

2 Beauty Point STP

2.1 Activity and report details

Activity name	Beauty Point STP		
Activity address	West Arm. Tamar Estuary		
Permit number	Licence to Operate - 3596	Date of issue	15/12/1988
EPN	497/1	Date of issue	12/05/2003
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	540 kL/day		
Key Influent Source	Residential		
Contact person	Kate Westgate		
Report author	George Fitzgibbon		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2023		

Figure 2-1: Beauty Point Sewage Treatment Plant



2.2 Monitoring and compliance summary

2.2.1 Flow data

Table-2-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	West Arm. Tamar Estuary	Ag Irrigation (Gypsy Hill)
Coordinates	E 483591 N 5444818	E 483408 N 5445101	E 483346 N 5444846
Method of Measurement	In line meter	Estimate based on reuse	In line meter
Date of last Calibration/Validation (if applicable).	13/07/22	NA	13/07/22

Table 2-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 91262	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	497	34.3	15.40	0.00
August 2022	773	85.6	23.94	0.00
September 2022	339	30.6	10.16	0.00
October 2022	776	165.1	24.05	0.00
November 2022	589	80.2	17.67	0.00
December 2022	309	12.8	9.57	0.00
January 2023	298	38.6	9.25	0.00
February 2023	255	31.6	7.13	0.00
March 2023	205	53.2	4.14	0.00
April 2023	301	60.3	0.00	16.31
May 2023	248	58.0	0.00	7.03
June 2023	467	109.2	5.14	8.88
Annual 2022-23	423	759.5	126.44	32.22
% of Total Discharge	--	--	79.7%	20.3%

2022-23 monthly flow data was submitted directly to the EPA.

2.2.2 Bypass events

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

2.3 Discharge compliance with permit limits

Table 2-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	--	--	--	--	--	5.5	--	--	--
Samples analysed									
Number required	12	12	12	12	12	12	12	12	12
Number analysed	12	12	0	12	12	12	12	12	12
Statistical summary									
Max	21.0	45	--	24.4	1.8	9.7	7.5	14136	117.0
90th percentile	17.7	41	--	23.7	1.2	9.1	6.9	1052	38.0
50th percentile	10.4	12	--	15.8	1.0	7.8	2.9	68	12.2
Min	0.1	5	--	4.5	1.0	7.1	1.0	30	4.0
EPN Limit Compliance									
% compliance with Maximum	100%	100%	--	100%	100%	--	100%	--	92%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	83%	--
% compliance with pH range	--	--	--	--	--	67%	--	--	--

Note: Percentages reflective of complete data set for the year

Table 2-D: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	7900	Yearly	1955.3
Phosphorous (kg)	2000	Yearly	353.3
Method	Time weighted/Grab sample method		

Table 2-E: Performance Analysis (Discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
pH	16/11/2022 18/01/2023 13/02/2023	Algae is believed to be the primary reason for elevated pH due to CO ₂ uptake during photosynthesis. Most of the non-compliance results were in warmer months when algal blooms occur. Algae is a source of oxygen and is fundamental to lagoon treatment.	No specific actions undertaken in reporting period.
TSS	13/02/2023	Algae is believed to be the primary reason for elevated suspended solids. Most of the non-compliance results were in warmer months when algal blooms occur. Algae is a source of oxygen and is fundamental to lagoon treatment.	No specific actions

Note: Non compliances only identified for the times STP has discharged to water

No other parameters had exceedances in the reporting period.

2.4 Reuse Annual Reporting

The Beauty Point STP supplies the Beauty Point recycled water scheme which consists of one property Gypsy Hill. The supply of recycled water mixed with potable water to the scheme recommenced in January 2022 following the cessation in 2020 due to high electrical conductivity levels in effluent inflow. An alternative water source (potable water) had been provided to the scheme prior to recommencement.

An Irrigation and Environmental Management Plan was submitted and accepted by the EPA in December 2021 supporting TasWater's proposal to increase the conductivity to the recycled water scheme to 2200µS/cm. Following increasing trends in soil salinity and sodicity at the scheme, soil remediation activities commenced in January 2022, with pasture rehabilitation in May 2022 (irrigation areas BP1), and April/May 2023 (BP3-5). Soil remediation activities are continuing, with the latest completed in March 2023.

Table 2-F Reuse Compliance Summary

Parameter	BOD5	Conductivity	pH	E coli
Permit/EPN limit	mg/L	µS/cm	Units	MPN/100ml
Maximum	50	1000	9.0	10000
90th percentile	--	--	--	--
50th Percentile	--	--	--	1000
Minimum	--	--	5.5	--
Samples analysed				
Number required	12	12	12	12
Number analysed	12	12	12	12
Statistical summary				
Max	7	2283	10.8	41
90th percentile	5	2227	9.5	40
50th percentile	5	2086	8.8	10
Min	5	1560	7.4	10
Summary of results				
% compliance with Maximum	100%	100%*	--	100%
% compliance with 90th percentile	--	--	--	--
% compliance with 50th percentile	--	--	--	100%
% compliance with pH range	--	--	67%	--

*No recycled water above 2000uS/cm was provided to the recycled water scheme.

Table 2-G: Performance analysis (Discharge to reuse)

Reuse Compliance Parameter	Date(s) of elevated parameter	Reasons	Actions to improve performance
Conductivity	21/03/2023	High EC Levels identified in the recycled water due to	Recycled water is diluted with potable water (at flow rate of 0.8ML/day) to ensure final

Reuse Compliance Parameter	Date(s) of elevated parameter	Reasons	Actions to improve performance
	4/04/2023 17/05/2023 19/06/2023	saline ingress into network.	water provided to the scheme is below 2200uS/cm as per 2021 IEMP. Monthly conductivity monitoring of effluent inflow introduced to ensure recycled water supply ceases or is sufficiently diluted prior to supply

Note: Non-compliances only identified for the times STP has discharged to reuse

Biannual soil sampling was completed in November 2022 (Spring) and April 2023 (Autumn) at sampling sites BP1 and BP5. Samples were taken from 1-10cm (topsoil), 10-20cm (subsoil) and 20-30cm (Subsoil) at each site. The inclusion of biannually and subsoil sampling is to assess and compare the effect of the soil remediation activities (gypsum application).

The compliance audit was completed during the annual (April 2023) soil sampling. Summary of the annual soil monitoring and compliance program is provided below.

In May 2023 the recycled water customer's storage overflowed due to oversupply. Recycled water was contained on the property and was not observed to enter water ways.

Table 2-H: Annual recycled water scheme compliance audit and soil monitoring

Program	Compliance audit	Annual Soil monitoring
Compliance status/summary	Compliant.	BP1 is starting to show a decrease in salinity and sodicity for sampling conducted in Autumn 2023. BP5 sodicity and salinity levels remain high and are expected to decrease as gypsum applications take effect. Topsoil and subsoil remain highly sodic at both sites. Nutrient levels are low with exception of Sulphur levels which are excessive at site BP5 due to gypsum application, though these elevated levels will deplete over time. The slow long-term reduction in sodicity following gypsum application highlights the requirement for repeat application to progress remediation efforts. Excessive sulphur levels at site BP5 are due to the application of gypsum for soil remediation activities (March 2023) & levels are expected to deplete over time.
Comments	Prior to the provision of recycled water to the scheme, a review of the available management actions (either cease supply or dilution) will continue at the STP when recycled water conductivity levels reach 2000µS/cm.	Soil remediation activities will continue in 2023-24, and additional biannual sampling in Spring as per agronomist recommendations.

S = Sulphur

RWS Groundwater status: Green – no or minor issue identified

Beauty Point RWS groundwater monitoring network consists of six bores; ID numbers BPGW1-6. Groundwater bores ID numbers BPGW5 and 6 were installed in January 2021. Biannual sampling was completed at bores BPGW5 and 6 in February 2023, with annual sampling completed at all six bores in June 2023.

Total nitrate as nitrogen and total phosphorous concentrations exceed selected protected values guidelines limits at least one bore. Irrigation rates of recycled water is low due to increased salinity soil and salinity issues and more likely attributed to land management practices and or/ variability in rainfall than recycled water irrigation.

Biannual sampling at the extended analytical suite is planned to continue to BPGW5 and 6 during the 2023-24 groundwater monitoring program as per TasWater sampling requirements for newly installed bores. Annually sampling at the standard analytical suite is planned for groundwater monitoring bores ID's BPGW1 – 4.

2.5 Ambient monitoring program

Table 2-I Program details

Program	Seasonal Discharge Program - Routine monitoring during discharge to water.
Status	Ambient monitoring completed during discharge events within the reporting period.
Update	Ambient water quality monitoring conducted during seasonal discharge events.
Comments	<p>Ambient water quality monitoring was conducted during STP effluent discharges into West Arm within the Tamar Estuary receiving environment. The STP discharged from July 2022 – March 2023 and again in June 2023. Key findings from the ambient water quality monitoring data review were:</p> <ul style="list-style-type: none"> • The Default Guideline Value (DGV) for ammonia was not exceeded at the West Arm monitoring location during discharges. The ammonia EPA DGV for the SMD Estuarine Waters was exceeded once in October 2022 but levels at all other times were within the DGV. • The nitrate EPA DGV were not exceeded at the West Arm location during discharge events. • Total nitrogen levels within West Arm trended with effluent levels during discharges with levels exceeding the EPA DGV approximately half of the time during discharges. • Total phosphorous levels within West Arm trended with effluent levels during discharges with levels exceeding the EPA DGV approximately half of the approximately half of the time during discharges. • Enterococci levels within West Arm were mostly low and within the NHMRC low risk guideline value for recreational contact until January 2023. Effluent levels were significantly elevated in February and March 2023 but West Arm levels remained below the GV. Enterococci levels were significantly elevated in June 2023 exceeding the NHMRC secondary contact GV. Effluent levels at this time had returned to low levels. Enterococci levels within West Arm did not correlate with effluent levels during discharge events. • <i>E. coli</i> levels within West Arm were generally low but were elevated in January and June 2023. <i>E. coli</i> levels within West Arm did not correlate with effluent levels during discharge events. <p>Seasonal discharges into the West Arm receiving environment increased during the reporting period. Ambient monitoring during seasonal discharge events indicated occasional increases in nutrient levels above estuarine DGVs but no toxicity impacts could be directly attributed to the STP effluent discharge. Pathogen levels were significantly elevated on occasions and may be related to STP effluent discharges. No reference site is available to assess ambient monitoring in the context of the broader receiving environment and/or other inputs into West Arm.</p>

2.6 Groundwater monitoring

Site Status: Red - Highly likely (2022 report)

Beauty Point STP groundwater monitoring network consists of five groundwater bores (ID numbers: BPGW7-11) which were installed in 2021. Biannual sampling at the extended analytical suite was completed at four bores (ID's BPGW8 –11) in February 2023 and annual sampling at all five bores in

June 2023. Samples from BPGW7 were unable to be collected during February sampling round due to the bore being dry.

Following delays, the 2022-23 report will be finalised and available by October 2023. Any actions to address identified potential issues will be determined following the hydrogeological review.

Biannual sampling at the extended analytical suite will continue at all five groundwater monitoring bores during the 2023-24 monitoring program as per TasWater sampling requirements for newly installed bores.

2.7 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 2022 to prioritise I&I investigation and works state-wide. This catchment was ranked 5 out of 79 in priority.

2.8 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 fully compliant with the 2022-23 SSMP.

No stockpiling occurs at this site.

Table 2-J Desludging status and comments

Desludging Status	Comments
Low Priority	Desludging is outside of the current prioritisation planning schedule.

2.9 Non-compliance with other permit requirements

Table 2-K EPN Non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
1 Operational Procedures Manual	No contemporary Operational Procedures Manual	New SharePoint based solution for OPMMs currently being developed. First version to be implemented in FY24.
5 Maintenance of plant and equipment	Break in outfall pipeline	A plan to remediate the broken section of outfall will be provided to the EPA in October 2023.
6 Lagoon maintenance	Floating algae and sludge visible in lagoons 2, 3, and 4	TasWater has engaged a contractor to remove floating matter from all lagoons. Photographic evidence provided to EPA to resolve non-compliance.
23 Effluent Quality Limits	Environmental compliance limits	See section 2.3 Environment Compliance
25 Wastewater Reuse	See section 2.4 Reuse Annual Reporting	See section 2.4 Reuse Annual Reporting

2.10 Complaints and incident reporting

No complaints received during 2022-23 reporting period.

There were no incidents during the 2022-23 reporting period.

2.11 Any other relevant information

For further information on Beauty Point STP please contact TasWater on 13 6992

www.taswater.com.au