70 Triabunna STP

70.1 Activity and report details

Activity name	Triabunna STP		
Activity address	Freestone Point Rd, Triabunna		
Permit number	6236	**Date of issue**	27/08/2002
EPN	8554/1	**Date of issue**	29/05/2019
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	253 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 2023		

Figure 70-1: Triabunna Sewage Treatment Plant

70.2 Monitoring and compliance summary

70.2.1 Flow data

Table 70-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Sewer Inlet	Vicary's Inlet	Rostrevor property
Coordinates	E 575926 N 5293809	E 575650 N 5293875	E 575945 N 5294098
Method of Measurement	In Line meter	In Line meter	In Line meter (on Customer)
Date of last Calibration/Validation (if applicable).	05/02/2023	14/03/2022	14/03/2022

Table 70-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 92157	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	218	39.4	6.75	0.00
August 2022	276	66.6	8.56	0.00
September 2022	440	113.0	13.20	0.00
October 2022	466	128.8	14.44	0.00
November 2022	377	105.0	11.30	0.00
December 2022	273	55.0	8.46	0.00
January 2023	211	1.6	5.29	1.27
February 2023	202	0.2	0.00	5.65
March 2023	185	22.2	0.00	5.72
April 2023	209	76.6	0.00	6.26
May 2023	154	10.2	0.00	4.79
June 2023	274	104.4	0.00	8.21
Annual 2022-23	274	723.0	67.99	31.90
% of Total Discharge	--	--	68.1%	31.9%

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

70.2.2 Bypass events

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

70.3 Discharge compliance with permit limits

Table 70-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	21	50	--	32	2	8.5	10	1500	50
90th percentile	--	--	--	--	--	--	--	--	--
50th Percentile	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	12	12	12	12	12	12	12	12	12
Number analysed	12	12	0	12	12	12	12	12	12
Statistical summary									
Max	33.4	57	--	39.2	1.3	9.1	6.9	160	81.0
90th percentile	26.3	44	--	34.2	1.1	9.0	6.2	146	77.8
50th percentile	20.0	25	--	27.8	1.0	8.4	4.9	47	25.8
Min	0.1	9	--	8.3	1.0	7.6	3.5	30	8.6
EPN Limit Compliance									
% compliance with Maximum	58%	92%	--	75%	100%	--	100%	100%	75%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	58%	--	--	--

Table 70-D: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	--	Annual	1867.7
Phosphorous (kg)	--	Annual	305.3
Method	Time weighted/Grab sample method		

Table 70-E: Performance Analysis (Discharge to environment)

Effluent compliance parameter		Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
pH	28/07/2022 19/10/2022	10/11/2022 12/12/2022	Algae is believed to be the primary reason for elevated pH and TSS. Algae is a source of oxygen and is fundamental to lagoon treatment.	No specific actions
TSS		12/12/2022		
Ammonia	28/07/2022 25/08/2022	8/09/2022	Lagoons have lower Ammonia and Nitrogen removal rates at lower temperatures.	
Nitrogen		25/08/2022		

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

No other parameters have had exceedances in reporting period.

70.4 Reuse Annual Reporting

The Triabunna STP supplies recycled water for irrigation purposes to the Triabunna recycled water scheme to the located at the Rostrevor property.

Table 70-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	57	9.1	160
90th percentile	44	9.0	146
50th percentile	25	8.4	47
Min	9	7.6	30
Summary of results			
% compliance with Maximum	92%	--	100%
% compliance with 90th percentile	--	--	--
% compliance with 50th percentile	--	--	100%
% compliance with pH range	--	92%	--

Table 70-G: Performance analysis (Discharge to reuse)

Reuse Compliance Parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
BOD	2/02/2023	Algae is believed to be the primary reason for occasional elevated pH and BOD. Algae is a source of oxygen and is fundamental to lagoon treatment.	No Specific Actions

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

Annual soil sampling was completed at two sites (Site 1 and Site 2) at the RWS in November 2022. The field component of the annual compliance audit was completed in conjunction with the soil sampling with a follow up phone call in December 2022. A summary of the findings of the programs is provided in the below table.

Table 70-H: Annual recycled water scheme compliance audit and soil monitoring summary

Program	Compliance audit	Soil monitoring
Compliance status	Compliant	Soil salinity decreased at both sites. Soil sodicity remained relatively unchanged at site 1 and increased at site 2 remaining within historical range. Site 1 remains non-sodic and non-saline. Site 2 remains non-saline and now classified as borderline sodic. Phosphorous levels are now excessive at both sites but comparable to historic data.
Comments	Audit noted that irrigation can (not common) extend over a section of a drain near southern property boundary. IEMP does allow for irrigation in this area but states a 10m buffer distance. Although practice not in accordance with current IEMP it is considered a low environmental risk as irrigation only occurs when drainage dry.	Recycled water quality data suggests only a slight to moderate risk of soil permeability loss from recycled water irrigation (median salinity and SAR levels). Elevated phosphorous levels are attributed to fertiliser application not recycled water irrigation.

Reuse groundwater site status: Green – No evidence of impact

Triabunna RWS groundwater monitoring network consists of two monitoring bores, ID's TRBGW4 and TRBGW5. Biannual sampling was completed at bore ID TRBGW5 in October 2022, with annual sampling completed at all bores in April 2023. Installed in 2019, the additional sampling at bore ID TRBGW5 sampling is in line with TasWater's installation groundwater monitoring requirements. The Triabunna lagoons and RW storage dam was also sampled in March 2022.

All analytes were below the adopted guideline criteria except for nitrate at bore ID TRBGW4, which remains within previously recorded ranges, and total phosphorous at bore ID TRBGW5 which slightly exceeded guideline levels.

Biannual sampling of extended suite is scheduled across the network during the 2023-24 monitoring program.

70.5 Ambient monitoring program

Table 70-I: Program details

Program	Seasonal Discharge Program - Routine monitoring during discharge to water.
Status	Ambient monitoring completed during discharge events within the reporting period.
Update	Ongoing ambient monitoring during seasonal discharge events
Comments	Ambient water quality monitoring occurred during discharges to the Vicarys Rivulet receiving environment during July 2022 to January 2023. Key findings from the ambient water quality data review were: • The Default Guideline Value (DGV) for ammonia was not exceeded at either the upstream or downstream sample site. • There was no obvious difference between upstream and downstream total nitrogen results. • Nitrate levels were below the DGVs at both monitoring locations. Upstream results were consistently higher than downstream. • Total phosphorous levels at both upstream and downstream sites exceeded the DGV on all except two occasions (downstream site).

- Upstream enterococci results were generally higher than downstream. The downstream site only exceeded the NHMRC low risk guideline value for recreation contact twice.

70.6 Groundwater monitoring

Site status: Amber - Likely STP impacts

Triabunna STP's groundwater monitoring network consists of six monitoring bores (ID's TRBGW1-3, TRBGW5-7). Monitoring bore (ID TRBGW5) is located to the south and also associated with the RWS. Biannual monitoring was completed at bores ID's TRBGW5-7 in October 2022, with annual sampling completed at all bores in April 2023. The Triabunna STP lagoons and recycled water storage dam were sampled during the annual monitoring round.

Potential groundwater impacts identified at bore ID's 1 and 2 through elevated groundwater levels and total phosphorous concentrations. Minion total phosphorous exceedances were observed in bore ID's TRGW5-7 with bore ID TRGW7 exceeding an adopted guideline criterion for nitrate. Bore ID TRGW6 recorded increasing trend in total nitrogen.

Biannual sampling at the extended analytical suite is scheduled to continue across the monitoring network during the 2023-24 groundwater monitoring program. 2023 report recommendations will be reviewed during the 2023-24 reporting period.

70.7 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 8 out of 79 in priority.

70.8 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 was fully compliant with the 2022-23 SSMP.

No stockpiling occurs at this site.

Table 70-J: Desludging status and comments

Desludging Status	Comments
Low Priority	Desludging is outside of the current prioritisation planning schedule.

70.9 Non-compliance with other permit requirements

Table 70-K: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
EF2 Effluent quality limits for discharge to Vicarys Inlet	Discharge compliance with permit limits.	See section 70.3 Discharge compliance with permit limits and Performance Analysis.

EPN Condition	Description of non-conformance	Future Actions to be taken
EF3 Effluent quality limits for discharge to a reuse scheme	Discharge compliance with reuse permit limits.	See section 70.4 Reuse Annual Reporting and Performance Analysis.
OP2 Operational Procedures and Maintenance Manual	No contemporary Operational Procedures Manual.	New SharePoint based solution for OPMMs currently being developed. First version to be implemented by FY24.

70.10 Complaints and incident reporting

There were no complaints or incidents recorded during the 2022-2023 reporting period.

70.11 Any other relevant information

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

www.taswater.com.au