

33 Macquarie Point STP

33.1 Activity and report details

Activity name	Macquarie Point STP		
Activity address	Macquarie Point, Hobart		
Permit number	Licence to Operate – 3514	Date of issue	14/12/1988
EPN	8880/1	Date of issue	20/11/2013
	8539/1		05/03/2013
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	18000 kL/day		
Key Influent Source	Residential/Industrial/Tankered 5 x Category 3 Customers, 2 x Category 4 Customers		
Contact person	Kate Westgate		
Report author	George Fitzgibbon		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2023		

Figure 33-1: Macquarie Point Sewage Treatment Plant



33.2 Monitoring and compliance summary

33.2.1 Flow data

Table 33-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	Derwent River	No reuse scheme
Coordinates	E 527701 N 5252668	E 527848 N 5252730	NA
Method of Measurement	Level sensor	Level sensor	NA
Date of last Calibration/Validation (if applicable).	29/03/2023	29/03/2023	NA

Table 33-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 94029	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	10,843	25.4	336.13	--
August 2022	12,602	67.0	390.66	--
September 2022	11,925	59.0	357.75	--
October 2022	13,567	90.2	420.57	--
November 2022	13,410	78.6	402.31	--
December 2022	13,918	75.6	431.46	--
January 2023	11,191	11.0	346.92	--
February 2023	11,484	48.6	321.55	--
March 2023	11,379	34.6	352.75	--
April 2023	10,742	24.8	322.26	--
May 2023	10,537	22.2	326.65	--
June 2023	11,184	62.8	335.51	--
Annual 2022-23	11,903	599.8	4,344.51	0.00
% of Total Discharge	--	--	100.0%	0.0%

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

33.2.2 Bypass events

Table 33-C: Bypass events summary for MAQST01-OP

Bypass ID:	MAQST01-OPD				
Bypass description:	Secondary Pump Station Overflow to Chlorine Contact Tank				
Treatment bypassed:	Secondary Treatment				
Treatment level of impacted effluent:	Secondary Pump Station Overflow to Chlorine Contact Tank				
Flows exceeding:	~580L/s				
Discharge location:	River Derwent: 527869E, 5252709N (GDA94)				
Start date / time	End date / time	Duration	Volume estimate	Cause	Response actions
27/10/22 11:00	27/10/22 11:41	0.7h	347kL	Rainfall Event	No specific actions undertaken
05/12/22 09:35	05/12/22 09:42	0.1h	0.1kL	Rainfall Event	No specific actions undertaken

33.3 Discharge compliance with permit limits

Table 33-D: 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	23	59	1.0	38	10	8.5	8	1000	56
90th percentile	--	--	--	--	--	--	--	--	--
50th Percentile	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	52	52	52	52	52	52	52	52	52
Number analysed	52	52	52	52	52	52	52	52	52
Statistical summary									
Max	29.8	97	1.26	44.8	14.0	7.5	8.2	5012	64.0
90th percentile	23.1	54	1.14	42.8	8.2	7.4	7.0	188	31.0
50th percentile	18.5	42	0.78	39.0	5.7	7.1	6.3	20	23.2
Min	10.0	23	0.35	26.0	3.5	6.0	3.5	10	10.2
EPN Limit Compliance									
% compliance with Maximum	88%	92%	79%	38%	96%	--	98%	96%	98%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	98%	--	--	--

Table 33-E: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	--	Annual	166998.6
Phosphorous (kg)	--	Annual	26441.3
Method	Flow weighted/Composite method		

Table 33-F: Performance Analysis (Discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
E. coli	9/08/2022 15/11/2022	The system was originally designed to dose a set dose concentration of chlorine, without being adjusted based on the effluent total residual chlorine concentration.	Disinfection control improvements have been implemented to automatically adjust the chlorine dose, thereby maximising disinfection performance throughout the entire day and reducing the likelihood of exceeding the maximum total chlorine limit.
Chlorine	16/08/2022 23/08/2022 21/03/2023 28/03/2023	4/04/2023 12/04/2023 18/04/2023 2/05/2023	
		9/05/2023 23/05/2023 30/05/2023	
		High chlorine would typically be recorded during the morning peak flows, when chlorine dose is higher, and the contact time is shorter. Increases in the chlorine dose made to achieve improved <i>E. coli</i> removal during high loading events contributed to chlorine non-compliances. Tankered waste is also believed to contribute to variability in the effluent chlorine demand. This impacts the amount of chlorine required to achieve disinfection and requires frequent chlorine dose concentration adjustment.	
BOD	12/07/2022 16/08/2022 6/12/2022	High volumes of tankered waste are believed to contribute non-compliant BOD, ammonia, nitrogen and oil and grease concentrations. Higher effluent TSS	No specific actions undertaken in reporting period.

Effluent compliance parameter	Date(s) of non-compliance			Reasons for non-compliance	Actions to improve performance
Ammonia	5/07/2022 8/11/2022 22/11/2022	29/11/2022 20/12/2022	31/01/2023 23/05/2023	<p>results have also been recorded, as well as increased effluent turbidity.</p> <p>The process is not capable of nutrient removal. Nitrification is affected by cooler temperatures, high organic loading rates and mechanical issues trickling filter 2 and 3.</p> <p>Low pH on the 17/1/2023 is attributed to field sampling error as both online analysers (inlet and effluent) showed no abnormal variation.</p>	
Nitrogen	5/07/2022 19/07/2022 26/07/2022 6/09/2022 13/09/2022 18/10/2022 25/10/2022 8/11/2022 22/11/2022 29/11/2022 6/12/2022	13/12/2022 20/12/2022 28/12/2022 17/01/2023 24/01/2023 31/01/2023 7/02/2023 21/02/2023 21/03/2023 28/03/2023	12/04/2023 18/04/2023 2/05/2023 9/05/2023 16/05/2023 23/05/2023 30/05/2023 6/06/2023 13/06/2023 20/06/2023	<p>results have also been recorded, as well as increased effluent turbidity.</p> <p>The process is not capable of nutrient removal. Nitrification is affected by cooler temperatures, high organic loading rates and mechanical issues trickling filter 2 and 3.</p> <p>Low pH on the 17/1/2023 is attributed to field sampling error as both online analysers (inlet and effluent) showed no abnormal variation.</p>	
Oil and Grease	6/12/2022 31/01/2023				
TSS	6/12/2022				
Phosphorus	28/03/2023				
pH	17/01/2023				

No other parameters had exceedances in the reporting period.

33.4 Reuse Annual Reporting

No Recycled Water Scheme associated with this STP.

33.5 Ambient monitoring program

Table 33-G: Program details

Program	NA – No requirement for ambient monitoring in the reporting period
Status	NA
Update	NA
Comments	NA

33.6 Groundwater monitoring

No groundwater monitoring for this STP.

33.7 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 19 out of 79 in priority.

33.8 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.

The STP sludge stabilisation report was not completed during FY 2022-23. This will be completed during FY2024. This STP all other requirements were compliant with the 2022-23 SSMP.

Biosolids are removed regularly from site, no stockpiling occurs.

Table 33-H: Biosolids sludge classification

Month	Number of Samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant Classification
Arsenic	12	3.7	2.6	1	4.1	A
Cadmium	12	2.0	1.4	0.4	2.4	B
Chromium	12	57.6	37.0	16.9	56.4	B
Copper	12	1230.0	884.7	310	1369.3	B
Lead	12	58.1	41.4	13.1	65.4	A
Mercury	12	5.3	1.7	0.64	4.2	B
Nickel	12	24.2	17.5	6.6	26.0	A
Zinc	12	1670.0	1211.5	347	1964.0	B

Table 33-I: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation Grade	Contamination Grade	Biosolids Classification	End use destination
326.40	23.1	Anaerobic digestion	B	B	2	Richmond Farm. Coronation Hotel-Runnymede. Delmore Farm. Flexmore Park Farm. Whitemarsh Farm-Runnymede.

Notes: DST = Dry solid tonne.

33.9 Non-compliance with other permit requirements

Table 33-J: EPN Non-compliances

EPN Condition	Description of non-conformance	Current and Future Actions to prevent Non-Compliance
EPN 8880/1		
EF3 Effluent quality limits for discharge to River Derwent	Discharge compliance with permit limits	See section 33.3 Discharge compliance with permit limits and Performance Analysis
OP1 Operational Procedures Manual	No contemporary Operational Procedures Manual	New SharePoint based solution for OPMMs currently being developed. First version to be implemented in FY2024.
EPN 8539/1		
EM3 Discharge Management Plan	Discharge Management Plan overdue	The long-term plan for this site is rationalisation to Selfs Point STP which will remove the continuous discharge to the river Derwent at this location. TasWater will work with EPA to resolve this non-compliance during FY2024.

33.10 Complaints and Incident Reporting

No complaints or incidents reported during 2022-23 reporting period.

33.11 Any other relevant information

Table 33-K: Projects or significant operational events that occurred in FY 2022-23:

Project or significant operational event	Progress
Macquarie Point STP Relocation	Draft Detailed Business Case finalised. SPS development referred to the EPA Board for Assessment. Final EIS expected to be submitted to EPA during FY2024.
Trickling Filter No.2 centre bearing replacement	Completed

For further information on Macquarie Point STP please contact TasWater on 13 6992.

www.taswater.com.au