

Briefing Paper – Environment Protection Authority

Legislative Council Select Committee Inquiry into TasWater Operations

Terms of Reference

To inquire into and report upon the operations of TasWater with particular reference to:—

- (1) The impact of compliance with regulated bodies;
- (2) operations in regard to the impact on business required to comply with Trade Waste regulations;
- (3) the opportunity for re-use water expansion for irrigation;
- (4) the management of sewage treatment including the disposal of the treated waste biosolids;
- (5) the effect of TasWater's dividend policy on Local Government revenue;
- (6) the delivery and timeliness of water services to Tasmanian communities;
- (7) the effectiveness of business operations since the State Government became a shareholder in early 2019;
- (8) the impact of COVID-19 on business operations; and
- (9) any other matters incidental thereto.

Wastewater Legislative Framework

The legislative framework for public wastewater comprises the Environmental Management and Pollution Control Act 1994 (EMPCA), the Land Use Planning and Approvals Act 1993 (LUPAA), and the Water and Sewerage Industry Act 2008 (WSIA), and subordinate legislation.

The EMPCA provides for the EPA to, as necessary:

- Impose effluent quality limits upon, and otherwise regulate, the operation of Level 2 (L2) Wastewater Treatment Plants (WWTPs) via conditions incorporated into LUPAA permits and in Environment Protection Notice (EPNs). L2 WWTPs have a design capacity of greater than 100 000 litres per day average dry weather flow (equivalent to sewage from a town of about 400 people). TasWater operates 77 L2 WWTPs.
- Assess larger wastewater development proposals, including L2 (e.g. upgrade to Blackmans Bay WWTP, rationalisation of Macquarie Point and Selfs Point WWTPs) and 'called in' activities.
- Take action on spills or odour arising from breaks or other failures in the network, including failure to notify incidents likely to cause material or serious environmental harm.
- Require compliance with the General Environmental Duty established in s 23A, including in respect of failures related to sewage pumping stations and other network infrastructure that does not require a permit (WSIA s 56I exemption) and is not a Level 2 activity.

EMPCA also provides for local government to regulate Level 1 WWTPs. TasWater operates 33 L1 WWTPs.

Level 2 WWTPs

General

Collectively, L2 WWTPs treat over 50 000 megalitres of domestic, commercial and industrial wastewater per year. Of the 77 TasWater facilities, 65 use secondary treatment, 11 provide for tertiary treatment and one uses primary treatment. In 2018-19, treated effluent was discharged to:

- estuarine waters (52% - 25 594 ML)
- coastal waters (25% - 12 182 ML)
- inland waters (12% - 6 119 ML)
- land as recycled water (11% - 5 700 ML)

Performance and Compliance

Performance and compliance data for TasWater's Level 2 WWTPs is summarised below, based upon information collated by EPA Tasmania for the *2018-19 Report on the State of the Tasmanian Water and Sewerage Industry*. Performance is compared to contemporary regulatory limits imposed by Permits and EPNs, and to Accepted Modern Technology (AMT) limits that (conditionally) represent future performance expectations, and expectations for new WWTP developments.

L2 WWTP Statewide Effluent Compliance

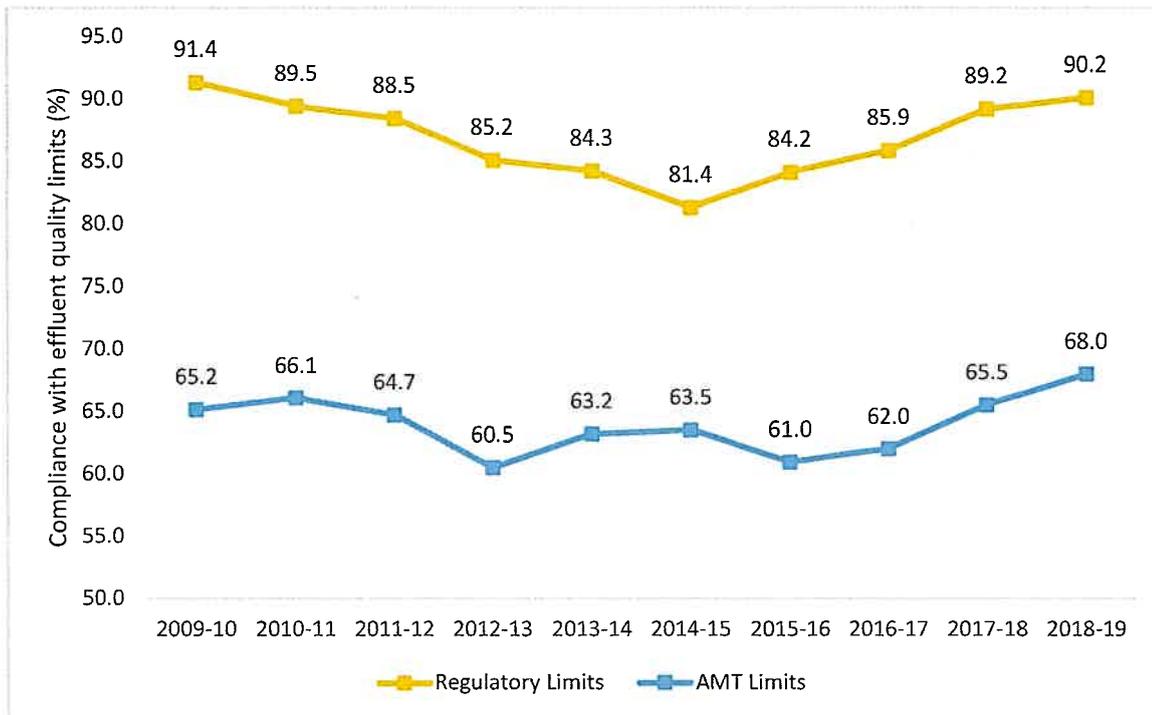


Figure 1 – L2 WWTP compliance with effluent quality limits for discharge to waters

Compliance with regulatory limits for discharge to waters was approximately 90.2% (flow-weighted) in 2018-19. Note that the number and value of regulatory limits changes over time, therefore this trend represents administrative changes as well as fluctuations in effluent quality.

The AMT limit trend allows for direct comparison of effluent quality over time, as AMT limits do not change in number or value. A WWTP need not achieve AMT limits unless regulatory limits are set to AMT.

The level to which sewage is treated has remained relatively constant since 2009 (75% secondary treatment, 15% tertiary, 10% primary).

In 2018-19, compliance with standard Class B limits for discharge to reuse schemes was around 88.9% statewide (flow-weighted). This figure has declined slightly since 2015-16.

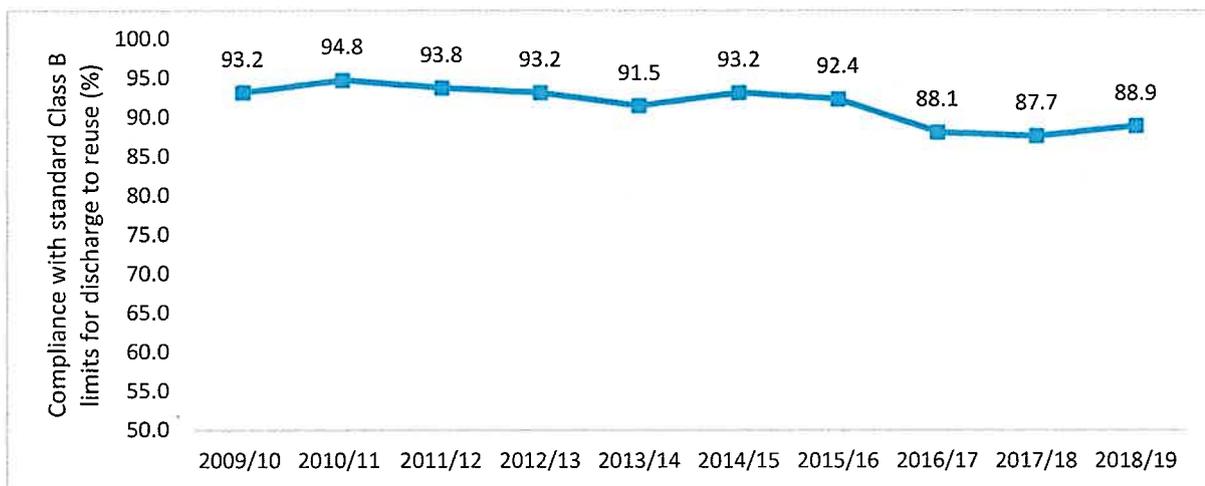


Figure 2 – L2 WWTP compliance with standard Class B limits for discharge to reuse schemes

Compliance metrics

The EPA has recently developed a new approach to effluent quality compliance calculations that better reflects realistic performance expectations, particularly the balance between expected baseline performance, and maximum limits that must not be exceeded during normal operations. The new approach is technically complex and will take time to implement.

Management system compliance is assessed separately to effluent quality compliance. Management system requirements predominantly comprise administrative requirements such as submission of management plans and reports, upkeep of procedures, and monitoring, maintenance and record-keeping specifications. Management system compliance is assessed through compliance assessments and audits. Non-compliances are reported annually via EPA Annual Reports, State of the Industry Reports, and TasWater’s Annual Environmental Reviews. It is recognised that TasWater does not currently meet the expectations of a contemporary environmental management system in terms of understanding and reporting on its administrative compliance obligations.

The *National Performance Report 2018-19: Urban Water Utilities* (NPR) compares TasWater’s performance with other Australian water utilities with a similar sized customer base. TasWater did not previously rate well, but it must be noted that it was compared mainly with large metropolitan water utilities and has a much larger number of wastewater treatment plants per capita than these. Comparison of TasWater’s environmental performance with other major utilities is no longer undertaken as part of this reporting, as its environmental data has not passed the NPR data standards.

Reuse of Treated Effluent

The EPA encourages reuse of treated effluent in certain irrigation situations including seed crops and pasture, golf courses and municipal recreation areas - provided it meets relevant quality standards. Effluent reuse diverts mass loads of nutrients and pollutants from waterways, and conserves water resources.

The EPA requires TasWater to conduct reuse feasibility studies so that this information is available to be compared with plant upgrades that would otherwise be necessary to achieve sustainable discharge to the environment. The aim is to determine the true prudent and efficient option for sustainable effluent management.

In practice, the EPA does not regulate reuse scheme operations, but approves discharge from L2 WWTPs to reuse schemes, requires reporting on reuse scheme performance, and can revoke approval for discharges should schemes present unacceptable environmental risk.

In 2018-19, 5,700 ML of treated effluent was reused, continuing the generally upward trajectory evident since 2011/12 (Figure 3).

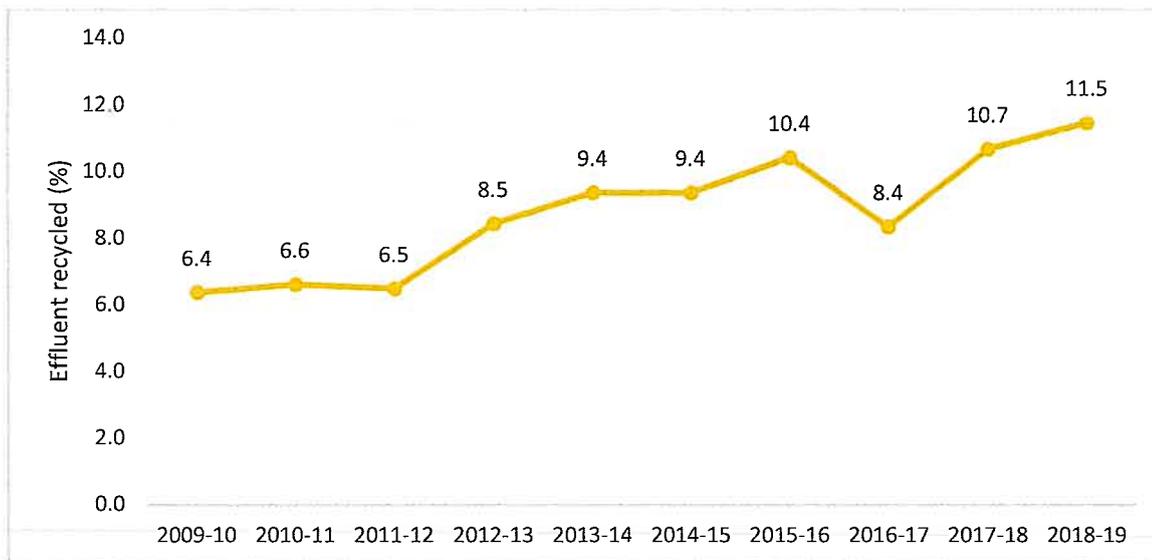


Figure 3 – Percentage of treated effluent reused

TasWater has identified various barriers to implementation of reuse schemes, including the reported high cost of dam storage, and business risk associated with reliance on third party use of water. The EPA has been actively working to better clarify the regulatory framework as it relates to reuse schemes, to reduce TasWater’s perception of regulatory risk. The EPA’s newly developed Sustainable Discharge Framework includes, with the aim of driving increased reuse where feasible:

- clearer definition of sustainable discharges, including clarification of circumstances where substantial reuse percentages may present an alternative to treatment upgrades;
- introduction of strict (AMT) load limits for nutrients discharged to inland waters;
- definition of acceptable circumstances for precautionary discharge from recycled water storages, for example, to prevent local overflow;
- introduction of a compliance bump incentive where 90% compliance with discharge to reuse limits is considered fully compliant;
- clarification that recycled water dams are not required to retain 90th percentile wet year volumes for sustainable partial reuse schemes, meaning smaller storage dams may be negotiated;
- presentation of interim regulatory arrangements for reuse scheme failure where the failure is beyond the control of the WWTP operator.

EPA Tasmania is aware of several areas of unmet demand for recycled water irrigation, including but not limited to the Brighton Reuse Scheme, which is currently restricted by network capacity, and the privately proposed South-East Reuse Scheme relating to the Coal River Valley. The Tasmanian Farmers and Graziers Association has made a submission to the Select Committee indicating that it is supportive of the use of recycled water for irrigation and would like to see this developed and expanded further. This position is echoed in the draft *Rural Water Use Strategy Position Paper* released by DPIPW for public comment in mid-2020 and due for finalisation in March 2021, which indicates that DPIPW intends to support ongoing development of policies to encourage water recycling and reuse.

Biosolids Reuse

As well as ensuring wastes are managed in accordance with regulatory requirements, the EPA promotes beneficial reuse of wastes in accordance with the waste hierarchy.

Biosolids are sewage sludges that have been sufficiently treated and stabilised to allow them to be safely used, including as an agricultural fertiliser and soil conditioner. The EPA produces and provides advice in relation to the *Tasmanian Biosolids Reuse Guidelines 2020* (the Guidelines), which detail strict contaminant quality and stabilisation treatment criteria that must be met to ensure risks to human health and the environment are carefully managed. The Guidelines also specify management measures, such as the method for determining maximum application rates, and restrictions, such as site selection criteria and withholding periods for different crops. The Guidelines apply to any material containing biosolids, such as compost.

Sewage sludge failing to meet biosolids classification thresholds must either receive further treatment or be disposed of at an approved facility. Untreated sewage sludges, septic wastes, industrial and food processing sludges, animal manures and abattoir wastes are not biosolids.

Land application of Class 2 biosolids at a rate of 50 wet tonnes or greater, or greater than 50% of the nitrogen-limiting application rate, per 3-year period, is a Level 2 activity under Schedule 2 of the EMPCA and is to be assessed and regulated by the EPA.

For biosolids reuse activities undertaken below these thresholds, the requirements of the Guidelines are encapsulated and enacted by the Approved Management Method for Biosolids Reuse (AMM), which is made under the *Environmental Management and Pollution Control (Waste Management) Regulations 2020 (Waste Regulations)*. The EPA does not directly regulate these activities. Proponents must contact local government to determine local requirements.

The Director, EPA may also issue an environmental approval under Regulation 21 of the Waste Regulations in relation to sewage sludge or biosolids management. The approval may include conditions that specify necessary controls for the activity.

In 2019-20 TasWater WWTPs generated 8,680 dry solid tonnes (dst) of sewage sludge and biosolids. 5,026 dst (~58%) were sent to be spread on agricultural land. 3,626 dst (~42%) were sent to be composted at various facilities around Tasmania. 28 dst (0.3%) were sent to landfill.

The EPA has regulated a number of land spreading activities where application has been made to apply biosolids at rates above the limiting rates defined by Schedule 2 of the EMPCA. These applications are made either because there is insufficient land available to receive the biosolids at a rate below the limiting rates, or to increase the agronomic usefulness of the biosolids. Applications are assessed on an individual basis. Private properties at St Marys, Latrobe, Bothwell, Richmond and Beaconsfield have received biosolids at Level 2 rates.

Complaints, Notifications, Incidents

In 2019-20, EPA Tasmania received 114 complaints and notifications regarding wastewater incidents, similar to previous years. Most incidents were notified by TasWater and most involved sewage spills from reticulation infrastructure. This number does not include 25 unallocated odour complaints from Longford, where the source of the odour may have been either the Longford WWTP or the local meat works.

While the NPR framework (indicator E13) has adopted the number of spills/100 km network as a performance measure, the EPA instead assesses spills from an enforcement perspective, against the provisions of EMPCA, and on a case-by-case basis.

How the EPA responds to any particular incident depends on the circumstances of the incident. The EPA's *Sewage Spill Notification Guidelines* provide a notification framework intended to help achieve compliance with s 32 of EMPCA. A Compliance and Enforcement Plan developed and agreed under the now-expired MoU between TasWater and the EPA (see below) continues to reflect the EPA's approach to enforcement. The EPA may take enforcement action for any spills, odour or other incidents arising from failures of reticulation, sewage pump stations, or any L2 WWTPs (including lagoons) where it is evident that

- a) the incident caused or may have caused serious or material environmental harm, or substantial environmental nuisance, and
- b) The failure that led to the incident was reasonably foreseeable and/or preventable; and/or
- c) TasWater did not notify the Director, EPA, consistent with Section 32 of EMPCA; and/or
- d) TasWater did not adequately assess and identify the cause of the incident, and/or take appropriate corrective actions.

EINs issued over the past 4 years have mainly related to spills from the sewage network, for the offence of depositing a pollutant (Sandy Bay, Huonville, Macquarie Point). EINs have also been issued for failing to notify council in a timely manner (Glenorchy) and breaching Permit conditions by failing to maintain sufficient operational procedures to safeguard the environment (Macquarie Point and Selfs Point). When a spill occurs as a result of a significant rainfall event, the EPA response is somewhat measured, in recognition of the compromised condition of the sewerage network assets that TasWater has inherited, and as dilution in the receiving environment is increased and significant stormwater contamination of

waterways is also expected during and after wet weather events. The EPA requires TasWater to submit an annual Inflow and Infiltration Management Plan that outlines plans to reduce infiltration into the sewerage network, to reduce the frequency of wet-weather overflows over time.

The EPA's priority is to work with TasWater to continually reduce environmental impacts originating from the sewerage network, to the best of its ability and to a modern management standard.

Shellfish lease closures

Sewage spills near shellfish harvesting leases can result in lease holders being unable to harvest stock for up to 21 days following the end of the spill. It is the EPA's understanding that TasWater and the Shellfish Market Access Program (ShellMAP) have developed new communication protocols with regard to sewage spills near shellfish harvesting leases, with the result that patterns in shellfish lease closures have changed, including impacting leases in areas that have not previously been impacted.

More accurate understanding of risk to shellfish leases is positive, notwithstanding impacts on lease holders. Future management of this issue may be considered from multiple perspectives, but relates in part to TasWater's strategy for renewal of its sewerage network. TasWater is required to make prudent investments according to risk. Shellfish leases are one of a number of risks that TasWater must consider in its prioritisation processes.

The EPA understands that ShellMAP is developing its methods of risk assessment relating to sewage spills, to more accurately assess potential impacts, and prevent unnecessary closures. The EPA will continue to provide input into these processes where invited.

Impacts of COVID-19

The EPA relaxed some sampling requirements for WWTPs in 2020 in recognition of the lab capacity issues caused by social distancing requirements resulting from the COVID-19 pandemic. The EPA has received isolated reports of project delays resulting from the inability to move personnel across borders. This includes ongoing delays to completions of a project to replace the roof of the sludge digester at Prince of Wales Bay WWTP, and the abandonment of a Level 2 biosolids spreading activity at Bothwell. The EPA does not consider COVID-19 to have significantly impaired day-to-day business in relation to its regulation of TasWater.

Regulatory Development

Memorandum of Understanding on Public Wastewater Management

In December 2016, the EPA and TasWater entered into a MoU that formally established a more focussed wastewater management and regulatory strategy for L2 WWTPs, recognising that the environmental performance was inadequate and did not meet community expectations.

Background to the MoU included:

- apparent capacity and capability issues in TasWater that influenced implementation of 3-year Wastewater Management Plans. While funding allocations appeared satisfactory, diversion of funds away from WWTP upgrades to other business priorities seemed to be an issue.
- recognition that delivery of 3-year plans was also hindered by a lack of longer term investment planning.
- recognition that there appeared to be opportunities to both reduce regulatory administrative burden and improve the quality of documents submitted to EPA.

The aim of the MoU was to achieve step-change improvement in environmental compliance from 44 per cent at 30 June 2016 to 65 per cent at December 2019 (i.e. a 50 per cent compliance uplift). TasWater did achieve a compliance figure of 65% in Feb 2019 and Oct 2019, however this was not sustained in other months, with a low of 51% in August 2019 (Figure 3). Increases were mostly attributable to optimisation efforts at the largest 13 WWTPs.

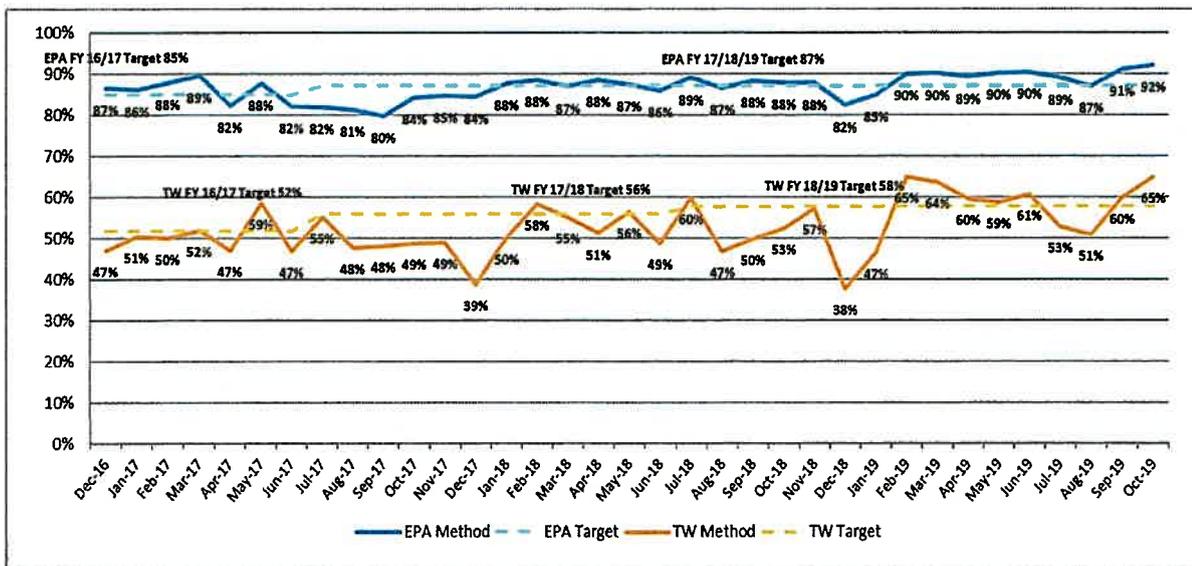


Figure 3 – Compliance over the MoU (credit: TasWater).

MoU Achievements

Other achievements and positive outcomes during the MoU, in no particular order, include:

- More frequent WWTP audits leading to identification of common deficiencies and subsequent systemic improvement in some management practices across WWTPs.
- Reduction of regulatory administrative burden through state-wide approaches to annual reporting, biosolids management, inflow and infiltration management, clarification of sewage spill response notification requirements.
- Issuing of EPNs to replace outdated Licences (still prescribing interim discharge limits).
- Improved data management and reporting.
- Identification of perceived and actual barriers to increasing percentage of effluent reuse, and standardisation of discharge limits for about thirty current reuse schemes.
- Compliance and enforcement policy developed and tested. Sewage Spill Notification Guidelines developed, improving notification process. Post-incident Reporting Guidelines now in development.
- Engagement with other TasWater regulators through the OTTER-convened Water and Sewerage Regulators Forum has allowed the EPA to understand the perspectives and priorities of other TasWater regulators and to work toward eliminating regulatory conflict, e.g. by working with OTTER to ensure environmental obligations are taking into account in prudence and efficiency tests.

Issues remaining after MoU

Alongside the above, several significant issues emerged during the MoU and remain outstanding. These include:

- Establishment of sustainable discharge to water limits. This critical matter was intended to be addressed during the term of the MoU but remains unresolved, despite considerable discussion between TasWater and the EPA. The effect of this is that the objectives of the State Policy on Water Quality Management 1997 are not being met.

EPA Tasmania has developed a new framework that clarifies the process for establishing sustainable discharge limits, to assist TasWater (and other regulated entities) to provide environmental assessments that fully address the requirements of the SPWQM and that provide a sound basis for informing future investment decisions. The EPA expects that the updated guidance will result in faster determinations on future emission limits, and will provide signals to support investment in effluent recycling where it is a reasonable and practical solution.

Notable clarifications include: defined Accepted Modern Technology (AMT) quality requirement for disinfection for existing WWTPs discharging to inland and estuarine waters (13 out of the 23 largest WWTPs do not currently meet AMT disinfection standards, and a number of others need to reduce residual chlorine byproducts); AMT nutrient mass load limits for inland discharges, which are expected

to provide an additional driver towards effluent reuse, in particular for smaller, rural treatment plants; and no decrease from current effluent treatment performance.

- Level of non-compliance with L2 WWTP permit conditions. Setting aside the problem of achieving sustainable effluent discharge management, TasWater remains non-compliant with a high number of other key requirements for avoiding or minimising environmental harm and nuisance, including during routine WWTP operation (e.g. operational procedures and contingency management plans are lacking or deficient). Large-volume spills in 2019 were directly relatable to an absence of adequate procedures and plans, although operator capability and incident response system configuration were also implicated. In May 2020, the EPA commenced reporting the level of administrative non-compliance to the TasWater Board to highlight this issue. Reports are to be provided every six months with the second report currently in production.
- Ongoing capacity to deliver capital upgrades. Progress in relation to planning and delivery of capital upgrades did not match the EPA's expectations during the term of the MoU. The MoU did not appear to improve TasWater's ability to plan and deliver capital upgrades. The Capital Delivery Office has not yet demonstrated significant improvement in this regard.
- Integration of regulatory requirements into management systems and processes. There remains opportunity to better integrate regulatory requirements into management systems and processes to allow for optimally constructive consultation between TasWater and the EPA. TasWater has demonstrated an understanding of environmental assessment that differs from the EPA's understanding, both during the MoU and after its completion, resulting in lengthy negotiations.

On balance, by December 2019 it appeared that the MoU had served its purpose, and that better returns on regulatory effort were likely with a return to business as usual, with the intent to build on useful or promising initiatives developed during the MoU, and to maintain productive working relations with TasWater.

Future expectations for wastewater treatment

Compliance standards may increase as community expectation for cleaner discharge increases, on local and national levels. Over time, new contaminants of concern may also emerge. It will remain necessary to balance environmental and human health impacts with economic realities, and provide sufficient regulatory assurance to enable short- and medium-term investment to a reasonable degree. The EPA does not require improvement where no environmental benefit can be demonstrated.

The SPWQM provides a foundation for sustainable asset management. Specific actions taken by the EPA to further the SPWQM include:

- Development of Water Quality Objectives to specify baseline water quality that needs to be considered when assessing proposals to discharge into a water body.
- Requiring TasWater to undertake ambient monitoring to better understand the receiving environment, then develop plans to manage discharges sustainably.
- Encouraging continuous improvement in operations and better internal understanding of environmental impacts.
- Maintaining a policy position of avoiding creation of new discharge points, working toward rationalising existing point sources, and directing wastewater to reuse unless it is not practical or would not lower environmental risk.
- Working toward development of long-term, sustainable emission limits.
- Developing sewage pumping station infrastructure performance standards and investigating other incidents of overflows from components of sewerage systems.

Trade Waste

The EPA does not have a direct role in regulation of trade waste. The EPA has an interest in trade waste to the extent that it can adversely affect the performance of WWTPs by interfering with microbial processes used to break down sewage, which may lead to odour issues and failure of treated effluent to meet environmental compliance limits. Examples of plants with known trade waste issues include Prince of Wales Bay (metals), Longford (abattoir waste) and Ti-tree Bend (elevated zinc and hydrocarbons).

During FY2019-20 over 7,500 ML trade waste was discharged into sewerage systems, with approximately 44 ML of that received as direct tankered waste to WWTPs. Pre-MoU, TasWater indicated that potential state-wide WWTP compliance gain from better trade waste management was 6-7 per cent.

Under the water and sewerage industry legislation (*Water and Sewerage Industry Act 2008, Water and Sewerage Industry (General) Regulations 2019*), the minister responsible for trade waste regulation is the Minister for Primary Industries and Water, Guy Barnett. The actual regulator is TasWater. TasWater negotiates consent for trade waste discharge to sewer via contracts (smaller customers) and Trade Waste Agreements (larger customers).

The legislation also, among other things:

- Prohibits discharge to sewer without consent
- Establishes, via regulations, quality criteria for trade waste
 - per Regulation 15 of the *Water and Sewerage Industry (General) Regulations 2019*, TasWater may vary local acceptance criteria for a small number of indicators, but may not vary general acceptance criteria or acceptance criteria for metals or organic compounds specified in Schedule 3 of those Regulations.
- Prohibits acceptance into sewer of trade waste that does not meet quality criteria

There is a difficult balance for TasWater to strike between the user pays principle and supporting economic activity as the provider of essential services. TasWater can take action against persons in relation to inappropriate discharges, and can direct people to install certain equipment in accordance with regulations. TasWater's trade waste strategy was reviewed in 2019-20 and TasWater reports that it now has a primary goal in the strategy to renew major trade waste agreements to achieve increased compliance at WWTPs where possible. TasWater reports that it achieved its first year target of ensuring at least 45% of trade waste volume is covered by an agreement that, if complied with by the customer, will reduce the risk of non-compliance at the receiving WWTP. The target for FY2020-21 is to increase this coverage to 85% of the trade waste volume.

