cracks and crevices which are present even in a modern home. We are now about to install an air conditioner we don't otherwise need to filter the air in our main living room. It will be a capital cost to buy and install but also an enormous electricity cost to run it daily on filter for 9 months a year. We are worried, however, it may draw in toxic air from outside and be another failed attempt to reduce the dangerous particulates?

Thus, it has become clear to me that we are not able to escape the pollution even with the abovementioned attempts to restrict it entering inside our home, and also while our children are involved in school and sport within the same community there is absolutely no protection from it there either. It is *chilling* to know:

> ***There is no safe level of PM2.5 pollution, considered responsible for the premature deaths of thousands of Australians every year, many more than the next worst pollutant, ozone. PM2.5 are so tiny they behave like gases and infiltrate houses even when all doors and windows are closed, and infiltrate the deepest recesses or our lungs where they cause inflammation leading to heart and respiratory diseases.***
>
> ***Current PM2.5 pollution causes more health damage than passive smoking.***

I have only just become aware of the opportunity to make a submission and therefore do not have the time to locate and summarise the thousands and thousands of pages of evidence I have gathered about wood smoke pollution to present at this time. Had I become aware of it

earlier I would have submitted a fully detailed assessment of the impact on our family and community, backed up with irrefutable scientific evidence of the harm.

The following excerpts from various sources, however, go some way to expressing my concerns and presenting the evidence that wood smoke is a massive contributor to the demise of our physical health – although the burden on our mental and emotion health and wellbeing and to our ability to participate in life in our community can hardly be adequately expressed as it is almost entirely overwhelming and a constant form of living hell. I am dreading the next 9 months as wood heaters will begin to be fired up and bans on open air burning will be lifted by our Council. I feel constant crushing stress throughout that period all due to the impact of wood smoke on our family.

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> ***The average new heater puts out as much PM2.5 pollution in 10 hours as the average car does in a year !***

Governments have known for nearly a decade that new wood heaters installed in urban areas have estimated health costs of thousands of dollars per heater per year. NZ tried to address the problem by substantially reducing the emissions limit for all new heaters in 2005. In areas where wood smoke builds up, NZ also legislated sunset clauses for existing heaters in conjunction with subsidies to remove them, and bans on installing new wood heaters in houses that don't have them. Meanwhile, Australia has allowed the problem to get worse.

Although traffic pollution is normally blamed for PAH emissions, Australian NPI data show that domestic wood heaters emit 500,000 kg of PAH, compared to 300,000 for all Australia's motor vehicles - http://woodsmoke.3sc.net/pah

There is an estimated benefit of $4.015 billion for an estimated cost just $36 million over 20 years (equivalent to a net benefit of about $10 billion for Australia as a whole) by requiring wood heaters to be removed when houses are sold, the costs of a 1 year delay is about half a billion dollars.

THE HEALTH EFFECTS OF WOOD SMOKE

(ENVIRONMENT & HUMAN HEALTH, INC)

HEALTH ISSUES

■ Although wood smoke conjures up fond memories of sitting by a cozy fire, it is important to know that the components of wood smoke and cigarette smoke are quite similar, and that many components of both are carcinogenic. Wood smoke contains fine particulate matter, carbon monoxide, formaldehyde, sulfur dioxide and various irritant gases such as nitrogen oxides that can scar the lungs. Wood smoke also contains chemicals known or suspected to be carcinogens, such as polycyclic aromatic hydrocarbons (PAHs) and dioxin.[1]

■ Wood smoke interferes with normal lung development in infants and children. It also increases children's risk of lower respiratory infections such as bronchitis and pneumonia.[2]

■ Wood smoke exposure can depress the immune system and damage the layer of cells in the lungs that protect and cleanse the airways.[3]

■ According to the Environmental Protection Agency (EPA), toxic air pollutants are components of wood smoke. Wood smoke can cause coughs, headaches, eye, and throat irritation in otherwise healthy people.[4]

■ For vulnerable populations, such as people with asthma, chronic respiratory disease and those with cardiovascular disease, wood smoke is particularly harmful — even short exposures can prove dangerous. [5]

■ The particles of wood smoke are extremely small and therefore are not filtered out by the nose or the upper respiratory system. Instead, these small particles end up deep in the lungs where they remain for months, causing structural damage and chemical changes. Wood smoke's carcinogenic chemicals adhere to these tiny particles, which enter deep into the lungs. [6]

■ Recent studies show that fine particles that go deep into the lungs increase the risk of heart attacks and strokes. EPA warns that for people with heart disease, short- term exposures have been linked to heart attacks and arrhythmias. If you have heart disease, these tiny particles may cause you to experience chest pain, palpitations, shortness of breath, and fatigue. [7]

EXPOSURE ISSUES

■ The particulate matter in wood smoke is so small that windows and doors cannot keep it out— even the newer energy-efficient weather-tight homes cannot keep out wood smoke. [8]

■ The EPA estimates that a single fireplace operating for an hour and burning 10 pounds of wood will generate 4,300 times more PAHs than 30 cigarettes. PAHs are

carcinogenic. [9]

■ A study by the University of Washington in Seattle showed that 50 to 70 percent of the outdoor levels of wood smoke were entering homes that were not burning wood. EPA did a similar study in Boise, Idaho, with similar results. [10]

WHAT OTHERS ARE DOING

■ Iowa's Supreme Court in 1998 declared that government bodies do not have the right to allow burning that results in smoke crossing property lines. [11]

■ The State of Washington has laws to address neighbors' wood smoke. According to the Puget Sound Clean Air Agency, "generating excessive smoke is not only unneighborly, it's illegal. Under state regulations, smoke from a person's chimney cannot exceed 20 percent opacity for six consecutive minutes. Greater smoke densities could result in fines from air pollution control officials. It is always illegal to smoke out your neighbor. Everyone has a right to breathe clean air. If smoke from your fire is affecting your neighbors, it is considered a nuisance and subject to enforcement action." [12]

■ Many states have restricted the use of wood burning in fireplaces and wood-burning stoves on certain high pollution days. Colorado, Utah, Albuquerque, New Mexico and many towns in California have set up pollution numbers to call to find out if you can burn wood. [13]

[1] Minnesota Pollution Control Agency

http://www.pca.state.mn.us/air/woodsmoke/healtheffects.html

[2] Washington State Department of Ecology; Air Quality Program

http://www.nwcleanair.org/pdf/aqPrograms/woodHeating/woodSmokeandYourHealth.pdf

[3] American Lung Association – Air Quality

http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=23354

[4] The Lung Association, Nova Scotia

http://www.ns.lung.ca/news/05-06-03.html

[5] The Environmental Protection Agency (EPA) on the health effects of wood smoke.

http://www.epa.gov/woodstoves/healtheffects.html

[6] New Hampshire Department of Environmental Services – Air Resources

http://www.des.state.nh.us/ard/smoke.htm

[7] Environmental Health Perspectives. Vol. 113, No. 4, April 2005.

Weinhold, Bob. "The Heart of Toxicity: Details of Cardiovascular Damage Uncovered."

http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1278521

[8] Wood Smoke Brochure. Vol. 113, No. 4, April 2005.

http://www.burningissues.org

[9] Sacramento Metropolitan Air Quality Management District –Agenda, page 5.

http://airquality.org/bod/2005/MarParticulateMatterSB656Briefing.pdf

[10] New Hampshire Department of Environmental Services – Air Resources

http://www.des.state.nh.us/ard/smoke.htm

[11] Burning Issues – Wood Smoke Fact Sheet, March 1999

http://burningissues.org/simple-facts.htm

[12] Washington State Department of Ecology – Air Division – Under Washington Code 173-433-110

http://www.ecy.wa.gov/pubs/wac173433.pdf

[13] Colorado Department of Public Health and Environment

http://www.cdphe.state.co.us/ap/woodhome.html

Utah Department of Environmental Quality

http://www.deq.utah.gov/references/FactSheets/Red-Green_light_program.htm

New Mexico - http://www.cabq.gov/airquality/noburn.html

California - http://airnow.gov/index.cfm?action=static.inversions