

47. Ranelagh STP

47.1 Activity and report details

Activity name	Ranelagh STP		
Activity address	Wilmot Road, Ranelagh		
Permit number	Licence to Operate – 3502	Date of issue	25/07/1988
EPN	8546/1	Date of issue	7/09/2017
Treatment level	Secondary Treatment		
Authorised dry weather flows	1200 kL/day		
Key influent source	Residential/Industrial 1 x Category 3 Customer, 1 x Category 4 Customer		
Contact person	Kate Westgate		
Report author	George Fitzgibbon		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2024		

Figure 47-1: Ranelagh Sewage Treatment Plant



47.2 Monitoring and compliance summary

47.2.2 Flow data

Table 47-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location name	Inlet	Huon River	No reuse scheme
Coordinates	E 503187 N 5237444	E 502775 N 5237169	NA
Method of measurement	In line meter	In line meter	NA
Date of last calibration/validation (if applicable).	06/08/2023	06/08/2023	NA

Table 47-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 94220	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2023	1,474	68.6	45.47	--
August 2023	1,333	30.6	41.49	--
September 2023	1,537	67.0	42.70	--
October 2023	1,464	82.8	42.19	--
November 2023	1,464	28.0	33.63	--
December 2023	1,464	32.8	33.32	--
January 2024	1,096	41.6	33.97	--
February 2024	1,021	10.0	29.60	--
March 2024	983	13.8	30.47	--
April 2024	1,051	44.6	31.53	--
May 2024	1,015	28.4	31.47	--
June 2024	1,167	57.8	35.01	--
Annual 2023-24	1,260	506.0	430.85	--
% of Total Discharge	--	--	100.0%	--

2023-2024 monthly flow data was submitted directly to the EPA.

47.3 Bypass events

All bypasses were retained in the bypass lagoon and did not discharge to the environment. More information can be provided upon request.

Table 47-C: Bypass events summary

Bypass ID:	RANSTO1-BPSD-1				
Bypass description:	Inlet channel bypass to settling lagoon				
Treatment bypassed:	Secondary Treatment, Disinfection (Chlorine)				
Treatment level of impacted effluent:	Screened, Lagoon Disinfection (Solar UV)				
Flows exceeding:	62 L/s (Approximate)				
Discharge location:	Huon River via Settling Lagoon Discharge: 502675E 5237362N (GDA94) (if discharged)				
Start date / time	End date / time	Duration	Volume estimate	Cause	Response actions
09/07/23 00:49	09/07/23 18:01	17.2 h	139 kL	Rainfall Event	No specific actions undertaken
10/07/23 18:55	10/07/23 19:59	1.1 h	6 kL	Rainfall Event	No specific actions undertaken
15/07/23 15:33	17/07/23 01:57	34.4 h	59 kL	Rainfall Event	No specific actions undertaken
30/07/23 17:21	30/07/23 18:57	1.6 h	7 kL	Rainfall Event	No specific actions undertaken
16/08/23 14:51	16/08/23 15:25	0.6 h	52 kL	Rainfall Event	No specific actions undertaken
30/08/23 12:23	31/08/23 00:15	11.9 h	7 kL	Rainfall Event	No specific actions undertaken
19/09/23 14:07	21/09/23 16:53	50.8 h	2363 kL	Rainfall Event	No specific actions undertaken
21/10/23 23:51	23/10/23 08:11	32.3 h	1037 kL	Rainfall Event	No specific actions undertaken
28/10/23 21:13	28/10/23 22:11	1.0 h	64 kL	Rainfall Event	No specific actions undertaken
08/11/23 15:53	08/11/23 22:35	6.7 h	128 kL	Rainfall Event	No specific actions undertaken
14/12/23 03:37	14/12/23 04:55	1.3 h	79 kL	Rainfall Event	No specific actions undertaken
11/06/24 08:21	11/06/24 09:15	0.9 h	36 kL	Rainfall Event	No specific actions undertaken
09/07/23 00:49	09/07/23 18:01	17.2 h	139 kL	Rainfall Event	No specific actions undertaken

47.4 Discharge compliance with permit limits

Table 47-D: 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	5.0	15	1.0	15.0	5.0	8.5	3.0	200	20.0
90th Percentile	2.0	10	--	10.0	2.0	--	1.0	--	15.0
50th Percentile	1.0	5	--	7.0	1.0	--	0.5	--	10.0
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	12	12	12	12	12	12	12	12	12
Number analysed	12	12	12	12	12	12	12	12	12
Statistical summary									
Maximum	1.4	53	1.77	7.4	1.4	7.7	4.1	3654	129.0
90th Percentile	0.7	11	1.58	5.9	1.0	7.7	1.5	1802	56.4
50th Percentile	0.3	5	0.87	4.1	1.0	7.0	0.7	10	9.0
Minimum	0.1	5	0.48	3.4	1.0	6.6	0.1	10	4.0
EPN Limit Compliance									
% compliance with Maximum	100%	92%	58%	100%	100%	--	92%	83%	75%
% compliance with 90th percentile	100%	83%	--	100%	100%	--	83%	--	67%
% compliance with 50th percentile	92%	83%	--	92%	92%	--	33%	--	58%
% compliance with pH range	--	--	--	--	--	100%	--	--	--

Table 47-E: Mass loads to the environment

Parameter	EPN Limit	Frequency	2023-24 result
Nitrogen (kg)	--	Annual	1958.6
Phosphorous (kg)	--	Annual	431.5
Method	Time weighted/Grab sample method		

Table 47-F: Performance analysis (discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
Chlorine	24/07/2023 19/10/2023 22/02/2024	18/04/2024 23/05/2024	A fixed rate chlorine control system can result in their being occasions where some batches of effluent received higher doses of chlorine than others.
E. coli	14/09/2023 18/01/2024	Wet weather event causing reduced contact time and increased TSS making disinfection more challenging.	The control system has improved to make fault detection more accurate. Installation of an online chlorine analyser to facilitate faster dose rate adjustments, Reconfiguration of the chlorine dose pipework to reduce faults on the dosing pumps. Installed a bypass of the chlorine contact tank to the lagoon so that the contact tank can be safely cleaned regularly.
TSS	30/08/2023 14/09/2023 22/02/2024	Elevated TSS, BOD, and TP concentrations were believed to be due to insufficient removal rates of sewage sludge from the process. High flows during wet weather also contributed to some high suspended solids results.	Reliability issues with the belt press has resulted in higher MLSS in the aeration tank than desired at times Control settings are continually adjusted to help improve the solids separation process. A storm flow sequence has been added to the control system of the STP. This aims to reduce non-compliances during wet weather caused by solids carryover.
	12-month 90th percentile limit exceeded		
BOD	30/08/2023		
	12-month 90th percentile limit exceeded		
Phosphorus	30/08/2023		
	12-month 90th percentile limit exceeded		
	12-month 50th percentile limit exceeded		

No other parameters had exceedances in the reporting period.

47.5 Reuse Annual Reporting

No Recycled Water Scheme associated with this STP.

47.6 Ambient monitoring program

Table 47-G: Program details

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

47.7 Groundwater monitoring

Groundwater Site Status: Green – (2022–23 Report)

Ranelagh STP groundwater monitoring network consists of three groundwater monitoring bores, ID numbers RANGW1–3. One round of sampling (6-monthly) was completed at bore ID RANGW3 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. No sampling was completed at bore ID’s RANGW2 and 3.

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.

Biannual sampling at the standard analytical suite is scheduled for all three monitoring bores during the 2024–25 monitoring program.

47.8 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 30 out of 108 in priority.

47.9 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 is fully compliant with the 2023–24 SSMP.

Biosolids are removed regularly from site, no stockpiling occurs.

Table 47–H: Biosolids sludge classification

Parameter	Number of Samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant Classification
Arsenic	12	3.5	2.9	2.3	3.8	A
Cadmium	12	1.2	0.7	0.3	1.4	B
Chromium	12	35.4	30.6	21.5	39.9	A
Copper	12	256.0	193.5	144.0	265.2	B
Lead	12	16.0	12.7	9.2	16.7	A
Mercury	12	1.0	0.4	0.0	0.9	A
Nickel	12	24.6	20.4	17.0	24.9	A
Zinc	12	569.0	476.8	359.0	641.6	B

Table 47–I: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation grade	Contamination grade	Biosolids classification	End use destination
76.6	14.3%	None	U/C	B	U/C	Plenty Composting

Notes: DST = Dry solid tonne. U/C = Unclassified

47.10 Non-compliance with other permit requirements

Table 47–J: EPN non-compliances

EPN condition	Description of non-conformance	Future actions to be taken
EM2 Reuse Feasibility Study	Reuse Feasibility Study overdue.	TasWater acknowledges the non-compliance associated with the DMP condition. We are working towards the intent of the EPN condition to prioritise discharge risk reduction projects in line with our EPA endorsed Wastewater Risk Management Plan and Price and Service Plan process.
EM3 Discharge Management Plan	Discharge Management Plan overdue	
OP4 Lagoon Maintenance	EPA audit found that the lagoon embankment of the bypass lagoon was not in good repair	Lagoon repair works are now scheduled for FY2024–25. The most probable date of these works is early 2025. TasWater's Dam Safety Team is now in the design for scope phase of these works.

47.11 Complaints and incident reporting

No complaints reported during the FY2023–24 reporting period.

Table 47-K: Incident Reporting

Date	Category	Details	Mitigation actions
15/08/2023	Mechanical	Due to a failing decanter actuator, there was a temporary change to the operation of the plant to perform emergency maintenance	During the works the intermittent aeration tank was used as a “clarifier” with a fixed decant weir and manual chlorination dosing was undertaken for the duration of the repair (3 days).

47.12 Any other relevant information

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

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