

## 68 Swansea STP

### 68.1 Activity and report details

|                              |                             |               |            |
|------------------------------|-----------------------------|---------------|------------|
| Activity name                | Swansea STP                 |               |            |
| Activity address             | Maria St, Swansea           |               |            |
| Permit number                | 6234                        | Date of issue | 04/09/2002 |
| EPN                          | 8552/1                      | Date of issue | 29/05/2019 |
| Treatment level              | Secondary Treatment         |               |            |
| Authorised Dry Weather Flows | 430 kL/day                  |               |            |
| Key Influent Source          | Residential                 |               |            |
| Contact person               | Kate Westgate               |               |            |
| Report author                | George Fitzgibbon           |               |            |
| Contact details              | Environment@taswater.com.au |               |            |
| Date of submission           | 30 September 2023           |               |            |

Figure 68-1: Swansea Sewage Treatment Plant



## 68.2 Monitoring and compliance summary

### 68.2.1 Flow data

Table 68-A: Flow monitoring summary

|                                                      | Influent              | Effluent              | Reuse                                 |
|------------------------------------------------------|-----------------------|-----------------------|---------------------------------------|
| Location Name                                        | Sewer Inlet           | Saltwater Creek       | Effluent Reuse Scheme - Ag Irrigation |
| Coordinates                                          | E 586935<br>N 5335446 | E 587392<br>N 5335439 | E 586857<br>N 5335787                 |
| Method of Measurement                                | In line meter         | Influent less Reuse   | In line meter (on Customer)           |
| Date of last Calibration/Validation (if applicable). | 27/02/2023            | NA                    | 27/02/2023                            |

Table 68-B: Annual flow and rainfall data

| Month                | Average Daily Influent Volume (kL/day) | Rainfall (mm/month)<br>BOM Station ID 92148 | Discharge to Waters<br>Total Effluent Volume* (ML) | Discharge to Reuse<br>Total Effluent Volume (ML) |
|----------------------|----------------------------------------|---------------------------------------------|----------------------------------------------------|--------------------------------------------------|
| July 2022            | 363                                    | 63.4                                        | 11.26                                              | 0.00                                             |
| August 2022          | 465                                    | 86.8                                        | 14.42                                              | 0.00                                             |
| September 2022       | 680                                    | 138.4                                       | 20.41                                              | 0.00                                             |
| October 2022         | 643                                    | 123.2                                       | 19.94                                              | 0.00                                             |
| November 2022        | 608                                    | 115.2                                       | 18.23                                              | 0.00                                             |
| December 2022        | 501                                    | 111.4                                       | 15.53                                              | 0.00                                             |
| January 2023         | 413                                    | 35.0                                        | 12.81                                              | 0.00                                             |
| February 2023        | 347                                    | 43.6                                        | 9.71                                               | 0.00                                             |
| March 2023           | 323                                    | 50.4                                        | 10.00                                              | 0.00                                             |
| April 2023           | 384                                    | 57.4                                        | 11.53                                              | 0.00                                             |
| May 2023             | 280                                    | 13.0                                        | 8.67                                               | 0.00                                             |
| June 2023            | 386                                    | 103.8                                       | 11.57                                              | 0.00                                             |
| Annual 2022-23       | 450                                    | 941.6                                       | 164.08                                             | 0.00                                             |
| % of Total Discharge | --                                     | --                                          | 100.0%                                             | 0.0%                                             |

\* Discharge to water volumes are estimated based on the influent flow volume, noting evaporation from the lagoon system is not accounted for.

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

### 68.2.2 Bypass events

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

### 68.3 Discharge compliance with permit limits

Table 68-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                           | 16      | 50   | --       | 33       | 3              | 8.5   | 8           | 2000      | 50                     |
| 90th percentile                   | --      | --   | --       | --       | --             | --    | --          | --        | --                     |
| 50th Percentile                   | --      | --   | --       | --       | --             | --    | --          | --        | --                     |
| 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               |         |      |          |          |                |       |             |           |                        |
| Max                               | 13.5    | 23   | --       | 23.6     | 2.2            | 11.0  | 4.2         | 288       | 87.0                   |
| 90th percentile                   | 12.7    | 22   | --       | 21.3     | 1.2            | 10.2  | 4.2         | 257       | 35.8                   |
| 50th percentile                   | 5.4     | 8    | --       | 11.5     | 1.0            | 8.5   | 3.3         | 86        | 4.4                    |
| Min                               | 0.4     | 5    | --       | 5.1      | 1.0            | 7.6   | 2.5         | 10        | 4.0                    |
| EPN Limit Compliance              |         |      |          |          |                |       |             |           |                        |
| % compliance with Maximum         | 100%    | 100% | --       | 100%     | 100%           | --    | 100%        | 100%      | 92%                    |
| % compliance with 90th percentile | --      | --   | --       | --       | --             | --    | --          | --        | --                     |
| % compliance with 50th percentile | --      | --   | --       | --       | --             | --    | --          | --        | --                     |
| % compliance with pH range        | --      | --   | --       | --       | --             | 42%   | --          | --        | --                     |

Table 68-D: Mass loads to the environment

| Parameter        | EPN Limit                        | Frequency | 2022-23 result |
|------------------|----------------------------------|-----------|----------------|
| Nitrogen (kg)    | --                               | Annual    | 2395.1         |
| Phosphorous (kg) | --                               | Annual    | 549.5          |
| Method           | Time weighted/Grab sample method |           |                |

Table 68-E: Performance Analysis (Discharge to environment)

| Effluent compliance parameter | Date(s) of non-compliance | Reasons for non-compliance                                                                                                                                                                                               | Actions to improve performance |
|-------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| pH                            | 23/08/2022                | Algae is believed to be the primary reason for elevated pH and TSS. Algae is a source of oxygen and is fundamental to lagoon treatment. Most of the non-compliant results were in warmer months when algal blooms occur. | No specific actions            |
|                               | 25/10/2022                |                                                                                                                                                                                                                          |                                |
| TSS                           | 8/11/2022                 |                                                                                                                                                                                                                          |                                |
|                               | 13/12/2022                |                                                                                                                                                                                                                          |                                |
|                               | 15/03/2023                |                                                                                                                                                                                                                          |                                |

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

No other parameters had exceedances in the reporting period.

#### 68.4 Reuse Annual Reporting

The Swansea STP supplies treated effluent for irrigation purposes to the Swansea recycled water scheme located at Redbanks property. The scheme operates in accordance with design.

No parameters have had exceedances in the FY period as there was no reuse during the period. TasWater is working with the customer to increase irrigation for next FY.

Annual soil sampling was completed at two sites (ID's Site 1 and Site2) at the RWS in November 2022. The field component of the annual compliance audit was completed in conjunction with the soil sampling with a follow up phone audit in December 2022. A summary of the findings of the programs is provided in the below table.

Table 68-F: Annual recycled water scheme compliance audit and soil monitoring summary

| Program           | Compliance audit                                                                                                                                                                                  | Soil monitoring                                                                                                                                                                                                                                                                                                                   |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Compliance status | Compliant                                                                                                                                                                                         | Soil salinity decreased at both sites and remain non-saline, whilst soil sodicity increased but remains within the historical range. Site 1 is classed as non-sodic and site 2 sodic.<br>Site 2 potassium level remains above recommended range and a high risk to livestock (grass tetany risk) but lower than historical highs. |
| Comments          | Livestock able to access treated effluent in overflow drain* from STP.<br>Auditor noted additional queries regarding additional irrigation infrastructure and drainage channel concerning the STP | Median salinity and SAR levels of the recycled water supplied by the scheme suggest a slight to moderate risk of soil permeability loss from recycled water irrigation.<br>Elevated nutrient levels are attributed to historic fertiliser application and not recycled water irrigation.                                          |

\*designated discharge location. TasWater are actively engaging with customer to address this.

Reuse groundwater status: Amber – Minor issue identified

Annual sampling was completed at the two RWS monitoring bores (ID's SWGW2 and SWGW3) in April 2023.

Elevated total Nitrogen and nitrate concentrations above the adopted guideline criteria identified at bore ID SWGW2. Additional monitoring bore required at the site. Elevated total Nitrogen concentrations identified at bore ID SWGW3 but trend generally decreasing.

Annual sampling at the standard analytical suite will continue at all bores during the 2023-24 groundwater monitoring program.

#### 68.5 Ambient monitoring program

Table 68-G: Program details

|         |                                                                                   |
|---------|-----------------------------------------------------------------------------------|
| Program | Seasonal Discharge Program - Routine monitoring during discharge to water.        |
| Status  | Ambient monitoring completed during discharge events within the reporting period. |
| Update  | Ongoing ambient water quality monitoring during seasonal discharge events.        |

#### Comments

Ambient monitoring was undertaken downstream in Duck Park (no suitable upstream monitoring location) in March, April, May and June 2023. It should be noted that the Duck Park sample point is a significant distance from the effluent discharge but has been selected as it is the closest location where public recreation can occur. The effluent discharges into Saltwater Creek and runs through private property receiving run-off before entering Duck Park so it is difficult to differentiate between effluent or other impacts.

Enterococci levels at the downstream monitoring location exceeded the recreational guideline values on all sampling occasions (1106, 556, 331 and 52 MPN/100ml). The high pathogen results at Duck Park did not correspond with high pathogens in the effluent.

There was 100% discharge to the environment during the reporting period. During March 2023 the treated effluent and the creek were high in BGA (species of concern). Actions to encourage the algal bloom to die off included pumping out algal scum and clearing vegetation in the discharge channel to allow effluent to flowthrough. No BGA (species of concern) have been recorded in the effluent since May 2023.

### 68.6 Groundwater monitoring

Site status: Green – Limited sign of STP impact

Swansea STP groundwater monitoring network consists of one monitoring bore, ID number SWGW1. Annual sampling was completed in April 2023.

Total phosphorous concentrations increasing but below guideline values. Overall, the risk to groundwater uses and the receiving environment are considered low based on the results of bore SWGW1.

Annual sampling at the standard analytical suite will continue during the 2023-24 groundwater monitoring program.

### 68.7 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 34 out of 79 in priority (high).

Works this FY:

- Virtual flow monitoring have identified significant stormwater inflows at Bluff Circle which are likely contributing to the Maria Street spills.
- Source detection inspections are being planned for the 17 connections feeding the Bluff Circle SPS.

### 68.8 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 68-H: Desludging status and comments

| Desludging Status | Commentary                                                                                  |
|-------------------|---------------------------------------------------------------------------------------------|
| Medium Priority   | Desludging scheduled to occur in 2025, as per the current prioritisation planning schedule. |

## 68.9 Non-compliance with other permit requirements

Table 68-J: EPN non-compliances

| EPN Condition                                                | Description of non-conformance                | Future Actions to be taken                                                                                 |
|--------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------|
| EF2 Effluent quality limits for discharge to Saltwater Creek | Discharge compliance with permit limits       | See section 68.3 Discharge compliance with permit limits and Performance Analysis                          |
| OP2 Operational Procedures and Maintenance Manual            | No contemporary Operational Procedures Manual | New SharePoint based solution for OPMs currently being developed. First version to be implemented in FY24. |

## 68.10 Complaints and incident reporting

Table 68-K: Complaints

| Date       | Category | Details                                                                                                                                                                                                                                                                                                                                                                    | Mitigation Actions                                                                                                                                                                                                                               |
|------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10/03/2023 | Effluent | Nearby landholder complained of Blue Green Algae (BGA) impacts from effluent discharge. During March 2023 a BGA bloom occurred impacting effluent discharge quality. BGA detected in Saltwater Creek which was accessible to livestock. EPA and impacted property owners were notified with assistance from the Chief Veterinary Officer to provide advice to landholders. | Actions to encourage the algal bloom to die off included pumping out algal scum and clearing vegetation in the discharge channel to allow effluent to flowthrough. No BGA (species of concern) has been recorded in the effluent since May 2023. |

## 68.11 Any other relevant information

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

[www.taswater.com.au](http://www.taswater.com.au)