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Simon Upton, Parliamentary Commissioner for the Environment

Tēnā koe Simon

Proposed wastewater environmental performance standards: request for information

Thank you for your ongoing interest in the role of the Water Services Authority – Taumata Arowai (the Authority), specifically in this case the consultation on the first set of proposed national wastewater environmental performance standards under the Water Services Act 2021.

You have requested the following information under section 19 of the Environment Act 1986:

- details of the current standards, limits and conditions that each wastewater treatment plant operates under;
- a comparison showing whether the proposed standards (with a particular focus on the proposed discharge to water and discharge to land standards) are more or less stringent than the current standards, limits or conditions for discharges currently set for each wastewater treatment plant;
- analysis showing how the proposed standards (with a particular focus on the proposed discharge to water and discharge to land standards) will affect the discharges to receiving environments with a particular interest in whether the existing state of that receiving environment will likely get better or worse under the new standards.

We welcome your feedback on the proposed wastewater standards which – if designed well – can both improve the environmental and public health performance of public wastewater treatment plants and networks, while facilitating significant efficiencies in time and cost for the public.

Government direction on wastewater environmental performance standards

Wastewater standards are a core aspect of Local Water Done Well, the Government's approach to addressing long-standing water infrastructure challenges.

A significant proportion of publicly owned wastewater infrastructure in New Zealand was built around 30 to 40 years ago, and upgrades and renewals are required for many treatment plants and networks. Within the next 10 years, approximately 60 percent of existing publicly owned wastewater treatment plants will need to be reconsented. This is one of the most significant infrastructure challenges facing the country.

Approximately 20 percent of public wastewater treatment plants are currently operating on expired consents under section 124 of the Resource Management Act 1991, with an average expired consent duration of five years (and trending upwards) - some plants are operating on expired consents for decades. In these cases, treatment plants are often old, poorly maintained, with few or no treatment quality limits in the consents. These are indicators of a system failure that represents significant – and on current trends increasing - ongoing environmental impact and public health risk.

Alongside this, many treatment plants are subject to multiple bridging consents, with reconsenting occurring over a decade or more. Plants can be non-compliant or subject to minimal treatment quality

requirements while this ongoing consenting process continues, with an associated significant impact on the environment. Examples of $12 million cost associated with reconsenting have been identified.

Many wastewater networks are old, in unknown condition, and overflow frequently via stormwater infrastructure. Monitoring and reporting of these overflows is patchy and inconsistent – many councils continue to record overflow events only if reported by a member of the public. Around half of regional councils prohibit overflows, notwithstanding the fact that they happen regularly. This creates a disincentive for councils to understand their networks and reduce the frequency of overflows in a cost-effective way. It also means that the significant public health implications of overflows to communities at risk often go unknown and unreported.

Wastewater standards are a response to these regulatory challenges. End of pipe standards and transparent reporting of overflows based on risk are common industry and regulatory practice internationally, some jurisdictions having accumulated many decades experience with standards, and evaluation of outcomes reported on.

The standards proposed in the discussion document are intended to:

- require good quality treatment of wastewater, balancing cost and community aspirations;
- result in significant regulatory efficiencies with the processing of resource consents, removing the need for multiple short-term consents, and streamlining other aspects of the consenting process;
- standardise plant design, performance and operation, which will mean that higher treatment is possible for a lower cost;
- enable council infrastructure owners to plan and fund this long-lived infrastructure with significantly greater certainty than is currently possible, including for development and climate change;
- enable plant performance to be benchmarked, which is a common approach for comparable infrastructure sectors but is absent in this area in New Zealand. It will also enable better oversight of regional council compliance and enforcement activity;
- for overflows, require councils to have consents for existing overflow points and bypasses of plants, and implement monitoring and reporting based on risk. This will both ensure that communities are aware of the public health implications when overflows occur and mean that councils have good information to direct investment where it is most cost effective to reduce or eliminate overflows.

Details of current consent limits and conditions

You have requested details of the current standards, limits and conditions that summarises information in resource consents of public wastewater treatment plants held by the Water Services Authority.[1] The **attached** spreadsheet provides information on the consent conditions of wastewater treatment plants based on council information. However, there may be instances where this information has changed, and the territorial authority holds more up-to-date information.

Comparison of proposed standards with current consents

You have requested a comparison of the treatment limits in proposed standards with current consents, with a focus on the discharge to water and land standards.

[1] Public wastewater treatment plants are those that are owned or operated by, for or on behalf of a local authority, council-controlled organisation, government department or the New Zealand Defence Force.

A comparison of this nature was conducted as part of the development of the discharge to water and land standards, and it is available on our website – discharge to water technical report and discharge to land technical report.

This analysis conducted shows that, for the discharge to water standard, the treatment limits proposed in the standard across different categories of receiving environment are consistent with limits in modern consents. There are consents with higher limits for particular contaminants, and some with lower. This is unsurprising, with the current approach to consenting of wastewater treatment plants on a case-by-case basis resulting in very wide variation in treatment limits, monitoring and reporting requirements from plant to plant. A study by GHD and Boffa Miskell for the Department of Internal Affairs in 2019, for example, found there is no correlation for areas such as the age of a plant, its treatment processes or infrastructure, or impacts on the receiving environment – regulation of wastewater treatment plants.

The analysis also found that the approach proposed in the discharge to water standard is more comprehensive than in existing consents. It is common for existing consents to impose limits for a small number of contaminants, with other contaminants subject to monitoring requirements. Some consents for treatment plants have no treatment limits. In contrast, six treatment limits proposed as part of the discharge to water standard that will apply to all categories of water body other than discharges to ocean, where there are two treatment limits (consistent with modern consents). This approach is consistent with overseas models and would mean that treatment of wastewater consciously addresses all of the common contaminants produced by plants that impact on the environment and public health. Analysis of existing consents has not been able to identify any plants in New Zealand subject to this comprehensive approach to treatment limits in its consent requirements.

The analysis found that, while the discharge to water standard proposes end of pipe treatment limits, many existing consents set treatment limits in-stream, with a very wide variation in how in-stream treatment limits are set. This means it is difficult to directly compare treatment limits both between consents, or to those proposed in the discharge to water standard.

The end of pipe approach is consistent with overseas models and ensures that infrastructure must be operated in a way that is compliant with treatment requirements. A well-established shortcoming of in-stream treatment limits is that, where a treatment limit is breached, it is not clear whether the infrastructure operator is responsible or alternatively environmental conditions (such as farm run-off) have caused the situation. This has implications for the ability of regional councils to ensure compliance, or take enforcement action.

The pathogen limits for the proposed discharge to water standard are set to protect public health at recreational bathing levels to an attribute A level based on the Ministry for the Environment Microbiological water quality guidelines for marine and freshwater recreational areas. This will result in a significant uplift of treatment for many plants where pathogen treatment is not required. Higher treatment levels may apply in areas where shellfish are gathered, through a quantitative microbial risk assessment – this approach is consistent with existing consenting processes.

Where a wastewater treatment plant discharges to a hard-bottom stream, the proposal is that treatment limits for total nitrogen and total phosphorous would not apply, and a periphyton risk assessment would form the basis for nutrient treatment. This approach is protective of these freshwater bodies where periphyton is a potential risk.

For the discharge to land standard, loading rates are proposed for total nitrogen and total phosphorous, and treatment requirements for pathogens. The analysis found that nutrient and pathogen loading limits in existing discharge to land consents are highly variable – there can be a percentile-based limit, a daily, weekly or annual load, or an area-based load. Of the 89 consents analysed, over 46% (40 consents) did not have load-based limits for phosphorous, nitrogen, or require an treatment for *E. coli*.

Both the discharge to water and land standards propose consistent statistical approaches to limit-setting, together with standard conditions in consents relating to compliance. This addresses a significant shortfall of the current system, where there is very wide variation in consent conditions in these areas. The technical report for the discharge to water standard attached above, for example, identifies the very wide variation of consent conditions for biological oxygen demand in current consents. Many consent conditions are also phrased in ways that are ambiguous, meaning compliance is not clear, and enforcement not possible. This is an area that regional councils have requested is addressed as part of the standards work programme.

Where matters are not addressed in the proposed standards – such as discharges to air or certain parameters (for example, heavy metals) – the relevant regional council will continue to determine the scope of consents and set resource consent conditions.

Finally, please note that decisions about wastewater arrangements, such as where plants are located and discharge to, or treatment processes that are implemented, will continue to sit with territorial authorities and their communities. Territorial authorities will, for example, continue to consult with their communities about their preferences under local government legislation, and apply to regional councils for new consents for wastewater treatment plants or networks in a way that reflects community preferences.

Will the existing state of the receiving environment likely get better or worse under the new standards?

You have asked whether the state of the receiving environment likely get better or worse under the new standards.

Significant improvements in environmental outcomes are expected across a range of areas as a result of wastewater environmental performance standards. These include:

- the technical advice is that, while there are some consents with higher limits for particular contaminants, and some with lower, the level of treatment limits proposed in the discharge to water standard and discharge to land standard are consistent with the limits in modern consents – this area is open for consultation to test this area further;
- moving to comprehensive limit-setting across the major contaminants that are produced by plants will be a step-change improvement to current arrangements, where it is common for existing consents to impose limits for a small number of contaminants, with other contaminants subject to monitoring requirements. Some consents for treatment plants have no treatment limits;
- transparent monitoring and reporting requirements are proposed for the discharge to water and discharge to land standards, including monthly public compliance reporting and an audited annual compliance report. This is intended to drive significantly greater compliance with consent conditions. Under current system settings, information about compliance is not easily accessible, non-compliance is likely to be widespread, and enforcement action is inconsistent. This means that significant environmental and public health impacts are likely to be unknown and undisclosed;
- benchmarking of plant performance, based on standardised treatment arrangements, will be a significant incentive to increase compliance and improve environmental outcomes. This is a common approach for comparable infrastructure sectors, and for water services internationally, but is absent in this area in New Zealand.
- Standardisation of treatment arrangements will also enable better oversight of regional council compliance and enforcement activity, which is currently inconsistent;

- treatment limits set at end of pipe will result in significant improvements to environmental outcomes as it ensures that infrastructure must be operated in a way that is compliant with requirements. This is in contrast to in-stream treatment limits where responsibility for breach of limits is arguable or unclear because it may be the result of other factors outside of the infrastructure operator's control. In-stream treatment limits are likely to be a key factor in current patchy compliance and enforcement action;
- the proposals in the discharge to land standard relating to a site-specific risk assessment, together with compliance with operations and management plan, are likely to result in a significant improvement in understanding the capability and risks around discharge to land schemes, and better operation of those schemes once implemented;
- the proposals in the discharge to land standard for standardised loading rates for total nitrogen and total phosphorous based on site capability, and treatment requirements for pathogens, are likely to result in significantly better environmental outcomes than current arrangements, where nutrient and pathogen limits are highly variable or absent;
- consistent statistical approaches to limit-setting, together with standard conditions in consents relating to compliance, will address a significant shortfall of the current system where there is very wide variation in consent conditions, including phrasing of consent conditions which renders compliance unclear, and enforcement not possible;
- the proposed standard for beneficial reuse of biosolids is designed to enable beneficial reuse on a greater scale and minimise dumping at landfills, resulting in significantly better environmental outcomes. Existing arrangements that involve storage of sludge at sites or disposal at landfills create a legacy of contaminated land. This standard is based on longstanding biosolids guidelines issued by Water NZ (these guidelines were intended to form the basis for a National Environmental Standard in 2003 but were never implemented);
- proposals relating to consenting of overflows will require infrastructure owners to have consents for existing overflow points and bypasses of plants, and implement monitoring and reporting based on risk. This will result in significant improvements to environmental outcomes over time as councils have better information about their networks to conduct hydrological modelling, understand the condition of their networks, and direct investment where it is most cost effective to reduce or eliminate overflows. It will also ensure that communities are aware of the public health implications when overflows occur.

Regional councils hold information about the impacts of wastewater discharges on receiving environments

Aside from information held in resource consents (and summarised in the Water Services Authority Database of Resource Consents), the Authority does not hold monitoring information about the impact of wastewater discharges on receiving environments. This information is held by regional councils, consistent with their role as regulator for catchments, including wastewater treatment plants, networks and their discharges.

I look forward to our upcoming discussion about this area of work.

Nāku noa, nā

Allan Prangnell
Chief Executive