

April 2021

Parliamentary inquiry into the health impacts of air pollution

My name is Leanne Norwood and I live in Hazelwood North. I am a 4th generation resident of the Latrobe Valley and have lived all my 50 years within 5 kms of a coal power station. Over these years I have witnessed the pollution put out by the heavy industries in this area and as each one has closed I have seen small improvements to “the Valley’s” air quality. I was hoping this community would finally witness improvements to the pollution levels and health outcomes.

I have witnessed times when black-brown smoke would billow out of Morwell or Hazelwood Powerstations. I have heard that this smoke most likely means that the pollution controls – the electrostatic dust precipitators (EDP’s) have “tripped” out due to an overload or a fault. This black-brown smoke is the pure emissions out of the boiler full of particulate not captured by the EDPs.

A family member did their apprenticeship many years ago through the SECV. One of their jobs whilst an apprentice at one of the power stations was to turn all the EDPs back on in the morning so people couldn’t see the black-brown smoke (that had been pouring out during the night), coming out of the chimneys now it was morning. This took place prior to Loy Yang beginning and providing enough energy for the State was paramount. EDPs take a lot of energy so turning them off was an energy saving exercise.

Growing up in Latrobe Valley we were told we could expect to live an average 5 years less than the rest of Victoria because of the amount of dirty industries and their resulting pollution. The Latrobe Valley has had 90 years of coal powered stations in the region including the old Yallourn Powerstation and briquette, Yallourn W station, Morwell Powerstation and briquette, Loy Yang power station, the Gas turbine power station and Hazelwood Power station. Other heavy industries have been the Lurgi gas and fuel and the Char Plant and the still operating, the APM paper mill.

As a teenager I was certain to leave the “hole” of a Valley – but without the means to study in Melbourne I fell into a job and with friends and family in the area I stayed. Growing up I don’t remember it ever been made public the specifics or quantity of the emissions the Valley’s heavy industries put out or the link to low birth rates, heart and respiratory issues. Several family members suffered from Asthma yet there is no family history of this condition. Again with no prior family history there are heart defects and dementia where prior there was no history.

It is not unusual for people new to the area to experience respiratory issues or people that have been forced to move to a warmer, cleaner climate to improve their health.

“The electricity industry and brown coal mining at the town of Yallourn were the primary industries. Former power workers are contracting mesothelioma at a rate seven times the national average”. It is anticipated that in Australia the number of cases of mesothelioma will continue to rise significantly over the next 15 years with power station workers having a risk second only to asbestos mill workers.

A very public death: dying of mesothelioma and asbestos-related lung cancer (M/ARLC) in the Latrobe Valley, Victoria, Australia <https://www.rrh.org.au/journal/article/1183>

On 9 February 2014 fires took hold in the Hazelwood mine as a result of embers spotting from bushfires. The mine fire burned for 45 days, sending smoke and ash over Morwell and surrounding areas for much of that time. Studies show there were more deaths at this time and lower birth rates due to the fire. There was also a review of the Valley's health prior to mine fire. HEALTH OF THE LATROBE VALLEY – Hazelwood Mine Fire inquiry <http://report.hazelwoodinquiry.vic.gov.au/part-four-health-wellbeing/health-wellbeing-background/health-latrobe-valley.html>

The Hazelwood Mine fire enquiry found the Latrobe Valley community some of the most disadvantaged in the State.

The Latrobe Valley community has the highest crime rate second only to the CBD of Melbourne, high rates of domestic violence and sexual assault, low education and poor health outcomes.

The Australian Conservation foundation research report "The dirty truth" states: *air pollution in Australia is both a class and a climate issue. 90% of the burden of air pollution falls upon low to middle income households, yet only 0.1% of air pollution falls on the highest income households. . In these communities, and others, the toxic toll of pollution falls upon those with the least resources to do something about it.*

I have very little confidence in the EPA. The EPA have only recently put a licence limit on lead and mercury despite knowing the PowerStation's have emitted these heavy metals for years.

We have heard the different strategies ULAB plants do to avoid poor emission results. Often it is the public that notice a problem and report it to the EPA. How much goes undetected? I would like to see all the Latrobe Valley's power stations eventually phased out and replaced with clean industry and manufacturing.

I have heard from a company that the EPA would warn the company before they were to pay a visit to check on their operations.

For 2 years I have been fought to prevent a Used Lead Acid Battery recycling plant (ULAB) from building and operating at Fourth Road Hazelwood North. The ULAB would operate 2 km from the edge of Morwell, less than 1.5 km upwind from a school, playgroup and community hall and tennis courts and adjacent to many sensitive receptors and major roads.

The EPA's outdated standards for lead in water, air, and soil have allowed this ULAB to be approved. The EPA standards for allowable lead in the air and soil are behind those of other countries such as the US, EU and Canada.

The EPA have no specific buffer zone for a ULAB so it has been thrown into the non-ferrous group of metals buffer zone of 500m. Interestingly the EPA have a 2km buffer zone for aluminum smelters that are less toxic than a lead smelter?

The EPA seem to lack resources and technical knowledge and have to outsource all necessary studies. Another process followed by the EPA is to ask the company to pay a contractor to provide a study. The problem with this process is the contractor being paid by

the company can cherry pick and manipulate data so that the study shows the outcome the company desire.

Australia's various EPA's are responsible for lead smelters in Port Pirie, Broken Hill, Mt Isa are not stopping the local children from being poisoned from lead so this doesn't instill confidence in the Vic EPA protecting us. I was amazed that there are Govt's and their relevant EPA's knowingly poisoning children in Australia today, now. And yet still these ULABs are allowed to operate. The effects of lead poisoning are permanent and little is excreted but stored in our bones and teeth which can be called on by the body when calcium (or lead in this case) is needed during pregnancy, menopause etc. The IQ points lost to those children is irreversible.

I know health professionals who have said they wouldn't live in the Valley due to the region's pollution. And why would they expose themselves and/or young families to an area with its current pollution levels and it seems there will be no happy ending for the Valley with news that the area will soon have a pilot Magnesium smelter, Energy from Waste plant and a Used Lead Acid Battery Recycling plant, (ULAB).

In the lead up to the approval of the Chunxing Corporation Secondary Lead Smelter I made a number of objections to the project via the EPA, Council, letters to Ministers, petition). I feel like my voice has gone unanswered or considered.

The ULAB will employ between 50-60 full time jobs. Despite the workers washing and changing their clothes, upon finishing work, their cars are sitting in the carpark and will get lead dust into the vents etc. The workers will be walking the lead dust from the carpark, on the soles of their shoes and into their family cars to be carried home to their children and spouses.

State Planning Minister Wynne allowed this ULAB to be approved without the company having to do an EES, he then stopped due process and our democratic process by stopping the VCAT process and fast tracking the proposal. It made the Latrobe city council null and void. The Council voted against the proposal and yet he gave no respect to this decision. The reasons for fast tracking the proposal are a farce and make no sense.

The main concerns should a ULAB operate is for Human Health impacts

General Health Effects of Lead on Pregnant Women and Children:

Young children absorb 4-5 times as much lead as adults (apart from pregnant women). Infants, young children (especially those less than 5 years of age) and pregnant women are most susceptible to the adverse effects of lead. The potential for adverse effects of lead exposure is greater for children than for adults, because in children:

- 1) The intake of lead per unit body weight is higher;
- 2) More dust may be ingested;
- 3) Lead absorption in the gastrointestinal tract is higher;
- 4) The blood-brain barrier is not yet fully developed;
- 5) Their neurological system is still developing and is vulnerable to the toxic effects of lead; and
- 6) Children have more years of life ahead of them and thus a longer time to develop the delayed effects of early lead exposure.



Vulnerable groups in our community to Lead poisoning

- Infants & children (first and worst victims of lead pollution)
- Pregnant women and unborn children
- Pre-existing respiratory and/or cardiovascular medical conditions
- Lead Worker's exposed on the job and their families
- Aboriginal and/or Torres Strait Island people, 2018 Lead Toxicity an Australian perspective,

The most critical effect of lead in young children is that on the developing nervous system. Subtle effects on intelligence quotient (IQ) can be associated with blood lead concentrations below 5 µg/dL (50 µg/L), and the effects gradually increase with increasing levels of lead in blood. Recent reviews of the latest scientific evidence indicating effects at lower levels did not provide any indication of a threshold for the key adverse effects of lead.

The Health innovation zone needs to be built into the planning scheme so it has to be considered when toxic industries are applying to build in the area. I don't think it has been a success because the area is getting a magnesium smelter pilot plant, an energy from waste facility and now a ULAB so by approving these toxic industries how does that fit in with a Health Innovation zone – it's a bad joke. The Govt only cares enough about the community (and environmental) health until there is the opportunity to bring in a couple of toxic jobs and money into the State and then health is forgotten. Investment, jobs are the priority and health is way down the list. I feel this community is seen as expendible.

The median PM size distribution for Pb from smelters is 1.5µm and 85% of PM is under 10µm. Description of PM 2.5:

Fine particulate matter or fine particles (PM2.5) are solid particles smaller than 2.5µm. PM2.5 is a dangerous air pollutant which - due to its small size - can pass deep into lungs, hearts and veins, infiltrating every part of the human body. Chronic exposure to PM2.5 increases the risk of cardiovascular and respiratory diseases, as well as of lung cancer. There is no level of fine particle pollution that is known to be safe.

Recent exposure to lead particles is measured by the presence of the concentration of lead in blood. This reflects a person's exposure to lead (within the last 2 months) and long term exposure is measured through lead exchange and storage into human bones and teeth.

In Australia, the National Health and Medical Research Council revised lead exposure levels in 2015.* Australia set an elevated exposure investigation lead blood level as 5ug/dL ,where lead sources should be investigated then prevented or reduced.

* National Health and Medical Research Council Statement: Evidence on the effects of Lead on Human Health May 2015

Comparisons/benchmark to other countries /health agency lead guidelines are as follows

- USA (reference based on 97.5 percentile of the population National Health and Nutrition Examination Survey PbBL geometric mean 2015/16) - <1ug/dL
- USA Centre of Disease Control and Prevention (2019) no safe level
- World Health Organisation (2019) no safe level
- US Agency for Toxic Substances and Disease Registry – no safe level of lead for children has been identified
- American Academy of Paediatrics representing around 64,000 primary care paediatric and, surgical specialists dedicated to infants, children and adolescents, paediatric sub specialists in the USA (Prevention of Childhood lead toxicity 2016) - no safe level

Ref: Wright JP 2008 association of Prenatal and Childhood Blood Lead

Concentrations with criminal arrests in early adulthood Plos Medicine. Aussie Study: Lead exposure link to violent crime

Australian children who are exposed to higher lead levels are more likely to commit violent crimes later in life, Macquarie University research has found.

The research backs up previous findings that lead exposure increases impulsiveness and crimes of aggression.

Lead author, Professor Mark Taylor, and his team took air samples from six New South Wales suburbs and looked at criminal statistics in the same areas over a period of 30 years.

They found that, after taking into account relevant socio-demographic variables, concentrations of lead in the air accounted for 29.8 per cent of the variance in assault rates 21 years after childhood exposure.

Importantly, the findings were consistent between states – in Victoria, more than 32 per cent of the variance in rates of death by assault 18 years following lead exposure, and in New South Wales the figure was 34 per cent.

<https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1440-1754.2010.01777.x>

The economic benefit associated with IQ-related increases in income following the reduction of leaded gasoline, has been estimated at \$110–\$319 billion (US) for a single cohort. Thus, as well as the individual health impacts of lead, the broader socio-economic costs of lead further support the importance of primary prevention as the most effective strategy to prevent lead-related neurocognitive dysfunction

The neurotoxic effect of lead has been long established in the scientific literature and children are particularly at risk if exposed. In addition with other biologic and sociodemographic factors, exposure to lead has been linked to decreased IQ and academic achievement, as well as to a range of socio-behavioural problems such as attention deficit hyperactivity disorder, learning difficulties, oppositional/conduct disorders and delinquency.²,

Allowing a lead smelter to be built and operate in Latrobe Valley and risking further harm to the community's health, education and crime outcomes completely contradicts what

government agencies have been trying to achieve for the Latrobe Valley. To date the State Government has spent \$85 million on initiatives, I feel this investment would be undermined should this proposal be approved.

I feel like Latrobe Valley is viewed as a soft target because it is assumed we are accustomed to pollution, complacent, lack leadership and advocates and are so desperate for jobs we would accept jobs at any cost, including at the cost of our health. The Hazelwood North Action group has to date 5,000 signatures of residents that do not want this proposal.

So much for the just transition promised to the Valley after the disastrous Hazelwood mine fire. A CSIRO report proves Australia recycles 98% of its ULABs so why would the State Govt. knowingly encourage and approve a known toxic ULAB plant into a region that is already polluted and the community vulnerable?

Dangers of the ULAB industry:

- Lead smelters and lead industries have a very poor record in Australia. Many have left a significant adverse public health and environmental legacy to local communities
- Examples include Pasminco Cockle creek, NSW that contaminated 2600 residential properties and damaged public health. Documented community exposure includes Port Pirie, Mount Isa, Broken Hill, Goulburn and Esperance.
- In Victoria, the Forrest St, Ardeer Lead Smelter (ex ULAB) contaminated residential properties any industry development will deliver beneficial environmental, social and economic outcomes. This includes public safety, livability, tourism and compatible adjoining land use.

Emissions, toxic pollutants include

- lead,
 - sulfuric acid mist,
 - chromium, (inorganic)
 - arsenic, (inorganic)
 - cadmium,
 - dioxins and furans as vapors,
 - gases, mists and particulate solids/dusts.
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- Safe work Australia recommends health monitoring for employees who may be exposed to the following: Arsenic (inorganic),
 - Asbestos (found in every soil sample at the existing Fourth Rd site)
 - Cadmium,
 - Chromium (inorganic) and
 - Lead
-
- WHO has identified the top 10 chemicals of major public health concern in the world. This proposal as it stands has 6 from the list – Air pollution, Arsenic, Asbestos (present at the 4th road site), Cadmium, Dioxins and Lead.

https://www.google.com/search?q=who%E2%80%99s+10+chemicals+of+major+public+health+concern&rlz=1C1NOOH_enAU506AU506&oq=who+10&ags=chrome.1.69i57j35i39j0l5j69i60.5426j0j7&sourceid=chrome&ie=UTF-8

Baghouse Particulate removal - This is of the utmost importance to this smelter's emissions, once again the total effectiveness of this baghouse relies purely on very high-quality maintenance standards, of which I have concerns that profits are likely to come first over safety.

What are the major risks of operating a secondary lead refinery?

- This is a hazardous materials processing facility
- Lead (Pb) is a very well-known toxic heavy metal
- There is no known level of lead exposure that is considered safe.
- Materials contained in LAB have the potential to cause accidents such as fires, explosions, poisoning and leaks contaminating the environment (from Study of environment risk assessment of Lead Acid Batteries published in 2016).
- Macquarie University as part of expert reference group indicated slag waste represented a significant risk when transported to landfill.
- Internationally, NFPA has reviewed explosions in plants including explosion in Lead smelting plant in Vernon, CA on 2/11/2002.
 - One small explosion and a 2nd larger explosion spewing hot lead slag and dust – serious injuries and offsite impacts
- Plant risks are explosions/fire from fuels under pressure (gas) and molten metal and water. At high temperatures lead volatilizes and burns. Toxic gas emissions including SO₂. All have potential offsite impacts. Management of risks?
- What fire risk assessments exist to build community confidence? How will the surrounding community be informed if there is a fire, explosion or emergency at the plant, via mobile phone app? Nothing has been mentioned?
- This is a highly hostile work environment requiring fully enclosed PPE and blood monitoring for employees
- Internationally, the US NOISH has issued specific advice in 2016 for ULAB Plants in recognition of high rates of injuries, illnesses and fatalities.

Causes of death – lead smelter workers

- A recent long term study (2016) of 1,990 lead smelter workers over 25yrs shows increasing incremental exposures of lead where associated with higher rates of mortality risk from:
 - Cardiovascular disease
 - Cerebrovascular disease (even at relatively low levels of Pb)
 - Chronic kidney disease
 - Additionally transportation accidents, pneumoconiosis and respiratory diseases positively associated with increasing lead exposure.

Potentially high exposure risks

- Victorian Department of Health advises the most common source of lead exposure is workplaces involving the use of lead compounds.
- Families of Lead Workers: NHMRC advises it is critical for employees to avoid bringing lead from work on cars (in or out), clothes, and bags or on personal items such as mobile phones and exposing family or friends. Kids in these households have a 2 x Blood lead levels.
- Despite hygiene activities, Lead particle transfer can be inconspicuous.
- The proposed site provides a buffer distance of 2km's to the nearest residential area. The recently approved (February 2019) Wagga Wagga plant expansion in

NSW was based on a 5km buffer distance to the nearest residential area – setting the standard for “best practice”.

Issues I have found with a proposal to build a Used Lead Acid Battery Recycling Plant in Hazelwood North, Latrobe Valley and suggestions:

Fourth Road Hazelwood North, the site of Chunxing’s ULAB was once the site of the Lurgi Gas and Fuel plant and despite remediation – still has areas that cannot be built over due to the hydro-carbons that have to be allowed to be released to the air.

Control, management and consequences of an emergency, fire, plant malfunction, power outage, explosion needs to be all explained in detail, risk assessments and all OH&S considerations for the plant staff, nearby industries and community. How will the nearby community, including the school be notified if there is an emergency – mobile phone app?

The proponent claims that if there is an emergency or a power outage it will take 15 mins for the plant to stop completely. This means there will be 15 minutes of uncontrolled emissions from the plant to the atmosphere. It is my understanding there are no backup generators to stop this from happening.

The ULAB emissions data is simply modelled from the Chunxing’s sister plant in China. The EPA have failed to verify this data. I would think this necessary?

Chunxing in China take blood lead levels from their employees and from 1 household in each direction from the plant, North South, East and West – a total of 4 houses. Blood lead levels from 4 houses in the community is not an adequate data set. Chunxing do not take blood lead levels of the children in the nearby community. I think this is a necessity.

The blood lead levels of the families of Chunxing’s employees in China are not tested. How do they know their employees aren’t unintentionally taking lead dust home and poisoning their family’s. How do they know their practices to stop lead leaving the plant are working? Chunxing have a duty of care for their workforce and their families. This testing of the workers family’s should be mandated.

Recommendations:

1. The Victorian EPA in conjunction with the Department of Health must update hazardous air pollutant standards including revised standards for ambient air, soil and water to be in line with the best standards in the world. The standards must be protective of human health and those most at risk in the community.
2. The Victorian EPA and Planning Department review current “threshold distances” in the *Planning and Environment Act* to reflect international best practice of appropriate “buffer distances” for industries that emit hazardous air pollutants (such as Lead) and sensitive receptors such as schools, private residences and adjacent industries.
3. Establish pollution technology standards that prioritise human health and the environment over financial imperatives. This must include pollution controls that are accepted internationally as best practice and a review system at regular intervals (ie. every 5-10 years)

4. The Victorian EPA to install ambient air monitors in the Latrobe Valley that measure for heavy metal contaminants including lead, mercury particularly where there are sensitive receptors.
5. The EPA develop and implement a testing program of soil and water for heavy metal contaminants in the Latrobe Valley to determine baseline data for the region and allow accurate assessment of cumulative impacts.
6. Increase the knowledge base and resources of the Victorian Environment Protection Authority to ensure if there are any reports or studies prior to industry approval they can be carried out by either EPA staff or the EPA organize a contractor and send the industry the bill.
7. Legislate the Health Innovation Zone.
9. The Victorian Government must establish a Parliamentary Inquiry into the current Health Innovation Zone policy, air quality and pollution in Latrobe Valley and compatibility for establishing new heavy industry in the region given the pre-existing pollution burden.
10. Embed community liaison and the establishment of a “social license” into all planning decisions and new EPA license applications that have the potential to expose the surrounding community to hazardous air pollutants.
11. Community’s such as Latrobe Valley where there is high pollution levels, and vulnerable and disadvantaged populations must be protected from continuing toxic industries. My hope is that Parliament will look at the proposed ULAB for Latrobe Valley and please stop this from progressing.

Thanks for this opportunity.

Studies include:

The Dirty Truth – Australia’s most polluted postcodes

Australian Conservation Victoria

<https://www.documentcloud.org/documents/5115779-ACF-Pollution-Report.html>

Lethal Power

How Burning Coal is Killing People in Australia

Dr. Aidan Farrow, Andreas Anhäuser and Lauri Myllyvirta

<https://www.greenpeace.org.au/wp/wp-content/uploads/2020/08/GPAP-Lethal-Power-full-report.pdf>