



Global Contracting Solutions Limited  
07 846 2543 | 293 Ellis Street, Frankton, Hamilton 3243

**terra**  
consultants

*Building better environments for a better future*

Terra Consultants (CNI) Limited  
Level 13, Tower Building,  
48 Ward Street, Hamilton  
PO BOX 5028, Frankton, Hamilton  
Ph: 09 357 3557 | 022 639 1392  
E: terra@terrargroup.co.nz  
www.terrargroup.co.nz



p: 07 839 0090  
m: 021 870 660  
e: p.lang@terra.co.nz  
o: Riverbank Chambers  
Level 5, The Riverbanks  
286 Victoria Street  
Hamilton 3204  
PO Box 19 539, Hamilton 3244

## **The applicant's view on the option of a s142 RMA ministerial call-in**

The Waikato Regional Council and Waipa District Council have requested that the applicant provides its views on the merits of a ministerial call-in of this proposal under s142 of the RMA. The applicant does not request or support a call-in as the councils are both well capable of hearing and determining the application with the assistance of well-qualified and experienced Independent Hearing Commissioners. Considerations of the s142 factors are set out below.

### **Consideration of relevant factors listed in RMA s142(3)(a)(i)-(x)**

*Has the matter aroused widespread public concern or interest regarding its actual or likely effect on the environment (including the global environment)?*

Much of the publicized commentary, concern and interest has either come from or been generated by a national pressure/interest group that has been particularly vocal. The issue is not whether there has just been any expression of public concern or interest, but whether there has been widespread public concern or widespread interest about the actual or likely effects on the environment. In considering the call-in options, it would be reasonable to consider that expressions of concern and interest do not indicate a need for a call-in, only unusually widespread public expressions of concern and interest, and purely about environmental effects. There is nothing to indicate here that there is any especially widespread environmental effects concern or interest, eg from an inter-regional or national catchment.

The relevance of widespread concern or interest is to gauge whether the proposal is one of national significance. A substantial number of local or district-wide submissions is not an indicator of widespread interest. Nor is the involvement of an organization that operates at a national level. It would take a widespread interest geographically across a wide range of entity types to indicate a matter of national significance.

*Does the matter involve or is it likely to involve significant use of natural and physical resources?*

Any use of resources for construction of the facility will be a “one off” defined and limited use of resources to construct a facility for long term use. That is not a significant matter in itself. The use of water is efficient and to a significant extent internalised, not dissimilar to other “wet industries” The refuse that is to be used as fuel is not currently considered to be a resource but an environmental burden, which will be turned into a resource if the consents are granted.

*Does the matter affect or is it likely to affect a structure, feature, place, or area of national significance?*

No.

*If the matter is one that is specified in any of paragraphs (c) to (f) of the definition of “matter” in RMA s141, does it give effect to a National Policy Statement?*

As a resource consent application, this consideration is not relevant.

*Does the matter affect or is it likely to affect or is relevant to New Zealand’s international obligations to the global environment?*

The only relevant international obligation to the global environment is New Zealand’s international climate change treaties. There is nothing about the net climate change consequences of this project that indicates any significant impact on New Zealand’s obligations. There is no likelihood of a material change in New Zealand’s ability to meet its obligations being caused by the net outcomes of this project.

*Will the matter result in or is it likely to result in or contribute to significant or irreversible changes to the environment (including the global environment)?*

There is no indication of any significant or irreversible changes to the environment. The air quality effects of the proposal have been assessed as very modest. No irreversible changes can occur because the effects can be altered or halted at any time if necessary and structures removed, if necessary, though there is no indication that any of these are a real issue.

*Does the matter involve or is it likely to involve technology, processes or methods that are new to New Zealand and that may affect its environment?*

The technology, processes and methods proposed for this activity are not new to New Zealand. The accompanying expert information from Dr Terry Brady confirms the previous and current use of the proposed technologies, processes and methods in New Zealand.

The question of whether the technology, processes or methods may affect New Zealand's environment must be limited to the effects of novel technologies, processes and methods, not to them in a general sense.

*Is the matter significant or likely to be significant in terms of s8 of the RMA?*

The principles of the Treaty of Waitangi are not a significant issue in this case. The submissions and the consultation with tangata whenua do not indicate any special significance in terms of the Treaty.

*Will the matter assist the Crown in fulfilling its public health, welfare, security or safety obligations or functions?*

This proposal is neutral in terms of providing assistance to the Crown in fulfilling its public health, welfare, security or safety obligations and functions. The expert assessment of air quality effects indicates a neutral impact on health issues through discharges to air. There will be no hindrance caused to the Crown fulfilling its welfare, security or safety obligations and functions.

*Does the matter affect or is it likely to affect more than one region or district?*

The activity will be taking place in only the Waikato Region and the Waipa District. Refuse for use as a fuel will be sourced from other districts and other regions, but there is no indication of any adverse effect on those other districts and regions. Any such effects would be likely to be positive effects through reduction in the rate of landfilling within those districts and regions, but not as a matter of major significance to the local authorities in those regions or districts.

*Does the matter relate to a network utility operation that extends or is proposed to extend to more than one district or region?*

Only in respect of the cross-boundary benefits of electricity generation.

*Are there any other relevant factors to consider?*

It may be relevant to consider how the production of energy using refuse as a fuel fits in with the Aotearoa New Zealand Waste Strategy. Currently the focus of the Strategy is to prioritise the reduction, reuse and recycling of waste. The use of the waste for a fuel to produce a valued product - energy - is a form of recycling. Extraction of reusable and recyclable materials from the waste stream is a positive contribution to those priorities, along with production of additional information on waste stream composition, private recycling and waste management generally. The proposal does not create any need for there to be a national consideration in the first instance of the impacts of this proposal on the Aotearoa New Zealand Waste Strategy or other waste sector reform initiatives.

There are no other anticipated relevant factors to consider under s142(3).

#### **S142(4) considerations**

(a) The views of the applicant and local authority

The applicant sees no reason for the application to be called in, given the council's ability to deal with this type of application and the considerations above.

Ref 3263.01

26 October, 2023

Phil Lang  
PO Box 19-539  
Hamilton 3244

## Re Waste to Energy Technology

Dear Phil

I refer to your recent Email requesting an assessment of whether or not the proposed Waste to Energy (WtE) plant at Te-Awamutu involves the use of *technology, processes or methods that are new to NZ and that may affect its environment*.

The proposal involves the combustion of refuse derived fuel (RDF) in boilers to raise steam which is then used in steam turbines to generate electricity to feed into the national grid. As with all combustion systems, the process produces exhaust gases (flue gases) that are discharged via tall chimney stacks after cleaning using filtration equipment. While the use of refuse or waste to generate electricity has not yet been implemented in New Zealand, the technologies and processes proposed are similar to or identical to those already in wide use throughout New Zealand. I discuss this below.

### 1. Steam Turbines

Steam turbines have been used for well over 100 years, are well understood, and a number are installed in New Zealand including the large scale geothermal units operated by Contact Energy in the Taupo area.

### 2. Combustion Process

Likewise, solid fuel combustion in steam boilers has a very long history, and the controls that are used to ensure that emissions to air are minimised via good combustion efficiency are the exactly the same for RDF as for coal, wood, plastics or biomass. It is a mature technology and well understood but RDF plants do differ from more conventional combustion plants in that additional equipment is used to control the emission of contaminants to air.

### 3. Emission Controls

A number of controls are employed to minimise the discharge of contaminants such as carbon monoxide, nitrogen oxides (NOx), acid gases such as hydrogen chloride, hydrogen fluoride and sulphur dioxide, trace metals, dioxins and particulate. The technologies used to control these are described in detail in the assessment document<sup>1</sup> lodged in support of the discharge to air consent, and with the exception of the addition of urea for nitrogen oxide control they all utilise elements of typical technology that can be found in standard equipment already in place in industrial applications in New Zealand. Table 1 summarises the use of the selected controls for this application.

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<sup>1</sup> Global Contracting Solutions Ltd Assessment of the Effects of Discharges to Air from an RDF Energy Plant. Terry Brady Consulting Ltd. Technical report 3263.02r001 November 2021

**Table 1. Proposed Control Technologies**

Contaminant	Control	Notes
Carbon monoxide	Good combustion practices	Same as standard boiler and other heat plant
Nitrogen oxides	Selective zonal cooling of flame temperatures	Same as implemented in low NOx burners widely used in New Zealand
Nitrogen oxides	Addition of urea into combustion chamber - Selective Non Catalytic Reduction (SNCR)	Not currently used in New Zealand, but see comments in Section 3.2
Acid gases	Addition of lime into flue gases	Same as practiced in lime kilns in New Zealand
Trace metals	Addition of activated carbon into flue gases	Result is the identical as implemented by carbon carry over in wood and coal fired boilers
Dioxins	High temperature combustion, and activated carbon as above	Result is the identical as implemented in crematoria and the carbon carry over in wood and fired boilers
Particulate	High efficiency fabric filtration	Identical to that used on lime kilns and wood fired boilers.

As shown in Table 1, there are 6 main control technologies utilised in addition to standard good combustion practices, namely:

- Low NOx combustion
- Selective Non Catalytic Reduction (SNCR)
- Addition of lime into the flue gases
- Addition of activated carbon into the flue gases
- Fabric filtration

### 3.1. Low NOx combustion

All combustion systems require the addition of air and good control is dependent on both the amount of air that it added, and the location where it is added in the firebox. In RDF or MSW fired boilers, some air is added using high pressure nozzles at different locations depending on the physical layout of the firebox, and results in a lowering of the amount of nitrogen oxides that are produced. Other than the more precise location of the air addition and a beneficial lowering of NOx emission, there is no difference in the technology compared to any other standard combustion system or boiler.

### 3.2. Selective Non Catalytic Reduction (SNCR)

This involves the addition of small amounts of urea into the firebox when the continuous monitoring indicates that further reduction of NOx is required. Most of the urea is used up in the conversion of NOx to inert nitrogen (N<sub>2</sub>) and small residual amounts are then completely converted to N<sub>2</sub>, H<sub>2</sub>O and CO<sub>2</sub> in the high temperature post combustion burn-out section that operates at 850 °C with a minimum of 6% O<sub>2</sub>. The combustion of any residual urea is no different to the combustion of other nitrogen containing materials including wood or protein such as wool. There is nothing in the discharge from this technology that would affect the environment that is different to other boilers used in New Zealand.

### 3.3. Addition of lime into the flue gases

Lime addition into the flue gases as described in the application document is used to minimise the discharge of acid gases such as sulphur dioxide, some nitrogen dioxide, hydrogen fluoride, and hydrogen chloride. Note that these acid gases are also discharged in wood and coal fired boilers that do not use lime to reduce them. The lime (as a powder) is then collected in the fabric filter in exactly the same fashion as in the numerous lime kilns in New Zealand that use fabric filters, and the only difference is that the lime is added after the firebox whereas in a lime kiln it is added in the firebox.

### **3.4. Addition of activated carbon into the flue gases**

Activated carbon is used in New Zealand to remove hydrocarbons from industrial processes including ventilation at air ports to prevent Avgas odours in terminals. In this application it is introduced into the flue gases to absorb metals dioxins and some hydrocarbons and as with the lime, it is then collected in the fabric filter. It is an identical process that is used to remove carbon carry over from coal and wood fired boilers where the carbon is generated in the firebox instead of being added to the flue gases after the firebox in this application.

### **3.5. Fabric filtration**

Fabric filtration is widely used globally and in New Zealand and is regarded as the best available technology for the control of particulate emissions including carbon and lime.

## **4. Summary**

The proposed technologies for the RDF Paeriwa plant are well understood and already in use in many industrial plants in New Zealand. There is no additional process nor technology proposed that would have an effect on the environment that has not already been assessed in the application documents. Finally it is useful to note that a recent United Nations Environmental Program (UNEP) report<sup>2</sup> concluded:

*"There have been significant improvements in emissions control for modern thermal WtE technologies compared to WtE technologies from the 1970s to the 1990s. Thermal WtE plants with advanced emission control technologies that are well-maintained have minimum public health impacts".*

**Yours sincerely**

**TJ Brady**  
**Air Quality Scientist**

Ph 09 630 8710  
Mob 027 2970 230  
Email [terry@tbc.pl.net](mailto:terry@tbc.pl.net)

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<sup>2</sup> UNEP (2019). Waste-to-Energy: Considerations for Informed Decision-Making. <https://www.unep.org/ietc/resources/publication/waste-energy-considerations-informed-decision-making> Retrieved 27 Sept 2023