

63 St Helens STP

63.1 Activity and report details

Activity name	St Helens		
Activity address	Georges Bay, Esplanade Rd, St Helens		
Permit number	Licence to Operate - 7199	Date of issue	22/11/1988
EPN	10225/1	Date of issue	22/05/2020
Treatment level	Tertiary Treatment		
Authorised Dry Weather Flows	1500 (650 ADF) kL/day		
Key Influent Source	Residential/Industrial		
Contact person	Kate Westgate		
Report author	Jayden Taylor		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2023		

Figure 63-1: St Helens Sewage Treatment Plant



63.2 Monitoring and compliance summary

63.2.1 Flow data

Table 63-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	Georges Bay	No reuse scheme
Coordinates	E 605380 N 5424805	E 606680 N 5424195	NA
Method of Measurement	In line meter	In line meter	NA
Date of last Calibration/Validation (if applicable).	13/07/2022	26/09/2022	NA

Table 63-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 92120	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	731	69.8	22.35	--
August 2022	731	82.2	23.21	--
September 2022	859	104.0	23.91	--
October 2022	989	234.4	32.68	--
November 2022	1004	104.4	31.00	--
December 2022	674	74.8	20.06	--
January 2023	645	36.0	18.23	--
February 2023	652	52.6	16.61	--
March 2023	694	120.4	21.03	--
April 2023	974	81.4	29.36	--
May 2023	600	14.4	19.05	--
June 2023	698	127.0	20.67	--
Annual 2022-23	771	1101.4	278.17	--
% of Total Discharge	--	--	100.0%	--

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

63.2.2 Bypass events

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

The UV disinfection system was bypassed from 21 June 2022 until 3 March 2023. EPA Tasmania approved the use of temporary chlorination for the protection of the recreational and aquaculture activities within George's Bay during this period.

63.3 Discharge compliance with permit limits

Table 63-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	1	10	--	--	5	8.5	--	10	10
90th percentile	0.8	<5	--	8	--	--	1	--	5
50th Percentile	0.7	--	--	5	--	--	0.5	--	4
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	12	12	--	12	12	12	12	12	12
Number analysed	12	12	--	12	12	12	12	15	12
Statistical summary									
Max	0.3	<5	--	2.9	1.2	7.7	0.8	10	4.0
90th percentile	0.3	<5	--	2.6	1.0	7.7	0.5	10	4.0
50th percentile	0.2	<5	--	1.9	1.0	7.4	0.1	10	4.0
Min	0.1	<5	--	1.2	1.0	7.1	0.1	1	4.0
EPN Limit Compliance									
% compliance with Maximum	100%	100%	--	--	100%	--	--	100%	100%
% compliance with 90th percentile	100%	100%	--	100%	--	--	100%	--	100%
% compliance with 50th percentile	100%	--	--	100%	--	--	92%	--	100%
% compliance with pH range	--	--	--	--	--	100%	--	--	--

Minimum detection limit for BOD is 5 mg O₂/L.

Table 63-D: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	1886	Annual	571.1
Phosphorous (kg)	118	Annual	69.3
Method	Time weighted/Grab sample method		

No parameters have had exceedances in the FY period.

63.4 Reuse Annual Reporting

No Recycled Water Scheme associated with this STP.

63.5 Ambient monitoring program

Table 63-E: Program details

Program	St Helens AMP and in accordance with EPN Conditions.
Status	Ambient water quality and biological monitoring conducted within the reporting period.
Update	Seasonal ambient water quality, intertidal surveys, benthic infauna and sediment monitoring were undertaken in spring (October 2021) and autumn (April) 2022. Additional ambient water quality monitoring was undertaken from July -November 2022 as part of an EPA approved Emergency Management Plan and reported in the St Helens STP Receiving Environment Monitoring Report.
Comments	<p>An Ambient Monitoring Report (AMR) was submitted in March 2023 to fulfill compliance with the requirement to submit a Receiving Environment Monitoring Report. Key findings of ambient monitoring undertaken during the reporting period and described within the AMR were:</p> <ul style="list-style-type: none"> • Effluent and ambient water quality monitoring across seven sampling events suggest that the St Helens STP is having minimal impact on the water quality in the Georges Bay receiving environment. • An intermittent impact was seen on nutrient concentrations and concentrations of chlorophyll; however, the impacts did not extend beyond sampling sites closest to the outfall. • Little impact was seen in the receiving environment on concentrations of metals or total suspended solids. • Pathogens were elevated around the STP outfall on three sampling events although this was not reflective of pathogen concentrations in effluent at the time. • The water quality results suggest that the receiving environment of George’s Bay is subject to highly variable water quality conditions, consistent with a poorly flushed estuary. • Sediment contaminant testing found low concentrations of heavy metals throughout the monitoring area, however no correlations with distance from the STP outfall were observed. • Counts of benthic infauna were found to be lower at the STP outfall than at the surrounding survey sites, however proximity to the STP outfall did not appear to impact on the benthic infauna community composition. • Seagrass density and filamentous algal growth varied between seasons and across the monitoring area, with similar coverage recorded as in previous surveys. • Similarly, intertidal surveys found no association with habitat type and distance from the outfall. <p>Overall, the St Helens STP effluent discharge appears to be having a minimal impact on ambient water quality and benthic infauna communities within the Georges Bay receiving environment. It was also found that conditions within the receiving environment were highly variable, with fluctuations at reference sites often exceeding those observed at sites close to the STP outfall.</p>

63.6 Groundwater monitoring

Site status: Red – highly likely STP impacts

St Helens STP groundwater monitoring network consists of eight bores, ID numbers SHGW1-8. Biannual sampling was completed across the network in January 2023 and June 2023.

Nutrient levels exceed the adopted environmental protected value guideline criterion at most of the bores across the Site. Increasing concentrations of Total Phosphorous noted at bore ID SHGW3 with increasing concentrations of Ammonia noted at bore ID SHGW4.

Biannual sampling at the extended analytical suite is scheduled to continue across the network in the 2023-24 groundwater monitoring program.

63.7 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 51 out of 79 in priority.

Works this FY:

- Detailed network inspections of key areas in May – June 2023.

63.8 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 occurred.

Table 63-F: Biosolids sludge classification

Month	Number of Samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant Classification
Arsenic	12	6.3	5.1	4.2	6.4	A
Cadmium	12	0.9	0.7	0.6	1.0	A
Chromium	12	34.9	21.6	16.6	31.9	A
Copper	12	213.0	174.7	131.0	218.5	B
Lead	12	20.2	15.1	11.0	21.2	A
Mercury	12	1.0	0.6	0.18	1.1	B
Nickel	12	27.8	18.3	14.0	25.9	A
Zinc	12	540.0	452.8	365.0	545.2	B

Table 63-G: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation Grade	Contamination Grade	Biosolids Classification	End use destination
4.1	13.6 %	Aerobic digestion	B	B	2	Dulverton
6.7	13.6 %	Aerobic digestion	B	B	2	St Helens Farm

Table 63-H: Desludging comments

Desludging Status	Comments
Low Priority	St Helens STP 'flow equalisation' lagoons 1&2 are not part of the BAU plant process. The lagoons are utilised to buffer stormwater inflows during heavy rainfall events.

63.9 Non-compliance with other permit requirements

Table 63-I: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
OP2 Operational Procedures Manual	No contemporary Operational Procedures Manual	New SharePoint based solution for OPMs currently being developed. First version to be implemented by FY2024.
Q1 Regulatory Limits	Average daily flow data for the previous 12 months (except June 2023) has shown an average daily flow above 650 kL.	No current actions.
EF2 Signage of Discharge Locations	Sign for the discharge location is too low and small.	Height of sign raised. Communications with EPA ongoing to determine if now compliant.
M2 Flow Monitoring Equipment	Flow monitoring equipment not verified.	The verification of the St Helens flow meters has been rescheduled due to equipment repairs required on the verification unit. Verifications to occur in FY2024.
M3 Monitoring Requirements	Total residual chlorine not gathered in discharged effluent and temperature in groundwater measurements.	Total residual chlorine will be added to the routine monthly effluent monitoring sampling. Temperature will be noted within the groundwater monitoring sampling.
M5 Signage of Monitoring Points	Signage of monitoring point SHGW7 was not visible.	Rectification of signage for SHGW7 will occur in FY2024.
WM1 Controlled Waste Register	No destination recorded for screenings in Controlled Waste Register.	Destination records will be updated and recorded in the ongoing Controlled Waste Register for FY2024.

63.10 Complaints and incident reporting

No complaints reported during the FY2022-23 reporting period.

Table 63-J: Incident Reporting

Date	Category	Details	Mitigation Actions
26/10/2022	Lagoons Overtopping	Due to rainfall and flooding in the St Helens region, STP Lagoons were predicted to overtop the weir and discharge into Georges Bay.	EPA approved a controlled discharge of the lagoon to mitigate reoccurring overtopping events in the future.
21/3/2023	Disinfection	UV system replaced. Chlorine dosing occurred during the offline period.	Commissioned for use

63.11 Any other relevant information

A compliance EPA audit was completed on the 20 June 2023.

Table 63-K: Projects or significant operational events that occurred in FY 2022-23:

Project or significant operational event	Progress
St Helens UV Replacement Project	The UV disinfection system was successfully replaced this FY.

For further information on the St Helens STP please contact TasWater on 13 6992

www.taswater.com.au