

## 18 Cygnet STP

### 18.1 Activity and report details

Activity name	Cygnet STP		
Activity address	Channel Highway, Cygnet		
Permit number	Licence to Operate - 3489	Date of issue	14/10/1991
EPN	8533/1	Date of issue	20/01/2017
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	400 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 18-1: Cygnet Sewage Treatment Plant



## 18.2 Monitoring and compliance summary

### 18.2.1 Flow data

Table 18-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	Port Cygnet Bay	No reuse scheme
Coordinates	E507390 N5220470	507444E 5220400N	NA
Method of Measurement	Level Sensor	Estimate based on influent	NA
Date of last Calibration/Validation (if applicable).	26/07/2022	13/07/2022	NA

Table 18-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 94040	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	444	39.6	13.76	--
August 2022	788	150.8	24.42	--
September 2022	487	66.4	14.61	--
October 2022	471	105.8	14.61	--
November 2022	574	80.4	17.22	--
December 2022	364	64.0	11.27	--
January 2023	258	25.8	7.99	--
February 2023	258	66.4	7.21	--
March 2023	238	39.8	7.37	--
April 2023	225	33.4	6.75	--
May 2023	229	48.2	7.11	--
June 2023	236	86.6	7.08	--
Annual 2022-23	382	807.2	139.41	0.00
% of Total Discharge	--	--	100.0%	0.0%

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

## 18.2.2 Bypass events

Table 18-C: Bypass events summary

Start Date	End Date	Duration	Estimate Volume	Bypass Description	Cause	Mitigation Action
16/08/2022	18/08/2022	37 hours	NA	Primary Treatment	Stormwater infiltration/Rainfall event	Aeration shut down and chlorine dosing set on manual

## 18.3 Discharge compliance with permit limits

Table 18-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	20	1.5	25	2	8.5	10	400	20
90th percentile	--	--	--	--	--	--	--	--	--
50th Percentile	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	12	12	12	12	12	12	12	12	12
Number analysed	12	12	12	12	12	13	12	12	12
Statistical summary									
Max	36.8	50	1.69	39.1	4.9	8.5	10.4	24196	34.0
90th percentile	20.2	32	1.47	30.3	4.3	8.0	4.6	12735	23.6
50th percentile	4.8	13	1.20	17.6	1.7	7.4	3.2	10	7.7
Min	0.5	5	0.52	4.1	1.0	6.8	0.7	10	4.0
EPN Limit Compliance									

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Total suspended solids
% compliance with Maximum	50%	75%	92%	75%	58%	--	92%	83%	75%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	100%	--	--	--

Table 18-E: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	--	Annual	2432.8
Phosphorous (kg)	--	Annual	406.4
Method	Time weighted/Grab sample method		

Table 18-F: Performance Analysis (Discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
E. coli	27/10/2022 23/02/2023	There was a significant rainfall event >20mm in the days leading up to the non-compliance on the 27/10/22. Increased flows reduced the effectiveness of the disinfection system. High flows through the plant on the 23/2/23 caused the contact tank to fill after the normal	No specific action undertaken
Chlorine	23/02/2023		

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
BOD	27/10/2022 14/12/2022 14/04/2023	decant/disinfect cycle had completed. This reduced the contact time in the tank causing the chlorine and E. coli failure.	
Oil and Grease	07/07/2022 10/08/2022 27/10/2022	The treatment process is not capable of producing a well-treated secondary effluent, and not the quality required by the site's emission limits. The emission limits for BOD, TSS are typical limits set for a tertiary treatment facility, and the oil and grease limit is exceptionally low.	
TSS	24/11/2022 14/12/2022		
Ammonia	14/09/2022 24/11/2022 14/12/2022		The treatment process is not specifically designed or capable of removing ammonia and nitrogen, in part due to aeration system limitations.
Nitrogen	09/01/2023 23/02/2023		
Phosphorus	07/03/2023		
	14/12/2022		

No other parameters had exceedances in the reporting period.

## 18.4 Reuse Annual Reporting

No Recycled Water Scheme associated with this STP.

## 18.5 Ambient monitoring program

Table 18-G: Program details

<b>Program</b>	As per PCE
<b>Status</b>	No ambient monitoring undertaken during reporting period
<b>Update</b>	Not applicable
<b>Comments</b>	Cygnet Outfall Relocation Project to be commissioned in FY 2023-24 with a post new outfall commissioning ambient monitoring plan to be implemented.

## 18.6 Groundwater monitoring

Site Status: Red – highly likely STP impacts.

Bi-annual sampling was completed at all three monitoring bores (ID's: CYGW1-3) in September 2022 and April 2023.

Results indicate STP is likely impacting the groundwaters. Groundwater levels continue to show similar trends across the monitoring network, with bore ID's CYGW1 and CYGW3 increasing in depth and CYGW2 remaining relatively stable. The likely receiving environment continues to be the tidal zone of Huon estuary. A number of water quality parameters continued to exceed the short and long-term guideline values (predominately bore IDs CYGW1 and 2). The trend analysis (Mann Kendall) indicated increasing trends in both ammonia and total nitrogen at bore ID CYGW2. Biological indicators were reported at or below the laboratory limit of reporting at all bores currently indicating a minimal risk to the receiving water from biological hazards. Works are planned in FY2024 to repair cracks in the concrete within the retention basin.

Biannual sampling at the extended suite is planned to continue during the 2023-24 groundwater monitoring program at all three bores. Biannual sampling at the Cygnet STP lagoons and receiving environment is also planned. Refer to Table 18-I regarding future works to STP.

## 18.7 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 2 out of 79 in priority (high).

## 18.8 Sludge and Biosolids

The latest revision to the Sewage Sludge Management Plan (SSMP) includes full details of the actions undertaken during the reporting period.

There are no sludge/biosolids dewatering facilities at this site, with the un-stabilised sludge being transferred via liquid sludge transport to Macquarie Point STP, no stockpiling occurs. This STP was fully compliant with the 2022-23 Sewage Sludge Management Plan.

Table 18-H: Desludging status and comments

Desludging Status	Comments
Continual removal	Sludge at Cygnet is removed from the sludge lagoon approximately monthly and is taken to Macquarie Point for additional treatment.

## 18.9 Non-compliance with other permit requirements

Table 18-I: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
EF2 Effluent quality limits for discharge to water	Discharge compliance with permit limits	See section 18.3 Discharge compliance with permit limits and Performance Analysis.
EM1/EM4 Discharge Management Plan	Discharge Management Plan overdue.	Submission timeframe FY2027. Plan in development for DMP submission dates following post new outfall commissioning AMP
EM3 Emission Limit Guidelines Compliance Plan	Not complete.	Risk based emission limits are to be confirmed after new outfall relocation project commissioned and implementation of post new outfall commissioning ambient monitoring plan (PNOC-AMP). New outfall timing is as per TasWater WWRMP in FY2023-24.
OP2 Operational Procedures Manual	No contemporary Operational Procedures Manual.	New SharePoint based solution for OPMMs currently being developed. First version to be implemented by FY24.
OP5 Lagoon Liner	Historical groundwater monitoring results have indicated potential leakage from Cygnet STP into local groundwater. See Annual GW Reports	TasWater has undertaken three levels of investigation to better understand the issues regarding leakage from the Cygnet STP site. Works are planned in FY2024 to repair cracks in the concrete within the retention basin.

## 18.10 Complaints and incident reporting

No complaints reported during 2022-23 reporting period.

Table 18-J: Incident Reporting

Date	Category	Details	Mitigation actions
16/10/2022	Mechanical	Concrete weir plate failure. There was likely significant wash out of the microorganisms within the pasveer ditch.	Weir plate was fixed. 6 monthly PM put in the system to check the condition of the concrete weir chain/pulley system.

### 18.11 Any other relevant information

Table 18-K: Projects or significant operational events that occurred in FY 2022-23:

Project or significant operational event	Progress
Cygnet STP new outfall relocation	New outfall drilling component completed in July 2023. Land based pipeline to be completed FY2024.

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

[www.taswater.com.au](http://www.taswater.com.au)