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Dear Mr Chappel

Re: Draft Biosolids Resource Recovery Order and Exemption

Thank you for the opportunity to provide feedback on the draft Biosolids Resource Recovery Order and Exemption ("*Biosolids RRO/E*") and for facilitating an online session for our members on Thursday 18 September 2025. The Biosolids RRO/E will apply to both biosolids (defined as organics solids that result from the treatment of sewage sludge) and biosolids products (meaning any products derived from, containing, or blended with biosolids) and will operate alongside the existing requirements of the *NSW Biosolids Guidelines* to formulate a grading scheme to determine if and how the biosolids and biosolids products can be applied to land as a soil amendment.

The Waste Management and Resource Recovery Association of Australia (WMRR) is the national peak body representing Australia's \$21 billion waste and resource recovery (WARR) industry. With more than 2,340 members from over 400 entities nationwide, we represent the breadth and depth of the sector, including representation from business organisations, the three (3) tiers of government, universities, and Non-Government Organisations (NGOs), including research bodies. Our members are involved in a range of important WARR activities within the Australian economy, including infrastructure investment and operations, collection, manufacturing of valuable secondary raw products from resource recovery, energy recovery as well as community engagement and education. Over a third of our membership is based in NSW, where our sector directly contributes more than \$4 billion per annum to the State's economy and directly employs more than 8,500 workers.

Being at the forefront of the ongoing evolution towards whole-of-system action and the development of a circular economy, WMRR strongly advocates for a systems-based approach to managing materials in Australia to prolong life and mitigate carbon impacts. This includes fierce advocacy for the waste and resource management hierarchy, which promotes avoidance of waste, using less for longer, through the diversion of materials from landfill by design for reuse, recovery, recycling and composting of resources. In the case of recovered materials, including soil amendments from biosolids, WMRR advocates for their safe, fit-for-purpose reinvestment into the circular economy. NSW has a history of the safe, circular use of biosolids with the consultation documents highlighting that NSW Sewage Treatment Plants (STPs) produce just over 80,000 dry tonnes of biosolids a year with over half used for agricultural purposes. This highlights that site selection, application method and timing, as well as monitoring have been highly successful in managing any risk, and demonstrating compliance with regulatory standards for biosolids land application to date.

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WMRR appreciates that the Biosolids RRO/E have been drafted to regulate emerging contaminants presenting in biosolids and biosolids products and includes:

- limits for per-and polyfluoroalkyl substances (PFAS);
- limits for a group of flame retardants called polybrominated diphenyl ethers (PBDEs);
- requirements for monitoring and reporting of PFAS and PBDEs along with emerging chemicals of concern galaxolide (a synthetic fragrance) and triclosan (an antimicrobial agent), and
- new rules requiring in-soil testing at the biosolids application site that considers levels of PFAS to ensure application rates are sustainable and beneficial.

The EPA's *Biosolids chemical study* (provided with the consultation papers) has shown that these chemicals are present in Sewage Treatment Plants (STPs). WMRR understands that the impact of the Biosolids RRO/E will be to impose a grading scheme that is primarily determined by the PFAS levels, being:

- Grade A/B biosolids (representing unrestricted use thresholds) with maximum concentration of PFOS+PFHxS of 0.55 µg/kg 'dry weight' and PFOA of 1.5 µg/kg 'dry weight'.
- Grade C biosolids (indicating restricted use thresholds) with maximum concentration of PFOS+PFHxS 15 µg/kg 'dry weight' and PFOA of 40 µg/kg 'dry weight', which require soil testing at the application site.
 - If soil testing results are below the LOR 0.1 µg/kg for PFOS, PFHxS and PFOA and between 0.1-0.5 µg/kg for other individual PFAS compounds, the biosolids / biosolids products can be applied <50 dry tonnes per/ha, whilst soil results exceeding the LOR will need to calculate the contaminant limiting biosolids application rate (CLBAR) for agricultural use.
 - If the CLBAR is more than 15t/ha, the biosolids can be applied <50 dry t/ha. Expert consultation is required if a CLBAR below 15t/ha is calculated.
- Biosolids that do not meet the Grade C threshold can potentially be applied using the CLBAR method.

The proposed thresholds for PFAS reflect the *PFAS National Environmental Management Plan (NEMP) 3.0* for three (3) PFAS compounds (PFOS+PFHxS and PFOA) in biosolids with a margin of safety of two (2). The EPA have contended that this conservative approach with a higher margin of safety is warranted to account for the large number of unregulated PFAS compounds (including chemicals which may act as precursors to PFOS, PFHxS and PFOA in the environment).

However, WMRR's key concern is that setting restrictive PFAS limits (at the end of the supply chain) and imposing significant testing requirements, particularly on consumers of these products, will unnecessarily restrict the current markets for biosolids, which to date, have been beneficially used safely and effectively. Further, in our view, the proposed Biosolids RRO/E has the potential to cause complex, cascading and unforeseen consequences beyond the biosolids industry and across the broader waste and resource recovery system which is still adapting to the challenges of these emerging contaminants. PFAS and other contaminants continue to enter the supply chain with less regulation than we see being proposed by the EPA in relation to the waste stream, via their use in personal and industrial products. This begs the question - are these compounds genuinely of risk to human health and environment given this ongoing lack of regulation?

WMRR's key concerns

Given that Resource Recovery Orders are regulatory instruments, the imposition of limits on PFAS and specific testing requirements for both suppliers and consumers of biosolids products may lead to perverse outcomes

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throughout the supply chain and undermine the existing strong circular markets for biosolids and biosolids products in NSW. There are genuine concerns that the conservative PFAS levels in particular, may interact negatively with:

- The FOGO rollout and the uptake of organics composts. Publicly available data in the [What's the Go with FOGO?](#) report indicates that products from current NSW composting facilities (which are applied without restriction) would find it difficult to meet the Grade A/B biosolids requirements - almost every facility had compost which would exceed the proposed thresholds for Unrestricted Use Biosolids. There are valid concerns from the organics industry that the Biosolids RRO/E could lead to a crisis of consumer confidence in compost products and undermine the market for recycled organics products as well as biosolids and biosolids products.
- Existing markets for biosolids. There is concern that there will be no Grade A/B biosolids products, given the aforementioned concerns that compost used to create these may not meet the Grade A/B thresholds and therefore undermine existing products.
- The new grading requirements and the imposition of testing on consumers (Clause 5.11.4 of the Order and Clause 7.4 of the Exemption) in particular, may result in decreased uptake of biosolids products - especially Grade C biosolids/biosolids products in the agricultural sector. WMRR appreciates that the EPA's proposal for calculating maximum biosolids application rates aim to take into account the specific characteristics of each reuse scenario, including receiving soil properties (and this is preferable to relying solely on generic biosolids concentration limits designed to cover nearly all possible scenarios). However, the proposed soil testing requirements for consumers of Grade C biosolids and biosolids products is unlikely to be viewed as simple and affordable, and is currently drafted to include previous testing after the application of any 'waste' or biosolids previously. This also opens up farmers/landowners to exposure for contaminant levels which may bring them into the remit for iCHEMS, among other concerns. There are concerns this onerous consumer obligation may leave biosolids and biosolids products without an end market and result in potential landfilling of this nutrient dense resource.
- Landfills discharging leachate to sewer – noting that STPs as generators of biosolids may look to restrict potential PFAS inputs to meet the requirements of the Biosolids RRO/E. This could lead to issues with offtake for landfill leachate.
- Residual waste capacity in NSW. Put plainly, there may not be capacity or appetite at landfills to accept this material once it is tested showing PFAS levels, given the iChEMS requirements now being in effect requiring facilities that store and manage PFAS to comply, and the NSW EPA's guidance indicating that the near term will see Chemical Control Orders in place for operators whilst the EPA monitors the impacts before taking possible compliance action. This opens up considerations about other offtake options for biosolids, such as thermal treatment (which although utilised in other markets, is not an approved pathway in NSW). In any case, managing known-PFAS containing residual material is very uncertain for the WARR industry.

- Compliance by the water and WARR industries. Most utilities have very limited data for triclosan, galaxolide and PBDE concentrations in biosolids. It is difficult to establish whether utilities will need to invest in technology to remove contaminants from biosolids to enable continued beneficial reuse. The new compliance obligations under the Biosolids RRO/E will require careful transition planning towards compliance.
- The state's circular economy objective to keep resources in circulation at their highest value. As noted above, there is the potential to drive utilities towards treating biosolids with thermal technologies such as gasification to eliminate some contaminant risks (which is still unknown as there is no accepted methodology for testing gas emissions). However, a lot of the key nutrient benefits of biosolids are lost through thermal treatment.
- Confidence in the WARR industry to safely manage PFAS. Whilst WMRR acknowledges the EPA's alignment with the precautionary principle, the WARR industry is already very astute to the perceived risks of inadvertent PFAS contamination via potential exposure pathways for PFAS to migrate from stored biosolids windrows through soils or surface runoff, contaminated landfill leachates or from recycled water. Biosolids are often stockpiled in outdoor areas as windrows (often in bunded areas) that should minimise the potential leaching of PFAS into the environment. Similarly, landfills are appropriately lined, with increasing use of double liners to address potential risk. WMRR reiterates that there have been no significant impacts to human health or the environment from biosolids use to date.

Due to these complexities, it would be prudent for the Biosolids RRO/E to be given further consideration with two-way dialogue between the EPA and the suite of stakeholders involved in these potential impacts. These stakeholders must include the suppliers, generators, processors and consumers impacted by the Biosolids RRO/E (key stakeholders'). WMRR supports the development of a risk-based approach to ensure sustainable management of biosolids for protection of public health and the environment and stresses the importance of the EPA applying a systems lens to consider the entire biosolids cycle and connected externalities.

Further industry consultation is needed to assess regulatory and market impacts of the Biosolids RRO/E

WMRR urges the EPA to facilitate further consultation with key stakeholders to refine a regulatory approach that encourages the beneficial use of biosolids and biosolids products whilst safeguarding environmental and human health. WMRR is prepared to assist in facilitating broader industry engagement on this proposal along with the EPA to help articulate measurable impacts. Ideally, this would involve undertaking a formal Regulatory Impact Assessment. At the very least, WMRR encourages the EPA, in two-way consultation with key stakeholders to:

- i. Consider the beneficial application of biosolids products and their specific end use, rather than proposing contaminant limits and margins of safety that do not account for the low risk profile of the end application.

This would avoid unnecessarily restricting biosolids use by applying overly conservative and restrictive universal margins of safety, with end use exposure factored in as opposed to a single concentration for all scenarios for that grade. Guideline limits could then be set to realistic exposure risk pathways rather than extreme worst-case scenarios. For example, there may be merit to adopting a hybrid approach that includes fixed biosolids

concentration limits for higher-risk end uses where public access is unrestricted, e.g., home lawns and gardens, public contact sites (parks), urban landscaping (council land) and adopts a different outcomes-based guidance for lower-risk end uses where public access is restricted, e.g., agriculture, forestry, soil and site rehabilitation and surface land disposal.

ii. Consider whether the increased Margin of Safety is warranted.

Several critical factors significantly distort the practical application of biosolids such as their application to a limited treatment area (due to buffer requirements, land management practices, and associated costs) and intermittent grazing by livestock. These factors are not captured by a conservative Margin of Safety (MoS) resulting in beneficial biosolids being restricted. Risks may be more appropriately addressed by prohibiting the use of biosolids for high-risk dairy applications (consistent with pig and poultry operations which are currently excluded). WMRR notes the default MoS for NEMP 3.0 for PFAS is 1 and questions whether the increased MoS is needed to mitigate risks that already, in business-as-usual practice, are already significantly mitigated (as evidenced by the safe continuous use of biosolids to date).

iii. Consider opportunities for jurisdictional alignment

WMRR appreciates that the revised definition of biosolids in the Biosolids RRO/E aligns with other states and encourages further alignment to be considered in relation to agreed contaminant thresholds and testing requirements particularly for PFAS. The lack of consistent regulations across jurisdictions presents challenges for facilities and undermines the development of standardised treatment approaches. There is a need for nationally consistent guidance on analytical methods and quality control methodologies for PFAS in recycled organics feedstocks, products and biosolids. Facilities will need a systematic, comparable testing methodology to justify investment and reduce risks.

iv. Consider the financial burden on consumers

The need to test for the new contaminants and the lower resolution of testing required will incur higher fees. There is also the question of access to laboratories that can test to the lower detection limits. WMRR notes that Clause 5.11.4 of the Order and Clause 7.4 of the Exemption both refer to the need for suppliers requiring evidence from the consumer including a summary table of the contaminant testing data, calculation and reports of analytical results from the soil sampled at the application site after the previous application of biosolids or any other 'waste' (this implies that testing after the application of *any* compost or manure is required). This places a significant onus on consumers of biosolids (namely farmers given the prevalence of the agricultural market), which may be cost prohibitive and deter from future uptake of beneficial biosolids products.

Again, WMRR is not confident that this level of burden is justified given the successful safe use of biosolids to date and the prevalence of these contaminant compounds on market. Investment by government to support requisite testing may need to be considered to maintain existing biosolids markets.

WMRR urges the EPA to consider clarifying the intent of the Biosolids RRO/E following further consultation and regulatory and market assessment of its potential impacts which extend beyond the suppliers, generators and consumers of biosolids products.



WMRR has provided responses to the consultation questions at [Annexure A](#) and welcomes the opportunity to further engage with the NSW EPA on this matter. Please contact the undersigned if you wish to further discuss WMRR's submission.

Yours sincerely

Gayle Sloan

Chief Executive Officer

Waste Management and Resource Recovery Association of Australia

Annexure A: WMRR Responses to the consultation questions

Question	WMRR Response
The EPA has introduced regulatory thresholds for PFAS (per- and poly-fluoroalkyl substances) and polybrominated diphenyl ethers (PBDE) in Table 1 of the draft resource recovery order and exemption. How will this affect your management of biosolids?	WMRR is not an operator / supplier /generator and as such cannot comment on this directly. However, please refer to our comments in the cover letter which articulate concerns around potential impacts of these limits being imposed across supply chains with notable potential impacts for the management of leachate from landfill, consumer confidence in FOGO and organics, and concerns around increased biosolids being restricted from their existing markets and requiring management as residual waste.
Thinking about the test methods proposed for analysis of the contaminants in Table 1 of the draft resource recovery order and exemption for biosolids and soil, are they appropriate?	WMRR has some concerns around the test methods (including the expense and availability of suitable laboratories) – particularly for consumers noting that the soil requires testing after the previous application of biosolids or any waste. WMRR has raised this concern in our cover letter and reiterates the need for further consultation to be undertaken with key stakeholders impacted by the RRO/E (including farmers) so that a regulatory and market impact assessment can be completed. WMRR also notes that the test methods are complex (particularly around the steps for Grade C biosolids that do not meet the threshold and the use of an expert consultant). This could be re-drafted for clarity and with a focus on the intent of the RRO/E. Utilising methods that align with other jurisdictions would be welcomed. Similarly, a template for the provision of expert reports would be useful.
What is your view on the reporting requirements for the new contaminants PFAS, PBDEs, galaxolide and triclosan in the draft resource recovery order and exemption?	WMRR understands from industry that biosolids suppliers/generators anticipate levels of reporting. However there are obvious concerns with the testing requirements given the low threshold detection for PFAS and what WMRR understands is limited adoption to date of testing for PBDEs, galaxolide and triclosan.
Biosolids are defined under Schedule 1 to the Protection of the Environment Operations (POEO) Act 1997 as the organic product that results from sewage treatment processes (sometimes referred to as sewage sludge). Other Australian jurisdictions (NT, SA, WA, Tas, Vic) distinguish between sewage sludge and biosolids. What are your views on the new definition of biosolids proposed in the resource recovery order and exemption	WMRR welcomes alignment with other jurisdictions to distinguish that biosolids are the organic solids generated after sewage sludge has been treated. However, in making this change, WMRR would seek that the POEO Act is amended to ensure that the definition in the Order and Exemption aligns with the Act. This should be undertaken alongside other work to revise the NSW Resource Recovery Framework.