

To The National Chemicals Working Group
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From Colin Sweet, CEO
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Date 21 June 2019

Subject Submission on PFAS Draft NEMP version 2

The Australian Landfill Owners Association (ALOA) was formed in late 2008. It is an incorporated entity with members from across Australia.

Modern landfills are an essential element in today's integrated waste management infrastructure as landfills:

- Offer cost effective and reliable disposal of recycling and processing residues and unsorted wastes;
- Manage greenhouse gas emission by methane collection and combustion;
- Provide a source of renewable energy;
- Have the flexibility to accept variable waste volumes; and
- Are reliable last resorts for the acceptance of large volumes of 'disaster' waste.
- Member landfills provide services to the general public, local government, industry, property developers, mining and agriculture.

ALOA members receive and safely manage the disposal of almost three quarters of the waste landfilled in Australia.

Since its inception ALOA has defended the interests of its members in national and state issues. In particular, ALOA campaigned for fairer treatment under the 'carbon' tax and worked closely with the Australian Local government Association (ALGA) to develop the Voluntary Waste Industry Protocol to utilise collected carbon tax monies.

ALOA is governed by a 'national' board and has state 'chapters' in each of the mainland states.

Submission

Thank you for the opportunity to provide feedback on the PFAS NEMP 2.0.

Our comments are as follows:

1. Status of NEMP and ongoing activities

ALOA acknowledges that NEMP 2.0 covers new guidance developed in 2018 only, and the NEMP is scheduled for a full review in 2023. ALOA is also aware that work beyond NEMP 2.0 has commenced, comprising activities under six (6) themes that include resource recovery and waste management.

ALOA looks forward to consulting with the National Chemicals Working Group in its future work on the NEMP resource recovery and waste management and related themes.

2. Capturing Diffuse PFAS Sources within the Scope of the NEMP

In April 2018, an independent expert health panel established by the Federal Government concluded that there is:

"...mostly limited, or in some cases no evidence, that human exposure to per- and poly-fluoroalkyl substances (PFAS) is linked with human diseases. Importantly, the panel concluded that there is 'no current evidence that suggests an increase in overall cancer risk'¹."

¹ Expert Health Panel for PFAS report, Australian Government, Department of Health, April 2018.

[https://www.health.gov.au/internet/main/publishing.nsf/Content/C9734ED6BE238EC0CA2581BD00052C03/\\$File/summary-panels-findings.pdf](https://www.health.gov.au/internet/main/publishing.nsf/Content/C9734ED6BE238EC0CA2581BD00052C03/$File/summary-panels-findings.pdf)

However, the panel noted that given PFAS continues to persist in humans and the environment, exposure to these chemicals should be minimised and future research should focus on long-term studies.

While ALOA understands the need to take a precautionary approach towards PFAS, we believe the NEMP is drafted in such a way that it leaves the reader with the impression that PFAS is far more dangerous and toxic than that reflected in current findings and inconsistent with its continuing un-monitored production and use in consumer goods and building products.

Despite PFAS compounds continuing to be prevalent in a range of readily available common household products, including food packaging, aerosols, non-stick cookware, textiles and fabrics, which fall outside bans and regulatory controls, the current NEMP is draws into focus their presence in landfill even though the emitted PFAS loads have been monitored and found to be very low, when compared to emissions from contaminated sites, production facilities and wastewater treatment plants.

ALOA believe that EPAs and Government need to influence the producers and suppliers of significant PFAS inputs to the Australian market, rather than the current and very linear end of pipe approach to policy development. Landfills (like wastewater treatment plants) have no control over the materials that society produces and disposes of (whereas Government does).

ALOA advocates that:

- A requirement for product manufacturers, importers and suppliers take ownership of the end of life management of materials they produce and supply to consumers and the economy should be legislated by Government.
- Government must provide strong leadership in requiring stronger Extended Producer Responsibility, relieving the focus on end of pipe solutions and lower order use of materials as a result of manufacturer introduced contamination and barriers to resource recovery.

3. Need for Nationally Consistent Guidance and Market Signals

While the NEMP strives to provide a consistent point of reference for environmental regulators and a consistent framework and approach to the management of PFAS, with respect to landfill and leachate, each State EPA and Sewerage Authority actions and decisions have varied considerably.

ALOA has observed:

- Queensland is by far the most conservative jurisdiction; a Queensland Urban Utilities presentation on sewer acceptance from a utility operator’s perspective at WMRR’s 2019 Australian Landfill and Transfer Stations Conference in March highlighted new limits on PFAS concentrations for trade waste, which were below the concentrations in the leachate from some landfills. Queensland’s response is to have landfills treat leachate prior to disposal to sewer to reduce PFAS concentrations to ‘acceptable’ levels. Should Queensland Urban Utilities decide to act in this manner, the Queensland landfill industry will shut down overnight and there will be no alternative waste disposal option for the citizens of Queensland.
- In NSW, the EPA has informed industry that unlike Queensland, Sydney Water has not imposed any discharge criteria. However, Sydney Water has tested incoming leachate for PFAS so future decisions on additional limits on the discharge of leachate to sewer should not be discounted.

Sydney alone has three (3) major landfills in addition to smaller sites that receive more than 500,000 tonnes of waste annually; they treat and discharge in excess of 2ML of leachate to sewer per day. Thus, a ban or restriction on the discharge of treated leachate to sewer is expected to have a significant impact on these landfills and their leachate management systems, to the extent that the landfill industry would summarily cease to operate and there will be no alternative waste disposal option for the residents of Sydney. The NSW EPA advises that it is undertaking further work to ensure a balanced approach to the management of PFAS that does

not negatively impact any one part of what is an interconnected wastewater system that includes a range of stakeholders, including landfills.

- In WA and SA, where the climate is drier, landfills are generally not as reliant on sewer disposal to date, have not been impacted by PFAS regulation.
- In Victoria, where the Victorian EPA regulates the guidance of the PFAS NEMP, the messages have been mixed and ALOA understands that Victorian water authorities are taking a more cautious approach. Melbourne Water have advised a major Victorian landfill of an effective ban on discharge of leachate through the imposition of a 1ug/l discharge limit. Of 26 Australian landfill leachates tested, 21 had PFAS levels higher than 1 ug/L. Given Victoria's climate dictates that virtually every landfill south of the divide is dependent at least in part on sewer disposal of leachate, this represents a major issue.

Leachate discharges to sewer are a point source, an easy target for control and/or exclusion. However, a study by the University of Queensland (Gallen et al, 2017) indicates that leachate is generally a small contributor of PFAS to the total wastewater treatment plant load, and minor compared to domestic wastewater sources². As a consequence, the exclusion of typical leachate discharges to sewer are in themselves unlikely to solve any exceedance of criteria in the WWTP biosolids or effluent.

ALOA believes that to signal inconsistent discharge limits to WWTPs where the contributed load is small has the potential to:

- Increase the economic costs beyond the benefits given the focus on this small contributor of PFAS load to the sewer;
- Impose a significant financial burden to operating and closed landfills across Australia, potentially resulting in early closure or abandonment of landfills;
- Simply displace PFAS materials to less desirable disposal pathways to the environment.

4. Need for Interim Guidance to Industry and Sewerage Operators

ALOA believes it is both consistent with the Chemical Working Group's charter (under HEPA), and helpful to water authorities (who must have regard to broader environmental outcomes), for the NEMP to provide scientifically-based guidance on the management of landfill leachate having regard to its relative contribution to the total volume of sewage, the significance of its exclusion from a broader environmental perspective, and the lack of technically developed and effective alternatives available for removing PFAS from leachate. We believe this guidance is necessary to provide a clearer framework for decision making and to avoid unintended or perverse environmental and financial outcomes.

Recommendations:

- The National Chemical Working Group should work with the waste industry to determine acceptable levels of PFAS in leachate for acceptance to sewer as part of ongoing improvements to the NEMP.
- The National Chemical Working Group place priority on forming a short-term policy position regarding the acceptance of trade waste discharges of leachate where its effect is marginal or incremental, and not scientifically demonstrated to be driving non-compliance or risk-based outcome to the management of biosolids.

5. Treatment and PFAS management framework

Amongst the changes to the NEMP are two (2) new sections – one on on-site storage, stockpiles, and containment, and the other on wastewater treatment, as well as Appendix D, an example of the proposed PFAS Management Framework.

² C. Gallen, D. Drage, G. Eaglesham, S. Grant, M. Bowman, J.F. Mueller, 2017. Australia-wide assessment of perfluoroalkyl substances (PFASs) in landfill leachates. *Journal of Hazardous Materials* 331 (2017) 132–141

The proposed framework outlines an extensive assessment and monitoring strategy and describes a range of tools that may be used by water authorities to manage inputs from trade waste, including refusal of receipt. However, no measures are recommended for sources other than trade waste. While manufacturers and suppliers of consumer products are considered to bear the primary responsibility for acting to reduce the levels of PFAS reaching domestic wastewater, there are no actions or controls identified to force producers to reduce PFAS concentrations in their products.

ALOA notes that the next revision is intended to benefit from work on the resource recovery and waste management theme and considers it appropriate given that the issue is already affecting the waste and resource recovery sector, that the NEMP in this revision provides guidance that a mixed response is required to achieve appropriate environmental outcomes.

Recommendations:

- That the NEMP provide guidance stipulating that in addition to the current guidance contained in the NEMP, further regulatory and economic responses by Government may be required.
- That the NEMP provides guidance and recommendation to Government to take an Extended Producer Responsibility approach for PFAS in consumer goods as a trade matter if the concentrations cause issues for landfill and wastewater treatment plant operators.

Industry has explored existing treatment technologies and has undertaken groundwater remediation at several sites across Australia. Current water treatment technologies being used for PFAS contaminated water are essentially separation processes, which produce a water stream with a reduced (very low level) of PFAS, and a solid or liquid waste by-product that contains a very high concentration PFAS that requires high temperature incineration of concentrated by-products to destroy the PFAS removed. Alternatives in suitable climates that result in bioaccumulation or concentration in evaporation ponds similarly require by-product disposal.

The cost of treating PFAS contaminated water, including landfill leachate, is considerable. Current rates offered by industry vary from \$10 to \$40 per kilolitre (excluding costs for disposal of the concentrated by-product). A landfill discharging 500kL of treated leachate to sewer per day would incur additional costs of \$5,000 to \$20,000 per day (or \$1.8 million to \$7.3 million per year). These costs are significant and would need to be passed onto the users of the landfill, i.e. the community. For one (1) landfill in Sydney, there would be a need to increase landfill disposal fees by \$30 per tonnes depending on the actual additional leachate treatment costs.

Just as the impacts of PFAS on human and environmental health are not completely known at this stage and research is ongoing, the treatment technology options are also evolving. Industry expects treatment technology to improve – both in terms of cost efficiency and treatment efficiency – but these changes take time.

Recommendation:

That the NEMP provide guidance on timeframes for planned implementation or improvements **that** reflect scientifically demonstrated and commercialised technologies. Current requirements for investigations, design, approvals and implementation suggest that a minimum timeframe of five (5) years would be required to implement substantial alternative measures where it is feasible to do so.

6. Acceptance criteria

ALOA requests that the NEMP clarifies the intended scope of application of landfill acceptance criteria to specific waste streams. ALOA believes it is impractical to apply the current guidance to loads of mixed and general solid waste streams received at landfills. It is unreasonable to expect landfill operators to reject loads that contain household products, textiles, and packaging wastes that are coated in chemicals containing PFAS. Firstly, it is impractical as most waste is contained in a sealed truck and secondly, the subsequent disposal of the PFAS material would impose a high penalty on the landfill operator.

7. The next iteration

As the National Chemical Working Group starts working on NEMP 3.0, which will look at resource recovery and waste management and includes the “sampling of unusual matrices including those found in construction waste, ALOA encourages the group to consider where these materials may end up if unrealistic limits and expectations are set, and to continue to consult with industry. For instance, the Westgate Tunnel boring project has turned up two (2) million tonnes of spoil, which may contain PFAS. Landfills will be less inclined to take this contaminated soil considering the unknowns industry is currently facing.

ALOA supports best practice landfills and technological advancements to drive greater protection of human and environmental health. However, the NEMP as it is, squarely and unjustifiably places the responsibility for managing the PFAS problem on landfills (linear thinking), which gives water authorities the ability to withdraw trade waste services and provides in-principle justification for water authorities to refuse landfill leachate. This is a risky situation because it undermines the viability of landfills, which play an integral role in waste management, and provides an essential service by managing residual waste flows within the economy.

As such, ALOA urges the working group to continue working with all stakeholders to manage PFAS in the environment and advises against imposing limitations and regulations without further investigation. Please do not hesitate to contact the undersigned to further discuss ALOA’s submission.

For further information on this important matter, please contact ALOA.

Yours Sincerely



Colin Sweet
CEO