NO MORE INCINERATORS INC

28 November 2022

Ms Sally Munk
NSW Department of Planning and Environment
Major Projects
Locked Bag 5022
Parramatta NSW 2124

Dear Ms Munk

RE: OBJECTION – SSD21184278 – PROPOSED VEOLIA WOODLAWN ADVANCED ENERGY RECOVERY CENTRE (ARC)

No More Incinerators Inc **objects** to Veolia's proposal to burn waste at their Woodlawn site.

A simple change in NSW Government policy from promoting the incineration of waste to mandating the creation of a Circular Economy is all that's required to remove the need to burn any "non-recyclable" material.

The unacceptable risks to local communities, residents, and the environment created by Veolia's proposal are detailed below. In contrast, the tremendous benefits that a Circular Economy can bring to local communities and the environment, are also outlined.

Put simply, the incineration of waste represents the greatest single threat to the creation of a sustainable, Circular Economy in NSW. It would be a retrograde step where air pollution in the Goulburn Mulwaree and Greater Sydney area will inevitably become much worse, causing adverse human health and environmental impacts that successive NSW governments have worked so hard, for so many years, to reverse.

To avoid the detrimental impacts of Veolia's proposed waste incinerator on the health of the residents of Goulburn Mulwaree and Greater Sydney and to the surrounding environment, Veolia's waste incinerator must be rejected and their proposal refused.

1. Veolia's proposal

Veolia is proposing to build a waste to energy incinerator at the former Woodlawn mine site near Tarago in the Goulburn Mulwaree LGA, which will burn a mix of dry municipal and construction and industrial waste sourced from local councils and the Greater Sydney metropolitan area to produce electricity.

2. Unacceptable long-term health impacts to local communities and degradation of the environment

The NSW Energy from Waste Policy Statement allows for up to 20 mg/m^3/hr total particulates to be discharged to the atmosphere. Based on an average stack flowrate of approximately 125,000 Nm^3/hr listed for one of Veolia's reference plants, (Staffordshire ERF), up to 2.5 kg of fine and ultrafine particulates and nanoparticles could legally be discharged into the atmosphere every hour, 24 hours/day, 365 days/year.

What is particularly concerning is that once airborne, these ultrafine particulates and nanoparticles can be inhaled and enter the bloodstream creating a permanent, chronic exposure pathway to a range of toxic heavy metals and persistent organic pollutants. According to a 2021 UK All-Party Parliamentary Group study[1:]

> "Of critical importance is that it is the number of particulates, as opposed to their combined mass, that is the key determinant for human ill health. The smallest particulates act like a gas and penetrate seamlessly into the blood stream and organs."

These particulates will travel vast distances with the prevailing winds and permanently and irreversibly contaminate the land and water catchments.

This will be disastrous for the health, environment and economy of the Goulburn Mulwaree area as these particulates will carry toxic heavy metals and persistent organic pollutants adsorbed onto their surface into the atmosphere. Goulburn-Mulwaree is a long-established agricultural region producing food and wine for Australian and overseas markets, with large numbers of residents living on, and deriving their income from, the land.

In Europe similar waste incinerators using the latest filtration technology have been in operation for a relatively short time, but studies have already shown that chronic, 24/7 exposure to low level heavy metals, acidic gases and persistent organic pollutants (POPs) through the ingestion and inhalation of ultrafine particles, cause permanent, adverse health outcomes such as cancers, reproductive dysfunction and congenital birth defects[2][3][4].

Spot checks carried out 2 or 3 times per year during steady state operation to meet licence requirements do not show the actual pollutant concentrations discharged across a typical year. Only when continuous, 24/7 sampling is carried out using an AMESA[5] type (Adsorption MEthod for SAmpling of dioxins) or other, similar continuous samplers[6] are the real pollutant levels revealed to be much higher than those suggested by spot sampling.

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[1] Pollution from Waste Incineration: A Synopsis of Expert Presentations on Health and Air Quality Impacts

[2] HT Incineration-Hidden POPs Emissions-Arkenbout, Petrlik, 2019

[3] Risk of congenital anomalies near the Byker waste combustion plant

[4] IPEN, Toxic Ash Poisons Our Food Chain, 2017, Section 9, Case Studies, Newcastle, UK (Byker Waste Incinerator)

[5] Envea Dioxins & Furans Permanent Sampler - Amesa-D

[6] Gasmet Automatic Dioxin Sampling System – GT90 Dioxin+

This level of pollution causes chronic exposure causes permanent, adverse health outcomes for local communities and permanent contamination of the environment that can never be reversed.

PVC is present and ubiquitous throughout the entire waste stream. It is impossible to separate PVC from other plastics such as HDPE and PE which are present in addition to a variety of other halogenated materials that are used, for example, wherever fire-retardant materials are required.

For example, polybrominated diphenyl ethers or PBDEs are added to a wide variety of products such as building materials, electronic equipment, furnishings, vehicles, planes, plastics, polyurethane foams and textiles to reduce their flammability[7].

Halogenated plastics "contaminating" the feedstock is particularly problematic where so called "non-recyclable" waste is shredded to improve packing density for transport. Once shredded, halogenated materials are very difficult to detect or remove from other materials without expensive spectroscopic measurements on individual particles.

By contrast, the proposed analysis methodology is a simple visual inspection at Waste Transfer Terminals and at the proposed ARC complex to control the type of waste feedstock. It is scientifically impossible for a visual inspection to detect the amount of chlorinated and halogenated material entering the waste stream. Such a proposal will NOT protect the long-term health of local communities or prevent the permanent contamination of the rich agricultural lands in the area.

3. Incinerator bottom ash (IBA) is NOT harmless or non-hazardous

The incineration process can create highly toxic incinerator bottom ash (IBA) as well as well fly ash or Air Pollution Control residues (APCr) because it is impossible to remove significant quantities of halogenated materials from the feedstock. Once halogenated material is introduced into the feedstock, the IBA has been shown to catalyse the creation of POPs such as dioxins and furans during the incineration process[8].

Dioxins or polychlorinated dibenzodioxins, (PCDDs) are considered to be so toxic that in 2012 the USEPA announced that the safe limit for human consumption is 0.7 picograms Toxic Equivalence (TEQ) per kilogram of bodyweight per day. This is a tiny quantity – one picogram is 10^{-12} grams, or less than 1 millionth of the weight of a single grain of sand.

[7] Wikipedia - polybrominated diphenyl ethers as flame retardants

[8] Environment Australia (1999), Incineration and Dioxins: Review of Formation Processes

Numerous studies have been carried out on dioxins and other POPs entering the environment. For example, dioxins in incinerator ash used to make paving in residential areas in the UK have been found in free-range poultry[9] and in mothers and their breastfed infants living near a 10-year-old municipal waste incinerator in China[10].

Dioxins are only one of a range of highly toxic compounds that can be emitted by waste incinerators. Many of these compounds can bioaccumulate in the marine and land environment. That is, they become more concentrated as they are passed from one species to the next up the food chain. They contaminate the air we breathe and the food we eat, and damage reproductive, neurological and immune systems, interfere with hormones and cause cancer[11].

Experience has shown that even with the most sophisticated scrubber and pollution control equipment installed, it is notoriously difficult to maintain the optimum furnace conditions to minimise the production of highly toxic pollutants such as dioxins. This is because the conditions required to form dioxins (and other pollutants) remain poorly understood. Dioxins may be formed at either low or high temperatures, and formation reactions often do not go to completion[12].

Importantly, uncontrolled emissions of dioxins and other persistent organic pollutants can occur during bypass events such as start-up, shut-down and maintenance events. These transient events are not usually measured or reported to regulators, yet they are amongst the most significant pollution-releasing events, damaging the surrounding community through the contamination of the environment and food chain, e.g. chicken eggs[13].

To prevent these emissions the stated operating temperature of 850°C would need to be increased to over 1100°C to prevent dioxins and other POPs from forming in the furnace, requiring significantly more energy and much more expensive process control equipment and special high temperature grades of steel to be able to withstand the higher operating temperatures and more corrosive environment.

An alternative approach would be for each batch of IBA generated during incineration to be tested before it leaves the site using the US EPA's Toxicity Characteristic Leaching Procedure, (TCLP test)[14] to ensure that toxic POPs are not present as these remain leachable even after the IBA has been aged.

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[9] Petrlik J, et al. (2018); High levels of PCDD/Fs around sites with waste containing POPs demonstrates the need to review current standards, Abstracts Book of the Dioxin 2018: 38th International Symposium on Halogenated Persistent Organic Pollutants & 10th International PCB Workshop, 26-31 August 2018, Krakow, Poland

[10] Peiwei Xu, et al. (2019) High intake of persistent organic pollutants generated by a municipal waste incinerator by breastfed infants, Environmental Pollution 250 (2019), 662–668

[11] Dr. Linda Birnbaum (2004), USEPA: Dioxin – What citizens, workers and policy makers should know!

[12] Environment Australia (1999), Incineration and Dioxins: Review of Formation Processes

[13] Arkenbout, Abel, Petrlik, Jindrich, 2019/08/26, Hidden emissions of UPOPs: Case study of a waste incinerator in the Netherlands

[14] US EPA TCLP testing procedure

The TCLP test is the NSW EPA's preferred methodology for the classification of waste. It is probable that most, if not all, of this material would not pass TCLP testing and would need to be disposed of as Hazardous Waste. Previously, attempts to immobilise POPs in IBA have failed even when mixed with concrete.[15]

4. This proposal will not reduce greenhouse gas emissions

The greenhouse gas (GHGs) emissions generated by Veolia's proposed waste incinerator should be assessed separately from the bioreactor currently operating on the site. It is very misleading to suggest that the GHGs generated by Veolia's proposed incinerator can be offset by collecting and burning the GHGs generated by the bioreactor or by unregulated landfills.

Every tonne of mixed waste burnt produces approximately 1.5 tonnes of GHGs[16]. Waste incineration produces large amounts of carbon dioxide and nitrous oxides which are potent greenhouse gases that contribute significantly to global warming. Waste incinerator operators elsewhere have sought ever-increasing quantities of waste to burn, causing greenhouse gas emissions to steadily increase. There is no pathway for greenhouse gas reductions by constructing and operating incinerators, and there can be no savings of greenhouse gases emissions as claimed in the proposal.

Veolia proposes to burn 380,000 tonnes/year of waste. This will generate 570,000 tonnes of GHGs/year. This is equivalent to the annual GHG emissions from 190,000 light vehicles.[17]

5. The collapse of the recycling industry

Experience in Europe has shown that high-temperature incineration has undermined the recycling industry, causing it to collapse. This is because facility operators insist on contracts that force governments to supply minimum quantities of waste or face contractual penalties. In effect, the use of high-temperature incineration discourages the collection and reuse of recyclable materials resulting in the recycling industry becoming unsustainable.

Municipal and state governments are also vulnerable to lengthy waste incineration contracts (30 years) and lock-in fuel feedstocks. This diverts waste resources away from higher order waste management outcomes like reuse and recycling. The financial risk for municipalities is significant as they are required to meet their contracts whether they have the waste supply volumes, or not.

[15] IPEN, Toxic Ash Poisons Our Food Chain, 2017, Section 9, Case Studies, Newcastle, UK (Byker Waste Incinerator)

[16] UK Environmental Agency (2020) Pollution Inventory Reporting – incineration activities guidance note, Ref: LIT 7757, Sect 1.1, Page 5, List 1

[17] Aust Govt, Dept of Industry, Science, Energy and Resources, Fuel-efficient conventional vehicles

The ongoing environmental and health issues associated with waste incineration has led to waste management through recovery and recycling being preferred as a more ecologically sustainable and cost-effective waste management solution. The European Commission has:

- Legislated to discourage and decommission waste incineration in the EU[18]
- Removed all renewable energy and industry subsidies that the industry relies upon to be viable[19] and
- Announced that the EU taxonomy will not include waste incineration[20] in recognition of the significant environmental impacts HT incineration causes and threat it poses to the creation of a robust circular economy[21].

6. A viable, alternative solution – a robust circular economy

There is a viable, sustainable alternative which provides a win-win solution for the environment, jobs, the health of Goulburn Mulwaree residents and NSW as a whole and solves the waste issue.

The NSW government needs to adopt a Zero Waste policy. This will promote a robust recovery and recycling industry creating a circular economy and a range of downstream manufacturing and service industries able to provide thousands of skilled, permanent employment opportunities across all sectors of the NSW economy.

In addition, the NSW Government must actively promote and adopt a Zero Waste City model[22] that includes the expansion of the existing waste resource recovery and recycling industry to recover and recycle a range of resources to form a sustainable, circular economy, which in turn will drive the creation of a solid manufacturing base for NSW.

Various government incentives should be provided to foster a viable, robust recycling industry able to provide thousands of new, permanent job opportunities ranging from entry-level jobs through to technical experts and senior management positions.

By doing this NSW (and Australia) will benefit from:

- Significantly reducing the quantity of waste requiring landfill
- Significantly reducing greenhouse gas emissions
- Protecting the long-term health and environment of not only the Goulburn Mulwaree area, but also Greater Sydney
- Maintaining and enhancing the existing waste recovery and recycling industry and
- Provide skilled, permanent job opportunities for all Australians.

[18] European Commission, 26 January 2017, The role of waste-to-energy in the circular economy, Brussels
[19] 2022 Report on Energy Subsidies in the EU
[20] EU technical expert group on sustainable finance, EU Taxonomy, March 2020
[21] Zero Waste Europe, September 2019, The impact of waste to energy incineration on climate policy
[22] Zaman, Atiq, Lehmann, Steffen, 2011/08/15, Challenges and Opportunities in Transforming a City into a 'Zero Waste City'.

Yours sincerely

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