

75. Westbury STP

75.1 Activity and report details

Activity name	Westbury STP		
Activity address	Meander Valley Road, Westbury		
Permit number	DA 101/2004	Date of issue	13/12/1988
EPN	10265/1	Date of issue	4/10/2021
Treatment level	Secondary Treatment		
Authorised dry weather flows	600 kL/day		
Key influent source	Residential/Industrial 1 x Category 3 Customers		
Contact person	Kate Westgate		
Report author	Luisa Romero (Environmental Scientist)		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2024		

Figure 75-1: Westbury Sewage Treatment Plant



75.2 Monitoring and compliance summary

75.2.1 Flow data

Table 75-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location name	Plant Inlet	Quamby Brook	No reuse
Coordinates	E 395351 N 5460296	E 485806 N 5403256	NA
Method of measurement	In line meter	In line meter	NA
Date of last calibration/validation (if applicable).	05/08/2024	05/08/2024	NA

Table 75-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 91236	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2023	980	63.7	31.06	--
August 2023	1059	65.7	34.97	--
September 2023	565	18.1	16.96	--
October 2023	355	37.1	10.79	--
November 2023	356	40.4	10.69	--
December 2023	424	57.5	3.76	--
January 2024	355	65.6	2.72	--
February 2024	247	2.6	8.02	--
March 2024	275	20.7	9.12	--
April 2024	392	72.4	11.01	--
May 2024	309	38.8	9.59	--
June 2024	473	51.6	14.20	--
Annual 2023–24	486	534.2	162.87	--
% of total discharge	--	--	100.0%	--

2023–24 monthly flow data was submitted directly to the EPA.

75.3 Bypass events

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

75.4 Discharge compliance with permit limits

Table 75-C: Discharge compliance with permit limits

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Total suspended solids
	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L	MPN/100mL	mg/L
Permit/EPN limit	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L	MPN/100mL	mg/L
Maximum	5.0	15	--	15.0	10.0	8.5	3.0	200	20.0
90th percentile	2.0	10	--	10.0	5.0	--	1.0	--	15.0
50th percentile	1.0	5	--	7.0	2.0	--	0.5	--	10.0
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	12	12	--	12	12	12	12	12	12
Number analysed	42	42	--	41	11	42	41	42	42
Statistical summary									
Maximum	29.1	119	--	39.9	1.9	8.2	6.5	24196	100.0
90th percentile	27.1	79	--	32.9	1.5	7.6	3.9	24196	71.6
50th percentile	12.6	23	--	18.3	1.0	7.1	1.2	338	19.9
Minimum	2.5	5	--	5.5	1.0	6.5	0.2	10	4.0
EPN limit compliance									
% compliance with maximum	2%	38%	--	34%	100%	--	83%	48%	50%
% compliance with 90th percentile	0%	36%	--	7%	100%	--	49%	--	38%
% compliance with 50th percentile	0%	36%	--	2%	100%	--	34%	--	24%
% compliance with pH range	--	--	--	--	--	100%	--	--	--

Table 75-D: Mass loads to the environment

Parameter	EPN limit	Frequency	2023-24 result
Nitrogen	1970	Annual	3002.4
Phosphorous (kg)	210	Annual	248.9
Method	Time weighted/grab sample method		

Table 75-E: Data gaps

Parameter	Location	Date of sample	Frequency	Reason for gap
All	Westbury STP Effluent	December	W	Lagoon 2 refilling
All	Westbury STP Effluent	21/02/2024	W	No flow from lagoon outfall
All	Westbury STP Effluent	16/05/2024	W	No flow from lagoon outfall

Table 75-F: Performance analysis (discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance			Reasons for non-compliance	Actions to improve performance
Ammonia	19/07/2023	18/10/2023	27/03/2024	The plant is not designed to remove nitrogen. STP upgrading works from July 2023 to January 2024	Assets upgraded within the treatment plant: <ul style="list-style-type: none"> The Table drain around the perimeter of the STP was redesigned and modified. The baffle curtain in Lagoon 1 was replaced. The concrete lining on lagoon 2 was replaced.
	26/07/2023	25/10/2023	2/04/2024		
	2/08/2023	1/11/2023	10/04/2024		
	9/08/2023	8/11/2023	17/04/2024		
	16/08/2023	15/11/2023	22/04/2024		
	23/08/2023	22/11/2023	2/05/2024		
	30/08/2023	29/11/2023	8/05/2024		
	6/09/2023	24/01/2024	22/05/2024		

Effluent compliance parameter	Date(s) of non-compliance			Reasons for non-compliance	Actions to improve performance
	13/09/2023 20/09/2023 27/09/2023 4/10/2023 10/10/2023	7/02/2024 14/02/2024 6/03/2024 13/03/2024 20/03/2024	29/05/2024 5/06/2024 12/06/2024 17/06/2024 26/06/2024		<ul style="list-style-type: none"> A new outfall pit installed.
Nitrogen	16/08/2023 6/09/2023 13/09/2023 27/09/2023 4/10/2023 10/10/2023 18/10/2023 25/10/2023 1/11/2023	8/11/2023 15/11/2023 22/11/2023 29/11/2023 24/01/2024 6/03/2024 13/03/2024 10/04/2024 17/04/2024	22/04/2024 2/05/2024 8/05/2024 22/05/2024 29/05/2024 5/06/2024 12/06/2024 17/06/2024 26/06/2024	The plant is not designed to remove nitrogen STP reparations from July to January 2024	
BOD	6/07/2023 12/07/2023 19/07/2023 26/07/2023 2/08/2023 9/08/2023 16/08/2023 30/08/2023 6/09/2023	13/09/2023 20/09/2023 27/09/2023 4/10/2023 10/10/2023 25/10/2023 1/11/2023 8/11/2023 15/11/2023	22/11/2023 29/11/2023 24/01/2024 6/03/2024 13/03/2024 22/04/2024 22/05/2024 29/05/2024	High BOD is associated with algae	
E. coli	6/07/2023 12/07/2023 19/07/2023 26/07/2023 2/08/2023 9/08/2023	30/08/2023 6/09/2023 13/09/2023 20/09/2023 27/09/2023 10/10/2023	25/10/2023 1/11/2023 15/11/2023 22/11/2023 29/11/2023 13/03/2024	STP upgrading works from July 2023 to January 2024	

Effluent compliance parameter	Date(s) of non-compliance			Reasons for non-compliance	Actions to improve performance
	16/08/2023 23/08/2023	18/10/2023	22/04/2024		
Phosphorus	25/10/2023 15/11/2023 22/11/2023	29/11/2023 24/01/2024 6/03/2024	13/03/2024 22/04/2024	22-11-2024 Effluent bypassing DAF due to limited capacity	No actions taken during report period
TSS	19/07/2023 26/07/2023 2/08/2023 16/08/2023 30/08/2023 6/09/2023 13/09/2023	4/10/2023 10/10/2023 18/10/2023 25/10/2023 1/11/2023 8/11/2023 15/11/2023	22/11/2023 29/11/2023 24/01/2024 6/03/2024 13/03/2024 22/04/2024 29/05/2024	High TSS are associated with algae	No actions taken during report period

No other parameters had exceedances in the reporting period.

75.5 Reuse annual reporting

No recycled water was supplied to the Westbury RWS during the 2023–24 reporting period. Following advice from the recycled water customer, the scheme is no longer in operation. Prior to July 2021, the Westbury STP had supplied recycled water for irrigation purposes to the Westbury recycled water scheme located at Meander Valley Road under EPN 10265/1.

75.6 Ambient monitoring program

Table 75–G: Program details

Program	Routine monitoring during discharge to water. Routine monitoring in accordance with Westbury STP Interim Upgrade Project Plan.
Status	Ambient water quality and biennial, seasonal (spring and autumn) biological monitoring (AusRivAS) completed during the reporting period.
Update	Ongoing weekly ambient water quality and biennial, seasonal (spring and autumn) biological monitoring (AusRivAS) completed within the Quamby Brook receiving environment during the reporting period.
Comments	<p>Weekly ambient water quality and biological monitoring in spring (September) 2023 and autumn (March) 2024 was completed within the Quamby Brook receiving environment during the reporting period. A Receiving Environment Monitoring Report (REMR) was prepared during the reporting period to assess the impacts of Westbury STP effluent discharges on Quamby Brook prior to, during and after the STP desludging project and return to business as usual (BAU). The REMR has been submitted to the EPA for consideration. A summary of the outcomes described within the REMR are provided below:</p> <ul style="list-style-type: none"> • Dewatering of Lagoon 2 to Quamby Brook occurred from 2 May to 25 May 2023 in accordance with the Westbury Sewage Treatment Plant Dewatering Management Plan (Bonnevill Consulting 2022). Dewatering occurred in addition to regular effluent discharges. Desludging and further capital works in Lagoon 2 occurred from 31 May until 11 December 2023 when it was refilled. • While Lagoon 2 was offline, effluent was discharged directly from Lagoon 1 to Quamby Brook. Effluent was directed through the DAFF/UV system as much as possible to treat the effluent for discharge to Quamby Brook. There were limitations on the DAFF/UV treatment flow rate, which meant additional effluent was directly discharged from Lagoon 1. • All effluent discharges to Quamby Brook ceased from 11 December 2023 to 22 January 2024 while Lagoon 2 was refilled. Since 22 January 2024, business-as-usual STP discharges to Quamby Brook have resumed. • The primary contaminant of concern in the effluent is ammonia. EPN Condition EF7 requires a 20:1 dilution of effluent discharges in Quamby Brook passing flows to mitigate the risk of ammonia to aquatic organisms. This dilution factor was met on all occasions during the desludging project works. • Effluent ammonia concentrations were highly variable (5.5 – 25 mg/L) over the desludging works period. They were at their highest during the lagoon emptying. Ammonia concentrations in Quamby Brook were below the ANZG (95% species) default trigger values on all occasions downstream of the STP outfall. The one exception was on 24 May 2023 on the final day of the emptying of Lagoon 2, when effluent levels were at their highest and Quamby Brook had low flows and low dilutions. • Total nitrogen and total phosphorus concentrations were significantly higher downstream of the STP outfall compared to upstream, but there were no differences that could be confidently attributed to the desludging works project. The one exception was on 24 May 2023 on the final day of the emptying of Lagoon 2, when effluent nutrient levels were at their highest and Quamby Brook had low flows. • No effects on total suspended solids, pathogenic indicators or algal cells in Quamby Brook were observed during the desludging project period. Dissolved oxygen drawdown

at the site immediately downstream of the STP outfall was noted during warmer periods of prolonged low flow.

- Biological survey results over the desludging works period showed similar trends and seasonality to previous survey results.

Overall, the effluent discharges to Quamby Brook during the desludging project were well-managed to reduce the risk to environmental values. There was only one monitoring occasion on the final day of the lagoon dewatering that caused a minor water quality impact to Quamby Brook.

75.7 Groundwater monitoring

Site status: Amber – (2022–23 Report)

Westbury STP groundwater monitoring network consists of three monitoring bores, ID numbers WBGW1–3. The monitoring bores are considered to provide good coverage and installed downgradient of the STP infrastructure, between the STP lagoons, and the likely receiving water body of Quamby Brook. Bore ID's WBGW1 and 2 are located immediately south and east Lagoon 1 respectively, with bore ID WBGW3 located on the north-eastern corner of Lagoon 3.

One round of sampling was completed in April 2024. Surface water sampling of the two STP lagoons were also collected at this time. The planned second round of sampling (annual) was not completed. TasWater has put measures in place for the 2024–25 sampling program to address the scheduling and resourcing delays that impacted the reduced sampling frequency. The 2023–24 Groundwater Monitoring Report is due October 2024. The 2022–23 report identified total phosphorous concentrations exceeded adopted guideline criterion for bore ID's WBGW1–2. Ammonia concentrations at bore ID WBGW1 also exceeded guideline values and an increasing trend in concentrations identified at bore ID WBGW2. Probable trend in increasing total nitrogen was identified at bore ID WBGW3.

Bi-annual sampling at the extended analytical suite will continue at all bores during the 2024–25 groundwater monitoring program.

75.8 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. Update to the actions completed will be provided in the next revision due September 2024.

A Multi Criteria Assessment was undertaken by TasWater in 2024 to prioritise I&I investigation and works state-wide. This catchment was ranked 35 out of 108 in priority.

75.9 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 deemed non-compliant with the 2023-24 SSMP due to further clarification being required regarding sludge movements and stabilisation grading for land applied biosolids.

No stockpiling occurred at this site.

Table 75-H: Desludging status and comments

Desludging status	Comments
High Priority	Desludging of lagoon 1 scheduled to occur in 2025-26, as per the current prioritisation planning schedule.

75.10 Non-compliance with other permit requirements

Table 75-I: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
EF3 Current and future effluent quality limits for discharge to water	Discharge compliance with permit limits	See table 75-E Discharge compliance with permit limits and Performance Analysis
EF5 Mass load limits	Mass load limits exceeded in FY2023-24.	TasWater to progress investigations and project implementation to improve STP compliance and reduce environmental risks, as outlined in Westbury STP Discharge Management Plan
WM3 Sewage Sludge Water Cap	Lagoons 1 require desludging	A CDO project has completed the desludging of lagoon 2, full project will be completed FY2024.
WM2 Sewage Sludge Management Plan	This STP was deemed non-compliant with the 2023-24 SSMP due to further clarification being required regarding sludge movements and stabilisation grading for land applied biosolids.	Ensure details of any sludge movements and biosolids grading are included in 2024-25 SSMP.
M6 Installation of Automated Treated Effluent Composite Sampling Equipment	Overdue for the installation of a treated effluent composite sampler	There is a composite sampler installed at the site, but it is currently not working. TasWater endeavours to replace the flow meter and conduct electrical work to ensure full functionality for the during FY2024-25.

75.11 Complaints and incident reporting

Table 75 – Complaints Reporting

Date	Category	Details	Mitigation actions
01-Feb-2024	Odour	Strong sewer smell from treatment plant	In response to an Odour complaint, TasWater desludged the sludge drying pan that was causing the issue and removed the sludge to a different treatment plant. To mitigate future risks, TasWater plan to install two pumps: one large-capacity pump to mix the contents of the sludge drying pan, and another chemical dosing pump for caustic.
29-Jan-2024	Odour	Strong sewer smell from treatment plant	
18-Jan-2024	Odour	Strong sewer smell from treatment plant.	
12-Jan-2024	Odour	Strong sewer smell from treatment plant.	

There were no incidents during the 2023–24 reporting period.

75.12 Any other relevant information

Table 75–J: Projects or significant operational events that occurred in FY 2023–24

Project or significant operational event	Progress
Westbury STP Interim Project Upgrades	Westbury STP interim upgrades to Lagoon 2 including desludging, maintenance and repairs to concrete lining and lagoon base, installation of new baffle (Lagoon 1) and new bypass outfall pit completed during the reporting period.
Meander Valley Sewerage Strategy (MVSS)	Westbury is currently being investigated for rationalisation within the MVSS. A MVSS Strategic Business Case has been completed identifying preferred options and priorities. Work package Detailed Business Cases for specific prioritised options will be developed within PSP4/5 period.
Westbury STP flow meters	Completed

For further information on Westbury STP please contact TasWater on 13 6992

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