

72. Turners Beach STP

72.1 Activity and report details

Activity name	Turners Beach STP		
Activity address	Turners Beach Road, Turners Beach		
Permit number	Licence to Operate - 3392	Date of issue	28/03/1991
EPN	10440/1	Date of issue	12/01/2021
Treatment level	Secondary Treatment		
Authorised dry weather flows	600 kL/day		
Key influent source	Residential		
Contact person	Kate Westgate (Manager Environmental Performance)		
Report author	Jake Crisp (Environmental Scientist)		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2025		

Figure 72-1: Turners Beach Sewage Treatment Plant



72.2 Monitoring and compliance summary

72.2.1 Flow data

Table 72-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location name	Inlet Sample Point	Forth River	No reuse scheme
Coordinates	E 436570 N 5442607	E 426696 N 5442386	NA
Method of measurement	In line meter	Estimation based on influent	NA
Date of last calibration/validation (if applicable).	1/09/2025	NA	NA

Table 72-B: Annual flow and rainfall data

Month	Average daily influent volume (kL/day)	Rainfall (mm/month) BOM Station ID 91186	Discharge to waters total effluent volume (ML)	Discharge to reuse total effluent volume (ML)
July 2024	583	127.8	18.07	--
August 2024	763	180.2	23.65	--
September 2024	896	125.2	26.88	--
October 2024	682	75.8	21.13	--
November 2024	629	72.8	18.86	--
December 2024	712	103.8	22.08	--
January 2025	551	81.4	17.09	--
February 2025	501	13	14.02	--
March 2025	494	27.2	15.31	--
April 2025	476	38.6	14.27	--
May 2025	476	39.8	14.75	--
June 2025	516	104.4	15.47	--
Annual 2024-25	607	990	221.56	0.00
% of total discharge	--	--	100.0%	0.0%

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

72.3 Bypass events

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

72.4 Discharge compliance with permit limits

Table 72-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	15	30	--	40	10	8.5	10	750	40
90th percentile	--	--	--	--	--	--	--	--	--
50th percentile	--	--	--	--	--	--	--	--	--
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									
Maximum	21.1	113.0	0.0	30.1	3.7	9.0	6.4	8686.0	106.0
90th percentile	19.4	90.2	0.0	26.9	2.0	8.7	5.9	1647.3	84.4
50th percentile	12.1	61.5	0.0	21.0	1.2	8.0	5.0	1149.5	50.5
Minimum	0.2	5.0	0.0	17.8	1.0	7.2	2.8	20.0	11.3
EPN limit compliance									
% compliance with maximum	58%	33%	--	100%	100%	75%	100%	33%	42%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	75%	--	--	--

Table 72-D: Mass loads to the environment

Mass Loads	EPN limit	Frequency	2024-25 result
Nitrogen (kg)	--	Annual	5161.1
Phosphorous (kg)	--	Annual	1026.2
Method	Time weighted/grab sample method		

Table 72-E: Performance analysis (discharge to environment)

Parameter	Date(s) of non-compliance			Reasons for non-compliance	Actions to improve performance
E. coli	22/07/2024 13/08/2024 2/09/2024	13/08/2024 20/01/2025 6/02/2025	5/03/2025 15/04/2025 15/05/2025	Process modelling suggests that the Turners Beach lagoons have sufficient hydraulic retention time for meeting the effluent <i>E. coli</i> target. The reason for occasional non-compliances could be high inflow following rain events, which can cause short circuiting.	No specific actions. Turners beach discharge review is being considered under the Ulverstone Master Planning see Table 72-I.
BOD	22/07/2024 13/08/2024 20/01/2025	6/02/2025 5/03/2025	15/04/2025 15/05/2025	Algae is believed to be the primary reason for elevated pH, BOD, and TSS. Through photosynthesis, algae absorb carbon dioxide and produce oxygen, which can increase the pH levels in the effluent. High algae count can contribute to elevated TSS and BOD by increasing the biomass in the lagoons, which adds to the particulate matter suspended in the system.	
pH	13/08/2024 12/12/2024	15/04/2025			
TSS	22/07/2024 13/08/2024 13/08/2024	20/01/2025 6/02/2025 5/03/2025	15/04/2025 15/05/2025		
Ammonia	22/07/2024 13/08/2024 2/09/2024	13/08/2024 3/10/2024 12/12/2024		The main nitrogen removal process in lagoon systems is ammonia stripping which occurs at high temperature and pH levels. In colder months when the lagoons pH and temperature drop, ammonia stripping rate drops which can result in effluent non-compliance.	

No other parameters have had exceedances in the FY period.

72.5 Reuse annual reporting

No Recycled Water Scheme associated with this STP.

72.6 Ambient monitoring program

Table 72-F: Program details

Program	Routine quarterly ambient water quality monitoring in accordance with EPN 10440/1. Turners Beach STP Ambient Monitoring Plan (AMP)
Status	Biennial, seasonal (summer and winter) ambient water quality and biological monitoring within the Forth River Estuary receiving environment. Quarterly ambient water quality monitoring as per EPN.
Update	<p>Ambient water quality monitoring occurred at the upstream and downstream monitoring locations on a quarterly basis during the reporting period in accordance with EPN requirements.</p> <p>Biennial, seasonal (summer and autumn) water quality and biological monitoring was conducted in the Forth River Estuary receiving environment in the previous reporting period. An Ambient Monitoring Report (AMR) was submitted to the EPA in the reporting period.</p> <p>Ongoing biennial, seasonal (summer and winter) ambient monitoring is planned with the next round scheduled for FY 2025–26.</p>
Comments	<p>The results of ambient monitoring within the Forth River Estuary receiving environment and detailed within the AMR are summarised below:</p> <ul style="list-style-type: none"> Results of the ambient water quality monitoring found that the impacts of the STP effluent discharge on in-situ field measured water quality parameters is highly dependent on tidal conditions and potentially seasonal changes within the receiving environment. The impacts of effluent discharges on water quality in the environment likely fluctuates throughout the day and seasonally. Nutrients (ammonia, nitrogen, nitrate and phosphorus) and pathogens (enterococci) exceeded relevant EPA and ANZG default guideline values within the effluent discharge channel, with the extent of impact varying with tidal conditions. Variation with tidal conditions was also observed for algae and metal concentrations (aluminium, copper, iron and zinc). Sediment contaminant testing suggests that the STP effluent discharge may be impacting nutrient concentrations in sediments at sites within 50 m of the outfall, although this pattern was only clear in May 2024. Additionally, the scale of impact is likely negligible in the context of inputs from other sources and seasonal variation. Metal contaminants in sediments were elevated at the reference sites during both sampling events and is unlikely related to the Turners Beach STP effluent discharge. No impact from the STP effluent discharge was observed on benthic habitat, sediment particle size or sediment redox potential surrounding the outfall. Variation in benthic infauna community composition was observed to change from December to May, likely due to natural seasonal variation. <p>The AMR determined that the STP effluent discharges are possibly having some impact on the immediate downstream receiving environment recreational Protected Environmental Values (PEVs) within the Forth River estuary.</p> <p>Quarterly ambient water quality monitoring in the Forth River receiving environment was completed in accordance with the EPN in September & December 2024, and March and June 2025. Key findings from the quarterly ambient water quality data review were:</p> <ul style="list-style-type: none"> Upstream levels of the key toxicants ammonia and nitrate, correlated with and were generally equal to downstream levels except in June 2025 when upstream levels significantly exceeded downstream levels. Both upstream and downstream levels were within the relevant ANZG toxicant Default Guideline Values (tDGVs) but upstream nitrate levels exceeded the EPA DGVs for well flushed estuarine waters in June 2025 with both monitoring locations exceeding the EPA ammonia DGV in June 2025. Downstream levels of the nutrient ecosystem stressors nitrogen and phosphorus generally correlated with upstream levels with the exception in June 2025, where upstream levels were elevated above downstream levels. Downstream enterococci levels within the Forth River Estuary were generally lower than upstream levels with both monitoring locations exceeding the EPA low risk guideline values for waters with current or potential recreational use in June 2025.

- Downstream *E. coli* levels were generally lower than upstream levels with a significant peak observed at the upstream location in June 2025. Both locations exceeded the EPA low risk guideline values for waters with current or potential recreational use in June 2025.
- No potential toxin producing blue-green algae (*Microcystis aeruginosa* and *Microcystis flos-aquae*) were detected at either monitoring location during the reporting period.

The EPN quarterly ambient water quality monitoring program has determined that water quality at the downstream monitoring location (> 1 km downstream from the STP) is correlated to the upstream monitoring location water quality. However, the upstream monitoring location has significant elevations of specific parameters that are likely driven by urban/agricultural runoff due to the specific location. Both locations are considered inadequate as either an upstream control or as a downstream impact point to assess any risk associated with the STP effluent discharge. The AMR has recommended removal of this program to be replaced by the ongoing biennial seasonal ambient monitoring program.

72.7 Groundwater monitoring

Site Status: Red (2023–24)

Turners Beach STP groundwater monitoring network consists of seven bores, ID numbers TRGW1–7. Bore ID's TRGW1, TRGW5 and 6 are located on the eastern boundary of the STP. Bore ID's TRGW2 and TRGW4 are located on the northern and southern boundary of Primary Lagoon respectively. Bore ID TRGW3 is located on the western boundary of the Faculty Lagoon. Bore ID TRGW7 is located south of the STP.

Bi-annual sampling was completed at six of the seven bores in October 2024 and May 2025. Bore ID TUGW2 was unable to be located at time of sampling and was not sampled. Sampling was completed at STP Primary and Polishing Lagoons in May 2025.

The 2024–25 groundwater monitoring event report is due in September 2025. Any actions required following a review of the report will be provided by 21 January 2026 in the groundwater Summary Actions Report (SAR).

Bi-annual sampling at the extended analytical suite is scheduled to continue at all bores during the 2025–26 groundwater monitoring program. Surface water sampling at the extended analytical suite is scheduled to increase to a bi-annual frequency at the STP lagoons.

72.8 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 53 out of 108 in priority.

72.9 Sludge and biosolids

The latest revision to the Sewage Sludge Management Plan (SSMP) includes full details of the actions undertaken during the reporting period, the most recent sludge profiling results, and upcoming annual desludging program. This STP was 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 72-G: Desludging status and comments

Desludging status	Comments
High Priority	Desludging of lagoon 1 is scheduled to occur in 2026-27, as per the current prioritisation planning schedule.

72.10 Non-compliance with other permit requirements

Table 72-H: EPN non-compliances

EPN condition	Description of non-conformance	Future actions to be taken
EF2 Effluent quality limits for discharge to the Forth River	Discharge compliance with permit limit	See section 72.4 Discharge compliance with permit limits and Performance Analysis
EM2 & EM3 Reuse Feasibility Study and Discharge Management Plan	Reuse Feasibility Study and Discharge Management Plan overdue.	TasWater acknowledges the non-compliance associated with the DMP condition. We are working towards the intent of the EPN condition to prioritise discharge risk reduction projects in line with our EPA endorsed Wastewater Risk Management Plan and Price and Service Plan process.
G6 Annual Environmental Review	Found to be non-compliant due to complaints received not reported	All complaints detail to be to be included in AER 2024-2025

72.11 Complaints and incident reporting

No complaints or incidents recorded in the reporting period.

72.12 Any other relevant information

Table 72-I: Projects or significant operational events that occurred in FY 2024-25:

Project or significant operational event	Progress
Mersey Central Coast Sewerage Regional Master Plan	The Mersey Central Coast Sewerage Regional Master Plan has been completed and outlines both short- and long-term considerations for the Turners Beach STP with the long-term strategy to decommission the STP and transfer flows to the Ulverstone STP.

For further information on Turners Beach STP please contact TasWater on 13 6992

www.taswater.com.au