

Guide to EPA Regulatory Expectations for Wastewater Management in Tasmania

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Enquiries:

Environment Protection Authority

GPO Box 1550

Hobart, Tasmania 7001

Telephone: (03) 6165 4599

Email: Enquiries@epa.tas.gov.au

Web: www.epa.tas.gov.au

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This document outlines regulatory expectations of the Tasmanian Environment Protection Authority (EPA) relevant to Level 2 Wastewater Treatment Plants (WWTPs) and associated reticulation and by-products. The purpose of the guide is to provide clarity to Level 2 WWTP and reticulation operators, other wastewater regulators and the public about the EPA's approach to regulating key aspects of wastewater management. The EPA's approach is intended to support the achievement of improved environmental outcomes from the operation of Level 2 WWTPs and associated reticulation and from the use of by-products.

A Level 2 WWTP is defined under Schedule 2 of the *Environmental Management and Pollution Control Act 1994* (EMPCA) as that "with a design capacity to treat an average dry-weather flow of 100 kilolitres or more per day of sewage or wastewater". Local Government regulates WWTPs which treat flows below the Level 2 threshold. Under specific circumstances, the Director, EPA, may choose to regulate a Level 1 WWTP.

EPA Regulatory Framework

Environmental regulation is one element of Tasmania's Resource Management and Planning System (RMPS) and must occur in accordance with legislated RMPS objectives. Operators of WWTPs must comply with the EMPCA and the *State Policy on Water Quality Management 1997* (SPWQM) in relation to prevention, reduction and remediation of environmental harm. Operators of all WWTPs and associated infrastructure must uphold principles of Best Practice Environmental Management (BPEM). BPEM is defined under Section 4 of EMPCA as "management of the activity to achieve an ongoing minimisation of the activity's environmental harm through cost-effective measures assessed against the current international and national standards applicable to the activity."

Key environmental issues arising from the collection, conveyance and treatment of wastewater are impacts of treated and untreated discharges on the receiving environment, odour emissions and the management of solid waste by-products of the treatment process. Key elements of the EPA's regulatory framework are explained below.

Regulation of Level 2 WWTPs

The regulatory focus for Level 2 WWTPs is effluent quality and associated impacts on the receiving environment. Permits issued under the *Land Use Planning and Approvals Act 1993* and Environment Protection Notices (EPNs) issued under EMPCA impose conditions specifying minimum effluent quality parameters, outfall location and other discharge-related conditions, to minimise these impacts. Conditions for WWTP sludge management, odour control and other risk areas reflect BPEM. Generally, these issues are less significant than effluent quality in determining regulatory focus unless specific site constraints exist, such as close proximity to residential properties.

For Level 2 WWTPs subject to permits or EPNs issued from 2010, conditions also generally include timelines for development and/or implementation of a strategy to achieve sustainable treatment and discharge in compliance with the SPWQM.

Publication of guidelines

The EPA supports wastewater managers by developing guidelines for the management of environmentally relevant aspects of WWTP operation (*useful resources for wastewater managers*). This includes guidelines on management of biosolids, effluent reuse, lagoons and blue-green algae blooms, decommissioning, spill notifications, annual reporting and other relevant topics.

Spills from reticulation

While the EPA does not regulate day-to-day operation of sewage pumping stations, pipes and other parts of the reticulation network *per se*, it has an obligation to ensure spills from the network are managed appropriately and on the basis of risk. EMPCA specifically requires a person responsible for any environmentally relevant activity to notify the Director, EPA, on becoming aware of the release of a pollutant which causes or may cause serious or material environmental harm. In the context of sewage

spills, the Director seeks to be satisfied that the reticulation operator is taking action to control and minimise impacts to the environment and the public in a timely manner.

State-wide approaches

The EPA supports a state-wide approach for the management of environmental aspects of operating Level 2 WWTPs as this is an efficient way of achieving improvements across multiple assets at different locations. State-wide plans for managing inflow and infiltration and sewage sludge are examples. Such plans can be formally accepted as addressing permit or EPN conditions for multiple WWTPs.

Discharge Management

In establishing the framework for water quality management in Tasmania, the SPWQM describes the key protected environmental values (PEVs) and the basis for setting water quality objectives (WQOs) which must be maintained or enhanced. The SPWQM requires adoption of a management hierarchy for point sources of pollution. For Level 2 WWTPs, the EPA implements this approach via conditions in permits and EPNs as follows:

Avoidance – An Effluent Reuse Feasibility Study must be completed for each WWTP that investigates potential for sustainable full reuse, thus avoiding effluent discharge to surface waters. If full reuse is not achievable, the feasibility of partial reuse must be considered. If reuse is not feasible, efforts will need to focus on minimising environmental impact of the discharge.

Rationalisation – If discharge is unavoidable, the potential for reducing the number of existing WWTPs, and therefore the number of discharge points, must be examined. In other words, can the discharge be diverted to another WWTP facility?

Minimisation of Environmental Harm and Protection of Water Quality Objectives – If discharge to water is found to be unavoidable, the WWTP operator must meet emission limits for key pollutants set by the EPA to protect the WQOs. In setting these limits, the EPA must ensure that pollutant emissions are reduced to the maximum reasonable extent, but not beyond the point where there is no demonstrable environmental benefit.

The SPWQM requires water quality to be maintained or enhanced. This means that as a minimum, current treatment performance must be maintained. The EPA regulates accordingly and is unlikely to relax emission limits below current treatment performance.

Emission Limit Guidelines

For WWTPs for which full reuse is not feasible, appropriate emission limits for discharge to water are necessary.

In 2001, under the SPWQM, the EPA Board published *Emission Limit Guidelines for Sewage Treatment Plants that Discharge Pollutants in Fresh and Marine Waters (ELGs)*. The ELGs provide a standardised approach for WWTPs discharging up to 500 kL/day to waters, based on Accepted Modern Technology (AMT) limits, and potentially apply to about 40% of all Level 2 WWTPs. AMT limits provide an economically and practically achievable effluent standard that must be met within a reasonable period, unless a site-specific assessment is undertaken to demonstrate that WQOs are not impacted. In some circumstances, AMT limits may not be sufficient to protect the receiving environment, in which case the EPA sets site-specific discharge limits.

The ELGs require a minimum dilution ratio of 1:80 (effluent: receiving waters). If the receiving waterway flow is too small, the EPA will determine site-specific discharge limits. Alternatively, seasonal discharge arrangements may be able to be implemented to overcome this limitation.

Regulatory Approach for Larger WWTPs

Effluent from WWTPs with discharge volumes >500 kL/day may pose significant risk to the receiving environment. Hence, standardised discharge limits are not appropriate. The process for determining discharge limits is more involved and includes an assessment of discharge management options by the WWTP operator.

For these larger WWTPs, the EPA relies on site-specific assessment for setting discharge limits. In recent years, the EPA has applied a two-stage approach to updating permit conditions. The first stage involves setting interim discharge limits which reflect current WWTP performance and the receiving environment (i.e. inland waters, estuaries, marine). The second stage involves establishing site-specific limits to replace the interim limits. Site-specific limits are determined by assessing the receiving environment to ascertain whether further treatment or diversion of waste is required to protect PEVs and WQOs.

To establish site-specific limits, the EPA requires the WWTP operator to develop an ambient monitoring program in accordance with the [Australian and New Zealand guidelines for fresh and marine water quality](#) (ANZG 2018) and the EPA's *Framework for Ambient Monitoring of Receiving Waters in relation to Wastewater Treatment Plant discharges*.

The WWTP operator is required to provide the EPA with a report demonstrating use of ambient monitoring data and additional information such as modelling exercises to assess the impact of the discharge and, if necessary, propose a potential Mixing Zone. The EPA evaluates this report and makes a determination on the Mixing Zone proposal. Based on these findings, the WWTP operator makes recommendations regarding proposed effluent limits suitable to reduce the impact of the discharge to an appropriate level, taking into account WQOs. Unless compelling reasons can be established to make reuse options not feasible, the proposed future discharge limits should encompass both full discharge and seasonal discharge (partial reuse) options.

Once discharge limits have been agreed with the EPA, the WWTP operator has all the information required to assess discharge options. Costs and benefits (environmental, financial and social) of waste avoidance (via establishing full or partial reuse), rationalisation of discharge points or minimisation of pollutant emissions in unavoidable discharges can be compared, allowing a strategic decision for future discharge management to be made.

The EPA requires details for the preferred option, implementation timeline and supporting information to be submitted in a Discharge Management Plan (DMP). If the preferred option is not achievable in a single upgrade step, the implementation timeline can allow for incremental improvement to achieve the final upgrade option.

If a large number of upgrade projects result in competing investment priorities, initial expenditure should be targeted where the greatest environmental benefit will be gained. This could be the case where discharge from several WWTPs impacts on the same receiving environment and expenditure targets key impacts at individual plants.

Figure 1 provides a schematic overview of the Discharge Management Decision Process.

Management of Associated Environmental Activities

Effluent Reuse

Beneficial reuse of treated effluent is encouraged under the SPWQM if it is sustainable. The 2002 [Environmental Guidelines for the Use of Recycled Water in Tasmania](#) describe environmental issues that must be addressed when considering effluent reuse, and ongoing management requirements. The Recycled Water Guidelines also set out information which must be submitted in a Development Proposal and Environmental Management Plan (reuse DPEMP) to enable the EPA to assess a reuse proposal.

Wastewater Reuse Schemes are not a Level 2 Activity under the EMPCA they are considered part of the parent WWTP. The EPA administers a Wastewater Reuse Coordinating Group (WRCG) comprising individuals with expertise in different aspects pertinent to recycled water use. The WRCG assesses new proposals, assists on issues arising from existing schemes and provides advice to the Director, EPA, on the sustainable operation of reuse schemes. The EPA will not authorise discharge from a Level 2 WWTP to a reuse scheme without a satisfactory reuse DPEMP.

Recycling scheme suppliers and users should also be familiar with the [*National Guidelines for Water Recycling: Managing Health and Environmental Risks, 2006*](#) (NRMMC, EPHC & AHMC). While an application for reuse of Class B recycled water for irrigation may be satisfactorily assessed under the Tasmanian Guidelines, a proposal for use of Class A effluent (e.g. for irrigation of raw edible crops or for reuse in the home) requires an application submitted in accordance with the more rigorous requirements of the National Guidelines.

Lagoon desludging and Reuse of Biosolids

The EPA promotes beneficial reuse of stabilised sewage sludge with low levels of contaminants because it is consistent with the waste management hierarchy.

The [*Tasmanian Biosolids Reuse Guidelines 2020*](#) set out assessment and approval processes that need to be completed prior to land application of biosolids. The guidelines describe key parameters for analysis and testing required to classify the material. Biosolids need to be graded based on their level of chemical contamination and pathogen reduction (Stabilisation Grade). This testing establishes whether the biosolids are suitable for the proposed reuse. The majority of biosolids produced in Tasmania are suitable for reuse. However, sometimes the material is contaminated such that further treatment through land farming or composting, or disposal to landfill, is necessary. The EPA's expectation is that the quantity of biosolids going to landfill will be minimised via good management practices and implementation of sludge management plans at the WWTPs.

The [*Approved Management Method for Biosolids Reuse 2020*](#) details legislative requirements that apply if environmental risk is reduced due to a low rate of application.

Contemporary permits and EPNs require development of a sludge management plan for each WWTP in accordance with these guidelines to ensure periodic testing, removal and appropriate reuse or disposal of sewage sludge. Desludging of lagoons must be undertaken before operational treatment capacity is unduly compromised. All sludge removed from WWTPs must be managed as a controlled waste unless analysis demonstrates otherwise. As such, there are legislative restrictions on its handling, movement and disposal.

Management of Reticulation

The operation of sewage reticulation systems is not directly regulated by the EPA. However, the EPA has a role in investigating incidents that may cause serious or material environmental harm, including significant spills from sewage reticulation systems.

Sewage Pumping Stations

Sewage pumping stations are commonly designed as planned emergency relief points for sewage overflows from the reticulation system. The [*Sewage Pumping Station Environmental Guidelines 2019*](#) were produced by DPIPW as a requirement of the SPWQM. They provide design guidance for selected parameters for new sewage pumping stations and upgrades, based on an assessment of risks to receiving environments from overflows. Overflows fall into 2 categories - those predicted and managed by design (e.g. from a pumping station during a specified rainfall event resulting in excessive stormwater infiltration into the sewerage network), and those which occur due to system failure (e.g. loss of power, pump or pipe failures).

While the EPA does not regulate the design, management and operation of sewage pumping stations, it will consider compliance with the principles in these guidelines when determining whether to act on sewage spills from sewage pumping stations.

Sewage Overflow Notification

If a sewage overflow has potential to cause material or serious environmental harm, the person responsible is required to notify the Director, EPA. Guidance on notification requirements to help achieve compliance with section 32 of the *EMPCA* is provided on the EPA website ([Reporting sewage spills and other incidents](#)).

Trade Waste

The EPA does not regulate trade waste discharges to sewer. Level 2 activities which discharge to sewer are required to have trade waste agreements in place with the WWTP operator. The [Water and Sewerage Industry \(General\) Regulations 2019](#) set limits for acceptable discharges through trade waste. Trade waste that exceeds these limits should be pre-treated on site, prior to discharge into the sewer by the waste generator. Schedule 2 of the regulations is a list of substances that must not be discharged to sewer.

Discharge Management Decision Process

Figure 1 depicts the decision process which should be adopted for those WWTPs which are currently not consistent with the goals set out in the SPWQM.

The EPA has developed a set of 'Effluent Management' standard conditions which are included in EPNs for WWTPs where a strategy to improve the discharge regime is yet to be formalised. These conditions reflect the waste management hierarchy and set out a systematic approach to achieving the best environmental outcome in compliance with the SPWQM. This may also prescribe dates by which these improvements must be achieved and will assist the WWTP operator in managing and budgeting for these works.

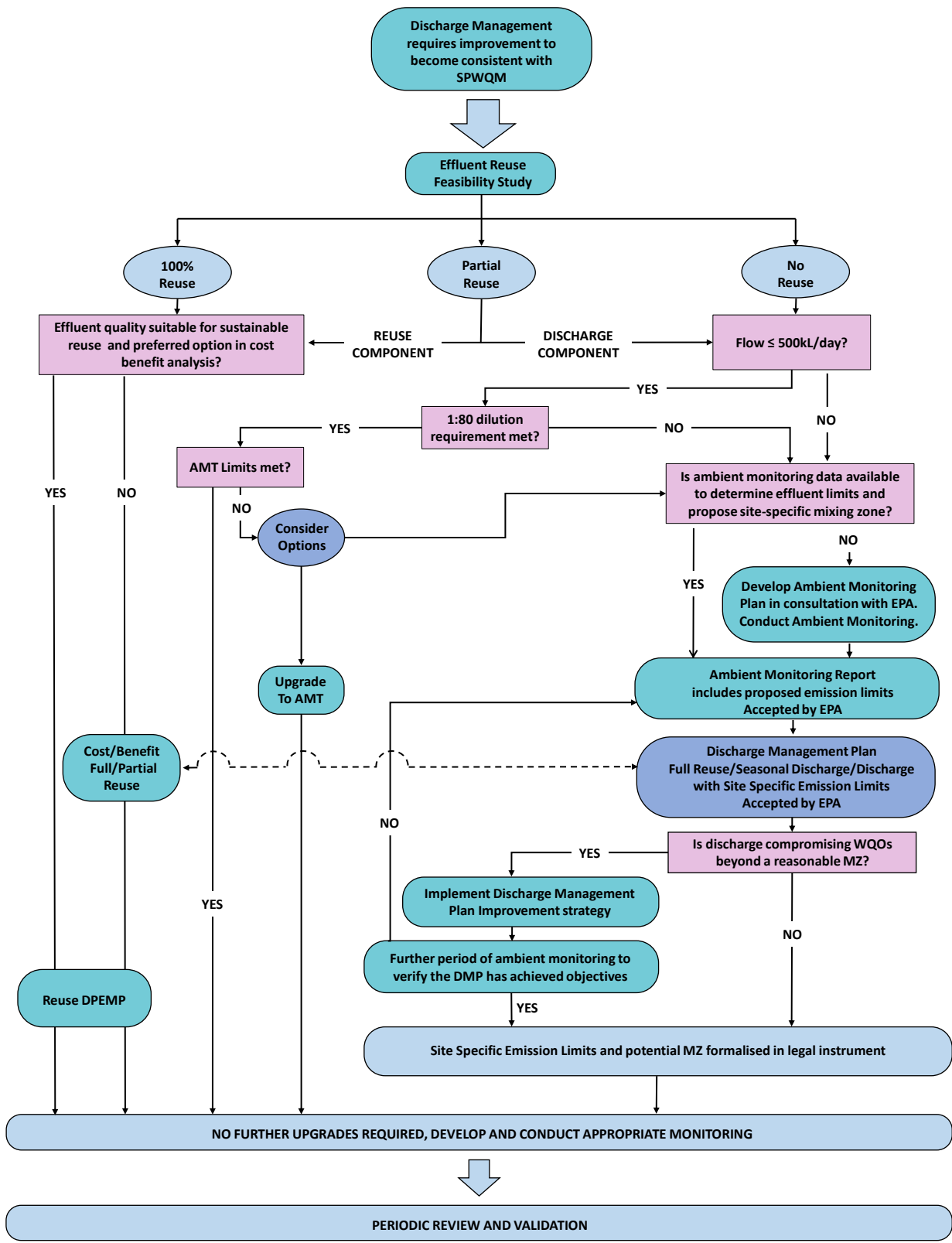


Figure I Wastewater Treatment Plant Discharge Management Strategy in accordance with the State Policy on Water Quality Management 1997

Disclaimer: This schematic captures the decision process which would occur in most situations. There may be site specific situations which may result in a slightly different approach being undertaken

Key Terms

100% Reuse – defined as a reuse scheme which is designed to receive all flows in a 90th percentile wet year

1:80 Dilution – discharge volume is no greater than 1/80th of receiving water's lowest seasonal median flow (*Emission Limit Guidelines*)

AMT – Accepted Modern Technology – effluent discharge limits as defined in Table I of the *Emission Limit Guidelines*

Mixing Zone – means a “three dimensional area of the receiving waters around a point of discharge of pollutants within which it is recognised that the WQOs for the receiving environment may not be achieved” (*SPWQM*)

PEV – Protected Environmental Value - means the “value or use for which it has been determined that a given area of the environment should be protected. There can, and often will be, more than one protected environmental value for a given area” (*SPWQM*)

WQO – Water Quality Objectives – the most stringent set of water quality guidelines set for a specific water body to achieve all of the protected environmental values (section 9 *SPWQM*)

External References

ANZG 2018, Australian and New Zealand Guidelines for Fresh and Marine Water Quality (<http://www.waterquality.gov.au/anz-guidelines/>) – update of Australian Guidelines for Water Quality Monitoring and Reporting. Agriculture and Resource Management Council of Australia and New Zealand, and Australian and New Zealand Environment and Conservation Council. 2000

National Guidelines for Water Recycling: Managing Health and Environmental Risks. Natural Resource Management Ministerial Council, Environment Protection and Heritage Council and Australian Health Ministers' Conference. 2006



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