

9 Round Hill (Burnie) STP

9.1 Activity and report details

Activity name	Round Hill (Burnie) STP		
Activity address	Bass Highway, Round Hill, Burnie		
Permit number	Permit Conditions Environmental - 6279	Date of issue	20/01/2004
	EPN	Date of issue	
EPN	7297/1	29/06/2007	
	7297/2	24/11/2022	
Treatment level	Tertiary (E3) - (Nitrogen + Phosphorus)		
Authorised Dry Weather Flows	9000 kL/day		
Key Influent Source	Residential/Industrial		
	4 x Category 3 Customers, 4 x Category 4 Customers		
Contact person	Kate Westgate		
Report author	George Fitzgibbon		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2023		

Figure 9-1: Round Hill (Burnie) Sewage Treatment Plant



9.2 Monitoring and compliance summary

9.2.1 Flow data

Table 9-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	Bass Strait	No reuse scheme
Coordinates	E 411382 N 5453406	E 411250 N 5453550	NA
Method of Measurement	In-line meter	In-line meter	NA
Date of last Calibration/Validation (if applicable).	8/07/22	8/07/22	NA

Table 9-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 91355	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	6,785	47.0	218.25	--
August 2022	6,785	134.2	210.34	--
September 2022	7,891	74.6	236.72	--
October 2022	10,122	195.4	313.78	--
November 2022	9,581	105.4	287.42	--
December 2022	7,295	17.6	226.14	--
January 2023	6,459	35.8	200.23	--
February 2023	6,280	30.4	175.84	--
March 2023	6,434	75.8	205.39	--
April 2023	5,964	44.4	186.39	--
May 2023	6,041	43.8	191.87	--
June 2023	8,201	169.4	251.17	--
Annual 2022-23	7,322	973.8	2,703.55	--
% of Total Discharge	--	--	100.0%	--

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

9.2.2 Bypass events

No bypass events in the reporting period.

9.3 Discharge compliance with permit limits

Table 9-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	5	20	1.0	15	5	8.5	5	750	30
90th percentile	2	15	--	10	2	--	3	500	20
50th Percentile	1	10	--	5	1	--	1	200	10
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	52	52	52	52	52	52	52	52	52
Number analysed	52	52	0*	52	52	52	52	52	51
Statistical summary									
Max	14.4	133	--	16.2	7.7	7.4	13.1	24196	59.0
90th percentile	6.5	30	--	11.4	1.1	7.3	3.7	2611	21.3
50th percentile	1.3	11	--	6.4	1.0	7.1	1.4	52	8.5
Min	0.2	5	--	2.4	1.0	6.8	0.2	10	4.0
EPN Limit Compliance									
% compliance with Maximum	81%	83%	--	96%	98%	--	92%	77%	94%
% compliance with 90th percentile	67%	73%	--	85%	96%	--	88%	71%	88%
% compliance with 50th percentile	37%	46%	--	23%	88%	--	38%	67%	59%
% compliance with pH range	--	--	--	--	--	100%	--	--	--

*This site does not currently use chlorine

Table 9-D: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	26300	Yearly	19348.8
Phosphorous (kg)	7250	Yearly	5651.1
Method	Flow weighted/Composite method		

Table 9-E: Data gaps

Parameter	Location	Date of sample	Frequency	Reason for gap
TSS	Burnie STP Effluent	20/07/2022	W	Laboratory error. Sample discarded prior to testing.

Table 9-F: Performance Analysis (Discharge to environment)

Effluent Compliance Parameter	Date(s) of non-compliance		Reasons for non-compliance	Actions to improve performance
Ammonia	27/07/2022	01/03/2023	Compliance exceedances for ammonia, BOD, suspended solids, and nitrogen were all caused by operating the plant on a single SBR, which was required due to decanter issues. These mechanical issues have been resolved.	Mechanical issues resolved. No further action undertaken
	03/08/2022	7/06/2023		
	10/08/2022	14/06/2023		
	24/08/2022	21/06/2023		
	18/01/2023	28/06/2023		
	12-month 90 th percentile limit exceeded			
	12-month 50 th percentile limit exceeded			

BOD	13/07/2022	31/05/2023		
	27/07/2022	7/06/2023		
	02/11/2022	14/06/2023		
	21/12/2022	28/06/2023		
	18/01/2023			
	12-month 90 th percentile limit exceeded			
	12-month 50 th percentile limit exceeded			
TSS	13/10/2022			
	7/06/2023			
	28/06/2023			
	12-month 90 th percentile limit exceeded			
E. coli	10/08/2022	25/01/2023	Fault with UV system flow meter caused intermittent underdosing while the system experienced high flows and high effluent turbidity. A new flow meter has been installed and flow pace dosage has been restored.	A comprehensive service is scheduled to restore full operability of the unit.
	17/08/2022	01/02/2023		
	24/08/2022	15/02/2023	Issues with the automatic wipers have resulted in reduced performance from the UV lamps leading to E. coli non-compliance.	
	18/01/2023			
	31/05/2023	21/06/2023		
	7/06/2026	28/06/2023		
	14/06/2023			
	12-month 90 th percentile limit exceeded			
Nitrogen	7/06/2023		Compliance exceedances for ammonia, BOD, suspended solids, and nitrogen were all caused by operating the plant on a single SBR, which was required due to decanter issues. These mechanical issues have been resolved.	No further action required
	21/06/2023			
	12-month 90 th percentile limit exceeded			
	12-month 50 th percentile limit exceeded			

Phosphorus	13/10/2022 01/03/2023 31/05/2023 7/06/2023	There is no control within the chemical phosphorous removal system to account for rapid fluctuation in P loading. This results in occasional no compliance.	Investigation into the improvement of dosing control for chemical phosphorous removal.
	12-month 50 th percentile limit exceeded		
	12-month 90 th percentile limit exceeded		
O&G	7/06/2023	The reason for this exceedance is not fully understood.	No specific actions planned for this reporting period.

No other parameters have had exceedances in the FY period.

9.4 Reuse Annual Reporting

No Recycled Water Scheme associated with this STP.

9.5 Ambient monitoring program

Table -G: Program details

Program	Burnie (Round Hill) AMP in accordance with EPN Conditions
Status	Ambient water quality and biological monitoring completed during the reporting period.
Update	Ambient water quality and biological monitoring was completed as per the EPN in the 2022-2023 reporting period. An Ambient Monitoring Report has been submitted separately.
Comments	<p>A summary of the ambient water quality and biological monitoring reported in the Burnie (Round Hill) STP Ambient Monitoring Report 2022 is provided below:</p> <ul style="list-style-type: none"> • The February 2022 survey recorded the macroalgal communities along two 200 m transects to the east and west from the outfall and at reference sites 500m to the east and west of the outfall. Algal community structure was like previous years with no new evidence that the discharge of effluent is directly affecting the marine algal community or of nutrient enrichment resulting in excessive growth of macroalgal species in the vicinity of the Burnie STP outfall. • Water quality monitoring in February and August 2022 supported the results of the marine biological monitoring, indicating that the STP effluent discharge is having minimal impact on the receiving environment. Measures of temperature, salinity, dissolved oxygen, pH, and turbidity in the receiving environment did not appear to be influenced by the STP effluent discharge. Similarly, concentrations of nutrients, chlorophyll, and metals did not show a discernible pattern in concentration change with distance from the outfall. These results are generally congruent with the findings of ambient monitoring undertaken in 2020. • Impacts on Protected Environmental Values for primary and secondary recreational contact were observed in the immediate vicinity of the Burnie STP discharge point with an elevation in pathogens above the NHMRC category A value for primary contact to 100 m east of the outfall. The UV-disinfection system was non-operational on the 23 August 2022 and this was likely the cause of the elevation in pathogens in the receiving environment. These impacts were not observed in the prior monitoring when the system was operational on the 17 February 2022. <p>The results of the ambient water quality and biological monitoring conducted in February and August 2022 suggest that the Burnie STP effluent discharge is having minimal impact on the biology of the surrounding receiving environment.</p>

9.6 Groundwater monitoring

No groundwater monitoring program associated with this STP.

9.7 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 ranked 34 out of 79 in priority.

9.8 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 9-H: Biosolids sludge classification summary

Month	Number of Samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant Classification
Arsenic	12	5.3	3.7	2.4	5.5	A
Cadmium	12	1.3	1.0	0.8	1.4	B
Chromium	12	49.9	29.8	21.1	46.6	A
Copper	12	244.0	208.3	164.0	252.2	B
Lead	12	86.8	61.2	39.3	93.0	A
Mercury	12	1.1	0.7	0.03	1.3	B
Nickel	12	53.5	35.9	25.7	55.0	A
Zinc	12	777.0	606.1	480.0	759.0	B

Table 9-I: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation Grade	Contamination Grade	Biosolids Classification	End use destination
507.51	15.5%	None	U/C	B	U/C	Dulverton composting

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

9.9 Non-compliance with other permit requirements

Table 9-J: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
O1 Quality Limits for Odour Emission	TasWater has received several odour complaints attributed to a malfunction in the decanter of SBR 1, resulting in significant overloading of SBR 2	Continue to monitor performance and condition of decanter arm and VSD to help prevent nuisance odours in the future.
Operations Manual	No contemporary Operational Procedures Manual	New SharePoint based solution for OPMs currently being developed. First version to be implemented by FY2024.
E5 Effluent Quality Limits	Discharge compliance with permit limits	See section 9.3 Discharge compliance with permit limits

9.10 Complaints and incident reporting

Table 9-K: Complaints Reporting

Date	Category	Details	Mitigation Actions
15/05/2023	Odour	Odour from the STP	The SBR was offline to repair crack in the decanter arm. Please refer to Section 9.3 for further details regarding mitigation actions.
9/03/2023 17/03/2023	Odour	Odour from the STP	There were no known process issues at the plant. No mitigation actions implemented.

Table 9-L: Incident Reporting

Date	Category	Details	Mitigation Actions
17/05/2023	SBR	SBR offline for decant arm support bracket and digester repairs for up to 10 days from 29 May 2023. Problematic SBR offline, resulting in a temporary decrease in effluent quality. Elevated BOD, TSS, nitrogen, and increased odour expected and reported to EPA.	Treatment processes were optimised, including monitoring retention times, mixing, and aeration, to maximise treatment efficiency in the remaining SBR. Operators used SCADA and operational sampling to monitor and adjust operational parameters as needed.
14/11/2022	SBR	Electrical fault in decanter arm of SBR 1. Taken offline to repair. SBR back online 15 November 2022.	Monitored closely by OC and on-call staff given plant at reduced capacity during the evening. Inspected by contractor and turned back on following morning.

9.11 Any other relevant information

For further information on the Burnie STP contact TasWater on 13 6992

www.taswater.com.au