**Submission No 232**

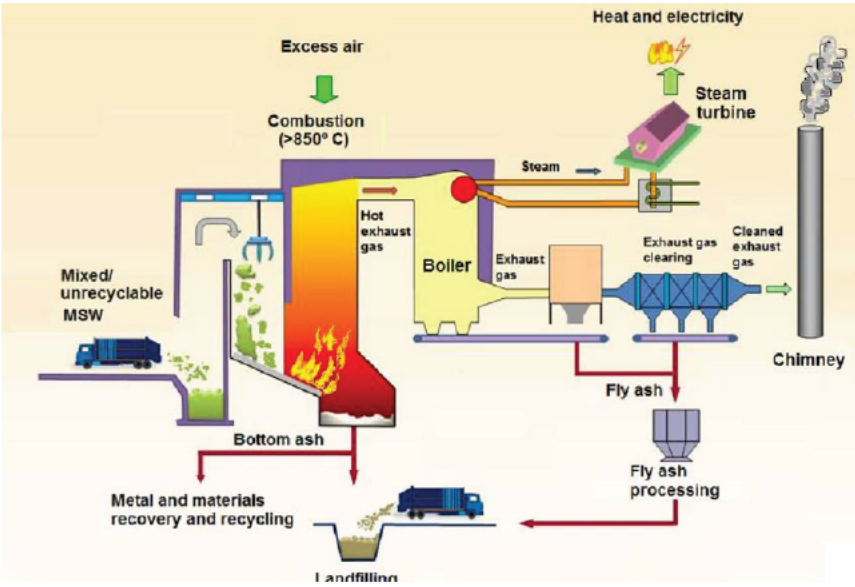
# INQUIRY INTO PROPOSED ENERGY FROM WASTE FACILITIES

**Organisation:** Long Water Agricultural Association

**Date Received:** 30 October 2025

# The Proposed Woodlawn High Temperature Incinerator: Threats to Health & Sustainability

**SUBMISSION TO THE NSW LEGISLATIVE COUNCIL INQUIRY INTO PROPOSED ENERGY FROM WASTE FACILITIES**




Submission By:

**Long Water Agricultural Association Incorporated**

**30 October 2025**

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# FOREWORD ...

**The Long Water Agricultural Association Incorporated is made up of and represents local and regional citizens, residents and landowners who, together with their properties, are subject to potential impacts from the high temperature waste incineration facility proposed by Veolia for development at its Woodlawn site.**

**The Association is very broadly based, and represents 57 agricultural enterprises within a 40 kilometre radius of the proposed development, comprising a total of 63 966 hectares valued at approximately $700 million - between $4500 -$5000 an acre. Our member's farming activities involve:**

**220547 sheep**
**21206 cattle**
**20000 chickens**
**5000 bales of wool**
**7247 hectares of crop**
**143 employees.**

**The Association was formed to represent the interests of our members, their livelihoods, families, communities and employees.**

**All members of the Association strongly object to the high temperature waste incineration proposal.**

**This document presents a submission to the Submission to the NSW Legislative Council Select Committee Inquiry EIS called to examine the proposed development.**

**The submission addresses the Terms of Reference of the Select Committee Inquiry.**

**The Association is very strongly of the view that the project as currently proposed should not proceed.**

**The Association would welcome the opportunity to provide any additional information that be required in support of this submission.**

**Long Water Agricultural Association Incorporated**
**30 October 2025**

# 1 INTRODUCTION

Veolia Environmental Services Australia Pty Ltd (Veolia) proposes to develop and operate the Woodlawn Advanced Energy Recovery Centre (ARC), an energy recovery facility that would produce up to 30 megawatts of electrical energy from approximately 380,000 tonnes of residual waste feedstock each year.

The facility would be integrated with the existing waste management operations owned and operated by Veolia at the Woodlawn Eco Precinct, located approximately 40km south of Goulburn in New South Wales.

The proposed facility is designed to recover energy from residual waste by a process of high temperature incineration.

The proposed facility is a state significant development, is designated as Application Number SSD-21184278 and is subject to the approval of the NSW Department of Planning and Environment, through either the Minister for Planning or the Independent Planning Commission.

An Environmental Impact Statement (EIS) for the proposed development has been prepared for Veolia by EMM Consulting (EMM), as follows:

*Woodlawn Advanced Energy Recovery Centre Environmental Impact Statement (October 2022)*

The Legislative Council of the NSW Parliament has resolved that a select committee be established to inquire into and report on proposed energy from waste facilities, including the proposed Woodlawn ARC.

This document presents a submission to the Inquiry by the Long Water Agricultural Association, which represents local landowners and residents whose properties, lifestyles and livelihoods are subject to potential impacts from the high temperature waste incineration facility proposed by Veolia at its Woodlawn site.

The principal concerns expressed in this submission include:

- ❑ Performance of Technologies
- ❑ Spread & Quality Of Emissions
- ❑ Health Impacts – Old & New Technologies
- ❑ Health Impacts – Local Area
- ❑ Agricultural Impacts
- ❑ Emission Monitoring Methodologies
- ❑ Alternative Solutions
- ❑ Climate Change Implications
- ❑ Energy Recovery Viability

# 2 TERMS OF REFERENCE

The Legislative Council of the NSW Parliament has resolved that a select committee be established to inquire into and report on proposed energy from waste facilities.

The following terms of reference for the inquiry were referred to the committee by the Legislative Council on 6 August 2025:

(a) the performance of the technologies proposed for the Tarago and Parkes Energy Recovery Facilities as compared to leading thermal technologies employed in "state of the art" facilities internationally, noting such technologies as proposed are not employed anywhere else on the Eastern seaboard

(b) the spread of the emissions predicted and the quality of emissions to be generated

(c) health impacts from currently operating older technology waste incinerators as compared to the proposed newer technology

(d) impacts on human health including on regional town drinking water, rainwater harvesting and soil contamination

(e) the impact on agriculture locally and across the wider region

(f) alterations to the Parkes Special Activation Precinct specifically in relation to the proposed Energy Recovery Facility in that region

(g) impacts of waste-dumping over a number of decades in the Tarago region

(h) the methodology of emission monitoring employed by leading large scale waste-to-energy facilities in Australia and across the world

(i) alternative solutions to reduce and manage residual waste produced by Greater Sydney, and

(j) any other related matters.

This document presents a submission to the select committee inquiry by the Long Water Agricultural Association Incorporated, addressing these terms of reference.

# 3 PERFORMANCE OF TECHNOLOGIES

## 3.1 THE PROPOSED TECHNOLOGIES

The project EIS summarises the technology involved in the combustion of waste; energy generation and the treatment and filtration of exhaust emissions as follows:

- "*The Woodlawn ARC will be a single combustion line plant utilising conventional inclined moving grate technology to thermally treat waste and generate electricity*";
- "*A steam boiler will recover the heat from the combustion system. Steam from the boiler will be harnessed by a steam turbine to generate electricity*"; and
- "*A semi-dry Flue Gas Treatment (FGT) system will treat the combustion gases*".
    - "*the control of NOx emissions through selective non-catalytic reduction, as well as the injection of ammonia in the post-combustion chamber*";
    - "*the injection of hydrated lime to neutralise acid gas formation*";
    - "*the injection of activated carbon to adsorb dioxins/furans and other contaminants including heavy metals*"; and
    - "*diversion of all flue gas through a baghouse containing fabric filter bags to remove particulates*".

Item (a) of the Inquiry terms of reference seeks to examine the comparative performance of the proposed technologies as compared to leading thermal technologies employed in "state of the art" facilities internationally.

This section of our submission addresses this question.

## 3.2 PROPOSED WASTE COMBUSTION TECHNOLOGY

It is proposed that *conventional inclined moving grate technology* will be used to thermally treat the waste and generate electricity.

The EIS includes the comment that "*the most proven, and hence best available technique for the treatment of municipal waste derived fuels is the moving grate combustion system*".

A review of industry practice indicates that moving grate combustion systems, while reliable and adequate, rely on effective emission control systems to ensure safe and acceptable environmental impacts and outcomes.

In the absence of sophisticated and high performance emission control systems, it is doubtful that this technology would be acceptable for a waste incinerator in an urban setting.

The suitability, safety and acceptability of such technology in the regional setting involved in the Woodlawn case is examined later in this section of our submission.

## 3.3 PROPOSED EMISSION CONTROL TECHNOLOGY

What is described in the project EIS as a *semi-dry Flue Gas Treatment (FGT) system* is proposed to treat the exhaust emission gasses from the waste combustion process, prior to discharge to the local environment.

Based on the material presented in the EIS, the treatment of gases generated by the waste combustion process will involve the injection of hydrated lime to neutralise acid gases including oxides of nitrogen; and the injection of activated carbon to absorb dioxins, furans, and other contaminates including heavy metals.

The exhaust or flue gases will then be passed through a "bag house" containing fabric filter bags to remove particulate matter, including particulates from the combustion process and the spent lime and spent activated carbon, prior to discharge through an emission stack.

These approaches, while adequate in controlled combustion environments, are neither "state of the art" or leading edge.

Bag filtration has proved adequate for the control of coarse particulate matter, but less so in the case of fine and ultrafine particulates.

## 3.4 OUR CONCERNS

We have a number of serious concerns regarding the adequacy of the proposed combustion and emission control technologies to prevent serious environmental impacts and harm.

Our concerns are summarised below:

- The proposed ARC does not include substantial processes to ensure the management and control of harmful chemical emissions, for example the project EIS refers to:

  - the "injection of lime" to control acid gas generation, but provides no details of how this will work, what emission chemicals will be addressed, and how effectively;

  - the injection of activated carbon to control harmful (and in many cases carcinogenic) organic chemicals such as polyaromatic hydrocarbons and dioxins, but again provides no details of how this will work, what chemicals will be addressed, and how effectively;

  - the use of "bag filters" to manage and control dust emissions, including harmful chemicals that may have been adsorbed onto the surface of any activated carbon particle injected into the exhaust stream – but "bag filtration" does not work at all in the case of the types of fine particulates (PM2.5 and smaller) that are of primary concern.

  - These ultrafine particulate emissions will be discharged at high temperatures, with the potential to be distributed far more widely that is indicated in the EIS modelling.

  - These ultrafine particulate emissions will have adsorbed onto their surfaces the very harmful emission products from the incineration process, and because of their very small size have the capability to by-pass the natural "filters" of both humans and animals, and to deliver adsorbed chemicals including dioxins and furans into the respiratory systems humans and livestock.

- In effect the proposed ARC includes simplistic concepts rather than specific strategies to control and manage the generation and spread of what are known from past experience to be very dangerous chemicals – without identifying the full range of the chemicals involved;

- The proposed ARC does not include adequate provision for the adequate on-going monitoring of the emission chemicals of most concern in relation to harmful impacts on human health and on the integrity of surrounding agricultural processes;

- The technologies proposed provide inadequate assurance that harmful chemicals generated by the waste combustion process will not enter various food chains, thereby adversely impacting the long term health and well being of the wider community;

- As a consequence of these deficiencies, the proposed ARC does not adequately or thoroughly take into account the full extent of the likely impacts of the proposed high temperature combustion process, and on this basis the proposed incineration process cannot be accepted as safe or appropriate.

## 3.5 SUMMARY SUBMISSION

**It is our submission that the combustion process and in particular the waste gas emission control technologies upon which the proposed Woodlawn ARC has been based cannot be demonstrated to ensure that the potentially harmful environmental, health and agricultural impacts of the proposed development will be adequately or safely managed and controlled.**

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# 4 SPREAD & QUALITY OF EMISSIONS

## 4.1 ASSESSMENT OF EMISSIONS IN THE EIS

Gaseous emissions from the waste combustion process were modelled in the EIS prepared for the project.

The EIS describes the approach as follows:

> *This report presents a quantitative modelling assessment of potential air quality impacts for the operation of the project, prepared in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW EPA 2022).*
>
> *In order to provide a reference source of real-world operational emissions for the estimation of emissions from the project, Veolia has obtained air pollution emissions monitoring data from the Veolia United Kingdom & Ireland (Veolia UKI) Energy Recovery facility (ERF) in Staffordshire, located approximately 25 km north-west of Birmingham in the United Kingdom (hereafter referred to as the Staffordshire ERF).*
>
> *Emissions from the Woodlawn Advanced Energy Recovery Centre (ARC) building stack were quantified for three scenarios:*
>
> - *Scenario 1 – reference case emissions – expected emissions (based on Staffordshire ERF emissions monitoring data);*
> - *Scenario 2 – reference case emissions – maximum emissions (based on Staffordshire ERF emissions monitoring data); and*
> - *Scenario 3 – regulatory case scenario, adopting emission standards presented in NSW EPA 2021 document NSW Energy from Waste Policy Statement (hereafter referred to as the NSW EfW Policy).*
>
> *Scenario 1 is considered to be representative of likely emissions and impacts from the normal operations of the project. The calculated emissions from the ARC building stack for Scenario 2 and Scenario 3 are considered to be highly conservative for the following reasons*
> *:*
> *Scenario 2 adopts the maximum (100th percentile) measured concentrations from the Staffordshire ERF and applies emission upscaling factors to account for potential inter-annual variability. Hence this scenario assumes that the ARC would emit at the single highest concentration from the Staffordshire data, for every hour of its operations.*
>
> *Scenario 3 adopts the NSW EfW Policy emission standards as the emission concentration for each pollutant, thereby assuming that the plant is emitting the maximum allowed under the NSW policy during every hour of operation.*
>
> *Both Scenario 2 and 3 adopt maximum projected flow rates for all hours and applies the calculated maximum emission rates for every hour of the modelling period.*

## 4.2 OUR CONCERNS WITH THE ADOPTED MODELLING APPROACH

The potential impacts of exhaust or flue gas emissions from the waste combustion process represent one of the most significant, if not the most significant, environmental impacts from the proposed recovery of energy from residual waste by a process of high temperature incineration.

The modelling of exhaust or flue gas emissions from the waste combustion process is therefore critical to any reasonable and accurate assessment of impacts.

However, the project EIS, as indicated by the extract provided in 4.1 above, is based on optimistic or "minimalist" assumptions regarding the nature and extent of harmful chemical emissions likely to be experienced, and to impact the local area

As a consequence the modelling presented in the EIS does not adequately or properly address peak or "worst case" emission impact scenarios

The nature of the waste mix to be processed by the proposed high temperature incinerator is uncertain.

In these circumstances, we consider that the adoption of a "minimalist" emissions scenario is inappropriate.

## 4.3 SUMMARY SUBMISSION

**It is our submission that the spread and adverse quality of emissions from the proposed Woodlawn ARC will involve significant risk of potential environmental, health and agricultural harm, and that the emissions modelling scenario upon which the proposed development has been based is unduly optimistic; does not adequately provide for adverse process variations including variations in the input waste mix, and as a consequence risks seriously understating likley environmental, health and agricultural impacts.**

# 5 HEALTH IMPACTS – OLD & NEW TECHNOLOGIES

## 5.1 "OLD" TECHNOLOGIES

Similar high temperature incineration processes based on the types of combustion and emission control technologies proposed for the Woodlawn ARC have been rejected in the past.

A high temperature waste disposal incinerator operated at Waterloo in the Sydney metropolitan area by Waverley Council was closed in the 1990's because of serious concerns regarding harmful combustion emissions, including carcinogenic dioxins.

More recently, in 2018, a proposed energy generating high temperature waste incinerator was proposed at Eastern Creek in western Sydney. The proposal was opposed by Blacktown City Council, the NSW EPA and the NSW Department of Health.

Like the current Veolia proposal, the Eastern Creek incinerator was a state significant development, and following assessment was rejected by Planning NSW's Independent Planning Panel.

The Panel cited "uncertainty" over the project's human health risks, and adverse impacts on air and water quality.

The three-member Independent Planning Commission said the project was not in the public interest and refused consent.

In 2021, a proposal for a waste-to-energy high temperature incineration project at Matraville in Sydney was withdrawn following similar concerns to those applicable to the Eastern Creek project.

Again, this project was classified as state significant development.

The rejection of these projects in urban areas on health and environmental grounds raises very serious questions about the efficacy of similar "mature" technologies in a regional setting, where human health risks also apply, and where there are also a very serious risk of adverse impacts on vital food chains and agricultural supply pathways.

## 5.2 KNOWN & UNACCEPTABLE HEALTH IMPACTS

The established and acknowledged risks associated with high temperature waste incineration, which were among the many considerations leading to the closure of the Waterloo incinerator three decades ago, and the more recent rejection of similar proposals at Eastern Creek and Matraville include:

- The ongoing generation of complex chemicals, including polyaromatic hydrocarbons, dioxins, furans and PFAS (refer Appendices B & C) during the combustion process, that can have very harmful impacts on human health and the short, medium and long term integrity and viability of agricultural processes;

- The difficulties that exist, and are known to exist, regarding the management and control of these chemicals in the combustion exhaust emission process;

- The long-term persistence of these chemicals in the environment, and in the agricultural food chain, and the resulting potential harm that can be caused throughout the community; and

- The uncertainty introduced by the variable nature of the wastes that will be processed by the proposed high temperature combustion process, and the uncertainty that this variability introduces to types of chemicals that will be generated by the process, and any strategy for their control and management.

## 5.3 "NEW" TECHNOLOGIES

The project EIS describes the combustion process and emission control technologies proposed for the Woodlawn ARC.

The technologies proposed are well established, and "mature", but are essentially best suited to "low demand" situations.

### 5.3.1 Waste Combustion

Incineration and pyrolysis are two methods used for waste management and energy recovery.

Incineration involves the combustion of waste materials at high temperatures, converting them into ash, gases, and heat.

This process is commonly used for municipal solid waste disposal and can generate electricity or heat.

Pyrolysis is a thermal decomposition process that occurs in the absence of oxygen. It breaks down organic materials into biochar, oil, and gas. Pyrolysis is often used for the treatment of biomass and organic waste, and it offers the advantage of producing valuable by-products like bio-oil that can be used as a renewable energy source.

While incineration is more widely adopted and efficient for large-scale waste management, pyrolysis is gaining attention due to its potential for sustainable energy production and reduced environmental impact.

High temperature incineration is proposed for the Woodlawn ARC.

### 5.3.2 Emission Treatment

Probably the key aspect of the Woodlawn ARC in terms of the minimisation and management of environmental and health impact is the effectiveness of the exhaust or flue gas treatment employed. The emission control processes proposed are as described in Section 3, and involve mature and relatively "low tech" operations.

From a commercial perspective, the relatively low cost of the emission treatment technologies proposed is probably, and understandably, a significant consideration in terms of overall project viability. However, from the viewpoint of achieving genuinely "best practice" emission treatment and outcomes, the following higher tech processes are available:

> **Wet Scrubbing Processes:** Wet scrubbing includes a number of processes undertaken in a "wet" or aqueous environment. This approach has the advantage that it can result in more efficient capture of potentially harmful exhaust emissions including fine particles, and acid gases (oxides of nitrogen; sulphur oxides etc), and by the addition of appropriate treatment agents can also enhance the capture and control of potentially harmful emissions such as furans and dioxins.
>
> **Electrostatic Precipitation:** One of the significant weaknesses of the proposed emission control technology is that it relies totally "bag filtration" to remove particulate matter from the exhaust gases. Bag filtration is an old technique, which is relatively effective in removing larger airborne particles, but substantially less effective in the management and removal of fine and ultrafine airborne particles. Fine and ultrafine airborne particles pose a significantly higher health risk than larger, heavier particles that are far less likley to impact the human respiratory system.

These emission treatment processes have the potential to minimise environmental and health impacts, but are not proposed.

It may well be that the cost of the technologies required to overcome some of the very environmental, health and food chain risks associated with the Woodlawn ARC project would not be economically viable.

## 5.4 OUR CONCERNS WITH THE PROPOSED TECHNOLOGIES

The combustion technology to be used in the proposed Woodlawn ARC will be required to deal with waste streams of significantly varying composition.

One of the most significant environmental controls will be provided by the processes used to remove contaminants from exhaust or flue gases generated by the waste combustion process, before those exhaust gases are released to the local environment.

We are very concerned that the emission control technologies proposed will not prove adequate to remove harmful contaminants from the exhaust stream prior to discharge, and that as a consequence adverse and unreasonable health risk will be imposed on local individuals and communities.

## 5.5 SUMMARY SUBMISSION

**It is our submission that in terms of potential environmental, health and agricultural risks and exposures, the most critical aspect of the proposed Woodlawn ARC will be the likley lack of efficacy of the technologies and processes utilised to remove contaminants from the waste gas stream prior to discharge to atmosphere. We are concerned that the emission control technologies proposed will not prove appropriate to adequately deal with the contaminants of concern, including dioxins, furans, PFAS (the so called "forever chemicals") and fine and ultrafine particulate matter.**

# 6 HEALTH IMPACTS – LOCAL AREA

## 6.1 HIGH TEMPERATURE WASTE COMBUSTION

The proposed Woodlawn ARC involves the high temperature incineration of mixed rubbish and wastes, and the discharge into the environment of the resulting waste gases.

As pointed out elsewhere in this submission, no solid assurance has been established by the material presented in the project EIS that the discharge of waste gases will not adversely impact local air quality.

The contamination of local air with the exhaust contaminants generated by the high temperature incineration of rubbish and waste, which will include highly dangerous PFAS's, dioxins and furans (refer Appendices B & C), will have very significant potential to increase local area health risks.

## 6.2 IMPACTS OF THE EXISTING FACILITY

The existing Veolia Woodlawn waste facility has a poor record environmental compliance record.

In our submission to the EIS for the Woodlawn ARC proposal (*The Proposed Woodlawn High Temperature Incinerator: Threats to Health & Sustainability Submission to the Veolia Woodlawn ARC Project EIS Long Water Agricultural Association Inc; Version 3 ; December 13th, 2022*) we highlighted in Appendix D to that document an extensive list of environmental non-compliances associated with the existing Veolia waste facility at the site.

Environmental non-compliances by their nature equate to elevated local area health risks and exposures.

In its recent "snapshot" study of water quality in the vicinity of the existing Woodlawn facility (Woodlawn Surface Water Quality Report (NSW Environment Protection Authority EPL 11436 & 20476; August 2025) the NSW EPA identified multiple exceedance of water quality criteria in local surface water systems.

Failure to achieve compliance on a regular basis with the current operation does not augur well for the prospects of compliance in the case of the significantly more complex and demanding process now proposed.

## 6.3 INTRODUCTION OF AIR BASED HEALTH RISKS

The proposed discharge of exhaust gas emissions from the waste combustion process involves significant potential health impacts.

These impacts will be overcome if the proposed emission treatment technologies perform, and stack emissions can be relied upon to comply with relevant air quality standards and goals at all times.

However, as pointed out elsewhere in this submission, this outcome has not been demonstrated in the EIS for the project, and is far from assured on the basis of the processes and technologies currently proposed.

Any exceedance of local area air quality goals would introduce an unacceptable local area health risk.

## 6.4 AIR POLLUTION RISKS NOT LIMITED TO URBAN AREAS

In *Rural and Remote Health Care: The Case for Spatial Justice* the authors point out that:

> "*Rural people across most nations, regardless of relative national wealth and development, live shorter lives, on lower incomes, with less formal education, and experience greater poverty, illness, and injury than their urban-dwelling peers*"

This observation is relevant to the proposed Woodlawn ARC.

The health risks associated with inappropriate exhaust or flue gas emissions, or any other process emissions, are of equal concern regardless of whether the process is established in an urban or regional setting.

It is our submission that it would be a grivous error to assume, as some aspects of the EIS describing the proposal tend to indicate, that a set of conditions inappropriate in terms of health risk ort impact in urban areas is somehow "OK" in rural and reginal settings.

## 6.5 AUSTRALIAN PUBLIC HEALTH AUTHORITY (APHA)

The APHA has made the following finding:

> "The transition to a circular economy with renewables-derived electricity attenuates the benefits of Waste to Energy Incineration ("WtE-I'). This, combined with grassroots opposition to WtE-I and its violations of social justice, renders future WtE-I projects unjustifiable. Public health practitioners need to promote primary waste reduction, recycling/composting, and other non-incinerator waste management practices in Australia."

We belive that this finding is highly relevant to the overall concerns raised in this submission, including in particular our concerns regarding the potential adverse impacts of the proposed development on public health outcomes in our area.

## 6.6 OUR CONCERNS

We are concerned that the proposed high temperature combustion of waste streams of varying and unknown composition, in the apparent absence of assured and appropriate emission treatment and control mechanisms, will have an adverse impact on the health of local communities.

## 6.7 SUMMARY SUBMISSION

**Our submission is that the proposed Woodlawn ARC includes the use of technologies and methodologies that would not be appropriate in an urban setting, on the basis that the regional setting involved is somehow less sensitive or less significant. In our view the potential for local area environmental, health and agricultural impacts demands best practice engineering approaches, and that such approaches have not been demonstrated and do not appear to have been proposed.**

# 7 AGRICULTURAL IMPACTS

## 7.1 GENERAL

The existing Veolia facility at the Woodlawn site has a poor environmental compliance record, as pointed out in Section 6.2 of this submission. The potential impacts of these non-compliances represents a serious existing concern,

Any adverse impacts from the proposed incineration of waste to generate energy would be additive to impacts from the existing Woodlawn Eco Precinct operated by Veolia at the Woodlawn site.

The proposed waste combustion involves acknowledged environmental and human health impacts.

However, in addition to very real human health risks, the risks associated with potential agricultural impacts are very significant locally, and perhaps even more significant on a community wide basis as a consequence of potential impacts on food chain quality and integrity.

## 7.2 EXISTING ISSUES

The existing Eco Precinct has experienced a number of environmental non-compliance issues.

The extensive list of environmental non-compliances associated with the existing Veolia waste facility at the site was discussed in the previous Section of this submission.

As also described in the previous Section, earlier this year the NSW EPA conducted a “snapshot” review of water quality in surface water systems near the Woodlawn site and found elevations in a number of contaminants.

## 7.3 POTENTIAL AGRICULTURAL IMPACTS

Existing releases of contaminants from Woodlawn Eco precinct are limited to soil and surface water issues.

Any continuing elevation in contaminant concentrations in local area surface water systems has the very real potential to impact livestock.

Ground and water contamination has the potential to impact crops in affected areas.

As indicated in the Foreword to this submission, the Long water Agricultural Association represents agricultural activities and enterprises involving approximately 250,000 sheep, more than 20,000 cattle, and 7247 hectares of crops.

Existing direct impacts on soils and surface waters would be substantially and dangerously exacerbated by any adverse atmospheric pollution form the proposed waste incineration process.

Depending upon atmospheric and meteorological conditions from time to time, contaminants discharged to the atmosphere have the potential to both:

- Persist for in the atmosphere significant distances before adversely impacting ground and surface water systems potentially significant distances from the site; and
- Strike the ground in higher concentrations in a variety of localised areas closer to the site, and potentially causing significant contamination of soil and surface water systems in these areas.

In both scenarios, any harmful contamination has the potential to cause both local area agricultural harm, and through impacts on food chains to have adverse impacts on the agricultural industry and the general community more widely.

## 7.4 OUR CONCERNS

We are an agriculturally based organisation, and are naturally responsive to and concerned about any potential adverse impacts on the very wide range of agricultural activities undertaken in the area.

With our families, employees and friends we also form an integral part of the local community.

In both capacities we are very concerned about the potential damage that is likley to be caused by a process in which the provision for, and capability of, proper and effective environmental control and protection appears to be inadequate.

## 7.5 SUMMARY SUBMISSION

**Our submission is that the apparent inadequacy of the emission control technology proposed for inclusion in the Woodlawn ARC will result in the very real risk of harm to local agricultural activities and to our local communities, and through the likelihood of adverse impacts of agricultural food chains originating the area, may have serious adverse impacts on the wider community.**

# 8 EMISSION MONITORING METHODOLOGIES

## 8.1 INQUIRY TERMS OF REFERENCE

The Terms of reference for the Inquiry include consideration of emission monitoring technologies as follows:

> *the methodology of emission monitoring employed by leading large scale waste-to-energy facilities in Australia and across the world*

## 8.2 THE PROPOSED APPROACH

The proposed approach to the monitoring of exhaust gas emissions from the waste combustion process is described in the project EIS, and is summarised as follows:

> ***Ambient Air Quality Monitoring***
>
> *To monitor emissions from the project, Veolia will develop an air quality monitoring program that is likely to include installation and operation of a minimum of three ground level ambient air quality monitoring stations for the following parameters:*
>
> - *particulate matter (PM10 and PM2.5);*
> - *$NO_X/NO_2$;*
> - *VOCs;*
> - *$H_2S$ (for landfill gas odour from Eco Precinct, rather than project); and*
> - *meteorological conditions (wind speed and direction minimum).*
>
> *The existing meteorological and dust deposition monitoring equipment at the Eco Precinct will continue to form part of the ambient air quality monitoring network.*
>
> ***Stack Emissions Monitoring***
>
> *The ARC will feature a continuous emissions monitoring system for emissions from the ARC building (i.e., process air pollution via the stack).*
>
> *The final specifications of the continuous emissions monitoring system will be determined.*
>
> *As far as practicable validated emission monitoring data will be made available publicly through an online portal within 24 hours following the end of a weekday and the following weekday after weekends and public holidays.*
>
> *Emission monitoring data will be made available to the EPA in a real time graphical publication as well as a weekly summary of continuous monitoring data and compliance with emissions limits.*
>
> *A comprehensive air quality management plan, addressing the continuous emissions monitoring system and management procedures in response to recorded concentrations, will be developed following approval of the project and prior to the commencement of construction.*

## 8.2 CONCERNS REGARDING EMISSIONS MONITORING

The project EIS is silent on specific emission control technologies and methodologies.

What is presented in the EIS is a statement of intent in relation to emissions monitoring, rather than a detailed description of the equipment and technologies proposed, and an actual monitoring program.

The lack of specificity is of concern, given that in our view, as expressed in this submission, combustion emissions represent one of the major potential environmental and health risk issues associated with the project.

We believe that, as a minimum, the following information should be provided before the proposed development can be seriously assessed and considered:

- Details of the specific monitoring equipment to be installed, in particular stack emission monitoring equipment;
- Full details of the emissions monitoring program to be implemented;
- Assurance that high health and environmental risk pollutants such as dioxins, furans and PFAS are specifically addressed in monitoring protocols;
- Monitoring must be undertaken both on the site where the project is to be based, and on adjoining land subject to adverse impacts;
- Monitoring on adjoining land must be undertaken on an independent basis, and affected landowners and stakeholders must be given the opportunity to be involved in the monitoring process;
- All monitoring results, both on and off-site, must be made public in a timely manner; and
- Details of mandatory process shut down procedures in the event that stack emissions exceed pre-determined and approved levels.

## 8.3 OUR SUBMISSION

**We are concerned that project EIS is effectively silent on the details of emission monitoring, in a context where in our view the management and monitoring of exhaust gas emissions will be of vital importance to the identification of unacceptable and non-compliant environmental, health and agricultural impacts.**

# 9 ALTERNATIVE SOLUTIONS

## 9.1 THE APPARENT ADVANTAGES OF WASTE INCINERATION

The urban areas of Sydney and surrounding conurbations generate vast quantities of waste.

At the present time, apart from a fairly minimal effective volume of recycling, the bulk of the waste finds its way to landfill sites.

The incineration of waste is a tempting option. Incineration makes the problem appear, at least in large part, to "go away" by minimising the volumes of waste disposed of to landfill. By using the heat from waste combustion to generate energy, not only are waste volumes apparently addressed, but the process is also framed in the positive light of contributing electrical energy to the State grid.

However we are very concerned, and we believe the broader community should also be very concerned, that the real technical risks and realities of the proposed waste combustion operation have been the subject of significant doses of "greenwashing".

Based on our review, all is not as it has been presented in the energy from waste scenario.

Contamination caused by the process may well adversely impact the health of local communities; their agricultural activities, and the food chains extending to the wider community.

The economics and sustainability of the energy generated may well be highly questionable.

## 9.2 POTENTIAL DISADVANTAGES

The proposed energy from waste process has a number of significant potential disadvantages, as detailed throughout this submission.

Contaminants generated by the process, and not adequately removed from waste gas streams prior to discharge to atmosphere would have potentially very serious environmental, health and agricultural concerns.

Similar processes, involving similar risks, have been investigated and rightly rejected in more heavily populated urban areas.

The assumption that a process that is unacceptable on environmental and health grounds in an urban area is somehow acceptable in a regional area is wrong, and unacceptable.

Waste incineration processes based on other than the highest (and therefore most expensive) standards of combustion and emission treatment technology are as unacceptable and inappropriate in a thriving regional community as they are in urban communities.

In addition to the very significant impacts that would be experienced locally, the agricultural impacts of contaminant emissions from the waste combustion process would also extend to damage caused to the vital food chains that originate in the local area, but extend to the community more broadly.

As pointed out in greater detail in Section 11 of this submission, the economics of the waste to energy process proposed are highly questionable.

It appears highly likley that the economics of the proposed operation would become highly questionable if the proposed waste to energy process was required to sustain the significantly higher cost associated with proper and effective environmental controls and protections.

## 9.3 ALTERNATIVE SOLUTIONS

There are alternatives.

**Use of More Sophisticated (and More Expensive) Technologies**

The sub-optimal combustion and in particular emission control technologies and methodologies proposed could be replaced with more sophisticated and effective mechanisms that might ensure that the environmental, health and agricultural impacts of the proposal are effectively controlled.

However, it is likley that the project economics associated with he introduction of higher tech and higher performance technologies and operation would be non-viable.

Without significant government (that is public) subsidy, the cost of waste disposal may well be too high to be sustained, and the cost of electrical energy produced significantly higher than more sustainable alternatives.

**Minimisation at Source**

The practical, though challenging, alternative is to address the waste problem where it should logically be addressed – which is at its source.

Ultimately this approach, while challenging, may provide the cost effective answer.

The true cost of waste disposal by incineration, if undertaken using the types of technology required to ensure the management of associated environmental, health and agricultural impacts, may well p[rove very expensive in comparison.

## 9.4 PRECAUTIONARY APPROACH REQUIRED

A long established principle of sound environmental management is that in all circumstances, and in particular in the uncertain circumstances such as those that apply in this case, a precautionary approach should be adopted.

This is the so-called “Precautionary Principle.”

In this case, given the submission presented in this document, precaution and prudence demand that the proposal is rejected.

## 9.5 SUMMARY

An argument presented in support of high temperature incineration is that it provides a solution to the very real and significant challenge posed worldwide, particularly in more developed countries, by the vast bulk of waste generated.

In the absence of the health, environmental and agricultural impacts and downsides highlighted in this submission, there may be some merit to this argument.

But is reality, high temperature incineration in this context is being used to treat the “symptom,” and not the “disease.”

The core issue is the vast quantum of waste generated and the tsunami of packaging and non-recyclable and non-reusable packaging and other materials that generate the vast quantities of wastes in question.

The solution is not to use a highly questionable high temperature combustion process to dispose of the waste, but to avoid or at least very significantly minimise its generation at source.

If as a community, we continue to fail in the core challenge of reducing the quantity of waste at source, then disposal to landfill remains preferable to the introduction of a high risk waste incineration system.

New South Wales is a very big state, which must have suitable areas – including old mine sites – for the disposal of waste, in the unfortunate event that we choose to continue to produce that waste in accordance with current trends.

Landfill may be an imperfect solution to the waste "problem", but a high temperature incineration process that involves very real risks to human health and the viability of agricultural processes is far more imperfect.

The only real solution, albeit challenging, is to reduce non-recyclable waste at source, and to maximise the recycled components of urban waste streams.

## 9.6 OUR SUBMISSION

**It is our submission that the realistic, though challenging, alternative is to address the waste problem where it should logically be addressed – which is at its source.**

**Ultimately this approach, while challenging, may provide the cost effective answer to the waste management challenge**

**It is our view that the true cost of waste disposal by incineration, if undertaken using the types of technology required to ensure the appropriate management of associated environmental, health and agricultural impacts, will prove unrealistically expensive, and in fact economically non-viable, in comparison.**

# 10 RELATED MATTER – CLIMATE CHANGE

## 10.1 CLIMATE CHANGE IMPLICATIONS

Most countries, most communities and most individuals accept the reality of climate change, and the need to address this reality in order to preserve the viability of life systems on this planet.

These issues are vital to regional communities and associated agricultural activities.

While absolute consensus is often clouded by conflict of interest issues, a general view has emerged that a net zero carbon economy will need to emerge by 2050 to maintain some sort of climate stability, and to sustain agricultural practices into the future.

This process will be complex and no doubt difficult, but it will certainly involve the progressive decarbonization of energy generation.

This process has begun, and will proceed in the short and medium term.

It is no longer a "can" that can be kicked further down the road.

High temperature waste incineration runs counter to this reality:

Waste is in effect a hydrocarbon based fuel.

Plastic wastes, which constitute a very significant proportion of the waste feedstock proposed for the Woodlawn high temperature incineration plant, are produced from petroleum hydrocarbons.

To introduce a "waste to energy" high temperature incineration project is to introduce a carbon fuel based energy generation mechanism – which runs counter to where the rational majority of humanity see the world heading.

Given the time frames involved, the economics and commercial viability of such an investment must be questionable.

## 10.2 OUR SUBMISSION

**It is our submission that the proposed Woodlawn ARC, and the approach to waste management that it embodies, is inconsistent with any reasonable and rational approach to the decarbonisation processes required to underwrite future climate stability.**

# 11 RELATED MATTER – ENERGY RECOVERY VIABILITY

## 11.1 BACKGROUND

The proponent justifies the proposal on three grounds: that insufficient landfill is available, that incineration is more sustainable and finally that it is "recovering energy'" from the waste stream. This section deals with concerns about the latter justification.

Energy recovery is deemed necessary for public acceptance of waste incineration. The NSW Energy from Waste Policy requires proponents to reach a certain efficiency. The fact that energy recovery needs regulation in this way strongly hints that the economics of this recovery process are questionable, and that the public cannot rely on market forces to drive behaviour Indeed, the public must rely on the scrutiny of consent authorities to ensure that the electricity promised can actually be delivered to the NSW grid at times when it is required. This section raises concerns that the project may not be able to meet these expectations.

## 11.2 CONCERNS ABOUT THE ABILITY TO EXPORT ENERGY

The EPA policy implies that the public can expect that a minimum of 25% of the energy embodied in the waste stream is delivered in a useful manner to the NSW grid. Based on the information provided in the EIS, this is far from certain for two reasons. Firstly, the proponent admits in vague terms that Essential Energy's 66 kV cannot except its energy, strongly hinting at restringing and the need for larger poles, and secondly, deeper constraints in the network have not been considered. Without resolution of these two issues, the public cannot be certain that it will in fact receive the energy promised by the project.

The project's SEARS also require

- "identification of any infrastructure upgrades required off-site to facilitate the development;" and
- "details of existing transmission infrastructure constraints…. and all required mitigation measures."

The EIS is seriously deficient in the following respects:

1. The public have not been provided with sufficient detail about the off-site impacts of the electrical plant required for the project. The transmission line analysis report attempts to leave this detail to Essential Energy rather than disclosing this important information at this time If the 66 kV system is to be substantially upgraded (particularly with larger towers) then these upgrades should be included in the EIS, with full consultation for impacted landholders, with visual biodiversity and heritage impacts considered by field survey, rather than in a desktop survey.

2. The EIS should, if it is to be justified on energy grounds, include dynamic electricity modelling showing that the project can in fact dispatch even after the local grid upgrades are made. Many energy projects are routinely curtailed as a result of grid congestion and if these curtailments are sufficiently common then the public will not receive the energy promised by the project.

At the present time, the public cannot be satisfied that the project will meet the basic requirements of the Waste to Energy policy nor the SEARS.

## 11.3 CONCERNS OVER THE TIMING OF EXPORTS

The NSW electricity grid is transitioning to renewables under the Government's Electricity Infrastructure Roadmap. This roadmap emphasises that NSW will need to overbuild wind and solar assets, creating times of excess and times of shortage.

Two gigawatts of long duration storage and considerable shorter-term storage is required to balance the system; moving energy from times of excess to times of shortage.

Consumers will underwrite these storage investments via Long Term Energy Service Agreements.

Veolia's project is conceived as a "must run" plant, meaning for a good proportion of its operating time it will be pushing electricity into a market which is saturated with renewable energy, driving up the need for the public to invest in storage to shift its output into higher demand intervals.

It will also displace renewable energy at this time, driving up emissions.

The NSW electrical energy grid features zero or negative pricing on numerous occasions.

Pushing electricity into these periods, when the market is over supplied, is detrimental to the objects of both the Net Zero policy and the Electricity Infrastructure roadmap.

This project should, in order to give the public confidence that it will not have adverse consequences in the market, be required to store all energy during times of low and negative pricing in the electricity market, and then make this energy available at times of genuine demand.

## 11.4 OUR SUBMISSION

**It is our submission that the very challenges associated with the economically sustainable export of energy from the proposed Woodlawn ARC to the NSW electricity grid have not been adequately considered in the development of the project, and that the proposed waste to energy incineration project should not proceed in the absence of this very important work.**

# 12 SUMMARY OF KEY SUBMISSIONS

A summary of the key submissions presented in this document, cross referenced to the Inquiry's Terms of reference, is provided below;

### Performance of Technologies

**It is our submission that the combustion process and in particular the waste gas emission control technologies upon which the proposed Woodlawn ARC has been based cannot be demonstrated to ensure that the potentially harmful environmental, health and agricultural impacts of the proposed development will be adequately or safely managed and controlled.**

### Spread & Quality Of Emissions

**It is our submission that the spread and adverse quality of emissions from the proposed Woodlawn ARC will involve significant risk of potential environmental, health and agricultural harm, and that the emissions modelling scenario upon which the proposed development has been based is unduly optimistic; does not adequately provide for adverse process variations including variations in the input waste mix, and as a consequence risks seriously understating likley environmental, health and agricultural impacts.**

### Health Impacts – Old & New Technologies

**It is our submission that in terms of potential environmental, health and agricultural risks and exposures, the most critical aspect of the proposed Woodlawn ARC will be the likley lack of efficacy of the technologies and processes utilised to remove contaminants from the waste gas stream prior to discharge to atmosphere. We are concerned that the emission control technologies proposed will not prove appropriate to adequately deal with the contaminants of concern, including dioxins, furans, PFAS (the so called "forever chemicals") and fine and ultrafine particulate matter.**

### Health Impacts – Local Area

**Our submission is that the proposed Woodlawn ARC includes the use of technologies and methodologies that would not be appropriate in an urban setting, on the basis that the regional setting involved is somehow less sensitive or less significant. In our view the potential for local area environmental, health and agricultural impacts demands best practice engineering approaches, and that such approaches have not been demonstrated and do not appear to have been proposed.**

## Agricultural Impacts

**Our submission is that the apparent inadequacy of the emission control technology proposed for inclusion in the Woodlawn ARC will result in the very real risk of harm to local agricultural activities and to our local communities, and through the likelihood of adverse impacts of agricultural food chains originating the area, may have serious adverse impacts on the wider community.**

## Emission Monitoring Methodologies

**We are concerned that project EIS is effectively silent on the details of emission monitoring, in a context where in our view the management and monitoring of exhaust gas emissions will be of vital importance to the identification of unacceptable and non-compliant environmental, health and agricultural impacts.**

## Alternative Solutions

**It is our submission that the realistic, though challenging, alternative is to address the waste problem where it should logically be addressed – which is at its source. Ultimately this approach, while challenging, may provide the cost effective answer to the waste management challenge It is our view that the true cost of waste disposal by incineration, if undertaken using the types of technology required to ensure the appropriate management of associated environmental, health and agricultural impacts, will prove unrealistically expensive, and in fact economically non-viable, in comparison.**

## Related Matter – Climate Change

**It is our submission that the proposed Woodlawn ARC, and the approach to waste management that it embodies, is inconsistent with any reasonable and rational approach to the decarbonisation processes required to underwrite future climate stability.**

## Related Matter – Energy Recovery Viability

**It is our submission that the very challenges associated with the economically sustainable export of energy from the proposed Woodlawn ARC to the NSW electricity grid have not been adequately considered in the development of the project, and that the proposed waste to energy incineration project should not proceed in the absence of this very important work.**

# 13 REFERENCES

Economic, Environmental and Sociopolitical Aspects of Waste Incineration: A Scoping Review (Tait PW, Salmona J, Sandhu M, Guscott T, King J and Williamson V; *Sustainability*; 2025)

Environmental Impact of PFAS Incineration (Kovacs J, Higgins R, Ionesco N and Cho Y); *Waste Management Bulletin*; April 2025)

Rural and Remote Health Care: The Case for Spatial Justice (Hayes K, Coxon K and Bye R; *Rural & Remote Heath*; Vol 25 Issue 1 27 January 2025)

The Health Impacts of Waste Incineration: A Systematic Review (Tait PW, Brew J, Che A, Costanzo A, Danyluk A, Davis M, Khalaf A, McMahon K, Watson A, Rowcliff K and Bowles D; *Epidemiology*; Vol 44 No. 1; 2020)

The Proposed Woodlawn High Temperature Incinerator: Threats to Health & Sustainability Submission to the Veolia Woodlawn ARC Project EIS (*Long Water Agricultural Association Inc*; Version 3 ; December 13th, 2022)

Waste Incineration: Policy Position Statement (*Public Health Association Australia*, September 2024)

Woodlawn Advanced Energy Recovery Centre Environmental Impact Statement (EMM; Version 3; October 2022)

Woodlawn Surface Water Quality Report ( *NSW Environment Protection Authority* EPL 11436 & 20476; August 2025)

# 14 AUTHORISATION

The Long Water Agricultural Association Incorporated has based this submission on the best information available to it at the date of preparation, and to the very best of our knowledge and understanding this submission presents the deficiencies, risks important circumstances described in this document in a candid, objective and factual manner.

**Tom Martin**
**Chair**

**Felicity Reynolds**
**Secretary**

**The Long Water Agricultural Association Incorporated**

**30 October 2025**

**(Assistance in the preparation of this submission has been provided by Noel Child of Noel Child Strategic Advisory, who can be contacted on + 61 409 393 024)**

# APPENDIX A

## The Long Water Agricultural Association Incorporated

# Certificate of Incorporation as an Association

This is to certify

**LONG WATER AGRICULTURAL ASSOCIATION INCORPORATED**

is registered as an incorporated association in New South Wales under the *Associations Incorporation Act 2009*

| | |
|---|---|
| Registration Number | **INC2201112** |
| Date of Incorporation | **4 November 2022** |

Issued by NSW Fair Trading on 4 November 2022.

Natasha Mann
Fair Trading Commissioner
NSW Fair Trading

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# APPENDIX B

## Harmful Chemicals Present in Waste

## US EPA Advice On PFAS

# PER- AND POLYFLUOROALKYL SUBSTANCES – KNOWN AS PFAS

EPA is committed to providing meaningful, understandable, and actionable information on per- and polyfluoroalkyl substances – known as PFAS.

The information provided here is intended to explain some of the important background information needed to understand the details of specific actions EPA takes to address PFAS, and other emerging events related to PFAS. It covers the following topics:

**What EPA Has Learned So Far:**

- PFAS are widely used, long lasting chemicals, components of which break down very slowly over time.
- Because of their widespread use and their persistence in the environment, many PFAS are found in the blood of people and animals all over the world and are present at low levels in a variety of food products and in the environment.
- PFAS are found in water, air, fish, and soil at locations across the nation and the globe.
- Scientific studies have shown that exposure to some PFAS in the environment may be linked to harmful health effects in humans and animals.
- There are thousands of PFAS chemicals, and they are found in many different consumer, commercial, and industrial products. This makes it challenging to study and assess the potential human health and environmental risks.

**What We Don't Fully Understand Yet:**

- How to better and more efficiently detect and measure PFAS in our air, water, soil, fish and wildlife
- How many people are exposed to PFAS
- How harmful PFAS are to people and the environment
- How to remove PFAS from drinking water
- How to manage and dispose of PFAS
- This information will help EPA and state, local, and tribal partners make more informed decisions on how best to protect human health and the environment.

**US EPA**

**April 28, 2022**

# APPENDIX C

## Sone High Temperature Combustion Products

## Dioxins & Furans

# Dioxins and Furans

### What are dioxins and furans?

Dioxins and furans is the abbreviated or short name for a family of toxic substances that all share a similar chemical structure. Dioxins, in their purest form, look like crystals or a colorless solid. Most dioxins and furans are not man-made or produced intentionally, but are created when other chemicals or products are made. Of all of the dioxins and furans, one, 2,3,7,8-tetrachloro-p-dibenzo-dioxin (2,3,7,8 TCDD) is considered the most toxic.

### What are dioxins and furans used for?

Dioxins and furans are not made for any specific purpose; however, they are created when products like herbicides are made. They are also created in the pulp and paper industry, from a process that bleaches the wood pulp. In addition, they can be produced when products are burned.

### How can dioxins and furans enter and leave your body?

Dioxins and furans can enter your body through breathing contaminated air, drinking contaminated water or eating contaminated food. About 90% of exposure to dioxins and furans is from eating contaminated food. Dioxins and furans can build up in the fatty tissues of animals.

### How can you be exposed to dioxins and furans?

You can be exposed to dioxins and furans by eating contaminated food. Dioxins and furans typically stay and build up in the fatty tissues of animals. This means that eating beef, pork, poultry, fish as well as dairy products can be a source of exposure.

There are several sources of exposure to dioxins and furans. If you work in or near a municipal solid waste incinerator, copper smelter, cement kiln or coal fired power plant you can be exposed to dioxins and furans. Individuals who burn their household waste or burn wood can be exposed as well. Even forest fires can contribute to the creation of small amounts of dioxins and furans.

Dioxins and furans have been found in the air, soil, and food. Dioxins and furans are mainly distributed through the air. However, only a small percentage of exposure is from air. Eating contaminated food is the primary source of exposure.

### What are the health effects of exposure to dioxins and furans?

Dioxins and furans can cause a number of health effects. The most well known member of the dioxins/furans family is 2,3,7,8 TCDD. The U.S. Environmental Protection Agency (EPA) has said that it is likely to be a cancer causing substance to humans. In addition, people exposed to dioxins and furans have experienced changes in hormone levels. High doses of dioxin have caused a skin diseased called chloracne. Animal studies show that animals exposed to dioxins and furans experienced changes in their hormone systems, changes in the development of the fetus, decreased ability to reproduce and suppressed immune system.

### What levels of exposure have resulted in harmful health effects?

The U.S. EPA has set a limit of 0.00003 micrograms of 2,3,7,8-TCDD per liter of

# APPENDIX D

## UK Department of Health
## Arguments Against High Temperature Waste Incineration

# UK Department of Health
# Arguments Against High Temperature Waste Incineration

- The highly toxic fly ash must be safely disposed of. This usually involves additional waste miles and the need for specialist toxic waste landfill elsewhere. If not done properly, it may cause concerns for local residents.

- The health effects of dioxin and furan emissions especially during start up and shut down, or where filter bypass is required continue to be a problem.

- Incinerators emit varying levels of heavy metals such as vanadium, manganese, chromium, nickel, arsenic, mercury, lead and cadmium, which can be toxic at very minute levels.

- Incinerator Bottom Ash (IBA) has elevated levels of heavy metals with ecotoxicity concerns if not reused properly. Some people have the opinion that IBA reuse is still in its infancy and is still not considered to be a mature or desirable product, despite additional engineering treatments. Concerns of IBA use in Foam Concrete have been expressed by the UK Health and Safety Executive in 2010 following several construction and demolition explosions. In its guidance document, IBA is currently banned from use by the UK Highway Authority in concrete work until these incidents have been investigated.

- Alternative technologies are available or in development such as mechanical biological treatment, anaerobic digestion (MBT/AD), autoclaving or mechanical heat treatment (MHT) using steam or plasma arc gasification (PGP), which is incineration using electrically produced extreme high temperatures, or combinations of these treatments.

- Building and operating waste processing plants such as incinerators requires long contract periods to recover initial investment costs, causing a long-term lock-in. Incinerator lifetimes normally range from 25 to 30 years.

- Incinerators produce fine particles in the furnace. Even with modern particle filtering of the flue gases, a small part of these is emitted to the atmosphere. PM2.5 is not separately regulated in the European Waste Incineration Directive, even though they are repeatedly correlated spatially to infant mortality in the UK (M. Ryan's ONS data based maps around the EfW/CHP waste incinerators at Edmonton, Coventry, Chineham, Kirklees and Sheffield). Under WID there is no requirement to monitor stack top or downwind incinerator PM2.5 Several European doctors associations (including cross discipline experts such as physicians, environmental chemists and toxicologists) representing over 33,000 doctors wrote a keynote statement directly to the European Parliament citing widespread concerns on incinerator particle emissions and the absence of specific fine and ultrafine particle size monitoring or in depth industry/government epidemiological studies of these minute and invisible incinerator particle size emissions.

- Local communities are often opposed to the idea of locating waste processing plants such as incinerators in their vicinity (the Not in My Back Yard phenomenon). Studies in Andover, Massachusetts correlated 10% property devaluations with close incinerator proximity.

- Prevention, waste minimisation, reuse and recycling of waste should all be preferred to incineration according to the waste hierarchy. Supporters of zero waste consider incinerators and other waste treatment technologies as barriers to recycling and separation beyond particular levels, and that waste resources are sacrificed for energy production.

- A Eunomia report found that under some circumstances and assumptions, incineration causes less $CO_2$ reduction than other emerging EfW and CHP technology combinations for treating residual mixed waste.[26] The authors found that CHP incinerator technology without waste recycling ranked 19 out of 24 combinations (where all alternatives to incineration were combined with advanced waste recycling plants); being 228% less efficient than the ranked 1 Advanced MBT maturation technology; or 211% less efficient than plasma gasification/autoclaving combination ranked 2.

- If reusable waste fractions are handled in waste processing plants such as incinerators in developing nations, it would cut out viable work for local economies. It is estimated that there are 1 million people making a livelihood off collecting waste.

- The reduced levels of emissions from municipal waste incinerators and waste to energy plants from historical peaks are largely the product of the proficient use of emission control technology. Emission controls add to the initial and operational expenses. It should not be assumed that all new plants will employ the best available control technology if not required by law.

- Waste that has been deposited on a landfill can be mined even decades and centuries later and recycled with future technologies – which is not the case with incineration.