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	497/2	**Date of issue**	22/02/2024
Treatment level	Secondary Treatment		
Authorised dry weather flows	540 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 2024		

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).	27/10/2023	NA	27/10/2023

Table 2-B: Annual flow and rainfall data

Month	Average daily influent volume (kL/day)	Rainfall (mm/month) BOM station ID 91286	Discharge to waters total effluent volume (ML)	Discharge to reuse total effluent volume (ML)
July 2023	533	74.9	16.54	0.00
August 2023	830	61.8	25.73	0.00
September 2023	752	25.9	22.55	0.00
October 2023	392	59.6	12.15	0.00
November 2023	461	19.3	13.36	0.46
December 2023	479	71.0	0.00	14.62
January 2024	604	65.2	0.00	18.74
February 2024	665	13.1	0.00	19.28
March 2024	671	10.5	0.00	20.79
April 2024	528	93.4	0.00	15.84
May 2024	304	32.9	0.00	9.43
June 2024	379	66.4	0.00	11.38
Annual 2023-24	551	594.0	90.32	110.53
% of total discharge	--	--	49.5%	55.0%

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

2.3. Bypass events

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

2.4. Discharge compliance with permit limits

Table 2-C: Compliance summary

	Ammonia as N	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorus	E coli	Enterococci	Total suspended solids
Permit/EPN limit	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**Units**	**mg/L**	**MPN/100mL**	**MPN/100mL**	**mg/L**
Maximum	20.0	40.0	--	20.0	5.0	8.5	8.0	1000.0	1000.0	50.0
90th Percentile	--	--	--	--	--	--	--	--	--	--
50th Percentile	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	6.5	--	--	--	--
Samples analysed										
Number required	12	12	--	12	12	12	12	12	12	12
Number analysed	12	12	--	12	12	12	12	12	12	12
Statistical summary										
Max	27.1	45	--	40.1	1.6	9.2	8.0	3873	24196	67.0
90th percentile	25.2	36	--	34.4	1.1	8.9	7.1	2689	5655	60.0
50th percentile	12.0	19	--	17.6	1.0	8.2	5.4	181	296	16.8
Min	0.1	5	--	6.6	1.0	7.1	2.2	10	10	4.0
EPN limit compliance										
% compliance with Maximum	67%	92%	--	67%	100%	--	100%	75%	67%	75%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	58%	--	--	--	--

Limit compliance assessed against the EPN released 22/1/24.

Table 2-D: Mass loads to the environment

Parameter	EPN limit	Frequency	2023-24 result
Nitrogen (kg)	7900	Annual	2425.0
Phosphorous (kg)	2000	Annual	346.8
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
Ammonia	20/09/2023 18/10/2023 16/11/2023	Effluent ammonia and total nitrogen typically increase through winter into spring as cold temperatures decrease biological activity/ proliferation. The extended detention time within the lagoons (up to 100 days) results in an observed lag in the effluent quality results from spring into early summer.	No specific actions undertaken in reporting period.
Nitrogen	20/09/2023 18/10/2023 16/11/2023		
Enterococci	16/11/2023	Non-compliant disinfection is typically associated with algae blooms during warmer months. Shading from algae can decrease UV penetration and disinfection of pathogens.	No specific actions undertaken in reporting period.

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

No other parameters had exceedances in the reporting period.

2.5. Reuse annual reporting

The Beauty Point STP supplies the Beauty Point recycled water scheme which consists of one property Gypsy Hill. Following high electrical conductivity levels in effluent inflow, 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. TasWater purchased the property in April 2024 and has completed site maintenance activities to allow the resumption of recycled water irrigation in 2024-25 irrigation season.

Table 2-F: Reuse compliance summary

	BOD5	pH	E coli	Conductivity
Permit/EPN limit	**mg/L**	**Units**	**MPN/100ml**	**µS/cm**
Maximum	50	9.0	10000	1000.0
90th percentile	--	--	--	--
50th percentile	--	--	1000	--
Minimum	--	5.5	--	--
Samples analysed				
Number required	12	12	12	12
Number analysed	12	12	12	12
Statistical summary				
Maximum	7	9.5	350	2990
90th percentile	6	8.9	146	2749
50th percentile	5	8.0	13	1675
Minimum	5	7.4	10	1479
EPN limit compliance				
% compliance with maximum	100%	--	100%	0%
% compliance with 90th percentile	--	--	--	--
% compliance with 50th percentile	--	--	100%	--
% compliance with pH range	--	92%	--	--

*No recycled water above 2000 µS/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
pH	16/11/2023	Algae is believed to be the primary reason for elevated pH. Algae is a source of oxygen and is fundamental to lagoon treatment. The non-compliance result was in warmer month. when algal blooms occur.	No specific actions

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

Biannual soil sampling was completed in November 2023 (Spring) and May 2024 (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 (May 2024) soil sampling. Summary of the annual soil monitoring and compliance program is provided below.

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

Program	Compliance audit	Annual Soil Monitoring
Compliance status / **Summary**	Non-compliant. Inadequate fencing of on-farm recycled water storage	BP1 saw sodicity and salinity levels increase. BP5 levels decreased. Topsoil and subsoil remain sodic and saline at both sites. Sulphur levels are excessive at site BP1 and elevated at BP5. All other nutrients are low.
Comments	The internal fence has fallen down on the northern side of the on-farm recycled water storage. Currently no stock is on site and access to the property is restricted and controlled by TasWater. TasWater have completed a number of maintenance repair activities to the site since taking over ownership in May2024.	Fluctuations of soil salinity and sodicity and high sulphur levels are expected and are contributed to the application of gypsum as part of soil remediation program. Levels are expected to decrease over time. Soil remediation activities will continue in 2024-25, and additional biannual sampling in Spring as per agronomist recommendations.

S = Sulphur

RWS Groundwater status: Green

Beauty Point RWS groundwater monitoring network consists of six bores; ID numbers BPGW1-6. Bore ID BPGW1 is located downslope of the on-farm recycled water storage and upslope of the irrigation area. Bore ID BPGW2 is in the northeast of the property, whilst bore ID's BPGW3 and 4 are located within the recycled water irrigation areas and bore ID's BPGW5 and 6 are located downslope. One round (6-monthly) sampling was completed at bore ID's BPGW5 and 6 in May 2024. The second (annual) sampling round was not completed. TasWater has put measures in place for the 2024-25 sampling program to address scheduling and resourcing delays experienced in recent years.

The 2023-24 groundwater monitoring event report found the groundwater concentrations for all analytes at bore ID's BPGW5 and 6 are below the adopted guideline values and continue to record low pH levels. This is the sixth sampling round since installation in 2021.

Biannual sampling at the extended analytical suite is planned to continue to BPGW5 and 6 during the 2024-25 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.

2.6. Ambient monitoring program

Table 2-I: Program details

Program	Ambient monitoring required under EPA permit variation 23/64 D23-322305..
Status	Ambient monitoring required under EPA permit variation from May to December each year.
Update	Ambient water quality monitoring required under EPA permit variation from May to December each year completed during the reporting period.
Comments	Ambient water quality monitoring was conducted during effluent discharges within the West Arm Tamar Estuary receiving environment. Effluent discharges to environment occurred from July to November 2023 due to unavailability of the recycled water scheme. Key findings from the ambient water quality monitoring data review were: • Ammonia levels in West Arm did not exceed the ANZG Default Guideline Value (tDGV) at any time during discharges however the EPA DGV for the SMD Estuarine Waters was exceeded in July and August 2023 but not in other months when STP effluent discharges occurred. • The nitrate EPA DGV was exceeded within West Arm in July and August 2023, but not in other months when STP effluent discharges occurred. • Total nitrogen levels within West Arm generally exceeded the EPA DGVs especially in July and August 2023 and also in October and December 2023. Total nitrogen levels were below the EPA DGVs in September and November 2023. Total nitrogen levels were within the EPA DGVs in May and June 2024 when the STP was not discharging. • Total phosphorous levels within West Arm exceeded the EPA DGVs on all monitoring occasions but were lower when the STP was not discharging in May and June 2024. • Enterococci levels within West Arm varied significantly and sometimes significantly exceeded the EPA low risk guideline values for waters with current or potential recreational use during STP effluent discharges. However, enterococci levels were at their highest in December 2023 when the STP was not discharging to West Arm. Levels were well within acceptable recreational use guidelines in May and June 2024. • *E. coli* levels within West Arm generally exceeded the EPA low risk guideline values for waters with current or potential recreational use during effluent discharges especially in September 2023. Levels were also significantly elevated in December 2024 when the STP was not discharging. Levels were well within acceptable recreational guidelines in May and June 2024. • No potential toxin producing blue-green algae were detected in the West Arm receiving environment. Ambient monitoring during seasonal STP effluent discharges into the West Arm receiving environment indicated elevations in nutrient levels above EPA estuarine DGVs. Pathogen levels were also elevated on occasions and are likely due to be related to STP effluent discharges, although other factors are also contributing to elevated pathogens indicator levels poor water quality in West Arm. The recreational PEVs within the West Arm receiving environment are likely impacted by STP effluent discharges

2.7. Groundwater monitoring

Site Status: Red - (2022-23 report)

Beauty Point STP groundwater monitoring network consists of five groundwater bores (ID numbers: BPGW7-11) which were installed in 2021. One round of sampling (6-monthly) was completed at across the network in May 2024. The second (annual) sampling round was not completed. TasWater has put measures in place for the 2024-25 sampling program to address scheduling and resourcing delays experienced in recent years. Samples from BPGW7 were unable to be collected during May sampling round due to the bore being dry.

Following delays, the 2023-24 report will be finalised and available in October 2024. Any actions to address identified potential issues will be determined following the hydrogeological review.

Biannual sampling at the extended analytical suite is scheduled to continue across the network during the 2024-25 groundwater monitoring program as per TasWater sampling requirements for newly installed bores.

2.8. 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 50 out of 108 in priority. Actions in the period included:

- Conductivity Monitoring (Continuing)
- 80m of sewer mains relined
- Scope review planned for relocation of 450m gravity sewer mains under water

2.9. 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 fully compliant with the 2023-24 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.

2.10. Non-compliance with other permit requirements

Table 2-K: EPN non-compliances

EPN condition	Description of non-conformance	Future actions to be taken
5 Maintenance of plant and equipment	Break in outfall pipeline	Outfall pipeline repair project progressing in detailed design with estimated construction completion during FY2025.
EF4 Effluent Quality Limits	Environmental compliance limits	See section 2.4 Environment Compliance
EF6 Wastewater Reuse	See section 2.4 Reuse Annual Reporting	See section 2.5 Reuse Annual Reporting

2.11. Complaints and incident reporting

Table 2-k Complaints reporting

Date	Category	Details	Mitigation actions
23 February 2024	Odour	Settling lakes at Treatment plant were very smelly.	Investigation discovered odour was due to seaweed. Customer advised of findings.

There were no incidents during the FY2023-24 reporting period.

2.12. Any other relevant information

Table 2-L: Projects or significant operational events that occurred in FY 2023-2024:

Project or significant operational event	Progress
Beauty Point STP outfall replacement.	In design, due for delivery within PSP4 delivery period.

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

www.taswater.com.au