

## 59. Sisters Beach STP

### 59.1 Activity and report details

Activity name	Sisters Beach STP		
Activity address	Honeysuckle Avenue, Sisters Beach		
Permit number	7065	Date of issue	Unknown
EPN	7072/1	Date of issue	23 December 2004
Treatment level	Tertiary Treatment		
Authorised dry weather flows	585 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 2024		

**Figure 59–1: Sisters Beach Sewage Treatment Plant**



## 59.2 Monitoring and compliance summary

### 59.2.1 Flow data

**Table 59-A: Flow monitoring summary**

	Influent	Effluent	Reuse
Location name	Plant Inlet	Bass Strait	No reuse scheme
Coordinates	E 379296 N 5469355	E 379142 N 5469887	NA
Method of measurement	In line meter	In line meter	NA
Date of last calibration/validation (if applicable).	31/07/2023	30/07/2024	NA

**Table 59-B: Annual flow and rainfall data**

Month	Average daily influent volume (kL/day)	Rainfall (mm/month) BOM Station ID 91364	Discharge to waters total effluent volume (ML)	Discharge to reuse total effluent volume (ML)
July 2023	108	133.5	4.74	--
August 2023	93	88.2	4.44	--
September 2023	77	45.9	3.74	--
October 2023	70	39.8	3.56	--
November 2023	62	46.2	2.99	--
December 2023	74	79.2	2.80	--
January 2024	77	61.5	4.37	--
February 2024	59	7.3	3.00	--
March 2024	34	23.1	2.93	--
April 2024	58	56.2	2.99	--
May 2024	50	50.4	2.39	--
June 2024	56	82.8	2.58	--
Annual 2023-24	68	714.1	40.50	--
% of total discharge	--	--	100.0%	--

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

### 59.3 Bypass events

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

## 59.4 Discharge compliance with permit limits

**Table 59-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	5.0	20	--	15.0	5.0	8.5	5.0	750	30.0
90th percentile	2.0	15	--	10.0	2.0	--	3.0	500	20.0
50th percentile	1.0	10	--	5.0	1.0	--	1.0	200	10.0
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	47.1	31	--	67.1	3.8	7.6	10.0	228	23.6
90th percentile	32.6	9	--	42.6	1.9	7.5	7.4	10	8.5
50th percentile	3.1	5	--	6.4	1.0	7.1	3.5	10	4.7
Minimum	0.1	5	--	2.1	1.0	6.9	0.7	10	4.0
EPN limit compliance									
% compliance with maximum	67%	92%	--	67%	100%	--	75%	100%	100%
% compliance with 90th percentile	42%	92%	--	67%	92%	--	33%	100%	92%
% compliance with 50th percentile	42%	92%	--	42%	75%	--	17%	92%	92%
% compliance with pH range	--	--	--	--	--	100%	--	--	--

**Table 59-D: Mass loads to the environment**

Parameter	EPN limit	Frequency	2023-24 result
Nitrogen (kg)	1708	Annual	718.3
Phosphorous (kg)	470	Annual	155.1
Method	Time weighted/Grab sample method		

**Table 59-E: Performance analysis (discharge to environment)**

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
Phosphorus	12/10/2023 2/11/2023	6/12/2023	The sodium aluminate dosing system has a history of failures due its poor condition and design limitations.
		12-month 90 <sup>th</sup> percentile and 50 <sup>th</sup> percentile limit exceeded	
Ammonia	30/01/2024 6/02/2024	23/05/2024 20/06/2024	An ongoing asset improvement project has caused intermittent disruptions to process resulting in reduced BNR efficacy.
		12-month 90 <sup>th</sup> percentile and 50 <sup>th</sup> percentile limit exceeded	
Nitrogen	30/01/2024 6/02/2024	23/05/2024 20/06/2024	
		12-month 90 <sup>th</sup> percentile and 50 <sup>th</sup> percentile limit exceeded	Project completed and commissioned. No further interruptions to BNR efficacy.
BOD	30/01/2024	An ongoing project has caused intermittent disruptions to process resulting in reduced BNR efficacy.	

No other parameters had exceedances in the reporting period.

## 59.5 Reuse annual reporting

No Recycled Water Scheme associated with this STP.

## 59.6 Ambient monitoring program

**Table 59-F: Program details**

<b>Program</b>	Sisters Beach STP AMP
<b>Status</b>	An Ambient Monitoring Report (AMR) was submitted to the EPA during the reporting period for monitoring undertaken during the 2022–23 period.
<b>Update</b>	The AMR included the outcomes of hydrodynamic investigations, plume dilution studies, an outfall condition assessment, and ambient water quality and biological monitoring investigations.
<b>Comments</b>	<p>A summary of the outcomes of the ambient monitoring investigations within the Bass Strait receiving environment is provided below:</p> <ul style="list-style-type: none"> <li>• Effluent discharges from the Sisters Beach STP outfall had minimal impact on field-measured parameters (temperature, salinity, pH, dissolved oxygen and turbidity).</li> <li>• Concentrations of nutrients (including ammonia, nitrate and phosphorus) were generally low in the immediate vicinity of the STP outfall and Chlorophyll (a measure of algal concentration) at the outfall site was consistent with ambient reference sites.</li> <li>• <i>E. coli</i> concentrations in the receiving environment around the Sisters Beach STP outfall did not exceed the EPA low risk guideline value (GV) for current or potential recreational use.</li> <li>• Enterococci concentrations in the receiving environment did not exceed the recreational GVs for secondary contact and only exceeded the recommended GV for primary contact on three out of eight sampling occasions.</li> <li>• No exceedances of the EPA low risk guideline values were observed for either <i>E. coli</i> or enterococci at the Sisters Beach STP outfall or beach monitoring sites.</li> <li>• Overall, the Sisters Beach STP effluent discharge poses a low recreational risk at the outfall and receiving environment.</li> <li>• Chlorinated disinfection byproducts (DBPs) at the Sisters Beach STP outfall and 15 m east and west of the outfall were not detected on all sampling occasions and consequently pose a low risk to the receiving environment.</li> <li>• Effluent discharges had minimal effect on metal contaminants in the ambient environment. Mercury concentrations were slightly elevated at the STP outfall site and some ambient sites but did not correlate with effluent concentrations. Aluminium concentrations were elevated in the water near the outfall on multiple occasions which could be causing an impact on the marine receiving environment.</li> <li>• Overall metal contamination from the STP effluent discharge is considered low risk to the Sisters Beach STP Bass Strait receiving environment.</li> <li>• The benthic habitat in the vicinity of the Sisters Beach STP outfall consists of fine rippled sand and sparse eelgrass (<i>Zostera tasmanica</i>). The outfall pipeline is heavily colonised by a variety of macroalgae, sponge and ascidians but is in good condition. Infauna assemblages were dominated by detritivores (Urohaustoriidae and Corophiidae), cumaceans (Gynodiastylidae) and ghost shrimp (Callianassidae) with little evidence of an impact from the effluent discharge.</li> </ul> <p>In summary, the Sisters Beach STP effluent discharges have a very low impact on water quality, the marine ecosystem and Protected Environmental Values in the receiving environment surrounding the STP outfall.</p>

## 59.7 Groundwater monitoring

No groundwater monitoring program associated with the STP.

### 59.8 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 87 out of 108 in priority.

### 59.9 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.

There are no sludge/biosolids dewatering facilities at this site, with sludge transferred via liquid sludge transport to the Wynyard STP for additional treatment. Sludge volume produced for this site is captured as part of the production from the Wynyard STP. The total liquid sludge transfer volume for the reporting period was 966kL.

No stockpiling occurs at this site.

### 59.10 Non-compliance with other permit requirements

**Table 59-G: EPN non-compliances**

EPN condition	Description of non-conformance	Future actions to be taken
40 Effluent quality limits for discharge to water	Discharge compliance with permit limits	See section 59.4 Discharge compliance with permit limits and Performance Analysis

### 59.11 Complaints and incident reporting

**Table 59-H: Complaints reporting**

Date	Category	Details	Mitigation actions
25/08/2023	Odour	Sewer odour reported to be coming from network or STP.	TasWater investigated and cleaned affected filters. Complainant advised this rectified the elevated odour.

**Table 59-I: Incident reporting**

Date	Category	Details	Mitigation actions
25/08/2023	Mechanical	There was a water leak in the UV unit resulting in an electrical malfunction.	UV banks were isolated ready for repair. Hypochlorite dosing disinfection process remained operational in the interim. EPA and EHO notified.

## 59.12 Any other relevant information

**Table 59–J Projects or significant operational events that occurred in FY23–24.**

Project or significant operational event	Progress
Sisters Beach PDG project	Completed the design, supply and install of an alum dosing system with the appropriate storage facilities. Completed the design, supply and install of a hypochlorite dosing system with the appropriate storage facilities. Replaced the sand filters, valving and actuators for maintenance purposes. Conducted maintenance to the sludge tank and decant basin floor.

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

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