



21<sup>st</sup> March 2021

Parliament of Victoria  
Legislative Council, Environment and Planning Committee  
Parliament House, Spring Street  
EAST MELBOURNE VIC 3002

**Re: Inquiry Into Health Impacts of Air Pollution in Victoria**

Dear Sir/Madam,

I am interested in our urban air quality and have been all my professional life. Initially as a young academic physical geographer and teacher of environmental science in the 1970s then as television weather presenter for more than three decades. I received EPA Victoria's second Clear Air Award from the Hon. Evan Walker, Minister for Planning and Environment in 1985 for reporting Melbourne's air quality on the nightly news. I was subsequently invited to sit on the EPA's State Environment Protection Policy advisory committee for air quality.

I am now a director of the Melbourne company Attentis Pty Ltd. Attentis® produces advanced environmental sensor network technology. Our sensor networks monitor weather information (wind rainfall, temperature, relative humidity), air quality (PM<sub>1</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, CO, CO<sub>2</sub>, O<sub>3</sub>, CH<sub>4</sub>, NO<sub>3</sub>, SO<sub>2</sub> VOC etc), noise, vibration, they have 360° video recorded and thermal imagery of thermal ignition detection. All these parameters are measured to international standards, in the same unit, in real time *i.e.* every thirty seconds.

This technology is far superior to our inadequate EPA Victorian network. For example, there is an Attentis® network of forty-four sensors that have been operating without disruption in the Latrobe Valley since May 2019. See: Latrobe Valley Information Network. This freely available network, with App accessibility to each station in the network, provides immediate alert by SMS or email when any predetermined threshold level, on any parameter, is reached. In comparison, The EPA Victoria's air quality network for the whole of the state is of less than twenty monitoring stations (NB: an accurate number of operating stations is no longer available at [www.epa.vic.gov.au](http://www.epa.vic.gov.au)). The EPA provides 'forecasts' for the regions of the state using hourly information, not real-time data and it's for 'overall' air quality for all pollutants. The EPA service advises good, fair, poor, very poor, extremely poor conditions. Such a service necessarily raises the question, "what should I do if I find out the overall air quality in my region is poor?" Evacuate or forget about it?

My specific concern is about air pollution 'hotspots' that are not even monitored e.g. Southern Cross Station. I recently took a diesel train from Southern Cross to northwestern Victoria on a quiet Saturday morning. I was glad I had a COVID-19 mask with me as the air quality from diesel fumes, before my train arrived, was clearly very poor.

In 2012 the World Health Organisation recently upgraded the cancer risk from diesel exhaust from 'probably carcinogenic to humans' to 'carcinogenic to humans'. This requires a major shift in policy for government regulatory authorities and standards need to be adjusted accordingly to reflect this change, particularly in the area of exposure to PM<sub>2.5</sub> and Ultrafine Particles (UFPs).

There is overwhelming medical evidence documenting the serious adverse health effects of poor air quality, particularly from diesel emissions. The National Environment Protection Council (NEPC) concluded that exposure below the current air quality standards represents a significant and measurable health risk to the Australian population.

The Natural Resources Defense Council describes diesel pollution as 'deadly'. Thi supplies to truck drivers at all times as well as rail passengers subject to diesel fumes. They recommended in2007 that rail yards should commit to phasing out all locomotives that cannot achieve 90 percent reductions in particulate matter from current standards (U.S. EPA Tier 2)<sup>1</sup>.

More recent studies exploring the health effect of ultra fine particles<sup>2</sup> provide further evidence of the inadequacy of monitoring, reporting and the need for governments to take action to improve human health conditions for Victorians at a range of locations. This question raises questions regarding risk and responsibility. Can governments, in full knowledge of the health impacts of air pollutants and without adequate monitoring and reporting satisfy due diligence requirements?

Although not a major constituent by volume of particulate matter (PM), particles between 0.1  $\mu\text{m}$  and 1  $\mu\text{m}$  in diameter (PM<sub>1</sub>) can remain in the atmosphere for days or weeks and thus be subject to long-range transboundary transport in the air. Few studies anywhere have examined the health effects of PM<sub>1</sub> (particulate matter with aerodynamic diameter <1  $\mu\text{m}$ ), which are a major part of PM<sub>2.5</sub> (particulate matter with aerodynamic diameter <2.5  $\mu\text{m}$ ) and even potentially more harmful than PM<sub>2.5</sub>.<sup>3</sup> The interpretation of this research was that exposure to both ambient PM<sub>1</sub> and PM<sub>2.5</sub> were significantly associated with increased emergency hospital visits. The results suggest that most of the health effects of PM<sub>2.5</sub> come from PM<sub>1</sub>.

Ultrafine particles are privately monitored at Southern Cross Station. It is considered an indoor location. Two air quality studies undertaken have not been released to the public nor are daily air quality measurements. A number of private research programs, particularly those by Dr Gary Ginsberg of a toxicologist at Faculty Yale and the University of Connecticut which indicate serious air quality issues at Southern Cross Station even if the data recoded is 50% incorrect! It has been reported that the number of staff reporting breathing difficulties etc. was just crazy and they were told to 'go outside for 10 mins'<sup>4</sup>.

I would appreciate an opportunity to instal a temporary Attentis® network in Southern Cross station for forty-eight hours. I believe the data collected would provide very valuable information for your Inquiry.

Thank you for the opportunity to make a submission.

Yours sincerely,



Rob. Gell AM FRGS FEIANZ

<sup>1</sup> Driving on Fumes: Truck Drivers Face Elevated Health Risks from Diesel Pollution

<sup>2</sup> The health effects of ultrafine particles. *Experimental & Molecular Medicine* (2020) 52:311–317

<sup>3</sup> Effects of ambient PM<sub>1</sub> air pollution on daily emergency hospital visits in China: an epidemiological study. *The Lancet Planetary Health* Volume 1, Issue 6, September 2017

<sup>4</sup> When it's hazardous to breathe, Alexander Gambotto-Burke, *The Australian* 3 March 2012