New South Wales Government
Independent Planning Commission

JACQUELINE JONES		**OBJECT**	Submission ID: 217233
Organisation:	*N/A*	Key issues:	*Social impacts,Visual impacts, design and landscaping,Land use compatibility (surrounding land uses),Traffic,Other issues*
Location:	*New South Wales 2577*		
Attachment:	*Attached overleaf*		

Submission date: 11/22/2024 9:24:12 PM

See attached document.

Moss Vale Plastic recycling facility.
Written submission to object to Plasrefine Facility. Dr Jacqueline Kerfoot (Jackie Jones) 22/11/24.

My name is Jacqueline Jones and I am, a resident of Moss Vale living 2.7 km from the proposed Plasrefine site. I am the mother of 2 teenage boys who frequent the cricket nets of Lackey park 1.2 kms from the site. We regularly walk the streets of Moss vale and Cecil Hoskins walking path with our dog Gus and moved to the Highlands for its clean air and open spaces.
I am also Dr Jacqueline Kerfoot a Palliative Care Specialist Physician with over 20 years experience treating adults of all ages with Incurable illnesses such as Advanced cancer, organ diseases and neurodegenerative diseases such as Parkinson's disease, Motor neurone disease and dementia.

I would like to strongly object to the Plasrefine plastic recycling facility going ahead on the proposed site as I feel the health, social and environmental risks are too high.

Health:

The world is grappling with the impact of microplastics, there is a flurry of research and commentary across the major health institutions of Europe, America and Asia as we try to understand the human health effects of these ubiquitous pollutants.

There are a lot of animal and cell -based studies studying microplastics showing concerning health effects are occurring and likely in humans, but what human studies are there from reliable research groups.

Researchers have found microplastics can enter our body by ingestion, inhalation or through the skin and enter our organs and accumulate, they have been found in blood, breast milk, saliva, the placenta, testicles, hearts, liver, kidney and brain. They were found in increased concentrations in brain and liver samples in a **South American study examining human Cadavers at autopsy**. (1)

Investigators studying a model of human intestinal cells looking at how microplastics might be absorbed in the GUT found their impact on GIT (gastrointestinal) cells found nanoplastics can enter the nucleus inside cells, and contribute to pro -inflammatory activity that could be detrimental to cells (2,3)

In the Placenta study titled concerningly- **"Plasticenta" Published in 2021** from a group in Italy, pigmented microplastics were found on maternal and foetal sides of the placenta and the amniotic sack membrane.
Researchers were alarmed that they could cross the placental barriers protecting the foetus and concluded that microplastics carry substances which act as endocrine disruptors which could cause long term health effects by altering signalling between mother and foetus during development. (4)

A **cardiac study published in the New England Journal of medicine in March this year**-found in 150 patients out of 304 studied microplastics were found inside the coronary artery atheroma plaques removed as blockages,-those people with microplastics were at higher risk of heart attack , stroke and death at 34 months follow up.(4)

A further study published in May this year in **"Toxicological sciences "looked at microplastics in the testes of humans and dogs and found 12 different microplastics in human and dog testicular samples** most common PE and PVC and when they went on to study the dogs there was a statistically significant reduction in sperm count in dogs with certain microplastics. (5)

The evidence of harm from plastics generally is much more expansive. **The Faculty of Health and Medical Sciences at Adelaide University and the Mineroo foundation** published a meta-analysis of

all the published research on plastics and human health in 2024. (6) It makes alarming reading and indisputably demonstrates the damage of plastics and human health:

It found plastic exposure was linked to multiple human health issues at Birth, childhood, adult reproductive, endocrine, child neurodevelopment, nutritional, circulatory, respiratory, skin and numerous cancers. Bisphenol A (BPA) is associated with decreased anoclitoral distance in infants, type 2 diabetes (T2D) in adults, insulin resistance in children and adults, polycystic ovary syndrome, obesity and hypertension in children and adults and cardiovascular disease (CVD); other bisphenols have not been evaluated. Phthalates, the only plasticisers identified, are associated with spontaneous pregnancy loss, decreased anogenital distance in boys, insulin resistance in children and adults, with additional associations between certain phthalates and decreased birth weight, T2D in adults, precocious puberty in girls, reduced sperm quality, endometriosis, adverse cognitive development and intelligence quotient (IQ) loss, adverse fine motor and psychomotor development and elevated blood pressure in children and asthma in children and adults. Polychlorinated biphenyls (PCBs), polybrominated diphenyl ethers (PBDEs) but not other flame retardants, and some PFAS were identified and are all associated with decreased birth weight. In general populations, PCBs are associated with T2D in adults and endometriosis, bronchitis in infants, CVD, non-Hodgkin's lymphoma (NHL) and breast cancer. In PCB-poisoned populations, exposure is associated with overall mortality, mortality from hepatic disease (men), CVD (men and women) and several cancers. PBDEs are adversely associated with children's cognitive development and IQ loss. PBDEs and certain PFAS are associated with changes in thyroid function. PFAS exposure is associated with increased body mass index (BMI) and overweight in children, attention deficit hyperactive disorder (ADHD) in girls and allergic rhinitis. Potential protective associations were found, namely abnormal pubertal timing in boys being less common with higher phthalate exposure, increased high-density lipoprotein (HDL) with exposure to mono(2-ethyl-5-oxohexyl) phthalate (MEOHP) and reduced incidence of chronic lymphocytic lymphoma (a subtype of NHL) with PCB exposure. (6)

Mouse studies have shown the presence of **microplastics in the brain changed behaviour** and caused inflammation changes that could increase the risk of dementia. (7, 8)

So from all of the reading I have done I am very concerned about microplastics causing human health issues and I think it is obvious we should be reducing our exposure.

Emissions:

GHD would say that there is no air emissions or water emissions from their planned facility but I have some issues with this:

1) Air emissions- it is still not clear to me how effectively the air stacks are at filtering the microplastics and other toxic chemicals produced when plastic is crushed and processed at the facility, even after your questioning on day 3 of GHD I am still not clear on the design or stack filtering of air emissions. There are also lots of vents on the drawings without any detail on what is coming out of them. The lack of detail is a huge concern as it reflects a lack of interest in the detail which is very worrying
2) GHD have not detailed in their proposal what percentage emissions of microplastics there would be. It seems from literature below that industry concerns exist about emissions capture technology but this seems to be brushed over by GHD, I do not trust they will do the right thing or are even acknowledge there is a risk of emissions. They have said nil emissions but that is not what other facilities have. As the Chinese owners of Plasrefine have never managed a plastic recycling facility before and have no experience in this industry it is inappropriate to not have a clearly detailed emissions section of the proposal. It again shows a lack of interest and reduces trust.
3) The doors for the truck entry and exit will be raised and open for 5 hours per day as per GHD verbal answer on day 3 of the submissions. They have now changed this after the last day of verbal submissions with a new document on their site detailing now a total of 42minutes per

day of roller door opening to let in and out 100 trucks which is frankly ridiculous and completely unbelievable, they are just making the information up as they go along.

4) They claim the truck offload area will be negatively pressured so there is no risk of plastic being blown out of the roller doors, but you cannot maintain negative pressure without an anti-room separate from the offload area which is not detailed on their submission, So it doesn't add up and I don't think they have really thought that through which is again worrying, it sounded like GHD had only just worked out how long the doors would be open during the IPC questioning of them. This again indicates they are not taking this issue seriously.
5) Water wash off was dismissed in questioning but may be a very important risk for the Wingecarribee water quality and PFAS content. We need much more detail on this and I don't believe they really care about it or take this seriously either as have provided insufficient detail in their proposal and don't think it is a concern. It is a huge concern to the public who drink the water from the catchment and there is increased concern by government as they are currently reviewing the PFAS levels in the drinking water and producing new guidelines next year.

There is much research done about plastic recycling facilities and control of emissions-and concern about the facility being a source of environmental microplastic pollution despite current practices to mitigate their release. (9,10,11,12)

-Research done by Professor Faisal Hai from Wollongong University published in March 2024 looking at emissions and new sieving technology in plastic recycling facilities-
Concluding there needs to be more regulation of the recycling industry to control the amount of microplastics produced and released into the environment. (9)

This is concerning as there is a lack of detail in the Plasrefine proposal about release of microplastics and during questions at the verbal hearings this month they denied it being an issue and stated as the facility is sealed there will be no release. This seems at odds with how existing recycling facilities are built and operated and as the owner has no experience in plastic recycling one wonders if they know what they are doing or stating given industry expert concerns.

On review of the site:

On a windy hill, on the Sydney water catchment -when the NSW government and National health and Medical research council (NHMRC) are reviewing guidelines on the safe amounts of PFAS in drinking water which shows appropriate concern, and the NHMRC have 9 existing studies on PFAS and its potential health impacts funded by the government ongoing. (13) This shows concern and the need for further information about PFAS and health and this is because there is evidence out there already to show human exposure to PFAS causes health issues.
So the government on one side are concerned about microplastics and the other side have approved this facility without considering the risks…

Right next to residential properties and very close to day care, schools, and the towns of Moss Vale, New Berrima, Berrima and Burradoo..
Why is there no buffer like every other recycling facility in Australia. It should not be situated any where near residential areas due to the probable health risks and social risks. There are large areas of NSW unpopulated that can access rail so it is not like we have a lack of space or other possible sites for the facility to be built.

Social impact:

1) Reduced enjoyment of property and place due to proximity of facility. To homes and main town of Moss Vale. GHD says" if concerned about exposure, stay indoors" did the state planner miss this as it is totally inappropriate.
2) Reduced ability to sell home or move if Quality of life ruined by facility and drop in property price and development blocks unsellable nearby and in Moss Vale and New Berrima and potentially other towns in region.
3) Stress and concern impacting local residents over possible health issues.
4) Moss Vale is a lovely regional town and it will be ruined and tarred with the plastic facility due to the health risks of microplastics into the environment. Likely reducing tourism and local business and destroying SHIP potential businesses much less attractive to start a new business in the same area.
5) New Berrima residents and Beaconsfield rd residents will be affected by the heavy traffic moving between Hume highway and facility. Noise traffic fumes etc….

Traffic impact:

As per GHD answers on day 3 of open hearings and the proposal document. 100 truck numbers in 11 hours of operation, as the Wingecarribee planner said crossing 3 railway crossings to get to facility they will be travelling slowly so likely will back up as she calculated they would need to travel 60-80kph to get to facility in time to allow all the truck movements needed or proposed, this is impossible given speed limits through new Berrima from Hume highway to Beaconsfield road. This will cause a trail of trucks along that route through the suburb or New Berrima profoundly affecting them and the residents on Beaconsfield road.
The road quality is already poor on that route, how will it cope with all the heavy vehicles?
240 lighter vehicle movement per day- where will they go, Moss Vale town centre is already subject to traffic congestion so this will very seriously add to that further impacting local residents, businesses and the liveability of Moss vale.

Fire risk:

On a bushfire prone land site.
Insufficient local -fire fighting equipment to combat a plastic recycling fire.
Inadequate water storage at site to be sufficient for prolonged fire.
Schools and daycare centres within 1 km of site will be affected by toxic fumes. Thousands of residents and businesses within 5km of site.
Completely inappropriate site.

In conclusion:

There is nothing about this proposal that doesn't concern me as a community member of Moss Vale, I am completely at a loss as to why the NSW state planning department did not decline the proposal on many of the grounds mentioned above.

As a community we should make sure we are not increasing exposure to environmental toxins that could contribute to the development of chronic diseases of which we have no cure.
We should not risk making the same mistakes as we made with asbestos, silica, coal miners dust, smoking by not protecting the community from these toxins governments caused a huge amount of illness in the population that could have been avoided.
We have a duty to protect our community from unnecessary risks.

I believe we have enough evidence to be very concerned about the environmental, social and health impacts of this plastic recycling facility so close to residents and on the water catchment.

Please reject this proposal and move this project to an area nowhere near people and closer to rail links and other heavy industry.

ie. It is not the right site.

References:

1) M. Campen, “Bioaccumulation of Microplastics in Decedent Human Brains Assessed by Pyrolysis Gas Chromatography-Mass Spectrometry” 05/24. Preprint.
2) Covello, C., Di Vincenzo, F., Cammarota, G., & Pizzoferrato, M. (2024). Micro(nano)plastics and Their Potential Impact on Human Gut Health: A Narrative Review. *Current Issues in Molecular Biology*, *46*(3), 2658-2677. https://doi.org/10.3390/cimb46030168
3) Hou Z, Meng R, Chen G, Lai T, Qing R, Hao S, Deng J, Wang B. Distinct accumulation of nanoplastics in human intestinal organoids. Sci Total Environ. 2022 Sep 10;838(Pt 2):155811. doi: 10.1016/j.scitotenv.2022.155811. Epub 2022 May 18. PMID: 35597345.
4) Ragusa A, Matta M, Cristiano L, Matassa R, Battaglione E, Svelato A, De Luca C, D'Avino S, Gulotta A, Rongioletti MCA, Catalano P, Santacroce C, Notarstefano V, Carnevali O, Giorgini E, Vizza E, Familiari G, Nottola SA. Deeply in Plasticenta: Presence of Microplastics in the Intracellular Compartment of Human Placentas. Int J Environ Res Public Health. 2022 Sep 14;19(18):11593. doi: 10.3390/ijerph191811593. PMID: 36141864; PMCID: PMC9517680.
5) Chelin Jamie Hu, Marcus A Garcia, Alexander Nihart, Rui Liu, Lei Yin, Natalie Adolphi, Daniel F Gallego, Huining Kang, Matthew J Campen, Xiaozhong Yu, Microplastic presence in dog and human testis and its potential association with sperm count and weights of testis and epididymis, *Toxicological Sciences*, Volume 200, Issue 2, August 2024, Pages 235–240.
6) Symeonides C, Aromataris E, Mulders Y, Dizon J, Stern C, Barker TH, Whitehorn A, Pollock D, Marin T, Dunlop S. An Umbrella Review of Meta-Analyses Evaluating Associations between Human Health and Exposure to Major Classes of Plastic-Associated Chemicals. Ann Glob Health. 2024 Aug 19;90(1):52. doi: 10.5334/aogh.4459. PMID: 39183960; PMCID: PMC11342836.
7) Gaspar L, Bartman S, Coppotelli G, Ross JM. Acute Exposure to Microplastics Induced Changes in Behavior and Inflammation in Young and Old Mice. Int J Mol Sci. 2023 Aug 1;24(15):12308. doi: 10.3390/ijms241512308. PMID: 37569681; PMCID: PMC10418951.
8) Hiang-Wen Lee, Lee-Fen Hsu, I.-Lin Wu, Yung-Li Wang, Wei-Chen Chen, Yan-Jun Liu, Lu-Tang Yang, Chong-Lun Tan, Yueh-Hsia Luo, Chia-Ching Wang, Hui-Wen Chiu, Thomas Chung-Kuang Yang, Yen-Yue Lin, Hsin-An Chang, Yao-Chang Chiang, Ching-Hsiang Chen, Ming-Hsueh Lee, Kuo-Ti Peng, Cathy Chia-Yu Huang,”Exposure to polystyrene microplastics impairs hippocampus-dependent learning and memory in mice,”Journal of Hazardous Materials,Volume 430,2022,
9) Michael J. Stapleton, Ashley J. Ansari, Aziz Ahmed, Faisal I. Hai,
Evaluating the generation of microplastics from an unlikely source: The unintentional consequence of the current plastic recycling process, Science of The Total Environment, Volume 902, 2023,166090, ISSN 0048-9697,
10) Guo, X. Xia, J. Ruan, Y. Wang, J. Zhang, G.A. LeBlanc, L. An Ignored microplastic sources from plastic bottle recycling, Sci. Total Environ., 838 (2022), p. 156038
11) E. Brown, A. MacDonald, S. Allen, D. Allen.”The potential for a plastic recycling facility to release microplastic pollution and possible filtration remediation effectiveness”, J. Hazard. Mater. Adv., 10 (2023).
12) G. Suzuki, N. Uchida, L.H. Tuyen, K. Tanaka, H. Matsukami, T. Kunisue, S. Takahashi, P.H. Viet, H. Kuramochi, M. Osako “Mechanical recycling of plastic waste as a point source of microplastic pollution” Environ. Pollut., 303 (2022), Article.
13) https://www.pfas.gov.au/news/nhmrc-health-research-program-announces-grant-recipients-pfas-research#:~:text=NHMRC%20Health%20Research%20Program%20%2D%20PFAS%20%2D%20Awarded%20Grants