

54 Rosny STP

54.1 Activity and report details

Activity name	Rosny STP		
Activity address	Rosny Esplanade, Rosny, Hobart		
Permit number	Licence to Operate - 3505	Date of issue	25/07/1998
EPN	632/2	Date of issue	16/05/2019
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	7500 kL/day		
Key Influent Source	Residential/Industrial 1 x Category 3 Customers		
Contact person	Kate Westgate		
Report author	George Fitzgibbon		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2023		

Figure 54-1: Rosny Sewage Treatment Plant



54.2 Monitoring and compliance summary

54.2.1 Flow data

Table 54-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	Derwent River	Effluent Reuse Scheme - Coal River
Coordinates	E 529340 N 5253202	E529184 N5253117	E 529213 N 5253147
Method of Measurement	In line meter	Level sensor	In line meter
Date of last Calibration/Validation (if applicable).	05/07/2022	05/07/2022	05/07/2022

Table 54-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 94030	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	6,566	25.4	205.53	23.99
August 2022	8,784	62.8	186.88	98.39
September 2022	7,900	59.8	127.66	113.84
October 2022	8,018	87.9	238.24	0.00
November 2022	9,417	66.3	225.14	0.00
December 2022	8,002	61.7	236.18	2.19
January 2023	6,124	4.9	200.61	9.64
February 2023	6,437	49.4	167.73	10.08
March 2023	6,276	31.2	132.71	7.73
April 2023	6,174	23.6	125.62	76.41
May 2023	6,339	21.0	121.71	90.95
June 2023	6,812	61.7	155.52	59.82
Annual 2022-23	7,240	555.7	2123.53	493.04
% of Total Discharge	--	--	81.2%	18.8%

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

54.2.2 Bypass events

Table 54-C: Bypass events summary

Bypass ID:	RSNST01-OND				
Bypass description:	Equalisation tank overflow to filtration				
Treatment bypassed:	Screening (Partial), Secondary Treatment				
Treatment level of impacted effluent:	Screened (Partial), Filtered, Disinfected (Chlorine)				
Flows exceeding:	~180 L/s				
Discharge location:	Derwent River: 528744E, 5252905N (GDA94)				
Start date / time	End date / time	Duration	Volume estimate	Cause	Response actions
14/08/22 09:28	14/08/22 20:58	11.5 h	3723 kL	Rainfall Event	No specific actions undertaken
15/08/22 11:52	15/08/22 20:02	8.2 h	1465 kL	Rainfall Event	No specific actions undertaken
26/10/22 10:15	28/10/22 23:59	61.7 h	21574 kL	Rainfall Event	No specific actions undertaken
29/10/22 09:56	29/10/22 15:38	5.7 h	96 kL	Rainfall Event	No specific actions undertaken
15/11/22 10:26	15/11/22 15:32	5.1 h	248 kL	Rainfall Event	No specific actions undertaken
13/12/22 20:32	14/12/22 02:36	6.1 h	1832 kL	Rainfall Event	No specific actions undertaken

54.3 Discharge compliance with permit limits

Table 54-D: Compliance Summary

Parameter	Ammonia	cBOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Enterococci	Total suspended solids
Permit/EPN limit	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L	MPN/100ml	mg/L	mg/L
Maximum	25	--	1.0	--	--	8.5	--	--	--	--
90th percentile	--	20	--	--	--	--	--	500	4000	20
50th Percentile	--	15	--	--	--	--	--	200	1000	10
Minimum	--	--	--	--	--	6.5	--	--	--	--
Samples analysed										
Number required	52	52	52	52	52	52	52	52	52	52
Number analysed	52	52	52	52	52	52	52	52	52	52
Statistical summary										
Max	34.2	49.0	1.55	46.9	7.6	7.6	8.8	24196	24196	29.0
90th percentile	32.0	28.9	1.30	41.4	2.7	7.4	4.3	22084	21813	13.9
50th percentile	26.2	13.5	0.80	35.4	1.1	7.1	3.0	201	2432	5.0
Min	12.3	5.0	0.11	22.6	1.0	6.5	0.8	10	20	4.0
EPN Limit Compliance										
% compliance with Maximum	35%	73%	77%	--	--	--	--	--	--	--
% compliance with 90th percentile	--	--	--	--	--	--	--	65%	62%	94%
% compliance with 50th percentile	--	60%	--	--	--	--	--	50%	29%	83%
% compliance with pH range	--	--	--	--	--	100%	--	--	--	--

Table 54-E: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	24638	Annual	75995.7
Phosphorous (kg)	6023	Annual	6478.1
Method	Flow weighted/Composite method		

Table 54-F: Performance Analysis (Discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance			Reasons for non-compliance	Actions to improve performance
Ammonia	5/07/2022	11/10/2022	24/01/2023	The treatment process is not specifically designed to remove ammonia, however incidental ammonia removal occurs at times.	No specific actions undertaken in reporting period.
	12/07/2022	18/10/2022	31/01/2023		
	19/07/2022	25/10/2022	7/02/2023		
	26/07/2022	8/11/2022	14/02/2023		
	2/08/2022	22/11/2022	21/02/2023		
	9/08/2022	29/11/2022	28/02/2023		
	23/08/2022	6/12/2022	7/03/2023		
	30/08/2022	20/12/2022	14/03/2023		
	6/09/2022	3/01/2023	21/03/2023		
	13/09/2022	10/01/2023	28/03/2023		
	4/10/2022	18/01/2023	16/05/2023		
Chlorine	5/07/2022	20/09/2022	14/12/2022	The chlorine contact tank volume is inadequate such that the chlorine concentration does not decay sufficiently prior to discharge to the environment.	No specific actions undertaken in reporting period UV disinfection upgrade will improve the performance of the disinfection system to be completed in 2024.
	16/08/2022	25/10/2022	4/04/2023		
	23/08/2022	1/11/2022	13/06/2023		
	13/09/2022	6/12/2022	27/06/2023		
E. coli	12-month 90 th percentile limit exceeded				
	12-month 50 th percentile limit exceeded				

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
Enterococci	12-month 90 th percentile limit exceeded		
	12-month 50 th percentile limit exceeded		
CBOD	12-month 90 th percentile limit exceeded	The secondary treatment process is believed to be affected by sudden increases in salinity, which is due to the ingress of saline water into the catchment pipes.	<p>The aeration system continues to be adjusted to best manage aeration tank foaming upsets while achieving treatment objectives.</p> <p>Analysis of salinity ingress completed by SIP team.</p> <p>A number of SPS and manholes have been rectified in the catchment to limit saline ingress into the system.</p>

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

No other parameters had exceedances in the reporting period.

54.4 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 54-G: Reuse Compliance Summary

Parameter	cBOD5	pH	E coli
Permit/EPN limit	mg/L	Units	MPN/100ml
Maximum	30	9.0	10000
90th percentile	--	--	--
50th Percentile	--	--	1000
Minimum	--	5.5	--
Samples analysed			
Number required	52	52	52
Number analysed	52	52	13
Statistical summary			
Max	49.0	7.6	24196
90th percentile	28.9	7.4	22823
50th percentile	13.5	7.1	12997
Min	5.0	6.5	765
Summary of results			
% compliance with Maximum	92%	100%	46%
% compliance with 90th percentile	--	--	--
% compliance with 50th percentile	--	--	8%
% compliance with pH range	--	100%	--

Note: Percentages reflective of complete data set for the year. *E. coli* samples only taken when discharging to reuse at time of sampling.

Table 54-H: Performance analysis (Discharge to reuse)

Reuse Compliance Parameter	Date(s) of non-compliance		Reasons for non-compliance	Actions to improve performance
E. coli	14/02/2023	2/05/2023	See Table 54-F	See Table 54-F
	4/04/2023	23/05/2023		
	26/04/2023	6/06/2023		
	12-month 50 th percentile limit exceeded			
cBOD	26/07/2022	9/08/2022		
	2/08/2022	10/01/2023		

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

Annual soil sampling was completed at 34 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 22 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 54-I: Annual recycled water scheme compliance audit and soil monitoring 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): 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. 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. A number of TasWater owned recycled water meters are inoperable, faulty or leaking. TasWater are currently replacing meters under a metering program. 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. 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. The elevated nutrient levels (average P and K) are attributed to other nutrient sources and intensification of land use, not recycled water irrigation. Five yearly soil metals analysis was completed in 2020. Next sampling is due in 2025.</p>
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Key: ECse = Electrical Conductivity at saturation extent, Cl = Chloride, ESP = Exchangeable sodium percentage, P = Phosphorous, K = Potassium, S = Sulphur

RWS groundwater site status: Amber (as per 2021 report)

The Clarence RWS groundwater monitoring network currently consists of 32 monitoring bores across 16 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.

54.5 Ambient monitoring program

Table 54-J: Program details

Program	NA – No requirement for ambient monitoring in the reporting period
Status	NA
Update	NA
Comments	NA

54.6 Groundwater monitoring

No groundwater monitoring program associated with the STP.

54.7 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 44 out of 79 in priority.

Works this FY include rectification works in Bellerive and Lindisfarne foreshore areas to limit saline intrusion into the sewerage system.

54.8 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 54-K: Biosolids sludge classification

Month	Number of Samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant Classification
Arsenic	12	2.6	2.0	1.3	2.9	A
Cadmium	12	1.0	0.8	0.6	1.0	A
Chromium	12	19.7	12.9	9.3	18.6	A
Copper	12	173.0	139.0	89.0	190.1	B
Lead	12	19.0	13.9	10.2	18.7	A
Mercury	12	1.7	0.4	0.03	1.3	B
Nickel	12	24.9	16.6	11.3	25.0	A
Zinc	12	709.0	550.7	387.0	730.2	B

Table 54-L: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation Grade	Contamination Grade	Biosolids Classification	End use destination
557.05	20.0%	Hydrated Lime	B	B	2	Richmond Farm. Coronation Hotel-Runnymede. Delmore Farm. Flexmore Park Farm. Whitemarsh Farm-Runnymede.

Notes: DST = Dry solid tonne.

54.9 Non-compliance with other permit requirements

Table 54-M: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
EF3 Effluent discharge limits	Discharge compliance with permit limits	See section 54.3 Discharge compliance with permit limits and Performance Analysis
EF5 Reuse discharge limits	Discharge compliance with reuse permit limits	See section 54.4 Reuse Annual Reporting and Performance Analysis
EF4 Enterococci Limits for discharge	Discharge compliance with permit limits for Enterococci exceeded	See section 54.3 Discharge compliance with permit limits and Performance Analysis
EF6 Mass Load limits	Nitrogen limits exceeded this FY Phosphorus limits exceeded this FY	See section 54.3 Discharge compliance with permit limits and Performance Analysis
OP2 Operational Procedures Manual	No contemporary Operational Procedures Manual	New SharePoint based solution for OPMMs currently being developed. First version to be implemented in FY24
Discharge Management Plan	Discharge Management Plan overdue	Submission timeframe TBC. Plan in development for DMP submission dates following on from agreed format between TasWater and EPA.

54.10 Complaints and incident reporting

Table 54-N: Complaints Reporting

Date	Category	Details	Mitigation actions
22/02/2023	Odour	Strong odour reported from the STP	Investigated by operators and appropriate action taken
22/02/2023	Odour	Strong odour reported from the STP	Investigated by operators and appropriate action taken
30 /08/2022	Noise	Noise early in the morning from STP	TasWater reiterated to contractors to observe STP contractor opening hours

Table 54-O: Incident Reporting

Date	Category	Details	Mitigation Actions
26/04/2023	Process upset	Sludge bin overflowed. Pump trucks then pumped sludge back through the inlet leading to possible process upset.	Monitored process. No significant impact

54.11 Any other relevant information

Table 54-P: Projects or significant operational events that occurred in FY 2022-23:

Project or significant operational event	Progress
Capital upgrade, replacing the existing chlorine system, with a UV disinfection system.	Detailed Business Case completed and reviewed. Completion date currently set at October 2024
Clarifier 4 Relining	Completed
Belt Press Guarding and Refurbishment	Completed

For further information on Rosny STP please contact TasWater on 13 6992

www.taswater.com.au