

40 Penna STP

40.1 Activity and report details

Activity name	Penna STP		
Activity address	Shark Point Road, Penna		
Permit number	Permit Conditions Environmental - 6093	Date of issue	19/08/1998
	EPN	8544/1	Date of issue 3/10/2017
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	1400 kL/day		
Key Influent Source	Treated effluent from Sorell, Midway Point and Kirabati (Barwicks Lagoon) STPs		
Contact person	Kate Westgate		
Report author	George Fitzgibbon		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2023		

Figure 40-1: Penna Sewage Treatment Plant



40.2 Monitoring and compliance summary

40.2.1 Flow data

Table 40-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	NA	Penna Reuse Scheme
Coordinates	E542728 N5263168	NA	E542473 N5263418
Method of Measurement	Estimation from Sorell and Midway Point discharge to reuse	NA	Level Sensor
Date of last Calibration/Validation (if applicable).	NA	NA	30/06/2023

Table 40-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 94248	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	-	22.6	0.00	0.00
August 2022	-	76.6	0.00	0.00
September 2022	-	56.4	0.00	0.00
October 2022	-	84.9	0.00	0.00
November 2022	-	83.1	0.00	0.00
December 2022	1,361	68.0	0.00	42.20
January 2023	1,132	4.6	0.00	35.08
February 2023	1,139	36.0	0.00	31.90
March 2023	1,121	24.2	0.00	34.75
April 2023	1,178	40.7	0.00	35.33
May 2023	635	20.5	0.00	19.70
June 2023	499	36.0	0.00	14.97
Annual 2022-23	586	553.6	0.00	213.94
% of Total Discharge	--	--	0.0%	100.0%

Note: Penna STP does not have an outfall to a waterway, this is a full reuse site.

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

40.2.2 Bypass events

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

40.3 Discharge compliance with permit limits

This STP does not discharge to the environment.

40.4 Reuse Annual Reporting

The Sorell, Midway Point STPs and Barwicks Lagoons (Level 1) supply recycled water for irrigation purposes to the Penna Recycled Water Scheme. Currently five properties are supplied recycled water. TasWater began reviewing the Penna Recycled Water Management Plan, which is due for submission in 2023.

Table 40-C: Reuse Compliance Summary

Parameter	BOD5	pH	E coli
Permit/EPN limit	mg/L	Units	MPN/100ml
Maximum	50	9.0	10000
90th percentile	--	--	--
50th Percentile	--	--	1000
Minimum	--	5.5	--
Samples analysed			
Number required	12	12	12
Number analysed	12	12	12
Statistical summary			
Max	26	11.5	331
90th percentile	13	10.0	213
50th percentile	5	7.8	92
Min	5	7.3	10
Summary of results			
% compliance with Maximum	100%	--	100%
% compliance with 90th percentile	--	--	--
% compliance with 50th percentile	--	--	100%
% compliance with pH range	--	83%	--

Table 40-D: Performance analysis (Discharge to reuse)

Reuse Compliance Parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
pH	8/02/2023 2/03/2023	Algae is believed to be the primary reason for elevated pH. Algae is a source of oxygen and is fundamental to lagoon treatment. The high pH results correlated with an algae bloom in the lagoon.	No specific actions.

No other parameters have had exceedances in the FY period.

Annual soil sampling was completed at nine sites on five properties across the Penna RWS late June 2022. The distribution of the sampling sites was based on the established sampling program and consideration of the irrigation application rates for the past irrigation and proposed coming irrigation season. No changes were made in the 2022 program. Annual compliance audits were completed at the five properties in June and August 2022, mostly completed by phone and field observations in conjunction with the soil sampling. A summary of the findings is provided in the below table.

Table 40-E: Annual recycled water scheme compliance audit and soil monitoring report summary

Program	Compliance audit	Soil monitoring
Summary	<p>One property fully compliant.</p> <p>Two properties inadequate signage.</p> <p>One property inadequate signage and inadequate fencing of recycled water storage during transfer of stock between paddocks. Landowner has been advised of requirements and risks.</p> <p>One property (ongoing) - withholding period for public access areas not always applied. In addition to scheduling changes, recent upgrades to pumping infrastructure has reduced time needed to irrigate (thus increase withholding times) to attempt to address issue.</p>	<p>Average EC_{se} and Cl levels are similar to the previous year. Average fluctuates between years, ranging from non-saline to slightly saline. There is no long-term trend.</p> <p>Average ESP in 2022 is slightly lower than the previous year and at the lower end of the historical range. Average ESP fluctuates between years and is consistently elevated. ESP is classified as sodic in all years of testing (2010 – 2022).</p> <p>Average P and K levels are moderate to high (two sites excessive), with average S level low to moderate.</p> <p>There is a very gradual increasing trend in average K.</p>

EC_{se} = Electrical Conductivity at saturation extent, Cl = Chloride, ESP = Exchangeable sodium percentage, P = Phosphorous, K = Potassium, S = Sulphur

RWS groundwater site status: Green - Minor issue identified at one property.

The Penna RWS groundwater monitoring network consists of two monitoring bores (ID's PE-PWGW1 and PE-EFGW2) located across two properties. Monitoring bore ID PE-EFGW2 is associated with a recycled water storage dam. Annual sampling was completed at both bores in April 2023. Biannual sampling was unable to be completed due to timing and safety concerns in wet weather conditions.

Bore ID # PE-PWGW1 total P concentrations decreased considerable but remain slightly above the adopted protected environmental value guideline. Elevated levels may be due to historical fertiliser application. All other analytes are below guideline criterion. At a scheme level, recommendation of installing three additional monitoring bores as per the 2018 review remains.

Biannual sampling at the standard analytical suite is planned to continue at both bores during the 2023-24 groundwater monitoring program.

40.5 Ambient monitoring program

This site does not discharge to a waterway, therefore ambient monitoring is not required.

40.6 Groundwater monitoring

Site status: Green – Limited sign of STP impact.

Penna Lagoons groundwater monitoring network consists of four groundwater bores. ID numbers PENGW3 and 4 are located south-west of STP Lagoon 1 and 2, PENGW5 and 6 located north of

Lagoons 1 and 2. Biannual sampling was completed in September 2022 and annual sampling completed in March 2023.

Groundwater monitoring bore ID PENGW5 continued to record elevated concentrations of nitrate and total nitrogen with analytes above adopted protected environmental value guidelines. Biological indicators were reported at or below laboratory limit of reporting at all bores.

Biannual sampling at the standard analytical suite is planned to continue at all four groundwater monitoring bores during the 2023-24 monitoring program.

40.7 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 27 out of 79 in priority.

40.8 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 40-F: Desludging status and comments

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

40.9 Non-compliance with other permit requirements

Table 40-G: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
OP1 Operational Procedures and Maintenance Manual	No contemporary Operational Procedures Manual	New SharePoint based solution for OPMMs currently being developed. First version to be implemented in FY24.

40.10 Complaints and incident reporting

No complaints or incidents reported during the FY2022-23 reporting period.

40.11 Any other relevant information

For further information on the Penna STP please contact TasWater on 13 6992.

www.taswater.com.au