41. Perth STP

41.1 Activity and report details

Activity name	**Perth STP**		
Activity address	Lot 1, Midlands Highway, Perth		
Permit number	Licence to Operate - 3574	**Date of issue**	3/11/1988
EPN	654/1	**Date of issue**	31/01/2003
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	450 kL/day		
Key Influent Source	Residential		
Contact person	Kate Westgate		
Report author	Luisa Romero (Environmental Scientist)		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2025		

Figure 0-1: Perth Sewage Treatment Plant

41.2 Monitoring and compliance summary

41.2.1 Flow data

Table 0-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location name	Inlet	South Esk River	Scone property
Coordinates	E514010 N5395571	E513714 N5394791	E514002 N5395287
Method of measurement	In line meter	In line meter	Estimate based on effluent and influent
Date of last calibration/validation (if applicable).	15/11/2024	13/12/2024	NA

Table 0-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 91167	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2024	792	76.4	0.00	24.54
August 2024	728	69.8	3.64	18.92
September 2024	939	86.2	28.18	0.00
October 2024	604	27.1	12.68	6.04
November 2024	630	61.8	0.00	18.91
December 2024	654	61.8	0.00	20.26
January 2025	560	25.2	0.00	17.37
February 2025	545	2.4	0.00	15.27
March 2025	548	16.5	0.00	16.99
April 2025	560	21.2	0.00	16.79
May 2025	577	26.6	0.00	17.89
June 2025	698	83.8	0.00	20.95
Annual 2024-25	653	558.8	44.50	193.91
% of Total Discharge	--	--	18.7%	81.3%

2024-25 monthly flow data was submitted directly to the EPA.

41.3 Bypass events

There were no bypass events associated with the STP during the reporting period.

41.4 Discharge compliance with permit limits

Table 0-C: Compliance Summary

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Total suspended solids
Permit/EPN limit	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L	MPN/100mL	mg/L
Maximum	30	50	--	40	10	8.5	10	--	50
90th percentile	--	--	--	--	--	--	--	--	--
50th Percentile	--	--	--	--	--	--	--	1000	--
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	12	12	--	12	12	12	12	12	12
Number analysed	12	12	--	12	12	12	12	12	12
Statistical summary									
Max	40.6	183.0	0.0	59.9	4.4	8.9	12.1	4106.0	196.0
90th percentile	35.7	153.7	0.0	56.6	2.8	8.8	10.6	3388.3	78.7
50th percentile	24.4	73.5	0.0	43.4	2.1	8.1	7.6	667.0	62.0
Min	13.6	22.0	0.0	31.0	1.4	7.3	4.1	41.0	18.0
EPN Limit Compliance									
% compliance with Maximum	75%	17%	--	33%	100%	75%	75%	--	33%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	58%	--
% compliance with pH range	--	--	--	--	--	75%	--	--	--

Table 0-D: Mass loads to the environment

Mass Loads	EPN Limit	Frequency	2024-25 result
Nitrogen (kg)	6800	Annual	1503.9
Phosphorous (kg)	1700	Annual	197.7
Method	Time weighted/Grab sample method		

Table 0-E: Performance analysis (discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
BOD	19/09/2024 1/10/2024	Perth STP is significantly overloaded. Higher flows between July and October due to seasonal rains further decreases lagoon detention time, which contributes to elevated BOD and TSS. Algae can also contribute to elevated BOD and TSS levels.	Inclusion for consideration in a statewide plan for increasing lagoon aeration.
TSS	19/09/2024 1/10/2024		

No other parameters had exceedances in the reporting period.

41.5 Reuse Annual Reporting

Perth STP supplies treated effluent for irrigation purposes to the Perth recycled water scheme (RWS) located at the Scone property.

Table O-F: Reuse compliance summary

	BOD5	pH	E coli
Permit/EPN limit	**mg/L**	**Units**	**MPN/100ml**
Maximum	50	9.0	10000
90th Percentile	--	--	--
50th Percentile	--	--	1000
Minimum	--	5.5	--
Samples analysed			
Number required	12	12	12
Number analysed	12	12	12
Statistical summary			
Maximum	183.0	8.9	4106
90th percentile	153.7	8.8	3388
50th percentile	73.5	8.1	667
Minimum	22.0	7.3	41
EPN Limit Compliance			
% compliance with Maximum	17%	--	100%
% compliance with 90th percentile	--	--	--
% compliance with 50th percentile	--	--	58%
% compliance with pH range	--	100%	--

Table O-G: Performance analysis (discharge to reuse)

Reuse compliance parameter	Date(s) of non-compliance		Reasons for non-compliance	Actions to improve performance
E. coli	01/07/2025		Perth STP is hydraulically overloaded due to significant growth in the catchment, resulting in a reduced HRT. Shorter lagoon retention decreases the time available to achieve disinfection of pathogens. This is exacerbated in winter with elevated inflows due to rainfall. E. coli trends also correlate with algae concentrations, indicating the impact that algae shading has on reducing UV penetration.	No specific actions taken during reporting period
BOD	1/07/2025 18/06/2025 6/05/2025 1/04/2025	4/12/2024 12/11/2024 1/10/2024 19/09/2024	High plant loading is the primary reasons for high effluent BOD.	

Reuse compliance parameter	Date(s) of non-compliance		Reasons for non-compliance	Actions to improve performance
	4/03/2025 4/02/2025	2/07/2024	Algal blooms in warmer months and increased flows in colder months also contribute to effluent non-compliance.	

Annual soil sampling was completed at the five long-term monitoring sites (P1, P2, P4-P6) at the RWS in June 2025. The annual compliance audit was completed in conjunction with the soil sampling. A summary of the findings of the programs is provided in

Table 0-H.

Table 0-H: Annual recycled water scheme compliance audit and soil monitoring summary

Program	Compliance audit	Soil monitoring
Outcome	Minor non-compliance Inadequate signage at recycled water storage (outstanding).	Soil salinity and sodicity levels continue to fluctuate and remain within historic levels. Excessive levels of at least one analyte continued to be recorded across the site. Levels are not attributed to recycled water irrigation due to low irrigation rates and low nutrients supplied by recycled water.
Comments	During audit farm manager noted: - new remote dam level and flow meter were installed at storage. - requested direct TasWater contact	

RWS groundwater status: Amber

Perth RWS groundwater network consists of five groundwater monitoring bores ID numbers PEGW1-2 and PEGW5-7. Bore ID's PEGW5-7 were developed in 2020 and pre-existing bores ID numbers PEGW1 and 2 were first installed in 2001 and re-developed in 2020.

Bi-annual sampling was completed across the network in November 2024 and April 2025 as scheduled. Bore ID's PEGW1-2 were sampled at the standard analytical suite with bore ID's PEGW5-7 at the extended analytical suite.

The 2025-26 groundwater monitoring event recorded one or more nutrient concentrations above the at least one of the adopted recommended guideline criteria at all bores. When compared to Perth STP treated effluent the results suggested that the groundwater bore ID's PEGW5-7 are chemically different in composition. Bore ID's PEGW1-2 recorded no visual evidence of impact from recycled water irrigation on groundwater quality when reviewing long-terms charts.

Bi-annual sampling is scheduled for all bores during the 2025-26 groundwater monitoring program with annual sampling of surfaces waters at the recycled water storage for further water classification assessment. All sampling will be completed at the extended analytical suite except for bore ID's PEGW1-2 which are scheduled to continue at the standard suite.

41.6 Ambient monitoring program

Table O-I: Program details

Program	**Seasonal ambient monitoring as required under EPA permit variation 18/01/2024. Biological monitoring in accordance with TasWater risk based ambient monitoring program.**
Status	Ambient water quality and biennial, seasonal (spring and autumn) biological monitoring (AUSRIVAS) within the South Esk River receiving environment.
Update	Ambient water quality monitoring from July - December 2024 and May – June 2025 completed during the reporting period. Biennial, seasonal (spring and autumn) biological monitoring not required during the reporting period.
Comments	Ambient water quality monitoring was conducted within the South Esk River receiving environment. Effluent discharges to environment occurred from late August to mid-October 2024 due to unavailability of the recycled water scheme: • Ammonia levels did not exceed the ANZG toxicant Default Guideline Value (tDGV) at either upstream or downstream monitoring locations during STP effluent discharges. However, a significant elevation in ammonia levels approaching the tDGV was observed at both monitoring locations in October 2024. Generally downstream levels correlated with upstream levels, with both locations exceeding the EPA DGVs for slightly to moderately disturbed ecosystems within the South Esk River catchment on most occasions. • Nitrate levels at both the upstream and downstream monitoring locations were within the draft ANZG nitrate tDGV but exceeded the EPA DGV on most occasions. A peak in nitrate was observed at the upstream location in October 2024 that was not reflected at the downstream location. • Total nitrogen levels at both the upstream and downstream monitoring locations always exceeded the EPA DGV with downstream levels closely correlated with upstream levels. Elevations at both locations were observed in October 2024 during STP discharges, but also in December 2024 and June 2025 when the STP was not discharging. • Total phosphorus levels at both the upstream and downstream monitoring locations always exceeded the EPA DGV with downstream levels correlating with upstream levels. Peaks in phosphorus levels were observed in October 2024 during STP discharges and in December 2024 (no STP discharges). • Enterococci levels at both the upstream and downstream monitoring locations generally correlated with both exceeding the EPA low risk guideline values for waters with current or potential recreational use in December 2024 and May - June 2025, occasions when the STP was not discharging to the environment. • *E. coli* levels at both the upstream and downstream monitoring locations correlated with both exceeding the EPA low risk recreational guideline values in December 2024 and June 2025. Elevations at both locations exceeded the draft ANZG livestock drinking water guidelines in December 2024. Levels of toxicants and nutrients were elevated at the upstream and downstream monitoring locations during STP discharges but also on other occasions when the STP was not discharging. Significant peaks in pathogen indicators and nutrients were observed in December 2024 during a high river flow event (> 20 000 ML/day, South Esk River @ Perth) that were not related to STP discharges. Peaks in ammonia observed in October 2024 during discharge events may also be related to high river flows observed throughout early September. Overall water quality within the South Esk River receiving environment is likely impacted by numerous contributing sources including seasonal impacts, urban and agricultural inputs, as well as STP discharges.

41.7 Groundwater monitoring

Site status: Amber

The Perth STP groundwater monitoring network consists of two (2) bores ID's PEGW3 and PEGW4. Developed in 2020 PEGW is located east of the STP boundary with PEGW4 located south of the STP down gradient of the recycled water storage.

One round of sampling (annual) at the extended analytical suite was completed at both bores in April 2025 and from STP Lagoons 1 and 2. The scheduled 6-monthly sampling in November 2024 was not completed at the bores as the bores where dry at the time of sampling.

The 2024-25 groundwater monitoring event recorded ongoing elevated concentrations of key nutrients above adopted assessment criteria across the network and provides evidence of potential of STP leakage. However, a comparison between the groundwater quality of both bores and the STP lagoon did not show any indication of water type alignment.

Bi-annual sampling is scheduled at all bores at the extended analytical suite is scheduled to continue in the 2024-25 groundwater monitoring program. Annual sampling of the surface waters of STP lagoons 1 and 2 and the South Esk River is also scheduled to assist in water classification assessment.

41.8 Inflow and infiltration (I&I)

The latest revision to the TasWater Inflow and Infiltration Management Plan includes details of the actions undertaken statewide to address I&I issues.

A Multi Criteria Assessment was undertaken by TasWater in 2024 to prioritise I&I investigation and works state-wide. This catchment was ranked 80 out of 108 in priority.

41.9 Sludge and biosolids

The latest revision to the Sewage Sludge Management Plan (SSMP) includes full details of the desludging undertaken during the reporting period, the most recent sludge profiling results and upcoming annual desludging program. This STP was as assessed as compliant with the 2024-25 SSMP.

Sludge at this STP is captured within the two treatment lagoons, which will be periodically desludged as required. No stockpiling occurs at this site.

Table O-J: Desludging status and comments

Desludging status	Comments
Medium priority	Desludging of Lagoon 2 is likely to be required within the next 5 to 10 years.

41.10 Non-compliance with other permit requirements

Table O-L: EPN non-compliances

EPN condition	Description of non-conformance	Future actions to be taken
23 Effluent quality limits	Discharge compliance with permit limits	See section 41.4 Discharge compliance with permit limits and Performance Analysis

41.11 Complaints and incident reporting

No complaints reported during the FY2024-25 reporting period.

Table 4-M: Incident reporting

Date	Category	Details	Mitigation actions
02/10/2024	Other	Blockage within the outfall pipeline	A vacuum truck was used to clear the downstream blockage, followed by a camera inspection of the pipeline to identify the cause. The pipeline was then fully repaired

41.12 Any other relevant information

Table 0-N: Projects or significant operational events that occurred in FY 2024-25

Project or significant operational event	Progress
Meander Tamar Sewerage Regional Master Plan	The Meander Tamar Sewerage Regional Master Plan has been completed and includes the short term and long-term considerations for the Perth STP with the ultimate decommissioning of the STP and transfer of sewage to the Longford STP.

For further information on the Perth STP please contact TasWater on 13 6992

www.taswater.com.au