

## 48. Richmond STP

### 48.1 Activity and report details

|                              |                             |               |           |
|------------------------------|-----------------------------|---------------|-----------|
| Activity name                | Richmond STP                |               |           |
| Activity address             | Commercial Road, Richmond   |               |           |
| Permit number                | 9698                        | Date of issue | --        |
| EPN                          | 7371/1                      | Date of issue | 7/09/2017 |
| Treatment level              | Secondary Treatment         |               |           |
| Authorised dry weather flows | 236 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 2024           |               |           |

**Figure 48-1: Richmond Sewage Treatment Plant**



## 48.2 Monitoring and compliance summary

### 48.2.1 Flow data

**Table 48-A: Flow monitoring summary**

|  | Influent              | Effluent | Reuse                                 |
|--|-----------------------|----------|---------------------------------------|
| Location name  | Inlet                 | N/A      | Effluent Reuse Scheme – Ag Irrigation |
| Coordinates  | E 535792<br>N 5267404 | N/A      | E 535987<br>N 5267403                 |
| Method of measurement                                | In line meter         | N/A      | In line meter                         |
| Date of last calibration/validation (if applicable). | 24/06/2024            | N/A      | 24/06/2024                            |

**Table 48-B: Annual flow and rainfall data**

| Month                | Average Daily Influent Volume (kL/day) | Rainfall (mm/month)<br>BOM Station ID 94212 | Discharge to Waters Total Effluent Volume (ML) | Discharge to Reuse Total Effluent Volume (ML) |
|----------------------|--|---|--|---|
| July 2023            | 170                                    | 8.2   | --   | 5.28  |
| August 2023          | 155                                    | 12.2  | --   | 4.81  |
| September 2023       | 147                                    | 37.4  | --   | 4.40  |
| October 2023         | 150                                    | 54.4  | --   | 4.64  |
| November 2023        | 137                                    | 42.6  | --   | 4.10  |
| December 2023        | 136                                    | 56.2  | --   | 4.20  |
| January 2024         | 125                                    | 49.0  | --   | 3.88  |
| February 2024        | 90                                     | 4.0   | --   | 2.60  |
| March 2024           | 136                                    | 12.4  | --   | 4.21  |
| April 2024           | 144                                    | 43.4  | --   | 4.32  |
| May 2024             | 185                                    | 28.8  | --   | 5.72  |
| June 2024            | 115                                    | 32.2  | --   | 3.44  |
| Annual 2023–24       | 141                                    | 380.8                                       | --   | 51.60   |
| % of Total Discharge | --                                     | --  | --   | 100.0%  |

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

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

## 48.3 Bypass events

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

#### 48.4 Discharge compliance with permit limits

There are no set limits for effluent discharge for this STP as there is no discharge to waterways. See reuse performance below.

#### 48.5 Reuse annual reporting

The Rokeby, Rosny, Cambridge and Richmond STP's supply recycled water for irrigation purposes to the Clarence recycled water scheme. Currently twenty-six properties in the Coal Valley and Seven Mile Beach area connected to the recycled water scheme. The scheme operates under the current 2019-2024 Environmental Management Plan.

**Table 48-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                               | 88   | 8.6   | 7270      |
| 90th percentile                   | 55   | 8.5   | 3312      |
| 50th percentile                   | 32   | 7.8   | 346       |
| Min                               | 7    | 6.8   | 10        |
| Summary of results                |      |       |           |
| % compliance with Maximum         | 67%  | --    | 100%      |
| % compliance with 90th percentile | --   | --    | --        |
| % compliance with 50th percentile | --   | --    | 58%       |
| % compliance with pH range        | --   | 100%  | --        |

**Table 48-D: Performance analysis (discharge to reuse)**

| Reuse compliance parameter | Date(s) of non-compliance              | Reasons for non-compliance  | Actions to improve performance |
|----------------------------|--|---|--------------------------------|
| BOD                        | 15/02/2024<br>11/04/2024<br>15/05/2024 | This BOD non-compliance coincides with high algae levels suggesting algae to be the root cause. | No specific actions undertaken |

No other parameters have had exceedances in reporting period.

Annual soil sampling was completed at thirty-six sites on twenty properties across the Clarence RWS in 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. One site (41 STR) was removed as no recycled water irrigation occurred for two consecutive years. Three Sites (58 EDD, 59 RGC and 60 STR) were added to the 2023-24 soil sampling program. Annual compliance audits were completed at twenty-three properties during the 2023-24 reporting period. The field component of the audits was completed in conjunction with the soil monitoring program and follow-up correspondence in September 2023. A summary of the findings of the programs is provided in the below table.

**Table 48-E: Annual recycled water scheme compliance audit and soil monitoring summary**

| Program                  | Compliance audit   | Soil monitoring   |
|--------------------------|--|---|
| <b>Compliance status</b> | Compliant: 30%<br>(Seven properties recorded full compliance with IEMP).<br>Minor Non-compliance: 49%<br>(Eleven properties recorded inadequate signage)<br>Non-compliant: 22%<br>Four properties recorded recycled water irrigation outside IEMP requirements (withholding times and/or buffer zones)<br>One property recorded inadequate fencing of nominated recycled water storage   | Average ECse and Cl levels increased in 2023-24 sampling and levels continue to fluctuate between years, ranging from non-saline to slightly saline and no long-term trend identified.<br>Average ESP level in 2023-24 increased from historical lows with average ESP levels continuing to show no-long term trend and range from non-sodic to low-level sodic.<br>11% sites considered saline, 19% sites considered slightly saline and 69% sites within recommended range. 28% sites considered sodic, 19% sites considered borderline sodic and 53% sites within recommended range.<br>Average P levels is classed as high, average K levels moderate and average S level is low-moderate across the scheme.<br>An increasing long-term trend in average P and K since 2014, with P increasing at a slower rate than K. |
| <b>Comments</b>          | Adequate signage remains the main non-compliance across the scheme.<br>Recycled water is not supplied to the inadequately fenced recycled water storage (direct take customer). If customer to reinstate supply to storage, storage would be required to meet TasWater's standards (e.g. fencing)<br>A number of TasWater owned recycled water meters are inoperable, faulty or leaking. TasWater are investigating options to replace these meters in the 2024-25 reporting year. | Overall, soil health and fertility do not appear to be adversely impacted through recycled water irrigation.<br>From a soil structure perspective, sodicity is the main soil concern, a review of recycled water quality (salinity and SAR) indicates a very slight risk of soil permeability loss resulting from the application of recycled water and highly unlikely future sodicity issues will develop due to recycled water application.<br>The elevated nutrient levels (average P and K) have been assessed as not directly attributed to the application of recycled water but correlate to other nutrient sources.  |

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

RWS groundwater site status: Amber

The Clarence RWS groundwater monitoring network currently consists of thirty-four monitoring bores across seventeen properties. Four bores (ID's CL-RRPGW9, CL-SHGW2, CL-TGCGW3 and CL-RHCGW4) are associated with recycled water storage dams. One round of sampling (6-monthly) was completed at thirty-three 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 report found groundwater chemistry appears to be generally consistent with previous years and analysis of data suggests that the irrigation of recycled water is having no definitive impact on groundwater quality. Eight properties recorded at least one monitoring bore which exceeded a guideline criterion although unlikely attributed to recycled water irrigation and/ or requires additional data for analysis. Eight properties recorded no evidence or limited evidence recycled water impacting groundwater.

Biannual monitoring will continue at all monitoring bores at the extended analytical suite during the 2023–24 monitoring program. Additional surface water monitoring will be completed at Clarence Recycled Water Storage (Duckhole Dam) and customer alternate water sources to allow for further chemical classification.

#### **48.6 Ambient monitoring program**

Ambient monitoring is not required for this site as it does not discharge to waterways.

#### **48.7 Groundwater monitoring**

Site Status: Green – (2022–23 report)

Richmond STP groundwater monitoring network consists of three (3) groundwater monitoring bores ID numbers CC-LLGW5 – 7. Bore ID's CC-LLGW5 and 6 situated east and south of the STP respectively are considered downgradient and to target potential seepage from the STP lagoons. Bore ID CC-LGW7 is located west of STP Primary Pond and considered a background bore. One round of sampling (6-monthly) was completed across the network 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 monitoring has recorded elevated concentrations of nitrate and total nitrogen although overall there is little evidence to infer leakage is occurring from the STP to groundwater.

Biannual sampling at the extended suite is scheduled to continue in the 2024–25 groundwater monitoring program.

#### **48.8 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 106 out of 108 in priority (high). Actions in the period included:

- CCTV undertaken of 8,600m sewer mains
- SPS upgrades of pumps

#### 48.9 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 48-F: Desludging status and comments**

| Desludging status | Comments  |
|-------------------|---|
| Medium Priority   | Desludging of lagoon 1 completed August 2024.<br>Desludging of lagoon 2 is scheduled to occur in 2027, as per the current prioritisation planning schedule. |

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

**Table 48-G: EPN non-compliances**

| EPN condition   | Description of non-conformance | Future actions to be taken                                       |
|---|--------------------------------|--|
| EF2 Effluent quality limits for discharge to a reuse scheme | Reuse compliance limits        | See section 48.5 Reuse Annual Reporting and Performance Analysis |

#### 48.11 Complaints and incident reporting

**Table 48-H: Complaints**

| Date       | Category | Details                                 | Mitigation actions  |
|------------|----------|---|---|
| 15/08/2023 | Odour    | Strong sewer odour from the sewer ponds | Crews have inspected. Checked surrounding manholes and spoke to neighbouring residents. Checked pump station and investigated down at the settling ponds and no odour was detected there. |

#### 48.12 Any other relevant information

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

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