

## 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 STPs		
Contact person	Kate Westgate		
Report author	George Fitzgibbon		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2024		

**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 – to be installed	NA	30/04/2024

**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 2023	23	3.8	--	0.00
August 2023	1,131	11.7	--	14.20
September 2023	–*	21.0	--	22.00
October 2023	1,201	50.7	--	37.22
November 2023	1,180	39.3	--	35.39
December 2023	1,180	52.6	--	39.56
January 2024	1,196	25.6	--	42.05
February 2024	1,121	2.6	--	46.23
March 2024	1,234	10.6	--	36.04
April 2024	1,214	56.3	--	27.47
May 2024	1,392	32.3	--	18.62
June 2024	1,191	47.1	--	13.32
Annual 2023-24	1,009	353.6	--	332.09
% of Total Discharge	--	--	--	100.0%

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

\*New reuse pump station commissioned in the month of September; lagoons bypassed.

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

## 40.3 Bypass events

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

#### 40.4 Discharge compliance with permit limits

This STP does not discharge to the environment.

#### 40.5 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 (RWS). During the 2023–24 reporting period major expansion activities was completed on the Penna RWS with an additional customer connected to the RWS in June 2024. Six properties are supplied recycled water. The Penna Recycled Water Management Plan was reviewed during the reporting period and covers the period between 2022–2027.

**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	25	10.0	776
90th percentile	18	9.2	555
50th percentile	5	8.0	143
Min	5	7.4	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	26/02/2024 11/04/2024	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 2023. 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. Site PEN PRE 5 was added to the program, and site PEN PRE 4 removed for the 2023-24 program. The field component of the annual compliance audits was completed at the five properties with follow up phone audits in August 2023. A summary of the findings of the programs 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	Compliant: 40% Two properties recorded full compliance. Minor non-compliance: 20% One property recorded inadequate signage Non-compliant: 40% Two properties recorded recycled water irrigation outside IEMP requirements (withholding times and/or buffer zones)	Average ECse levels was slightly higher in 2023 than 2022 and average Cl levels increased. No long trend has been identified and sites range from non-saline to slightly saline. Average ESP in 2023 was slightly higher than 2022 but remains near lower end of historical range. Soils remain classified as sodic. A gradual increasing trend in average K continues to be identified. Three sites each exceeded one of the recommended nutrient levels of P, K or S.
Comment	Through the Penna RWS Expansion Project all customers received updated RWS connections and meters It is noted that a number of the customers site management plans are outdated. New Penna RWS customer came online post annual compliance audit and will be included in 2024-25 reporting period.	A review of the recycled water quality indicates only a slight risk of soil permeability loss resulting from the application of recycled water. Elevated nutrients levels correlate with the application of other nutrient sources and have been assessed as not directly attributed to recycled water irrigation.

ECse = Electrical Conductivity at saturation extent, Cl = Chloride, ESP = Exchangeable sodium percentage, P = Phosphorous, K = Potassium, S = Sulphur

RWS groundwater site status: Green

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. One round of sampling (6-monthly) was completed at both bores in February 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 continued to report a decrease in total phosphorous concentrations at one property with levels remain above the adopted guideline criterion. Phosphorous concentrations increased at the second property with levels now above the adopted criterion. The irrigation rate is low at the second property and downstream of a recycled water storage. At a scheme level, there are gaps in the monitoring network and the recommendation of installing 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 2024–25 groundwater monitoring program.

#### **40.6 Ambient monitoring program**

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

#### **40.7 Groundwater monitoring**

Site status: Green – (2022–23 report)

Penna Lagoons groundwater monitoring network consists of four groundwater bore, 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. One round of sampling (6–monthly) was completed in February 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.

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. Previous groundwater monitoring reported elevated concentrations of nitrate and nitrogen at one bore (ID PENGW5) above an adopted guideline criterion which requires additional investigation.

Biannual sampling at the standard analytical suite is planned to continue at all four groundwater monitoring bores during the 2024–25 monitoring program.

#### **40.8 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.

#### 40.9 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 40-F: Desludging status and comments**

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

#### 40.10 Non-compliance with other permit requirements

**Table 40-G: EPN non-compliances**

EPN condition	Description of non-conformance	Future actions to be taken
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#### 40.11 Complaints and incident reporting

No complaints or incidents reported during the FY2023–24 reporting period.

#### 40.12 Any other relevant information

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

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