To	PFAS Standards Section Department of the Environment and Energy Email: PFASstandards@environment.gov.au
From	Australian Landfill Owners Association (ALOA) info@aloa.com.au
Date	18 December 2017
Subject	**Submission – Regulation Impact Statement**

Background

The Australian Landfill Owners Association (ALOA) was formed in 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 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 Associate (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.

Response

ALOA provides the following response to the Regulation Impact Statement on the National Phase out of PFOS and ratification of the Stockholm Convention.

In relation to the landfill industry:

The capacity of industry to achieve the proposed PFOS phase outs, process improvements and waste disposal requirements, including destruction.

- Landfill operations do not generate PFOS waste, but are subject to the PFOS contained in the wastes deposited by our council, commercial and industrial customers. Landfills are also subject to the specific operational and climatic environment of the site. A survey of a wide range of 27 landfill leachates at medium to large operating and closed landfill sites (Gallen et al, 2017) found PFAS in all sites including PFOS. This not surprising given the ubiquitous nature of PFOS in the general community.
- Phase out of PFOS has already begun in Australian, but some products, such as carpets, have a long life and PFOS impregnated carpets are still being received in significant quantities at

landfills. Eventually, the PFOS in PFOS impregnated wastes may be release into the landfill leachate system and the levels in leachate in older landfills is consistently less than for new landfills (Gallen et al, 2017).

- The mean concentration of PFOS in the landfill leachate at the 27 sites in the study was 300 ng/L for sites predominantly receiving MSW, 1100 ng/L for sites predominantly receiving C&D waste and 180 ng/L for closed sites. Eight landfills discharged PFOS contaminated leachate to sewer. Gallen estimated the contaminant load from these 8 sites at a mean of 2.4 g/yr of PFOS.
- Gallen made a broad estimate of what might be the total discharge load of a range PFAS if all Australian landfills were connected to sewer and had the average leachate discharges and contaminant loads found in his study. This is only a "rough" estimate in his view but Gallen went on to state "it appears that the contribution of leachate to the overall burden of PFASs entering WWTPs and being released in effluent is minor". This also applies to PFOS by inference.
- Gallen went on to state his estimates are "lower than similar national estimates of PFAS release from …" landfills in the USA and … landfills in Germany". This follows the well-established pattern that due to the lower level of chemical industry in Australia compared to Europe and the USA, Australian landfills generally have lower levels of chemical contamination than those countries.
- Given the results of this recent study, Australian landfills pose a minor threat to the environment in regard to PFOS contamination compared to other sources in the community. Policy decisions should not, on a cost benefit basis, over reach on controls for the receipt of PFOS contaminated waste nor on the treatment of landfill leachate noting that other sources have a larger consequence.
- The landfill industry should commit to ongoing investigation and monitoring of the sources and discharge of PFOS and take reasonable practicable steps to reduce its discharges of PFOS and other PFAS.

Implementations mechanisms for biosolids and leachate management and feasibility of the proposed approaches.

- Landfills have to manage significant volumes of leachate generated by rainfall ingress and putrefying waste. Most modern landfills have engineering controls in place to capture leachate and prevent its uncontrolled discharge to the environment.
- In recent years landfills in Australia have been much more effectively regulated, especially landfills taking putrescible wastes. This increased regulation has been necessary to ensure that potential environmental harm that may be caused when leachate, containing residues from putrescible waste, could leak out of old landfills.
- In the early 1990's Australian regulators started to develop new rules that required lining of the base and sides of landfill and the leachate that used to seep away started being collected. It was soon found that sites with uncontrolled rainwater infiltration were collecting large volumes of leachate not able to be stored and evaporated on site and the only viable method for discharge was to sewer, if one was available.
- The risk of leakage of PFOS contaminated leachate from best practice landfills lined with HDPE and with efficient leachate collection systems is very low.
- Sewerage authorities have worked with landfill operators over many years to develop appropriate discharge conditions predominantly based on salt loadings and ammonia concentration. Many landfills subsequently installed leachate treatment plants to meet those conditions and relied on the acceptance of treated leachate into the sewerage system to manage its leachate into the future.

- Box 9 of the RIS indicates that landfill leachate contaminated with PFOS should not be discharged into the sewerage system because conventional waste water treatments plants do not remove or destroy PFOS. It appears that a comprehensive risk analysis (refer Point 1 above) has not been undertaken to justify this statement.
- The resulting impacts, should such a position be adopted, could threaten the ongoing viability of the essential waste management infrastructure required to support a modern society.
- Excess build-up of leachate at a landfill could lead to uncontrolled discharges to surface waters because leachate storages eventually fill up.
- Waste water treatment plants consolidate all liquid waste inputs, treat them and discharge them back into the environment to receiving waters that have capacity to dilute the residual contaminants to safe levels. This will continue to be the case with PFOS contaminated liquid wastes, while the loadings of PFOS in the influent and effluent reduces over time.
- Landfills and waste water treatment plants receive a wide variety of wastes from the community and manage them to prevent damage to the environment. They do not have any control on what industry and consumers buy and want to dispose of.
- Implementation mechanisms should concentrate on reducing the use of PFOS in industry and consumer products.
- Landfills and waste water treatment plants should monitor the source and fate of the PFOS that inevitably ends up in their facilities.

Further Information

Colin Sweet
CEO ALOA
M 0418 737 903

References

C. Gallen et al:
Australia-wide assessment of perfluoroalkyl substances (PFASs) in landfill leachates.
Journal of Hazardous Materials 331 (2107) 132 – 141.