



Submission to Horizons and Bioplant

consent.submissions@horizons.govt.nz and ttaupo@bioplant.co.nz.

Submissions are due by **4:45pm on Thursday, 31 March**

Application number: #APP-2020203133.00 - Bio Plant Manawatu NZ Limited

Our submission relates to the whole application.

We *oppose* this application. We want the Horizons Regional Council to *decline this application*.

We would like to be heard in support of our submission.

Applicant: Associate Professor Trisia Farrelly (on behalf of the Aotearoa Plastic Pollution Alliance), School of People, Environment and Planning, School of People Environment and Planning, Te Kunenga Ki Pūrehuroa, Private Bag 11222, Te Papa-i-Oea 4442, Aotearoa New Zealand, 06 9516664.

The [Aotearoa Plastic Pollution Alliance](#) kaupapa is to “Prevent plastic pollution in Aotearoa and Oceania as an integral part to restoring the mauri of Papatuanuku (Earth Mother) and Tangaroa (God of the Sea)”. We are a collaborative forum of many of Aotearoa’s top researchers, educators, scientists, industry, and conservationists working to mitigate and prevent plastic-related pollution in Aotearoa and Oceania. Many of our members are world-renowned researchers in this field. Our aim is to engage with policymakers, industry, and the public including tangata whenua and Pasifika leaders, to advocate for, and develop solutions to prevent plastic pollution and removing what is already in the environment where possible. Our strategy integrates the principles of Te Tiriti o Waitangi, mātauranga Māori and Pasifika science to promote the latest research, information about the impacts of plastic pollution, and solutions for preventing plastic pollution at local, national, and international scales.

Lack of full transparency and empowering partnership with Mana Whenua

The Bioplant website states that it supports “‘Kaitiakitanga’ (New Zealand Iwi guardianship of the land).” APPA considers the statement on the Bioplant website a blatant example of ‘culture washing’ as the application process has not been grounded in the principles of Te Tiriti o Waitangi and in mātauranga Māori. Consultation with mana whenua has been incomplete at and inadequate at best. Aorangi Marae is 500 meters from the proposed site. Aorangi Marae is the marae for Tahuriwakanui hapu of Ngati Kauwhata. Ngati Kauwhata Iwi are the tangata whenua of this area of Feilding and the Kawakawa block. Aorangi Papakainga have not been consulted, and based on Bioplant’s application, they oppose the proposal. Indeed, Aorangi Marae was not even aware of the proposal until Fielding Against Incineration and Zero Waste Aotearoa informed them of the proposed plant. In addition, Bioplant incorrectly advised Ngāti Kauwhata that this would be a non-notified consent, even though they knew they did not have any control over Horizons’ decision making.

Lack of transparent and empowering participatory process with community

Despite repeated calls to the Manawatū District Council for a public meeting, none was ever organised by the Council. Bioplant, the Manawatu District Council and Horizons Regional Council have not done everything they can to ensure that iwi, hapu, and the broader public have had ample opportunity to hear a *range* of perspectives on the science and impacts of the proposed site, and to air any concerns. The only information about the plant has come from vested interests in the proposed technology or from questionable 'experts' (e.g. those with expertise in other forms of waste to energy incineration such as biomass pyrolysis or those with no understanding of MSW pyrolysis specifically). Thus, the information received by councilors has been inaccurate, incomplete, and misleading as the report from one of the few international experts in MSW pyrolysis, Dr Andrew Rollinson, shows.

Bioplant's culture washing has been supported by the lack of democratic process including a lack of public consultation offered by MDC and Horizons. The proposed facility is on public land leased by the Manawatū District Council. As MDC functions on behalf of the community, it has the responsibility to ensure the public are notified of its plans to support Bioplant's operations and to determine community support or opposition to that plan.

Page 7 of Bioplant's application says, "*Manawatū District Council has provided GGII and associated entities written endorsement and are willing to partner with us to achieve their aims.*" There has not been any public information available about what this "partnership" involves and the community has received no information about what the Council has agreed to do. The Manawatu District Council logo appears on the Bioplant website under the title 'Partners'. Regardless, in the MDC 17 March meeting, MDC's infrastructure general manager, Hamish Waugh defended MDC's lack of public notification stating that this was "not an mdc project as such although I recognize that with the proposed location and waste supply and the like, there is a wider sort of public interest in council involvement..." A LGOIA revealed a lack of documentation of MDC's involvement with Bioplant. This contradicted information from one-to-one discussions between Fielding Against Incineration and Zero Waste Aotearoa members and MDC and Palmerston North City councilors.

In the 17 March 2022 MDC meeting in which councilors were asked to indicate their support for the MDC submission to support Bioplant's proposal, several councilors raised their concerns regarding the undemocratic process they had observed from the time they were first aware of the proposal up to that meeting. For example, Councillor Phil Marsh noted that the request to support the MDC submission was a late item (posted only 28 minutes prior to the meeting) and that they had received no information prior. Hamish Waugh had brought the matter to an MDC workshop for the first time on 2 Sept 2022. It was never mentioned on 2nd December in relation to the waste minimisation plan and then on 17 March, councillors were being asking for MDC to approve. There had been no public consultation and then public presentations were given, councillors were only informed 48 hours' notice prior. Notification has not been correctly carried out through public channels of council. Questions about process were shut down in the MDC meeting after mayor Helen Worboys confirmed that this had been allowed as a 'late item'. APPA see this as another tactic by MDC councillors in support of the proposal to rush this proposal through and consider it wholly inappropriate to include the MDC submission as a 'late agenda item' due to its gravity.

In the same meeting, there was a distinct general lack of comprehension about the proposed plant and its potential impacts. This was likely the result of the absence of access to scientific consensus and independent critical review of Bioplant's application. Councilors were only provided with information limited to that which was supportive of the proposal. Inadequate critical assessment of all potential impacts of the plant (economic, sociocultural, human health, human rights, emissions to air, land, and water) were not made available nor was they offered. There appeared to be no appetite for independent critical review of the

application from one of the few scientists with the expertise to conduct such a review. Nor was there any acknowledgement or awareness that this technology has only been unsuccessfully attempted in a handful of cases: one in Germany and some trials in the UK - and that *all had failed*. Zero Waste Aotearoa (ZWA) have sourced and commissioned such an expert (Dr Andrew Rollinson from the UK) where this has not otherwise been provided. In other words, ZWA paid for the appropriate expertise Horizons and the MDC should have sought early in the proposal phase.

We were particularly appalled to hear the following statement from Hamish Waugh in response to concerns from councilors about dioxin emissions (information they were only privy to in the public forums held by community group Fielding Against Incineration): "If it is built and emissions breach consents, it would be shut down or other action taken." In other words, the MDC is not interested in the precautionary principle and will put all their faith in the consenting process after millions of dollars have been spent on the construction of the site and air, water, and soil quality and the health of community members have been compromised. Data provided for the consent application is inadequate for granting of this consent. The PDP technical report (Section 7.1) recommends "stack testing to confirm the emissions rate if consent is granted" but once the facility is built and operational it is too late and risks unnecessary community exposure. This reflects the 'ambulance-at-the-bottom-of-the-cliff' attitude represented in Hamish Waugh's comment to the MDC,

Horizons Regional Council has a poor record of compliance and enforcement for consent holders with relation to discharge to rivers. This has eroded trust in Horizons in ensuring consent conditions are upheld in this case – particularly when Horizons are only interested in a Bioplant's consent for emissions to air to the exclusion of emissions to land and water.

Most concerning is that there has been limited discussion of safe levels of emissions air and none to land and water; poor indication of regular independent monitoring and reporting of these emissions and none pertaining to plant fluxes and failures; no reference to biomonitoring; and none to compliance and enforcement. For example, Bioplant intends to 'cold start' the facility once a month (12x per year). These instances are likely to result in exceeding allowed emissions, deliberately putting communities at greater risk of exposure to toxins. In addition, should there be any faults at any time with the plant resulting in less-than-optimal running of the plant, emissions are likely to exceed the allowed level until the fault is corrected and optimal levels are again achieved.

The PDP technical report on Bioplant's application uses an inappropriate and unrelated air quality standard on dioxins (from the US state of Texas) to claim that dioxin levels will be safe. The PDP Technical report indicates that (section 9.2 Combustion Emissions) the methodology that is used to determine the levels of emissions of polluting gases is: 1. Not standard practice in New Zealand and 2. "may not represent the worst-case scenario".

It is not possible that Bioplant can do what it promises

The proposed technology defies the laws of thermodynamics. MSW pyrolysis produces heavily contaminated output - much more than a standard waste-to-energy incinerator. There is currently no pyrolysis facility in Europe that processes MSW as **none have been successful**. The last one, the Burgau plant, was shut down in 2015. EU countries are swiftly moving away from all Waste to Energy (W2E) technologies with major European financial institutions excluding it from financial support from the EU circular economy package. A few trials have popped up in the UK but these have all failed. These companies are being chased out of Europe and it is no wonder they are knocking on our doors. We must not let them in.

Bioplant claim there has been a successful GGII MSW plant in South Korea. MDC and Horizons would do well to demand evidence not only of their proclaimed success but of the levels of dioxins from regular independently conducted tests in the area (including during plant energy spikes and failures) including air, water, soil, and biomonitoring. The biodiesel should also be tested for toxicity and the carbon emissions/energy usage capturing the full life cycle of the plant.

This is untested technology in Aotearoa New Zealand. At present Aotearoa New Zealand has no municipal solid waste (MSW) incinerators/pyrolysis plants. Feilding does not want to be a testing ground for this technology; and Bioplant does not have a proven track record of operation. The application and website for the company are unclear on the proposed facilities. The data provided in Bioplant's application are based on a non-operational proposal in Australia.

Section 1.1 of the Bioplant application states, "*BPNZ understands the dynamics of the waste management market in New Zealand.*" Bioplant has no waste operations in New Zealand. Not one of the company directors, board members or engineering team have any experience in the New Zealand waste sector. None of Bioplant's spokespeople based in Aotearoa have the expertise in MSW pyrolysis necessary to critically assess the company's application including Dr Jim Jones from Massey University, whose expertise is limited to biomass pyrolysis. MSW-fed pyrolysis requires an entirely different set of expertise.

Zero waste alternatives undermined by this proposal

Underpinned by the national and international expertise of their members in the science of plastic pollution to air, water, soils as well as economic and sociocultural impacts, APPA keenly focusses on pollution prevention policy and action at the top of the zero-waste hierarchy.

Incineration technologies such as pyrolysis are conspicuously absent from the gold standard of circular economies as designed by the Ellen MacArthur Foundation which supports the ANZPAC Plastics Pact and sits below landfill in Zero Waste Europe's zero waste hierarchy as an 'unacceptable' waste response.

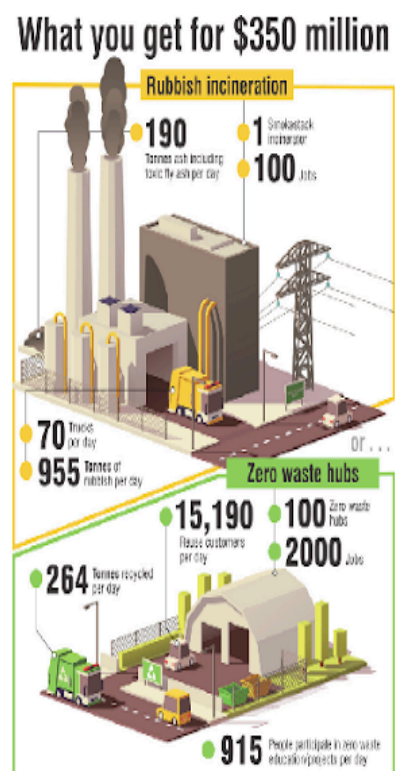
NZ has recently supported the mandate for a plastic pollution treaty. A start and strengthen approach toward the establishment of this treaty in 2024 has already started. This will include strengthening NZ's National Plastics Action Plan to incorporate national monitoring and reporting systems and reporting back to the UNEA Secretariat about how we are meeting timebound and measurable plastic pollution reduction targets. Since incineration is not considered a zero-waste circular economy solution, it is highly likely that the NZ government will need take a strong position on legislating against waste to energy technologies such as MSW pyrolysis in the very near future.

We question how Bioplant can tout itself as 'green', sustainable, and 'the solution' to the circular economy when it does nothing to offset non-renewable resources, does not replace material for material (e.g., plastics for plastics), and requires huge volumes of non-renewable resources to retain process efficiency and uses non-renewable resources to produce more non-renewable resources in a linear (as opposed to circular) manner.

For MDC to consider this proposal rather than cheaper, simpler, more effective, toxic-free, zero waste alternatives illustrates a lack of expertise in waste prevention, reduction, and management needed for the development of their recovery park and their waste management plan.

MDC councilor's inability to comprehend the zero-waste hierarchy, principles, and zero waste alternatives were striking in the 17 March MDC meeting in discussions about Bioplant's proposal and the MDC's submission to support it. One councilor stated, "Zero waste ... will never happen." And another, "I can't see zero waste ever happening. I can't comprehend it."

Adopting a zero-waste strategy for the community would fit with the Horizons *One Plan* to minimise waste, while meeting community aspirations for a healthy environment, job creation and mitigation of climate emissions. The EU social enterprise reuse, repair, and recycling group, RREUSE found that for every job an incinerator creates, recycling centres create 36 jobs, and reuse activities create 296 jobs. Waste and recycling services are set to become the fastest growing sector as our country moves towards a circular economy. Incineration is not part of this shift ([RREUSE 2015](#)). Rick Thorpe ([Extreme Zero Waste](#)) gave a presentation at one of Zero Waste Aotearoa/Feilding Against Incineration public presentations.



MDC and Horizons require building capacity and capability to develop a zero-waste economy in the region. This would start with the acknowledgement that pyrolysis and all other technologies that facilitate the combustion of municipal mixed solid waste sits below landfill on the zero-waste hierarchy due to its linearity, its capacity to pollute, and that investment in this technology undermines waste prevention and reduction efforts further up the zero-waste hierarchy. In addition, linear responses to the plastics crises such as incineration technologies do not align with MfE's recently released National Plastics Action Plan for Aotearoa New Zealand.

MSW pyrolysis *necessitates* landfills

Pyrolysis and landfill are not the zero-sum game Bioplant and the MDC want the community to believe. 20-30% of inert material in the MSW would consist of metals and incombustible hydrocarbons which should not be fed into the pyrolysis plant. However, this is virtually impossible to avoid and so there would be an expected solid residue output of about 10 tons of those incombustible residues for every 40 tons of MSW. Pyrolysis waste that can't be used (combusted for fuel) would add another 20 tonnes. Therefore, the community is looking at approximately 30 tonnes of solid waste to landfill per 40 tonnes of MSW. That is a LOT of wasted resources and a LOT of toxic contamination to landfill.

Feilding would become a net waste importer. In 2020-2021, the Manawātū region sent 7,101 tonnes of rubbish to landfill. This is approximately 19 tonnes/per day. The Bioplant application would allow for up to 70 tonnes of wet waste per day to be processed. This means, at minimum, Bioplant could import up to 51 tonnes of additional waste into the community per day.

Water requirements and emissions to wastewater

Assuming the plant feeds 40 tonnes of MSW feedstock, an equal amount of water would be needed including to clean the feedstock to the point it could be utilised in the plant (1 tonne water: 1 tonne waste). It is not clear where Bioplant and MDC suggest the contaminated wastewater will go. Is it intended to go to the wastewater treatment plant? Due to the dioxins likely to be present in the wastewater, Horizons should also require resource consent for any water discharged.

Dioxin emissions

There are thousands of known and largely unregulated toxicants added to plastics such as antioxidants, flame retardants, plasticizers, lubricants and heat stabilizers. Examples of plastic toxicants include bisphenols, cadmium, benzene, brominated compounds, phthalates, lead, tin, antimony, and volatile organic compounds (VOCs). Other toxicants such as dioxins and NIAS, are generated during the process. The fuel produced from pyrolysis is particularly toxic when plastics are used as feedstocks.

Pyrolysis works by disintegrating the long hydrocarbon bonds of the incoming feed materials and may generate tars, oils, particulate matter, reduced sulfur and nitrogen compounds, and hazardous air pollutants (HAPs) including polycyclic aromatic hydrocarbons (PAHs), hydrogen cyanide (HCN) and carbon monoxide, non-intentionally added substances, many of which are potent mutagens and carcinogens.

Bioplant's website claims the 4.2 tonnes of ash per day it could produce is 'inert' (however, it is questionable that Bioplant's application really refers to ash as this is only produced in conditions of oxygen – not pyrolysis). Regardless, the pyrolysis plant will produce huge amounts of toxic tar and char. The Bioplant facility would produce 2.5 tonnes/day of residual char. This char was determined 'hazardous waste' in Germany. They have closed down the last of the MSW pyrolysis plants there (Burgau) due to the volume of residual char which had to be landfilled. This char will contain significant toxins due to the known additives in the plastic feedstock. Both the Bioplant application and the PDP report falsely label this residual material as "biochar" which can only be obtained from organic materials. Bioplant indicates that this material could be a soil conditioner despite it being derived from plastic waste streams that contain known toxins

Bioplant's application reflects the common misperception that pyrolysis conditions negate or inhibit dioxin formation but a study by Maric et al. (2020) clearly showed that higher plastic content in the feedstock led to greater production of dioxins, and lower reactor temperatures (673°C vs. 831°C) resulted in higher toxicity of the fuels produced.

Bioplant's claim is not supported by the latest science which states that pyrolysis units have a strong tendency to form unintentional POPs in emissions and in residues from their filters including scrubber water effluent where wet scrubbers are engaged to strip flue gases, as well as the filters and scrubbers themselves which need to be set in concrete and landfilled when spent. Bioplant has announced that it will produce 2 tons of char per day – that is 2 tons of toxic char per day. It is not clear from Bioplant's submission what they plan to do with the tar and unusable char residual outputs. Nor does it explain how the liquid effluent will be safely disposed of.

The release of dioxin emissions to air should prompt the requirement for a consent to discharge to land and water, as the emissions to air, land, and water will all inevitably connect via ecosystems processes. There is increased risk of cancer from ingesting grains/vegetables and inhalation from dioxins, and PCBs and VOCs contamination from emissions of gaseous streams from the pyrolysis of waste plastics. As an agricultural town, Fielding will need to take precautionary measures particularly in terms of exposure to agriculture. Dioxins bioaccumulate in the fat tissue of humans and animals meaning exposure from air, soil, grass and crops, and water over time to even small amounts can cause a wide range of disease. These diseases are likely to present themselves over long periods of time, including intergenerationally.

The Bioplant application has no details on where its filters and scrubbers would go (filled with dioxins) at the end of their service, and if they would require special handling.

CO² emissions

The MDC could expect losses of approx. 50% of gas to total feedstock which would all be wasted output. Incineration is the most expensive and dirtiest form of energy production, releasing more carbon dioxide to the atmosphere per megawatt-hour than coal.