New South Wales Government
Independent Planning Commission

FIONA HANRAHAN		**OBJECT**	Submission ID: 217773
Organisation:	*N/A*	Key issues:	*Social impacts,Land use compatibility (surrounding land uses),Other issues*
Location:	*New South Wales 2577*		
Attachment:	*Attached overleaf*		

Submission date: 11/24/2024 6:20:13 PM

I am writing to object to the Plasrefine plastics recycling facility proposed for development in Moss Vale.

There are a range of important deficiencies and omissions in the Applicant's proposal and supporting studies that raise significant uncertainties to the claims of low and acceptable risks to human health and the environment. The Applicant's proposal omits critical chemical compositional data on various waste streams which challenges the valid selection and efficacy of controls, the accurate and representative modelling of the emissions and potential human health and environmental impacts. The Applicant has failed to demonstrate operational experience for these industrial facilities or the technical understanding and capacity to safely operate and maintain the facility. These aspects are especially relevant to an increased likelihood and escalation potential of major incidents, and the risks posed to the local regional community.

My full submission is attached.

NSW Independent Planning Commission
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24 November 2024

Dear Commissioners,

Moss Vale Plastics Recycling Facility – Objection

I am writing to object to the Plasrefine plastics recycling facility proposed for development in Moss Vale.

My professional background is 25 years as an Environmental Engineer, Senior Advisor; and Health, Environment and Safety Manager at Energy / petrochemical facilities in Australia, Asia and the USA. In these roles, I worked extensively with Company and external experts in chemical and process engineering, risk management, air modelling and waste as well as human health and ecological toxicologists. My family now live in Moss vale and operate a cattle property.

There are a range of important deficiencies and omissions in the Applicant's proposal and supporting studies that raise significant uncertainties to the claims of low and acceptable risks to human health and the environment. The Applicant's proposal omits critical chemical compositional data on various waste streams which challenges the valid selection and efficacy of controls, the accurate and representative modelling of the emissions and potential human health and environmental impacts. The Applicant has failed to demonstrate operational experience for these industrial facilities or the technical understanding and capacity to safely operate and maintain the facility. These aspects are especially relevant to an increased likelihood and escalation potential of major incidents, and the risks posed to the local regional community.

1. ***Air emissions:*** *There are significant gaps that invalidate the air emission modelling, waste streams that have not been addressed, and exposure pathways relevant for evaluation of human health exposures that have not been assessed. There appear errors in the evidence to support the Applicant's conclusion of low and acceptable risks:*
   a) The Applicant appears to have emitted pollutants of concern relevant to listed feedstocks and processing activities. The list of pollutants provided do not account and are not credible for the full range of feedstocks, their chemical constituents, potential contaminants, and the mechanical, thermal and chemical treatments proposed at the facility in order to address the assessment requirements[1] . Reported pollutants from these facilities contain a broader suite of pollutants [2] [3], that are regulated in NSW POEO Act 1997 including but not limited to: acrolein, poly aromatic hydrocarbons, chlorinated VOCs, vinyl chloride, acrylonitrile, poly chlorine, monoaromatics, alkanes, 4 methyl 2 pentane and other organochlorinated compounds. These are material to the facility for consideration of cumulative risk exposure and the publics request for a human health risk assessment.
   b) Recent statements by the Applicant's consultant, GHD suggest that the facility doors will be open for up to five hours per day to enable deliveries. This occurs in the same Building 1 listed as the main processing building used for receival, sorting, cleaning, crushing and extrusion. The Technical Report 3 -Air Quality & Odour Report [4] air dispersion modelling assumes a closed building and all air emissions are through air treatment control technology. While the Applicants consultant has subsequently claimed that negative pressure will contain air pollutants, this assertion is not credible with the processed design. The dispersion modelling failed to address relevant operating conditions and long periods of air exchange outside of the facility and is no longer valid.
   c) The EIS describes the evaporative component from the facility at an estimated 30kl/day. Reports do not provide analysis or evidence of the composition, proposed treatments, nor statements of fate. It appears, this waste stream is assumed as pure water without supporting evidence. VOCs and

other pollutants are reported in air emissions from Building 1 and Building 2 and plausible to be present in an evaporative stream. There is a lack of transparency regarding air emissions from reported or modelled from the wastewater plant.

d) The Technical Report 3 -Air Quality & Odour Report demonstrates that the reduction of air pollutants relies on the function and performance of the air emission control technology, yet details fail to meet assessment requirements [1] The mitigations listed are unspecific, it is unclear if any best available treatment methodology and/or performance standards have been adopted.

e) There is an important variation in temperatures between Applicant's process and EPA's basis of their determination on organic pollutants. The deep reprocessing involves heating plastics to up to 280C [5]. Yet the EPA's [6] assessment for potential risk of emissions of persistence organic pollutants was on basis that *"the maximum temperature used for melting of plastic would be 220 degrees Celsius".* The operating basis for reprocessing activities, at a temperature 60°C higher than the EPA's determination relevant to pollutant limitation has not been resolved.

2. ***Wastewater:*** *The Applicant has failed to provide adequate disclosure on wastewater streams, treatment suitability, or address exposure pathways of concern. These raise uncertainties to the validity of the Applicant's conclusion of low and acceptable risks to human health and the environment. The Applicant has reported that wastewater discharges of 2.5kl to 10kl/day with 40mg/L suspended solids to the local sewerage treatment plant after the facility's dissolved air floatation treatment.*

a) A compliant EIS is required to provide the chemical composition of wastewater streams and provide a full list of pollutants and estimated concentrations, analysis to determine appropriate treatment technologies, the demonstrated treatment efficacy, as well as analysis of the human and ecological fate and effects of residual pollutants. There is no information provided on dissolved solids, or the actual chemical composition of the wastewater stream.

b) Dissolved air flotation systems are recognised technologies for the separation of a proportion of suspended solids. In March 2023, The Applicant's Consultant update [7] stated "*The expected wastewater would have a low dissolved oil content which means oils and solids can be readily removed by oil separation and air flotation*". Suspended and dissolved solids are both types of particles found in water, they differ in their size, behaviour and the treatments required for their separation. There is no evidence provided by the Applicant on any dissolved solids or the technical basis for the removal of dissolved solids by air flotation technology.

c) However, dissolved solids account for a significant proportion of the grouping of microplastics [8] contaminants from plastics recycling facilities with ~80% of "microplastics" smaller than 5µm in prefiltration/treatment. As dissolved air flotation is known to aid the removal of suspended solids approx > 2µm, further analysis and confirmation of the dissolved solids composition and concentrations is critical for the determination of effective treatment methods.

d) There remain legitimate unresolved public concerns that toxic pollutants will be discharged from the Plasrefine plastics recycling facility and enter drinking water sources and the food chain from surrounding agricultural sources. The technical reports fail to address and provide full or adequate disclosure of compositions or demonstrated efficacy of treatment of waste streams. There is no analysis of the compatibility and efficacy of Bowral or Moss Vale Sewage Treatment Plants to remove the pollutants especially dissolved solids in the discharged trade waste of 2.5 to 10kl/day. Without addressing these gaps, it is logical to there are conclude potential and in particular dissolved pollutants would pass through local sewerage treatment plants, into the Wingecarribee River, be used for agricultural uses, have ecological receptors, flow into Warragamba dam and incorporated in Sydney's drinking water supply. While the Applicant has concluded risks are low and acceptable, though it has failed to demonstrate the full characterisation and treatment of wastewater and how exposure pathways for sensitive receptors have been adequately addressed.

3. ***Emergency management:*** *The Applicant has not demonstrated experience in operating these facilities, the technical understanding and capacity to safely operate and maintain the facility, or to identify and respond to unplanned incidents. Further, the reliance on emergency response capabilities from Sydney, poses significant potential for incident escalation and risks to the community.*
    a) As a regional area with limited emergency response capability there are significant gaps in the timely response and capability to manage incidents.
    b) The Applicant has failed to demonstrate a basic understanding of detection, verification processes or demonstrated any Company experience relevant and critical to operate a reliable incident free operation. As one example, the management and consistency of feedstock materials is critical to the identification of ignition sources and prevention of fires and/or prevention of unreported contaminants in waste streams. The Applicant in public hearings stated that contaminants in the feedstocks such as lithium batteries will be managed via contracts with suppliers. This is a very an unreliable and low-quality control and does not illustrate an understanding of best practice or multiple layers of control for critical risks.

4. ***Microplastics:*** *The lack of transparency and disclosure of chemical compositions of air emissions and wastewater for pollutants that are regulated, should not qualify for an assumption of low and acceptable human and ecological risks by the Applicant or Agencies in their determination. The basis for the Agencies conclusions remains unclear and continues to be of high public concern.*
    a) The Applicant, their consultants GHD, NSW Agencies and the public have been generically referring to the proposed Plasrefine Facility's contaminants in wastewater as either microplastics or suspended solids in effluents and/or and in air emissions as particulate matter. While there is growing evidence and potential adverse health effects from exposure to specific components from microplastics, it is recognised at this time they are not generically regulated as a pollutant category. In the DPHI Assessment Report [9] "*The Department acknowledges the public's concern regarding microplastics in the environment, however, is satisfied these can be restricted to an acceptable level.*"
    b) The concern is that NSW EPA and Water NSW appear to have accepted the Applicant's proposed wastewater discharges as inert plastics with low and acceptable risks, instead of the likely complex mix of contaminants [10].
    c) The Applicant has not fully disclosed chemical composition in the EIS or Technical Report 11 or undertaken any pilot studies to provide a detailed analysis. It is unclear if the Agencies have verified effluent streams sufficiently for contaminants of concern that are regulated [11] and confirmed the efficacy of treatment for these contaminants. As such, the basis for the NSW EPA's conclusion that the risks are acceptable to place licence conditions without information on contaminants, concentrations and appropriate risk assessments is unclear. On the same basis, it is also unclear how Water NSW has concluded there are neutral or beneficial effects on water quality in accordance with Chapter 6 of the State Environmental Planning Policy (Biodiversity and Conservation) 2021) (the Biodiversity and Conservation SEPP).

Sincerely,

Fiona Hanrahan
BE (Environmental) UNSW and MSc (OHS) ECU

References

[1] Secretary of the NSW Department of Planning, Industry and Environment (SSD-9409987), Assessment requirements, dated 15 October 2020.

[2] Australian Government, Department of Climate Change Energy & Water: *Chemicals of concern in plastics - DCCEEW*

[3] Prajapati R, Kohli K, Maity SK, Sharma BK. Potential Chemicals from Plastic Wastes. Molecules. 2021 May 26;26(11):3175. doi: 10.3390/molecules26113175. PMID: 34073300; PMCID: PMC8199254. Potential Chemicals from Plastic Wastes - PMC; Twenty years of microplastic pollution research—what have we learned? | Science

[4] GHD Technical report 3, Air Quality and Odour, January 2022. Technical Report 3 - Air Quality and Odour.pdf (SECURED) January 2022.

[5] GHD | Plasrefine Recycling Pty Ltd , ADR Appendix A Updated Proposal Description.pdf.

[6] NSW EPA, Letter to Emma Barnett NSW DPI, 31 March 2023, DOC23/264135 EPA Advice on RtS.pdf,

[7] GHD | Plasrefine Recycling Pty Ltd , 10 March 2023, Appendix J in 6.2.2 on wastewater Appendix J - Air quality and odour.pdf

[8] Erina Brown, Anna MacDonald, Steve Allen, Deonie Allen, The potential for a plastic recycling facility to release microplastic pollution and possible filtration remediation effectiveness, Journal of Hazardous Materials Advances,

Volume 10, 2023, (https://www.sciencedirect.com/science/article/pii/S2772416623000803)

[9] DPHI Moss Vale Plastics Recycling Facility State Significant Development Assessment Report (SSD-9409987) from October 2024 SSD Assessment Report.pdf

[10] Rochman, C.M., et al, (2019), Rethinking microplastics as a diverse contaminant suite. Environ Toxicol Chem, 38: 703-711. https://doi.org/10.1002/etc.4371

[11] Australia and New Zealand Guidelines for fresh and marine water quality, Toxicant default guideline values technical briefs