52. Rokeby STP

52.1 Activity and report details

Activity name	Rokeby STP		
Activity address	Droughty Point Road, Rokeby, Hobart		
Permit number	Permit Conditions Environmental - 6086	**Date of issue**	4 April 1997
EPN	7829/1	**Date of issue**	2 December 2011
Treatment level	Tertiary Treatment		
Authorised dry weather flows	4000 kL/day		
Key influent source	Residential/Tankered		
Contact person	Kate Westgate		
Report author	George Fitzgibbon		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2024		

Figure 52-1: Rokeby Sewage Treatment Plant

52.2 Monitoring and compliance summary

52.2.1 Flow data

Table 52-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location name	Sewer Inlet	Derwent River	Effluent Reuse Scheme - Coal River
Coordinates	E 535899 N 5249532	E 533174 N 5247967	E 535832 N 5249501
Method of Measurement	In line meter	In line meter	In line meter
Date of last calibration/validation (if applicable).	26/07/2023	26/07/2023	26/07/2023

Table 52-B: Annual flow and rainfall data

Month	Average daily influent volume (kL/day)	Rainfall (mm/month) BOM Station ID 094082	Discharge to waters total effluent volume (ML)	Discharge to reuse total effluent volume (ML)
July 2023	2,413	11.8	0.00	70.32
August 2023	2,347	17.8	9.86	79.54
September 2023	2,463	23.6	18.25	55.63
October 2023	2,603	66.2	2.29	94.01
November 2023	6,119	39.6	0.00	89.22
December 2023	2,522	44.4	0.12	97.76
January 2024	2,476	48.6	0.00	94.01
February 2024	2,352	4.5	0.00	83.69
March 2024	2,392	23.0	0.00	89.46
April 2024	2,501	55.6	0.00	93.57
May 2024	2,541	Not available	5.27	99.37
June 2024	2,590	54.4	0.00	85.46
Annual 2023-24	2,780	389.5	36.07	1032.04
% of Total Discharge	--	--	3.4%	96.6%

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

52.3 Bypass events

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

52.4 Discharge compliance with permit limits

Table 52-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	5	30	--	15	5	8.5	5	750	30
90th percentile	3	15	--	10	4	--	2	500	20
50th percentile	1	10	--	5	2	--	1	200	10
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									
Maximum	2.1	5	--	7.3	1.4	7.6	3.5	230	5.4
90th percentile	1.2	5	--	6.9	1.0	7.4	2.8	10	4.0
50th percentile	0.6	5	--	4.7	1.0	6.8	1.5	10	4.0
Minimum	0.3	5	--	3.7	1.0	6.6	0.2	10	4.0
EPN limit compliance									
% compliance with maximum	100%	100%	--	100%	100%	--	100%	100%	100%
% compliance with 90th percentile	100%	100%	--	100%	100%	--	58%	100%	100%
% compliance with 50th percentile	83%	100%	--	67%	100%	--	42%	92%	100%
% compliance with pH range	--	--	--	--	--	100%	--	--	--

Table 52-D: Mass loads to the environment

Parameter	EPN limit	Frequency	2023-24 result
Nitrogen (kg)	13140	Annual	152.9
Phosphorous (kg)	3212	Annual	67.2
Method	Flow weighted/composite method		

Table 52-E: Performance analysis (discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
Phosphorus	17/10/2023 12-month 90th percentile limit exceeded 12-month 50th percentile limit exceeded	The plant achieves some degree of biological phosphorous removal, and the phosphorous limits only apply to effluent discharge to environment. Chemical phosphorous removal is available for use if there were issues with the reuse system availability.	No specific actions undertaken in reporting period

No other parameters had exceedances in the reporting period when the STP discharged to water.

52.5 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 52-F: 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			
Maximum	10	7.4	96
90th percentile	6	7.0	10
50th percentile	5	6.8	10
Minimum	5	6.6	10
Summary of results			
% compliance with maximum	100%	--	100%
% compliance with 90th percentile	--	--	--
% compliance with 50th percentile	--	--	100%
% compliance with pH range	--	100%	--

No parameters have had exceedances in the FY 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 52-G: Annual recycled water scheme compliance audit and soil monitoring report summary

Program	Compliance audit	Soil monitoring
Compliance status	Compliant: 30% (Seven properties recorded full compliance with IEMP). Minor Non-compliance: 49% (Eleven properties recorded inadequate signage) Non-compliant: 22% Four properties recorded recycled water irrigation outside IEMP requirements (withholding times and/or buffer zones) 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. 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. 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. Average P levels is classed as high, average K levels moderate and average S level is low-moderate across the scheme. An increasing long-term trend in average P and K since 2014, with P increasing at a slower rate than K.
Comments	Adequate signage remains the main non-compliance across the scheme. 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) 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. 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. 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.

52.6 Ambient monitoring program

Table 52-H Program details

Program required	NA – No requirement for ambient monitoring in the reporting period
Status (e.g. commenced, not yet commenced)	NA
Update	NA
Comments	NA

52.7 Groundwater monitoring

No groundwater monitoring program associated with the STP.

52.8 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 79 out of 108 in priority.

52.9 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 deemed non-compliant with the 2023-24 SSMP due to missing Biosolids Management Plans and no evidence that council approval was obtained. The 2024-25 SSMP will include copies of BMPs for each farm spreading location.

Biosolids are removed regularly from site, no stockpiling occurs.

Table 52-I: Biosolids sludge classification

Parameter	Number of samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant classification
Arsenic	12	2.3	1.6	1.2	2.3	A
Cadmium	12	2.0	0.6	0.1	1.5	B
Chromium	12	20.8	10.6	6.5	17.8	A
Copper	12	296.0	110.0	67.0	229.6	B
Lead	12	30.2	9.5	6.7	22.6	A
Mercury	12	9.7	1.0	0.0	6.5	B
Nickel	12	17.7	14.6	12.7	17.4	A
Zinc	12	869.0	439.7	329.0	724.9	B

Table 52-J: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation grade	Contamination grade	Biosolids classification	End use destination
299.6	16.5%	Hydrated Lime	B	B	2	Coronation Hotel, Whitemarsh farm, Delmore farm, Old Mill farm, Strathallan farm

Notes: DST = Dry solid tonne.

52.10 Non-compliance with other permit requirements

Table 52-K: EPN non-compliances

EPN condition	Description of non-conformance	Future actions to be taken
WM2 Sewage Sludge Management Plan	Missing Biosolids Management Plans and no evidence that council approval was obtained	Ensure BMPs and evidence of council approval are included in 2024-24 SSMP

52.11 Complaints and incident reporting

No complaints were reported during the FY2023-24 reporting period.

Table 52-L: Incident reporting

Date	Category	Details	Mitigation actions
21/05/2024	Mechanical	Aeration system failure. Effluent flow switched to the Tranmere outfall.	Rectified and sent back to reuse the next day.

52.12 Any other relevant information

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

www.taswater.com.au