

Submission to the Waikato Regional Council on Global Contracting Solutions applications for resource consents to build a waste incinerator at 401 Racecourse Road, Te Awamutu

APP143988 LU/0323/21

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Re: Contact details & submission process information Greenpeace Aotearoa Inc Contacts: Juressa Lee, Plastics Campaigner; Amanda Larsson, Head of Campaigns Postal address: Private Bag 92507, Victoria Street West, Auckland 1142 Email: info@greenpeace.org

- Greenpeace Aotearoa's submission relates to both applications to Waikato Regional Council and Waipa District Council
- We oppose this application. We want the Waikato Regional Council to decline this application.
- We would like to be heard in support of our submission.
- We intend to call expert evidence in support of our submission

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1 Who is Greenpeace

Greenpeace is an independent, global environmental campaigning organisation. Our mission is to ensure Earth's ability to nurture life in all its diversity. Through creative confrontation and non-violent direct action, we take on the big issues and seek to bring about systemic change.

Greenpeace has a history working to halt polluting incinerators in Aotearoa New Zealand and working with networks throughout Aotearoa New Zealand supporting Zero Waste Strategies.

Greenpeace Aotearoa opposes the Applications for Land Use Consent, Discharge of Stormwater to Water and Discharge to Air by Global Contracting Solutions Ltd (the Applicant) for the so called 'Waste to Energy' Incinerator (the incinerator).

2 Introduction

2.1 This proposal for an incinerator is the first of its kind in Aotearoa New Zealand and as such requires close scrutiny. Permitting this incinerator could open the flood gates to many more proposals, allowing waste incineration to become significant in New Zealand's waste management landscape. This submission will outline why this is an undesirable outcome for Aotearoa New Zealand's future.

2.2 This submission contends that granting the application for the incinerator would take Aotearoa New Zealand in the entirely wrong direction with regards to a sustainable waste strategy.

2.3 This submission will demonstrate that the Applicant has not adequately assessed the environmental and human health impacts of the proposed activity and has glossed over important details relating to the toxic discharges from the facility.

2.4 This submission will show that the energy generated from this incinerator is dirty energy generated from fossil fuel inputs and has no place in Aotearoa New Zealand's renewable energy future.

3 A New Waste Strategy and Circular Economy

3.1 Section104(e) enables the consent authority consider any other matter it considers relevant and reasonably necessary to determine the application.

3.1.1 Greenpeace Aotearoa contends that the New Waste Strategy and reform of waste legislation is highly relevant for the consent authority to take into account when assessing the Application.

3.1.2 The 'waste environment' is evolving quickly in Aotearoa with the aim to drastically reduce our generation of 'waste' and to move to a circular economy. A transition to a low-emissions, lowwaste society, embedding circular economy principles, will render incineration an obsolete technology.

3.1.2 While Aotearoa is just beginning to consider waste incineration, Europe is moving away from it. For decades, Europe has been the poster child for incineration as a solution to waste. However, the tide is turning and as recently as 2021 the European Union set up a €672.5 billion in loans and grants that will support EU member states "to build more resilient and sustainable economies, as well as help them to achieve a green and digital transition" The guidelines for members requires that no measure "should lead to significant harm to environmental objectives." A list of measures that 'do no significant harm' (DNSH) was produced.

3.1.2.1 The construction of new waste incineration was presented as an example of non-compliance with the DNSH principle, stating that it threatens the transition to a circular economy since it will likely "lead to a significant increase in the generation, incineration or disposal of waste".¹

3.2 New Zealand Waste Strategy and Waste Legislation Reform

3.2.1 The recently released New Zealand Government document Te Rautaki Para | Waste strategy 2023, "sets out a long-term path to achieve the vision of Aotearoa New Zealand in 2050 as a low-emissions, low-waste society, embedding circular economy principles."

3.2.2 The Waste Strategy states that

"[u]sing mixed and non-biological waste (like municipal solid waste) in waste to energy processes can be technically challenging. These types of waste are more likely to create hazardous by-products and generate greenhouse gas emissions.

Large scale waste to energy facilities, like incinerators, are significant capital investments that depend on having a consistent supply of feedstock for their 20- to 30-year lifetime. However, many other initiatives are under way to reduce, reuse and recycle waste, particularly plastic.

These include phasing out single-use and hard-to-recycle plastics, and improving recycling systems. These initiatives will quite quickly reduce the supply of this type of feedstock for a waste to energy operation.

¹ https://zerowasteeurope.eu/2021/05/wte-incineration-no-place-sustainability-agenda/

Pyrolysis, incineration or gasification of municipal solid waste is unlikely to align with our circular economy goals, due to their negative effects on the climate, dependency on continued linear waste generation, and likelihood of causing hazardous discharge."

3.2.3 These statements set the tone indicating that large incineration projects are not on the path to a low-emissions, low-waste society, embedding circular economy principles. Succinctly, Emeritus Professor Paul Connett says "[i]ncineration is the last gasp of a linear economic system."

3.2.4 There is much progress in the Waste Minimisation space. The Strategy has high level targets which aim to reduce waste generation by 10% ("reduce the amount of material entering the waste management system"), waste disposal by 30% ("reduce the amount of material that needs final disposal"), and emissions from waste by at least 30% (p. 25).

3.2.5 The Waste Strategy will guide Councils on further development of their Waste Management plans and is relevant for consideration of any application for an incineration plant relying on 'waste' as feedstock.

3.2.6 Waipa District Council requested further information under s92 as to how the proposal aligned with Ministry for the Environment Waste to Energy Guide.²

3.2.7 The Ministry for the Environment's factsheet "A waste to energy guide for New Zealand" sets out Principles and Questions. The principles include:

- 1. Proposals should support New Zealand moving steadily up the waste hierarchy and that WtE plant may in fact discourage recycling, compete for resources and make resource recovery less economically viable.
- 2. That the risk of environmental or harm to human health be managed from any WtE proposal
- 3. The proposal must be commercially viable over the long term
- 4. There should be a strong level of support from community and Treaty partners

3.2.8 The Application does not stack up, when view through the lens of these Principles. Incineration is a method of disposal and sits at the bottom of the waste hierarchy.

3.2.9 In response to Waipa Councils request, the Applicant did not engage in the concern that a WtE facility may discourage recycling, compete for resource and make resource recovery less economically viable and that incineration creates "a 'back-end pull' for waste generation accentuated by contractual lock-ins (Muznik, 2017)".

3.2.10 This shows that the Applicant does not consider the changing waste policy landscape as relevant and does not see it as a risk to its venture. It is therefore, unlikely, to have undertaken a risk analysis to assess long term commercial viability of its Proposal in the face of a shift in Policy, Legislation and Regulation. Also relevant to viability is the Applicant's ability to actually source sufficient waste feedstock.

3.2.11 The Applicant has not adequately assessed the risk to human health and the environment of the proposal, therefore the risks will not be adequately managed. (discussed later in this submission).

3.2.12 The fourth principle, requires strong support from the community and from Treaty Partners. In a response to S92A to Waikato Regional Council Waikato-Tainui have said they would like a Cultural Impact Assessment. This has not been forthcoming.

² https://environment.govt.nz/publications/waste-to-energy-guide-for-new-zealand/

3.2.13 As recently as 8 October, the local Te Awamutu community organised a well-attended march against the incinerator proposal.³

3.2.14 Waste Legislation reform is well underway. The Waste Strategy and the MfE Waste to Energy Guideline have envisioned the need to regulate WtE incineration including removing exemptions from waste disposal levy to disincentivise "undesirable types of waste to energy facilities" and developing National Standards for disposal methods and facilities.

3.2.15 Greenpeace Aotearoa contends that the reforms to ensure the transition to the low-emissions, low-waste society, embedding circular economy principles are highly relevant to assessing the Applicant's proposal.

3.3 Plastic Reduction - a New Policy Direction

3.3.1 We are in a plastic pollution crisis caused by runaway plastic production. It continues unabated, with devastating consequences. Plastic causes environmental and human harm at every point of its lifespan - from the moment oil is extracted from Papatūānuku to make plastics, to the moment a plastic product is thrown away, and every stage in-between, including the manufacturing and transporting of plastic products around the globe, and the (often short) use-time of plastics by businesses and consumers.

3.3.2 Governments around the world are currently working towards a Global Plastics Treaty⁴, with the draft released in September this year. Although it is early in the negotiation process, it signals a global movement to reduce harm from plastics.

3.3.3 World governments are currently negotiating a global instrument to address plastic pollution. As pollution happens at all stages of its lifespan, this plastics treaty must be focussed on upstream solutions that will significantly cut plastic production. Incineration of plastic products does not prevent plastic pollution and its harms.

3.3.4 New Zealand has a National Plastics Action Plan that includes phasing out single-use and hard-to-recycle plastic items, introducing regulated product stewardship for six waste streams and investing approximately \$100 million in resource recovery infrastructure. Although this will not solve the plastics crisis in the short term, it will start to move plastic out of the waste stream.

3.3.5 The New Zealand public is deeply concerned about plastic pollution, waste and packaging. Successive Kantar *Better Futures* reports have placed plastic waste in the environment in the top ten list of issues that most concern New Zealanders, along with the scourge of overpackaging and landfills. Break Free From Plastic states that governments must develop and enforce effective regulation of plastic imports, production and usage to hold corporate plastic polluters to account as "personal lifestyle changes alone will not solve the plastic or climate crises".⁵

³ https://www.newshub.co.nz/home/new-zealand/2023/10/te-awamutu-locals-march-against-proposed-waste-toenergy-plant-as-deadline-looms.html

⁴ https://wedocs.unep.org/bitstream/handle/20.500.11822/43239/ZERODRAFT.pdf 5 Kantar and Sustainable Business Council (2023) Better Futures 2023. Accessible at https://www.kantarnewzealand.com/wp-content/uploads/2019/05/Better-Futures-2023-1.pdf

3.3.6 Greenpeace Aotearoa is calling for a 75% reduction in the production of plastics. There is a strong movement around the world, including businesses, NGO's, communities and regulators who are working to achieve reductions of plastics in our lives and economies.

3.3.7 Plastics are a large portion of the proposed incinerator feedstock; however, the future availability of this waste stream will be reducing. However, as discussed above, the Applicant has not taken this new policy direction on board. In the context of the plastics crisis, a waste incinerator that could create demand for more plastic feedstock, should not be permitted.

4. Assessment of Actual and Potential Effects of the Proposal

The adage 'Garbage in Garbage out' is particularly relevant to understand contaminants that will discharge from an incinerator.

The Table 1 The Application (p20 App143988) sets out the expected types and volumes of waste the incinerator will burn.

Refuse Component	Percentage	Tonnes annual	Description/Comment
Flock	10%	17,529	combustible materials left over from a vehicle once recyclables have been stripped out
Tyres	20 %	35,058	
Municipal Solid Waste	45-50%	78,880	Sourced Regionally
Plastic	20 %	35,058	
Total		166525	465 tonnes per day

4.1 Flock: As described in Table 1, flock is the "combustible materials left over from a vehicle once recyclables have been stripped out". It is well documented that the family of chemicals per and polyfluoroalkyl substances (PFAS) can be found in metal recycling streams, including in residue from automobile shredding. This means one stream of fuel will be contaminated with a persistent, bio-accumulative substance that is toxic.

4.1.2 PFAS are used for a wide range of purposes in the automotive industry including: Fuel lines, fuel hoses, turbocharger hoses and hoses in hydraulic systems, ABS brake lines, O-rings, Shaft seals and valve stem seals, Air intake manifold and cylinder head gaskets⁶.

4.1.3 Data reported in 2020 showed incineration of PFAS contaminated material in a kiln did not break down the persistent chemicals but is "redistribut[ed] ... into nearby poor and working-class neighborhoods".⁷ The US Defence Department subsequently stopped incineration of its firefighting foam.

4.1.4 PFAS are described as 'forever' chemicals because of their strong bond making them very persistent in the environment and an ability to bio-accumulate in humans. The well documented

⁶ End-of-life circulation of PFAS in metal recycling streams: A sustainability-focused review. <u>https://www.sciencedirect.com/science/article/abs/pii/S0921344923001143</u>

⁷ Chemical & Engineering News. https://cen.acs.org/environment/persistent-pollutants/Incincerators-spread-breakdown-PFAS/98/web/2020/04

negative health concerns of exposure to PFAS include developmental toxicity, cancers, liver disease, and kidney disease.⁸ (Fenton et al., 2021).

4.1.5 PFAS have not been mentioned or modelled in the Application.

4.2 End of Life Tyres

Tyres are another dirty source of fuel. Only around 19 percent of a tyre is natural rubber, the rest is rubber derived from fossil fuel with carbon black, silicon, Zinc Oxide and Sulphur. Zinc Oxide is toxic to aquatic life but has not been modelled. Based on the tonnage in Table 95 tonnes of tyres will be shredded and burnt every day, which means hundreds of tonnes of tyres as feedstock will be held at the plant on a continuous basis.

4.3 Plastics

4.3.1 Plastic is made from petrochemical (fossil fuels) and mixed with a vast array of chemicals in order to make the product suitable for many uses. "A recent report listed over 2400 substances in waste plastic that are identified as of potential concern because they meet one or more of the persistence, bioaccumulation, and toxicity criteria in the EU (Wiesinger et al., 2021)."

4.3.2 Only a relatively small number of chemicals and metals are monitored in a flue stack or in the ash waste from a waste incinerator, yet a vast cocktail of chemicals will be released when plastics are burned. Plastics pose a serious problem in the environment and waste streams *per se* but in incinerator feedstock they become the reservoir of toxic chemicals waiting to be released.

4.3.2 Plastics are a dirty fuel, yet a waste incinerator needs the plastic component of MSW due to its high calorific value. This incinerator will likely create demand for plastics at a time when society is looking to reduce plastics production and phase some plastics out altogether.

4.4 Municipal Solid Waste

4.4.1 "Municipal solid waste (MSW) now includes ubiquitous quantities of plastics and their additives, along with plastic/metal composites such as printed circuit boards and other petrochemically coated substances like paper, packaging, and waste wood (Conesa et al.,2021). It is also a 'dirty' source of fuel.

4.4.2 The total volumes of MSW continue to grow and the proportion of the so-called 'inert' part of the waste stream (including plastics) is also growing. It is estimated that up to 20% of MSW by volume is plastic.

4.4.3 MSW is a non-homogenous mix of society's discards. It ranges from nappies to food waste to textiles and can be contaminated with materials that should not be in the mix, such as batteries, paints, oils. It is an extremely sub-optimal fuel for energy generation.

4.5 The Growing Spectre of PFAS in the waste stream

As well as part of the automotive industry, PFAS can also be found in food packaging, beauty products, waterproofing agents, non-stick cookware, in waterproof outerwear and shoes, in carpets, fabrics and upholstery marketed as stain-proof, in fresh and processed food and many other

⁸ Footnote 1 above, p1.

applications.⁹ All of which are found in the MSW stream and will be burnt and PFAS 'redistributed' into the air and surrounding environment.

5. Discharges to Air

5.1 Contaminants discharged to Air from incineration of waste include Dioxins, Furans, Heavy Metals, Nox, SO2, fine particulates, nano particles and per- and polyfluoroalkyl substances (PFAS).

5.2 The Applicant describes the discharges to air from its proposed facility as 'benign' (p81 App 143988). No matter the concentrations of contaminants in the flue gases, substances that are toxic, persistent and bio-accumulate are not benign. The Applicant goes on to state that the effects on the environment are minor or less than minor. This statement is not consistent with studies showing that communities living close to incinerators experience poor health outcomes, including cancers¹⁰.

5.3 There is no safe level of dioxins and furans and this incinerator will emit those contaminants. Just because there is a discharge limit set, does not mean that limit is safe.

5.4 Nanoparticles are a growing health concern. The highly toxic substances in the incineration flue gas can be emitted on the surface of the nanoparticles, which are so small they can evade air pollution control¹¹, ¹². Nano particles ejected from an incinerator into the air poses a serious potential effect to human health as they are small enough to pass through lung membrane. There is little information on the risks of nano particles on human and environmental health from incinerator stacks. The Application does not mention nor model the potential effect of nano-particles.

5.5 A public health impacts report states that modern incinerators in the EU are a major source of ultra-fine particulate emissions.¹³ Incineration proponents rely on capture features on incinerators, however failures occur and continuous testing is the only way to ensure the discharges really remain within set limits.

5.6 In a request for further information under S92 Waikato Regional Council (question 18) requested the Applicant to "provide examples where the same technology has been successfully used elsewhere in the world (with the same or similar proposed refuse feedstock for the Paewira WTE plant) (note: please provide at least 3 examples)."

5.7 The Applicant failed to provide any examples and referred to modelling based on generic Refuse Derived Fuel. The Applicant also states that "[S]tack emission concentration data for a Lambion RDF plant in Korbach that is similar to the proposed Paewira units and uses the same technology for emission control..." (Appendix A, T Brady Air Sections Further information, 11 August 2023, p1).

5.8 That statement is incorrect because the Korbach Plant's feedstock is quite different, it does not burn tyres, instead around half of the feedstock for the plant is made up of wood, paper and textiles¹⁴.

⁹ https://www.packagingforum.org.nz/wp-content/uploads/2022/03/PFAS-IN-FOOD-PACKAGING_FINAL.pdf

¹⁰ Waste Incineration and Public Health (2000), Committee on Health Effects of Waste Incineration, Board on Environmental Studies and Toxicology, Commission on Life Sciences, National Research Council, National Academy Press, pp. 6-7.

¹¹ Massey University Summary of an upcoming Talk by Emeritus Professor Paul Connett 2020.

¹² Nanomaterial disposal by incineration.

¹³ Howard, C.Vyvyan, Statement of Evidence, Particulate Emissions and Health, Proposed Ringaskiddy Waste-to-Energy Facility, June 2009.

¹⁴ Störung im Industriekraftwerk Korbach - Feuerung abgeschaltet

https://www.hna.de/lokales/frankenberg/stoerung-im-industriekraftwerk-korbach-feuerung-abgeschaltet-9866561.htm

5.9 The Applicant contends that the effects on the environment with be minor or less than minor. However, because the Applicant has offered no actual data from the same type of incinerator technology with similar fuel, means that data upon which its assessment is only modelled or inferred.

6 Contaminants discharged to land in the form of bottom ash, fly ash and waste water

6.1 The Applicant has not applied for any discharge permit for the ash and waste water from the incinerator because these waste streams will be sent to landfill or other treatment options. However, because these are hazardous waste products, the Applicant needs to show they will be managed in a way that does not harm human health and the environment.

6.2 Contaminated Ash

6.2.1 Like flue discharges, incinerator ash is not benign. Each day 23 tonnes of hazardous ash will be produced by the incinerator, 21 tonnes of bottom ash and 2 tonnes of fly ash. There is no description of any contaminants in the ash and no information of where the ash would actually be landfilled in the Application.

6.2.2 Fly Ash is considered a hazardous substance in Europe and is often stabilised prior to landfilled. The applicant suggests that the fly ash from the incinerator can be used to make concrete barriers. This proposal is problematic as it creates a product with of toxic waste posing risks to people and the environment. An Austrian study into the use of MSW incineration fly ash in concrete products revealed that the products;

"will not be recyclable anymore due to its high total heavy metal contents. This and the comparatively high contribution of MSWI fly ashes to total heavy metal contents in cements indicate their relatively low resource potential if compared to other secondary raw materials in the cement industry from for preventing the product from being reused or recycled at the end of its life".¹⁵

6.2.3 The bottom ash from the incinerator will be sent to landfill. The Applicant has provided no evidence that any landfill is able to receive the bottom ash. Waikato Regional Council in a s92 request for further information asked the Applicant to "provide evidence of consultation with a suitably licensed landfill owner/operator that ash and other non-recyclable material will be accepted by the landfill."(21 March 2022: Request for Further Information under s92(1) RMA Qn 39)

6.2.4 No *evidence* was provided that landfill operators are willing or able to take the bottom ash. (emphasis added). The Applicant replied that "[d]iscussion on this matter has taken place with operators, and it is known there is demand for ash for cement production – see Assessment against Waipa District Council WWMP, Attachment 7".

"What is then left at the end of the process is 23 tonnes of fly ash. Recent conversations with companies in the building and construction industry have indicated that there is a demand for fly ash. It is used as an input to concrete tilt slab panels - to achieve Green Star-ratings requires 15% fly ash content as a substitute for cement. We are aware that the Ministry of Education will stipulate that all newly constructed schools, of which 150 are planned, are required to achieve Green Star 6 ratings. This cannot be achieved without fly-ash content tilt slabs. The industry is already struggling to achieve supply due to a lack of fly ash."

¹⁵ https://pubmed.ncbi.nlm.nih.gov/27815031/

6.2.5 Both bottom ash and fly ash are contaminated with hazardous pollutants. The Applicant clearly does not understand that fly ash from a MSW incinerator would be wholly inappropriate use of material in building schools.

6.2.6 Landfilling ash from a Municipal Waste Incinerator has never occurred in New Zealand and needs careful consideration. There is abundant research showing that bottom ash can be highly contaminated with many toxic elements, persistent organic pollutants and microplastic. The volumes of ash from this plant are significant, assuming the ash calculations are correct, over 7600 tonnes of contaminated ash being sent to landfill each year.

6.2.7 A 2022 research study found that there were 16 elements found in the bottom ash of incinerators burning MSW that are of a High Level of Concern¹⁶ Major constituents (ca. 90%) are oxides of sulphur (S), silicon (Si), calcium (Ca), iron (Fe) and aluminium (Al) bound, among which are numerous minor elements from different chemical groups, many of which are very toxic (Simon et al., 2021; Vateva, and Laner, 2020).

6.2.8 This study also found Persistent Organic Pollutants (POPs) and Microplastics in the bottom ash of more than 25 incinerators and 12 waste handling facilities, including PFAS, PCBs, BFR, TCDD, PBDE, PBDD and TCDD. The testing of bottom ash and leachate thereof in a modern waste incinerator in Norway found concentrations of PBDE a magnitude higher than even in the fly ash.¹⁷

6.2.9 Another study found that bottom ash from two out of three incinerators sampled contained PFAS at three times greater concentration than in fly ash. The authors concluded that bottom ash constitutes an important vector for PFAS into the environment.¹⁸ Some PFAS are water soluble so can move as leachate into groundwater if not contained. The cited studies also confirmed that leachate from bottom ash is likewise contaminated with the substances of concern found in ash.

6.2.10 The research study states

If waste incineration (a linear activity) remains for some time within a circular economy transition, then better upstream source separation of waste to remove plastics which contain toxins and/or which are known to produce POPs during waste incineration seems essential. Removal of plastics from waste incinerators would, however, have adverse consequences for internal temperature because plastics are of relatively high calorific value.¹⁹

6.2.11 This highlights the dilemma of a waste incineration proposal at the beginning of a transition to a 'low-emissions, low-waste society, embedding circular economy principles'. A waste incinerator needs plastics due to its high calorific value to assist achieving temperatures needed in the furnace. Therefore, this incinerator will need plastic as a fuel source, creating demand for plastic and depriving efforts to recycle, re-use or even reduce plastic.

6.3 Contaminants in the process water which will be sent off-site for disposal.

6.3.1 Water used for washdown of the incinerator from the plant will not be released into the environment from the facility, rather the Applicant plans to send the wastewater to holding tanks on

¹⁶ Fulfilling one or more of hazard criteria under EU REACH (namely: very bioaccumulative; carcinogenicity; mutagenicity; reproductive toxicity; endocrine disruption; specific target organ toxicity upon repeated exposure; and chronic aquatic toxicity): Toxic Fallout Waste Incinerator Bottom Ash in a Circular Economy Research Report - January 2022.

¹⁷ Ibid. P14.

¹⁸ Ibid.

¹⁹ Ibid, p18.

site and then sent off-site for treatment and disposal. A slurry of water and dust from the firebox through a wet ash sluice will likewise be directed to the holding tanks and sent for disposal.

6.3.2 The Applicant does not outline how the wastewater and slurry will be treated or explain how contaminated water will be 'landfilled'.

6.3.3 The waste water will contain contaminants found in ash and from the waste processed through the site, including POPS, PFAS and heavy metals. Waikato Regional Council (WRC) sent a s92 Further Information request to the Applicant, asking for an analysis of contaminants likely to be found in the wastewater. The Applicant did not answer the question. WRC also requested information about any party who would receive treat and dispose of the waste water.

6.3.4 The Applicant responded by appending a letter from its related company GMS offering and expression of interest to receive this contaminated waste water "for our washdown and fire-fighting needs".

6.3.5 This letter was sent as if it were a third party, dealing at arm's length. A companies register search shows that these two companies have the same single director, Mr Vernon Tuhoro, at the same registered company address. It is unclear whether the Applicant in fact opened a process calling for Expressions of Interest for processing the waste water.

6.3.6 It is alarming that this wastewater, containing incinerator contaminants, would be used in a metal scrap yard for washdown and firefighting purposes. The wastewater would be a discharge to land of contaminated waste, with concomitant adverse effects on the environment and human health. The volumes of waste water are significant, with 120,000 litres of washdown water and 37,000 litres of 'liquid process waste' per day or 43 million litres of washdown water per year and 13.5 million litres of 'liquid process waste'.

6.3.7 Likewise leachate from thousands of tonnes of contaminated bottom ash will at some point find its way out of landfill and into the land and water. Many of the contaminants are persistent and bio accumulative and should be classed as Hazardous Waste and should not be sent to municipal landfill.

7 No Assessment of Effects on Human Health

7.1 The applicant claims that effect on the environment for all discharges are minor or less than minor and as a result there has been no impact assessment on human health. That is difficult to accept when:

- no actual data from the proposed technology with a similar waste stream has been presented
- there will be PFAS in the waste stream which will be dispersed through the flue gases to the environment and human populations
- there *are* emissions of dioxins and furans from the flue and it is well established that there are no safe levels of these chemicals
- nano particles may be in the waste stream and are not necessary caught by incinerator filters thus escaping the pollution controls into the environment, carrying a toxic load
- highly toxic fly ash will be made into concrete barriers or used for school building materials
- 95 tonnes of tyres will be burnt every day and no modelling has been done for zinc oxide emissions
- The risk of storing hundreds of tonnes of tyres in the plant has not assessed

- studies show that bottom ash is contaminated with substances of high concern, surprisingly finding more contaminated than fly ash in some cases
- leachate from bottom ash contains these same contaminants will be a risk in landfill for generations.

7.2 A review of health studies shows that there is significant risk pathways for the contamination and ingestion of food from WtE incineration and part of the difficulty in assessing the actual health effects from incineration is that disease can take many years to manifest.²⁰

7.3 There are significant gaps in the Applicant's Assessment of Effects on the Environment. The Applicant needs to address these gaps and provide comprehensive human health impact assessment.

8. Transition to Renewable Energy

8.1 The waste stream the Applicant proposes to use is a dirty mixed source of fuel, contributing to greenhouse gas emissions as well as creating hazardous waste streams.

8.2 The applicant states that this facility is a springboard for renewable energy in the region contributing 15Mw to the base load for the region. The same could be said for a gas fired power station. The Applicant's statement obfuscates the reality that much of the input to this incinerator is of fossil fuel and of chemical origin and that the facility requires diesel fuel input to bring the furnaces up to the operating temperature of 850°C.

8.3 The WRC Regional Policy Statement, EIT-O1 – Energy directs that, "Energy use is managed, and electricity generation and transmission is operated, maintained, developed and upgraded, in a way that: reduces reliance on fossil fuels over time." The incinerator has a life span of perhaps 30 years meaning that the region is locked into this use for that time.

8.4 The New Zealand Waste Strategy states that "[u]sing mixed and non-biological waste (like municipal solid waste) in waste to energy processes can be technically challenging. These types of waste are more likely to create hazardous by-products and *generate greenhouse gas emissions*.

8.5 The Proposal is likely to increase greenhouse gas emissions and works against the efforts to increase renewable energy in Aotearoa New Zealand.

9. Conclusion

9.1 Greenpeace Aotearoa contends that the Application does not promote the sustainable management of natural and physical resources and does not manage the "use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety" as is required by the Resource Management Act 1991 (RMA) in section 5.

In particular it does not:

a) sustain the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations;

b) safeguard the life-supporting capacity of air, water, soil and ecosystems; or

c) sufficiently avoid, remedy or mitigate adverse effects of activities on the environment.

²⁰ Environmental Health Intelligence New Zealand. Health effects of air pollution. <u>https://www.ehinz.ac.nz/indicators/air-quality/health-effects-of-air-pollution/</u>

9.2 If this Proposal is approved, it will seriously undermine the ability of Aotearoa New Zealand to make much needed progress towards a sustainable future.

9.3 The New Waste Strategy and the reform of waste legislation is writing on the wall for polluting incineration technology. These policy and legislative development are relevant in considering these Applications.

9.4 Reduction of harm from plastics is gathering pace, with the Text of a Global Plastics Treaty recently released. The National Plastics Action Plan also looks to reduce plastics in our lives, environment and waste streams. Approving an incinerator which gives value to plastic as a waste would take New Zealand in an entirely wrong direction.

9.5 The waste stream for this Proposal consists of non-homogenous mixed municipal solid waste, contaminated automotive waste, plastics and used tyres. These are dirty sources of fuel with significant volumes of materials derived from fossil fuel.

9.6 The Applicant relies on modelled or inferred data for its assessment of toxicity of discharges rather than a similar technology with similar feedstock. It is uncertain whether the data used comes from facilities using continuous monitoring, which is the only way to capture the actual emissions data because covers start ups, shut downs and breakdowns.

9.7 The Applicant has failed to provide any information on several substances of concern including Zinc Oxide, nanoparticles and PFAS. There is no safe dose of dioxins and furans.

9.8 The Application has a total lack of analysis of the contaminants in the ash and wastewater from the incinerator. There is an abundance of research showing that ash is contaminated, yet the Applicant fails to address how this will be managed.

9.9 The use of contaminated water for wash down and firefighting at a scrap metal yard is inappropriate.

9.10 Studies show that removal of plastics from the waste stream because of their toxicity, yet highlights the dilemma that a waste incinerator needs plastics to achieve furnace temperatures.

9.11 There are serious deficiencies in the assessment of environmental effects enabling the Applicant to consider the effects as minor.

9.12 The Proposal cannot be considered a pathway to renewable energy. Much of the waste stream is derived from fossil fuels and the plant requires diesel fuel inputs in the furnace.

9.13 The incinerator, if approved will lock Aotearoa New Zealand into a linear waste economy and impede the transition to a low-emissions, low-waste society, embedding circular economy principles.

Based on the information in this submission, Greenpeace Aotearoa requests that the Consent Authority <u>declines</u> the Application for Consents to build a waste incinerator at 401 Racecourse Road, Te Awamutu.