45. Queenstown STP

45.1 Activity and report details

Activity name	Queenstown STP		
Activity address	Lynchford Railway Line, Queenstown		
Permit number	Licence to Operate - 2965	**Date of issue**	30/07/1984
EPN	9135/1	**Date of issue**	19/05/2015
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	1100 kL/day		
Key Influent Source	Residential/Industrial		
Contact person	Kate Westgate (Manager Environmental Performance)		
Report author	Jake Crisp (Environmental Scientist)		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2024		

Figure 45-1 Queenstown STP

45.2 Monitoring and compliance summary

45.2.1 Flow data

Table 45-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location name	Inlet	Queen River	No reuse scheme
Coordinates	E 378876 N 5338113	E 378885 N 5337946	NA
Method of measurement	In line meter	Estimate based on inlet	NA
Date of last calibration/validation (if applicable).	7/02/2022	NA – to be installed	NA

Table 45-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 97091	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2023	3,755	391.2	116.40	--
August 2023	3,378	322.6	104.72	--
September 2023	2,445	219.4	73.35	--
October 2023	2,272	252.0	70.44	--
November 2023	1,054	67.6	31.62	--
December 2023	1,106	117.4	34.28	--
January 2024	1,555	188.8	48.21	--
February 2024	1,227	87.2	35.58	--
March 2024	1,063	116.0	32.94	--
April 2024	2,065	213.0	61.95	--
May 2024	1,782	127.2	55.25	--
June 2024	1,935	180.2	58.04	--
Annual 2023-24	1,980	2282.6	722.80	--
% of Total Discharge	--	--	100.0%	--

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

45.3 Bypass events

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

45.4 Discharge compliance with permit limits

Table 45-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	15.0	20	--	20.0	10.0	8.5	3.0	--	45.0
90th Percentile	--	--	--	--	--	--	--	--	--
50th Percentile	--	--	--	--	--	--	--	--	--
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	12.2	92	--	18.3	4.0	7.2	1.8	24196	72.0
90th Percentile	11.6	73	--	17.8	3.7	7.1	1.7	24196	64.0
50th Percentile	7.5	23	--	12.1	1.9	6.9	1.3	14834	44.5
Minimum	1.1	11	--	4.6	1.0	6.2	0.7	1081	21.9
EPN Limit Compliance									
% compliance with Maximum	100%	33%	--	100%	100%	--	100%	--	50%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	92%	--	--	--

Table 45-D: Mass loads to the environment

Parameter	EPN Limit	Frequency	2023-24 result
Nitrogen (kg)	--	Annual	7088.5
Phosphorous (kg)	--	Annual	901.0
Method	Time weighted/Grab sample method		

Table 45-E: Performance analysis (discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
BOD	2/10/2023 13/11/2023 4/12/2023 19/02/2024 4/03/2024 4/04/2024 6/05/2024 11/06/2024	The polishing lagoon is currently overloaded and there is excessive accumulation of sludge, which reduces retention time and impairs mixing efficiency within the lagoon. This results in diminished treatment performance, leading to an increase in effluent BOD and TSS.	TasWater is planning to commence desludging of the polishing lagoon in February 2025.
TSS	7/08/2023 2/10/2023 19/02/2024 4/03/2024 6/05/2024 11/06/2024		
pH	6/05/2024	The pH non-compliance is likely also attributed to the overloading and sludge accumulation issue in the polishing lagoon.	

No other parameters had exceedances in the reporting period.

45.5 Reuse Annual Reporting

No Recycled Water Scheme associated with this STP.

45.6 Ambient monitoring program

Table 45-F: Program details

Program	No Ambient Monitoring Program
Status	No ambient monitoring conducted during the reporting period
Update	No ambient monitoring conducted during the reporting period.
Comments	Not Applicable

45.7 Groundwater monitoring

Site Status: Red

The Queenstown STP groundwater monitoring network consists of two shallow bores, ID's QUGW1 and QUGW2, located along the eastern boundary of the STP. During the 6-monthly (March 2024) sampling round, bore ID QUGW1 was not sampled due to access restrictions. Bore ID was sampled QUGW2. Bore ID QUGW1 was sampled during the second (annual) sampling round in June 2024. Bore ID WUGW2 was unable to be sampled and requires maintenance. Surface water samples from the STP Lagoons and the Queen River (potential receiving environment) were collected during both sampling rounds.

The 2023-24 groundwater monitoring program reported that consistent with previous years, ammonia, total nitrogen and total phosphorus analytical results continue to be reported at elevated levels above guideline levels across the monitoring network. Whilst total phosphorous concentrations show an increasing trend at QUGW2 and probable trend at bore ID QUGW1 there were minor reduction in some nutrient concentrations. The 2023-24 report recommendations include continuation of 6-monthly sampling at across the bore network and the installation of a background bore to provide referencing of groundwater quality of the area.

6-monthly sampling at the extended analytical suite is scheduled to continue at both bores during the 2024-25 groundwater monitoring program. 6-monthly Surface samples of the STP lagoons and potential receiving environment (Queen River) is also scheduled to continue during 2024-25.

45.8 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 46 out of 108 in priority.

45.9 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 fully compliant with the 2023-24 SSMP.

No stockpiling occurred at this site.

Table 45-G: Desludging status and comments

Desludging status	Commentary
High Priority	The Queenstown SBR was de-sludged in 2022-23 as part of a TasWater CDO reconstruction project, removing 4.370 dst. Desludging of the polishing lagoon scheduled to occur in 2024-25, as per the current prioritization planning schedule.

Table 45-H: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation grade	Contamination grade	Biosolids classification	End use destination
4.4	5	None	U/C	U/C	U/C	Dulverton landfill

Notes: U/C = unclassified

45.10 Non-compliance with other permit requirements

Table 45-I: EPN non-compliance

EPN condition	Description of non-conformance	Future actions to be taken
EF2 Effluent quality limits for discharge to water	See section 45.3 Discharge compliance with permit limits and Performance Analysis.	See section 45.4 Discharge compliance with permit limits and Performance Analysis.
EM2/EM1 Effluent Reuse Feasibility Study	Effluent Reuse Feasibility Study overdue.	Partial RWS assessment to be included in DMP submission.
EM3 Discharge Management Plan	Discharge Management Plan 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.

45.11 Complaints and incident reporting

No complaints received or incidents occurred in the FY2023-24 reporting period.

45.12 Any other relevant information

None.

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

www.taswater.com.au