

Wastewater Reuse EMP Review Guidelines

Wastewater Reuse EMP Review Requirement

Environment Protection Notices (EPNs) currently being issued in relation to level 2¹ Wastewater Treatment Plants (WWTPs) discharging to an associated wastewater reuse scheme require the responsible person to review the Wastewater Reuse Environmental Management Plan (EMP) as per the following condition:

Wastewater Reuse EMP Review

1. *A review of the Wastewater Reuse EMP and its operation must be undertaken, and an updated Wastewater Reuse EMP must be provided to the Director within [xx months] of the date on which these conditions take effect, or by a date otherwise specified by the Director.*
2. *The updated Wastewater Reuse EMP must include a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the updated Wastewater Reuse EMP. The updated Wastewater Reuse Scheme must include, but not necessarily be limited to, the following information:*
 - 2.1. *details of any variation to the operation of the reuse scheme from those described in the original Wastewater Reuse EMP; and*
 - 2.2. *a comparison of the environmental performance of the activity predicted in the original Wastewater Reuse EMP with the actual operation and performance of the reuse scheme taking into account monitoring and data analysis undertaken in accordance with the original Wastewater Reuse EMP; and*
 - 2.3. *a description of the circumstances where environmental performance is below the actual performance predicted in the original Wastewater Reuse EMP; and*
 - 2.4. *a strategy to improve the environmental performance to the level predicted in the original Wastewater Reuse EMP or propose alternative sustainable practices; and*
 - 2.5. *a description of the potential environmental impacts arising from the ongoing operation of the activity over the next 5 years, including a strategic consideration of potential changes to the activity during that period and consideration of opportunities to implement continuous improvement.*

Older EPNs may incorporate a different condition wording or require an EMP review to be undertaken at regular intervals, in a format approved by the Director. The contemporary EPA requirement, where no recent acceptable Wastewater Reuse EMP exists, is for a comprehensive review of the reuse scheme

¹ Level 2 WWTPs as defined in Schedule 2 of the *Environmental Management and Pollution Control Act 1994* are those wastewater treatment works with a design capacity to treat an average dry weather flow of 100 kilolitres or more per day of sewage or wastewater

to be undertaken. Following approval of the reviewed Wastewater Reuse EMP, detailed annual reporting requirements are included as EPN requirements to provide annual updates. Subsequent EMP reviews are envisaged to only be required where significant changes to the reuse scheme are identified.

This guideline has been prepared to offer guidance to the person responsible for reviewing a Wastewater Reuse EMP document.

Objective:

The objective when reviewing a Wastewater Reuse EMP is to assess the current operation and management of the wastewater reuse scheme against that originally approved, assess against contemporary guideline requirements, identify performance trends and allow for an adaptive management approach to maintain or improve the performance of the scheme. While the findings of the review will initially be evaluated by EPA Division officers, where significant changes to the approved operation of the scheme are required or environmental or public health issues of concern are identified, issues arising from the review may be referred to the Wastewater Reuse Coordinating Group for assessment.

To assist in the development of an acceptable review the person responsible should refer to the following documents:

- The original Wastewater Reuse EMP which is the basis for the approval of the scheme, and any findings or revisions arising from subsequent reviews.
- The *Environmental Guidelines for the Use of Recycled Water in Tasmania, December 2002* (the Tasmanian Recycled Water Guidelines) which provide the framework for sustainable re-use and recycling of wastewater in a manner that is practical and safe for agriculture, the environment and the public. Appendix A provides guidance on issues to be addressed during preparation of a Development Proposal and Environmental Management Plan (DPMP) and it is recommended to assess the current operation of the scheme against the key requirements of this appendix.
- *Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1), 2006* (the National Recycled Water Guidelines).

If the person responsible makes the decision to produce a plan to cover several WWTPs, the plan must provide a sufficient level of detail for each wastewater reuse scheme to comply with the requirements listed below.

Following approval by the Director, EPA, the Wastewater Reuse EMP (including amendments if required) will become the current set of operating conditions for the wastewater reuse scheme. As such, it is imperative for the document to contain any prescriptive requirements in a form suitable for ongoing reference.

Components of a Wastewater Reuse EMP Review:

It is recognised that the original approval documentation for existing wastewater reuse schemes is likely to vary in terms of scope and detail and that for some schemes the details listed below may extend beyond those required under the original approval. Where additional information is required to address contemporary requirements (for example, in terms of monitoring requirements) this information should be provided where available and a continuous improvement approach adopted. Key components covered in Appendix A of the Tasmanian Recycled Water Guidelines must be addressed for all schemes.

The submitted document should address the following:

1. Background Information, including:
 - Description of the operation & site, including commencement year of the scheme; type of reuse scheme; reuse volumes over time as a proportion of total effluent from the contributing WWTP.
 - Locality map(s) including all relevant features such as property and irrigation area boundaries, pipeline corridors and pump station locations, soil type areas, drainage features, discharge and sampling locations, public access areas.
 - Information on supplier/user agreements.
2. Adherence to the original Wastewater Reuse EMP or to changes arising from subsequent review(s) of the Wastewater Reuse EMP, including:
 - Identification of the relevant document and overview of key commitments.
 - Assessment as to whether all commitments have been adhered to. Where discrepancies are identified, describe/include recommended mitigation measures.
 - Confirmation that the current irrigation area corresponds to the approved irrigation area.
 - Identification of areas of concern previously identified that require special management measures, e.g. in relation to salinity or sodicity management.
3. Operation of the WWTP, including:
 - Statistical analysis of effluent monitoring results including median and 90th percentile results for all monitoring parameters required under the Wastewater Reuse EMP and for the approved class of recycled water for the reuse scheme under the Tasmanian Recycled Water Guidelines. Metal concentrations in effluent and comparison to recommended maximum concentrations in Tasmanian Recycled Water Guidelines.
 - Compliance with effluent quality discharge limits to reuse scheme under the relevant EPN or permit.
 - Determination of current recycled water classification and salinity class for effluent discharged to the reuse scheme under the Tasmanian Guidelines.
 - Compliance with flow limits. Summary of available flow monitoring information and assessment of reliability.

- Assessment of any process changes at the WWTP in the past or proposed future changes that are likely to significantly impact on recycled water quality.
 - Assessment of potential for significant flow increase through growth within the sewerage catchment.
 - Assessment of occurrence of algae blooms and potential for deleterious impacts on the reuse scheme.
4. Review of Water Budget and actual Frequency of Discharge to Water, including:
- Description of overflow arrangements for discharge to waters e.g. discharges from WWTP lagoons or effluent reuse dams. Identification of roles and responsibilities in relation to managing overflows.
 - Review scheme history in terms of volumes and periods of discharge to water against the water budget predictions of the original scheme design.
 - Re-calculation of the scheme water budget with current data and assessment of the size of the existing irrigation area and storage dam against the calculated requirement for current and future flows, for both mean and 90th percentile wet years.
 - Where discharge to water frequency is higher than anticipated, an assessment of the likely cause (e.g. inflow and infiltration, catchment growth, irrigation practices) should be undertaken and mitigation measures recommended.
5. Review of Irrigation Strategy, including:
- Review of the limiting irrigation rates for the scheme using recent data (hydraulic load/nutrient load/salt load). All limiting irrigation rates including the identified overall limiting annual irrigation rate (ML/ha/a) must be clearly stated.
 - Summary of actual annual application rates and comparison against the limiting rate. Additional fertilizer applications should be discussed in this context.
 - Recommended mitigation measures where the existing irrigation strategy is found to be not in accordance with the Tasmanian Recycled Water Guideline requirements.
6. Review of Monitoring Data, including:
- A separate review of monitoring data in relation to groundwater, soils and surface waters (where relevant).
 - Comparison of original monitoring commitments (frequency, locations & parameters) against the monitoring undertaken to date.
 - Assessment of all required monitoring parameters over time and against baseline monitoring results, including graphical representation and discussion of any significant trends.
 - Particular attention should be given to ensuring that sampling methods, locations and analytical methods are consistent over time to ensure that the results lend themselves to meaningful interpretation. This is particularly relevant in relation to soil sampling.
 - Assessment of groundwater water levels over time and identification of special management measures where required (e.g. flagged monitoring bores).

- Assessment of both top soil and sub soil samples.
- An assessment, based on the review of the monitoring data, as to whether special management measures are required for sustainable management of the site (e.g. in relation to salinity or sodicity concerns, soil nutrient content, metal contamination, changes to fertiliser application regimes etc.) and recommendations for corrective action if required.
- Discussion of the need for changes to the monitoring program. With reference to the relevant guideline requirements, an assessment as to whether the existing monitoring regime is adequate to detect any deleterious impacts from effluent irrigation and recommend alterations as relevant. Where changes to the monitoring regime are recommended, detailed justification is to be provided.

7. Review of Irrigation Practices, including:

- Assessment of the operational manual(s) for the irrigation scheme – verification that a manual or similar documentation exists and has been distributed to relevant stakeholders. Comment on the adequacy of the manual, e.g. are operational responsibilities clearly identified and does it reflect current practices?
- Description of soil moisture management practices and its success in terms of avoiding over-irrigation.
- Verification that irrigation records are being kept.
- Verification that required flow meters exist and are regularly verified/calibrated in accordance with manufacturer's instructions and relevant standards.
- Confirmation that crops planted are suitable for the recycled water class being irrigated.
- Confirmation that stock withholding periods are known and adhered to.
- Confirmation that buffer distances are being adhered to.
- Identification of the process for ensuring that leakage assessments for pipelines and storage dams are regularly undertaken.
- Confirmation that a current contingency plan exists and is accessible to site personnel.

8. Review of Public Health Protection Measures, including:

- Identification of location of closest residences and public access areas (map).
- Listing of all odour, noise or other complaints about the wastewater reuse scheme in previous 5 years and how they were resolved.
- Confirmation that spray drift management measures are in place and adequate (wind speed cut-out devices, where required, confirmed to be existing and functional).
- Review of permissible irrigation times, confirm these are clear and known to relevant personnel.
- Confirm that signage to warn public is existing and adequate.
- Confirm that all visible effluent pipes are clearly identified.
- Evidence of consultation with relevant Council Environmental Health Officer.

9. Discussion of Proposed Changes to Management of the Wastewater Reuse Scheme:

- Identification of any trends that may warrant particular attention in future Wastewater Reuse EMP Reviews.
- Statement of any commitments to address identified shortcomings, including the date by which each commitment will be implemented. It is recommended to summarise all such commitments in a separate section for ease of reference.
- Proposed ongoing monitoring regime, including location, parameters and frequency. It is recommended to provide this in form of a summary table.

10. Other Information to be included:

- Signed statement by the responsible person as per EPN condition requirement
- “References” section for all relevant sources
- Appendix information:
 - Extracts of relevant sections of the original Wastewater Reuse EMP
 - Relevant monitoring data (including effluent, soil, surface water and groundwater)
 - Water balance calculation spreadsheets
 - List of supplier/user agreements and site management plans where relevant