



Transport for NSW
Freight Branch team
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31 May 2024

Re: Freight Policy Reform Program

Dear Transport for NSW,

Thank you for the opportunity to submit feedback on the Freight Policy Reform Program to review ports, rail, road and intermodal facilities, to determine the best policy framework to optimise safety, productivity and sustainability, in response to current and emerging drivers of demand.

Tangaroa Blue Foundation (TBF) is an organisation dedicated to the removal and prevention of litter at the source and is the founder of the Australian Marine Debris Initiative (AMDl), an on-ground network of volunteers, communities, organisations, and agencies around the country removing, documenting and preventing marine debris and plastic pollution. The AMDl Database is the largest database of marine debris in the southern hemisphere with more than 24 million litter items recorded at more than 4,700 clean-up sites since 2004 and contributed to 350 source reduction plans addressing marine debris at its source.

Plastic feedstock most commonly enters the environment due to spills and leaks during transport and handling with an estimated 230,000 t of plastic feedstock released into the environment every year (Eunomia 2016). There is a long chain of production, shipping, storage and transport steps between plastic resin pellets entering plastics machinery, which leaves a [REDACTED] number of possible leakage sites and locations (Fig 1). Due to its size, plastic resin is [REDACTED] to clean when lost in the environment in large quantities. Operation Clean Sweep [REDACTED] program funded by the New South Wales Environment Protection Authority (NSW EPA) delivered by Tangaroa Blue Foundation in partnership with the NSW EPA to address plastic feedstock loss in NSW. Primary plastic feedstock is manufactured throughout NSW, including a previous site at Port Botany which was only recently shut down in April 2024¹. Site audits are a crucial part of the OCS NSW program because these provide baseline data for specific sites which evaluates the current plastic feedstock within that environment. During site audits, sites are rated using a Plastic Resin Pellet (PRP) rating tool (Fig 2). Sites or parts of sites are rated 1 to 5 according to the level of pollution observed. Since the beginning of the program in 2023, a total of 176 site audits have been conducted with more than 40% of sites [REDACTED] higher with over 12% having the highest rating of 5 showing the extent [REDACTED] within the NSW industry (Fig 3).

Plastic feedstock is also imported from international markets and distributed domestically via the freight network. Additionally, the amount of plastic consumed in Australia is anticipated to more than double by 2050 (Australia Institute 2024) which is potentially correlating to an increase in domestic manufacturing or increased imports that will be transported through the freight network. In 2021, Australia implemented regulations on waste plastic exports (Lin et al 2023). However, recovered single polymer plastics processed into clean flake or pellets are classified as primary plastic feedstock and can be exported under the same code as virgin

¹ <https://www.packagingnews.com.au/latest/genos-in-va-botany-plant-shutdown-confirmed>



plastics (Lin et al 2023). In 2020-21, approximately 27 kilotonnes of reprocessed plastics were exported (Lin et al 2023), suggesting that the export of primary plastic feedstock through the freight network could become a growing industry in the future. Thus, it is vital that freight policy reforms consider the transport of primary plastic feedstock throughout the entire supply chain.

Plastic feedstock loss to the environment is a global issue with Operation Clean Sweep being implemented in more than 22 countries to date. Countries are collaborating to manage the hazard of transporting feedstock by sea via the International Maritime Organization (IMO), a specialised agency of the United Nations responsible for regulating maritime transport. The IMO's Marine Environment Protection Committee (MEPC) is currently working to reduce the environmental risk associated with the maritime transport of plastic feedstock. The hazardous nature of this material has been highlighted through numerous spills including:

- The MSC Susanna which spilled 49 tonnes in Durban Harbour, South Africa in October 2017 (Schumann et al 2019)
- the CSAV Trancura which spilled 174 tonnes of plastic pellets off the coast of South Africa in August 2020 (Spear 2021)
- the MV X-Press Pearl which spilled 11,000 tonnes of plastic pellets off the coast of Sri Lanka in May 2021 – the largest plastic spill in history (Partow et al 2021)
- the Toconao which spilled at least 26 tonnes of plastic pellets off the coast of Spain in January 2024 (Vock 2024).

Negative environmental impacts from spills such as these can include the ingestion of plastic by wildlife causing malnutrition and starvation, the leaching of chemicals from plastics such as UV stabilizers, bisphenol A, and carcinogenic polycyclic aromatic hydrocarbons (PAHs). Additionally, plastic feedstock can attract chemical pollutants to their surface and can enter the marine environment which may impact human health (NSW EPA, 2024).

In recognition of the risks associated with maritime transport, the IMO MEPC is developing recommendations for transportation addressing in particular packaging, notification and stowage. They are also considering mandatory measures to address the environmental risk associated with the maritime transport of plastic pellets, including a well-supported proposal from Australia suggesting plastic pellets could be regulated as harmful substances under MARPOL Annex III. The inclusion of plastic pellets as a harmful substance would require issuing detailed standards on packing, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications for preventing pollution (IMO, 2019).

The consultation paper outlines the need for Government to set policy and take action to achieve its objectives with recognition that regulatory intervention may be required in some markets. It is crucial that these policies align and influence the national agenda, including operations as well as any regulatory settings and must align with international requirements.

To align with the upcoming regulations for ships, it is important that ports, rail and road freight implement similar measures to ensure alignment within the industry. It is important to recognise that it is already an offense to dump waste down the stormwater system in every Australian jurisdiction. In NSW, plastic feedstock is regulated under the Protection of the Environment Operations Act 1997. The unlawful transport or storage of plastic feedstock that is considered "waste" (if it is discarded, rejected, unwanted, surplus or abandoned) forms an



offence if it escapes onto land or into waters. When transporting plastic feedstock, it is recommended to seal it in packaging strong enough to withstand the shocks, vibration, acceleration forces and loadings of transport.

The standard packaging of plastic pellets or powders via sea, road and rail transport in Australia is in three basic forms. This packaging is designed to minimise the possibility of breakage and pellet, flake and powder leakage.

- **25 kg bags** - These are typically made of Linear Low Density Polyethylene (LLDPE), are fully sealed, extremely robust and resistant to most day-to-day damage which might occur in transportation.
- **Bulk bags** – These have a typical payload between 500 - 1200 kg. They come in various load / unload configurations, depending on materials handling requirements at the end point.
 - In the polymer space, bulk bags will generally have a woven Polypropylene (PP) outer bag with loops (used for lifting via fork or crane), and a low density polyethylene (LDPE) liner. The liner secures the polymer completely, and ensures it is free of contaminants.
 - Bulk bags are extremely strong, and in other industries are used to move mining aggregates and UN classified dangerous goods.
- **Seabulk Liners** – The larger volumes of polymers moved to and around Australia are in a seabulk container. This is a 20-foot shipping container (Twenty Foot Equivalent Unit) which has an inner liner, like a bladder. The liner is made of extruded Polyethylene (PE) film, whilst the loops that secure it are woven either PP or PE. These inner liners secure the polymer completely and ensures it is free of contamination. All containers are clearly labelled.

[REDACTED] Blue Foundation is one of the implementation partners of Operation Clean Sweep. Operation Clean Sweep Australia is a comprehensive industry program committed to preventing and minimising plastic feedstock which includes plastic resin pellet (aka nurdles), flake, powder and recyclate loss along the plastics value chain including plastic manufacturers, distributors and transporters, commercial users, and recyclers. Launched as part of the global Operation Clean Sweep initiative, it aims to eliminate plastic feedstock pollution in waterways and oceans by promoting best practices, providing resources, and fostering collaboration within the Australian plastics and logistics industries. Numerous Australian partners are involved in this program, including Chemistry Australia, the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW), the Victorian Environment [REDACTED] (A), and the NSW EPA, as mentioned above. Together, these [REDACTED] are strongly committed to promoting the initiative and encouraging plastics and logistics companies to participate.

Tangaroa Blue Foundation would recommend that Operation Clean Sweep becomes a mandatory requirement for anyone in the plastics supply chain: suppliers, transporters, manufacturers and recyclers, to ensure that microplastic pollution doesn't increase with our increase in domestic recycling capacity. This can include formalised guidelines, improved stewardship and operational requirements within the plastics industry that apply to all modes of freight including ports, road, rail and shipping within the state and nationally when it comes to transporting plastic feedstock. The loss of this plastic feedstock relates directly to internal housekeeping procedures during transportation and manufacturing and should be one of the



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easiest sources of microplastic pollution to mitigate. Standard Operating Procedures should be in place following Operation Clean Sweep practices to ensure the integrity of package and product covering from plant, transit by road, sea, air and rail to the end user. This should include key areas:

- Clear identification on all packaging.
- Checking the packaging/product for spillage during all stages of transportation and handling.
- Damaged or taped bags not to be shipped and be replaced immediately.
- Quality control of the packaged product including pallet and load securement (i.e., stretched hood covering the entire load securely).
- Prevention, containment and clean up procedures during all stages of transportation and handling.
- Making everyone in the supply chain aware and accountable for these prevention, containment, clean-up and disposal procedures, is the way to zero pellet, flake and powder loss.

Tangaroa Blue Foundation encourages your strong support for tackling plastic feedstock pollution in Australia through mandatory regulation during its transport by sea, rail, road or air. Operation Clean Sweep is an existing best practice industry program that is ready to be scaled nationally to address this issue. Tangaroa Blue Foundation encourages your strong support for tackling plastic feedstock loss in our environment. We know that plastic pollution is an international challenge and we encourage Australia to be a leader in reducing plastic at the source and cleaning up our environment to protect our oceans and waterways for ourselves and future generations

Yours Sincerely,



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The flowchart illustrates the OCS practices to be used for different categories of plastic waste, categorized by the type of manufacturer or transporter involved. The flow starts with 'Raw material' and 'International feedstock manufactures' (CAT 1) and 'Domestic feedstock manufactures' (CAT 1). These lead to 'Transported in 20' & 40' containers. OCS practice to be used' and 'Distributors and transport of feedstock' (CAT 2a). This leads to 'Distribution mix - bulk containers, 1 tonne FIBC's¹ or 20/25kg sacks. OCS practice to be used'. This leads to 'Manufacturing - including rework & recycling processing OCS practice to be used'. This leads to 'Distribution of plastic products for use. No pellets or powders.' and 'Commercial/Consumer use' (CAT 4). This leads to 'Transportation of end-of-life plastic products. No pellets or powders.' and 'Transportation of recycled feedstock OCS practice to be used'. This leads to 'Recycling processing' (CAT 5b). This leads to 'Scrap, waste & EOL product reprocessed in a range of processes and pelletisation steps. Back into bulk/FIBC's or sacks. OCS practice to be used'. This leads to 'International plastic product manufacturers'.

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graph TD
    RawMaterial[Raw material] --> CAT1_International[CAT 1 International feedstock manufactures]
    RawMaterial --> CAT1_Domestic[CAT 1 Domestic feedstock manufactures]
    CAT1_International --> Transport20_40_International[Transported in 20' & 40' containers. OCS practice to be used]
    CAT1_Domestic --> Transport20_40_Domestic[Transported in 20' & 40' containers. OCS practice to be used]
    Transport20_40_International --> CAT2a[Distributors and transport of feedstock CAT 2a]
    Transport20_40_Domestic --> CAT2a
    CAT2a --> DistributionMix[Distribution mix - bulk containers, 1 tonne FIBC's1 or 20/25kg sacks. OCS practice to be used]
    DistributionMix --> Manufacturing[Manufacturing - including rework & recycling processing OCS practice to be used]
    Manufacturing --> DistributionPlastic[Distribution of plastic products for use. No pellets or powders.]
    Manufacturing --> CAT4[CAT 4 Commercial/Consumer use]
    CAT4 --> TransportationEOL[Transportation of end-of-life plastic products. No pellets or powders.]
    TransportationEOL --> CAT5b[CAT 5b Recycling processing]
    CAT5b --> TransportationRecycled[Transportation of recycled feedstock OCS practice to be used]
    TransportationRecycled --> CAT3[CAT 3 Plastic product manufactures]
    CAT3 --> Manufacturing
    CAT5b --> Reprocessing[Scrap, waste & EOL product reprocessed in a range of processes and pelletisation steps. Back into bulk/FIBC's or sacks. OCS practice to be used]
    Reprocessing --> CAT1_International
    Reprocessing --> CAT1_Domestic
    Reprocessing --> CAT1_International
  
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- Cat 1** Feedstock Manufactures
- Cat 2a** Distribution and transportation of feedstock
- Cat 2b** Distribution and transport – finished products
- Cat 3** Plastic product manufacturers
- Cat 4** Commercial/Consumer use
- Cat 5a** Collection of goods for recycling
- Cat 5b** Recycling processing

Note: Categories 2b, 4, 5a are not potential leakage pathways for plastic feedstock as they relate to finished goods.


¹ FIBCs – Flexible Intermediate Bulk Containers
 International area of responsibility.

Fig 1. Comprehensive leakage pathway for the supply chain of plastic feedstock (pellets and powders)



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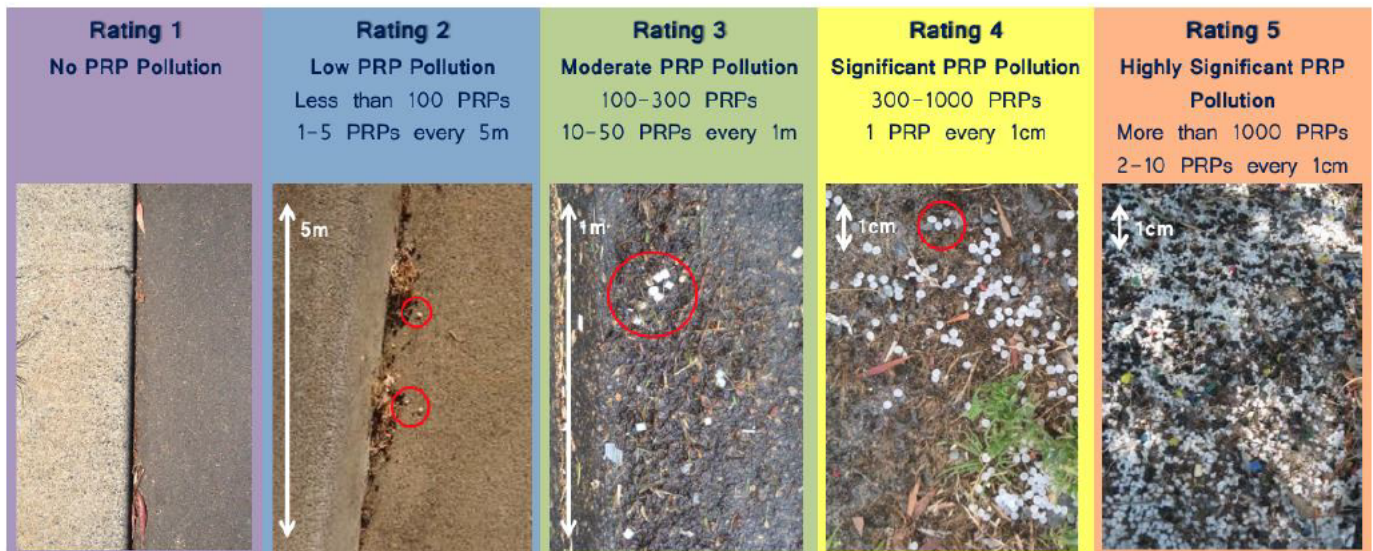


Fig 2. Plastic Resin Pellet (PRP) rating tool

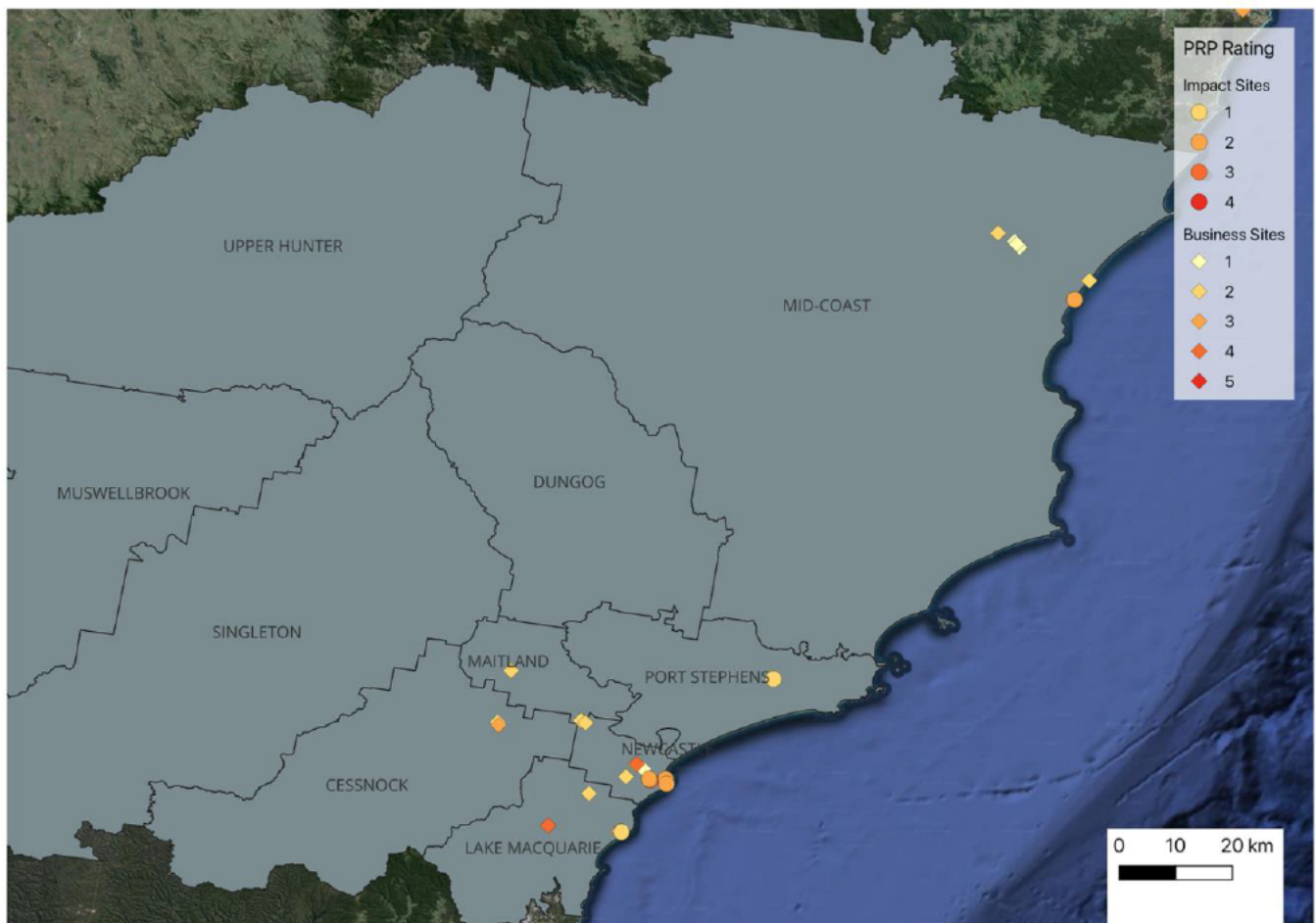


Fig 3. Hotspot map of site audits conducted at businesses and impact sites, i.e., estuary and beach sites from June 2023 - May 2024. Legend indicates the PRP rating at each site with 1 being no PRP pollution and 5 being highly significant PRP pollution.



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