

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	4/04/1997
	EPN	7829/1	Date of issue 2/12/2011
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 2023		

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).	15/07/2022	15/07/2022	15/07/2022

Table 52-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 94082	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	2,633	38.2	0.00	81.94
August 2022	3,559	99.4	27.49	78.46
September 2022	3,398	78.6	30.34	70.73
October 2022	3,289	115.8	76.87	32.95
November 2022	3,125	66.4	115.95	0.00
December 2022	2,723	101.2	50.62	33.80
January 2023	2,627	4.4	0.00	98.65
February 2023	2,962	54.6	0.00	77.00
March 2023	2,507	30.8	0.00	86.90
April 2023	2,530	34.4	0.00	68.97
May 2023	2,505	25.6	0.00	54.37
June 2023	2,591	38.8	0.00	59.36
Annual 2022-23	2,869	688.2	301.27	743.13
% of Total Discharge	--	--	28.8%	71.2%

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

52.2.2 Bypass events

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

52.3 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	0	12	12	12	12	12	12
Number analysed	12	12	0	12	12	12	12	12	12
Statistical summary									
Max	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
Min	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%

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Total suspended solids
% 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	2022-23 result
Nitrogen (kg)	13140	Annual	1744.0
Phosphorous (kg)	3212	Annual	181.3
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	12-month 90 th 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
	12-month 50 th percentile limit exceeded		

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

52.4 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			
Max	5	7.6	230
90th percentile	5	7.4	10
50th percentile	5	6.8	10
Min	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-four sites on twenty properties across the Clarence RWS in late June and July 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. One site (36 BEL) was removed as no recycled water irrigation occurred for two consecutive years. Annual compliance audits were completed at twenty-two properties in June and July 2022. Four properties connected to the scheme but currently not receiving recycled water were excluded from the compliance audit program. One property was returned to the program. Mostly completed by phone, field observations were conducted in conjunction with the soil sampling. 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	<p>Seven properties (32%) recorded full compliance with IEMP. Ten properties (45%) recorded inadequate signage (minor non-compliance). Notable non-compliance are as follows:</p> <ul style="list-style-type: none"> • Recycled water irrigation outside IEMP requirements (withholding times and/or buffer zones): <ul style="list-style-type: none"> - Llanherne Golf Club - immediate measures in place whilst pumping infrastructure upgrades are completed. - Royal Hobart Golf Club - immediate measure in place to address risk) - Tasmania Golf Club - immediate measures in place with future infrastructure upgrades currently being considered to address non-compliance. • Riversdale: (Outstanding) Discharge of recycled water from pipeline flushing and filter back flushing to address water quality issues outside IEMP. • Craigow: Recycled water location of and irrigation method outside IEMP and inadequate backflow prevention on a connected but unused line. Immediate measures in place to address irrigation requirements. 	<p>Average EC_{se} and Cl levels fluctuate between years, ranging from non-saline to slightly saline. There is no long-term trend.</p> <p>Average EC_{se} and Cl levels in 2022 are similar to the previous year. There is no long-term trend.</p> <p>ESP level dropped below 5% in 2021 (4.3%) for the first time since the monitoring program began and remains unchanged in 2022. No long-term trend identified.</p> <p>6% sites considered saline, 9% sites considered slightly saline and 85% sites within recommended range. 21% sites considered sodic, 9% sites considered borderline sodic and 71% sites within recommended range.</p> <p>No long-term trend in average S.</p> <p>Increasing long-term trend in average P and K since 2014, with P increasing at a slower rate than K.</p> <p>Average P and K levels remain similar to the previous year.</p> <p>Average P level is high, average K level is moderate, and average S level is low to moderate.</p>
Comments	<p>Adequate signage remains the main non-compliance across the scheme. Golf Club interim measures are currently in place. Any changes to pumping infrastructure are likely to require an update to the site IEMP to permanently address change in practices.</p> <p>Management of the outstanding matter at Riversdale has occurred during the reporting period with a reduction of frequency of practice and IEMP will be require to reflect practice and management requirements.</p> <p>A number of TasWater owned recycled water meters are inoperable, faulty or leaking. TasWater are currently replacing meters under a metering program.</p> <p>Meters have been procured and installation scheduled under the program.</p>	<p>Overall, soil health and fertility do not appear to be adversely impacted through recycled water irrigation.</p> <p>From a soil structure perspective, sodicity is the main soil concern, a review of recycled water quality (salinity and SAR) indicates a very-light 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.</p> <p>The elevated nutrient levels (average P and K) are attributed to other nutrient sources and intensification of land use, not recycled water irrigation.</p> <p>Five yearly soil metals analysis was completed in 2020. Next sampling is due in 2025.</p>

Key: EC_{se} = 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-two monitoring bores across sixteen 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 was completed in

August and September 2022. Due to resource and timing constraints the second round of sampling was unable to be completed in 2023. Monitoring bore CL-UFGW8 has been removed from the monitoring program due to irreparable damage and bore ID CL-RPGW7 could not be sampled due to access constraints.

Groundwater chemistry appears to be generally consistent with previous years. Seven properties recorded at least one monitoring bore which exceeded a guideline criterion although unlikely attributed to recycled water irrigation. The significant issue identified in previous report was investigation with a piper plot analysis showing the irrigation water is chemically different from groundwater. Nine properties recorded no evidence or limited evidence recycled water impacting groundwater.

Biannual monitoring will continue at all monitoring bores during the 2023-24 monitoring program.

52.5 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

52.6 Groundwater monitoring

No groundwater monitoring program associated with the STP.

52.7 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 79 out of 79 in priority.

52.8 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 is fully compliant with the 2022-23 SSMP.

Biosolids are removed regularly from site, no stockpiling occurs.

Table 52-I: Biosolids sludge classification summary

Month	Number of Samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant Classification
Arsenic	12	3.0	2.1	1.3	3.2	A
Cadmium	12	1.0	0.6	0.4	1.0	A
Chromium	12	26.2	15.1	8.4	24.8	A
Copper	12	142.0	99.6	65.9	145.9	B
Lead	12	11.1	9.2	7	12.1	A
Mercury	12	0.6	0.2	0.03	0.5	A
Nickel	12	22.9	16.9	12.4	24.3	A
Zinc	12	560.0	439.3	326	612.0	B

Table 52-J: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation Grade	Contamination Grade	Biosolids Classification	End use destination
345.81	16.5%	Hydrated Lime	B	B	2	Richmond Farm. Coronation Hotel-Runnymede. Delmore Farm. Flexmore Park Farm. Whitemarsh Farm-Runnymede.

Notes: DST = Dry solid tonne.

52.9 Non-compliance with other permit requirements

Table 52-K: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
OP3 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.

52.10 Complaints and incident reporting

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

52.11 Any other relevant information

None.

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

www.taswater.com.au