11 Cameron Bay STP

11.1 Activity and report details

Activity name	Cameron Bay STP		
Activity address	Cameron Bay, Berridale, Hobart		
Permit number	Licence to Operate - 3539	**Date of issue**	18/04/1990
EPN	7061/2 8845/1	**Date of issue**	7/04/2020 5/03/2013
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	6000 kL/day		
Key Influent Source	Residential/Industrial/Tankered 1 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 11-1: Cameron Bay Sewage Treatment Plant

11.2 Monitoring and compliance summary

11.2.1 Flow data

Table 11-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	Derwent River	Effluent Reuse Scheme - Claremont Golf Club
Coordinates	E521123 N5260214	521387E 5260379N	E521251 N5260232
Method of Measurement	In-line flow monitor	Level sensor	In-line flow monitor
Date of last Calibration/Validation (if applicable).	5/02/23	5/02/23	5/02/23

Table 11-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 94258	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	4,971	19.2	153.50	0.60
August 2022	6,961	84.4	215.78	0.00
September 2022	5,574	46.4	166.70	0.53
October 2022	5,443	80.2	163.73	5.01
November 2022	5,311	52.0	156.45	2.89
December 2022	4,942	46.6	142.81	10.40
January 2023	4,489	6.0	116.80	22.37
February 2023	4,823	39.4	119.25	15.79
March 2023	4,801	35.8	143.98	4.86
April 2023	4,556	22.8	133.29	3.40
May 2023	4,704	26.4	140.85	4.98
June 2023	4,451	60.6	132.46	0.00
Annual 2022-23	5,089	519.8	1,785.59	70.83
% of Total Discharge	--	--	96.2%	3.8%

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

11.2.2 Bypass events

Table 11-C: Bypass events summary

Bypass ID:	CAMST01-OPD				
Bypass description:	Pumped overflow from the primary pump station wet well into the chlorine contact tank				
Treatment bypassed:	Secondary Treatment				
Treatment level of impacted effluent:	Screened, De-gritted, Primary Treated and Chlorinated				
Flows exceeding:	270 L/s (Approximate)				
Discharge location:	Cameron Bay STP outfall: 521387E, 5260379N (GDA94)				
Start date / time	**End date / time**	**Duration**	**Volume estimate**	**Cause**	**Response actions**
14/08/2022 05:53:00	14/08/2022 18:26:00	12.55 h	6953 kL	Rainfall Event	No specific actions undertaken
14/08/2022 21:39:00	15/08/2022 00:36:00	2.95 h	515 kL	Rainfall Event	No specific actions undertaken
15/08/2022 09:27:00	15/08/2022 21:16:00	11.82 h	3122 kL	Rainfall Event	No specific actions undertaken
16/09/2022 17:03:00	16/09/2022 19:41:00	2.63 h	572 kL	Rainfall Event	No specific actions undertaken
22/10/2022 13:10:00	22/10/2022 15:19:00	2.15 h	440 kL	Rainfall Event	No specific actions undertaken
26/10/2022 09:28:00	26/10/2022 14:23:00	4.92 h	755 kL	Rainfall Event	No specific actions undertaken
27/10/2022 09:39:00	27/10/2022 16:32:00	6.88 h	1412 kL	Rainfall Event	No specific actions undertaken
27/10/2022 21:16:00	28/10/2022 00:54:00	3.63 h	709 kL	Rainfall Event	No specific actions undertaken
28/10/2022 14:36:00	28/10/2022 23:10:00	8.57 h	2058 kL	Rainfall Event	No specific actions undertaken
15/11/2022 09:06:00	15/11/2022 09:39:00	0.55 h	126 kL	Rainfall Event	No specific actions undertaken
13/12/2022 22:04:00	13/12/2022 23:23:00	1.32 h	252 kL	Rainfall Event	No specific actions undertaken

1/01/2023 19:10:00	1/01/2023 19:11:00	0.02 h	11 kL	Rainfall Event	No specific actions undertaken
10/06/2023 13:05:00	10/06/2023 13:26:00	0.35 h	69 kL	Rainfall Event	No specific actions undertaken
23/06/2023 07:22:00	23/06/2023 15:48:00	8.43 h	1052 kL	Rainfall Event	No specific actions undertaken

11.3 Discharge compliance with permit limits

Table 11-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	15	15	1.0	40	10	8.5	15	1000	20
90th percentile	10	10	--	35	--	--	10	500	15
50th Percentile	5	5	--	30	--	--	--	200	10
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	52	52	52	52	52	52	52	52	52
Number analysed	52	52	52	52	52	52	52	52	52
Statistical summary									
Max	15.8	31	1.90	40.7	2.7	7.4	7.2	24196	23.6
90th percentile	2.3	15	0.99	34.8	1.7	7.4	6.3	523	10.4
50th percentile	0.5	5	0.80	29.3	1.0	7.2	5.3	10	4.2
Min	0.1	5	0.18	19.3	1.0	6.6	2.2	10	4.0
EPN Limit Compliance									
% compliance with Maximum	98%	90%	94%	98%	100%	--	100%	90%	96%
% compliance with 90th percentile	98%	79%	--	90%	--	--	100%	88%	96%
% compliance with 50th percentile	96%	62%	--	62%	--	--	--	88%	87%
% compliance with pH range	--	--	--	--	--	100%	--	--	--

Table 11-E: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	72270	Annual	52194.1
Phosphorous (kg)	23000	Annual	9517.0
Method	Flow weighted/Composite method		

Table 11-F: Performance Analysis (Discharge to environment)

Parameter	Date(s) of Non-compliance		Reasons for Non-compliance	Actions to improve performance
E. coli	05/07/2022 12/07/2022 09/08/2022	06/09/2022 13/09/2022	Process upset/disturbance. Cause unknown, Possible catchment loading issue. E. coli breakthrough probably caused by increased chlorine demand due to upset.	No specific actions undertaken in reporting period
	12-month 90th percentile limit exceeded			
Chlorine	28/09/2022 15/11/2022	28/12/2022	During the process disturbance the dose rate was increased to match the increased demand. As the process stabilised, the dose rate was reduced, with occasional exceedances.	Manually adjust the dose setpoint Installing online chlorine analysers in the contact tank to monitor the chlorine concentration.
BOD	09/08/2022 16/08/2022 23/08/2022	30/08/2022 06/09/2022	The exact reason for these non-compliances has not conclusively been determined, however increased catchment loading may have been a contributing factor. Slightly elevated suspended solids concentrations were also experienced at these times.	No specific actions undertaken in reporting period
	12-month 90th percentile limit exceeded			
Ammonia	30/08/2022		Process upset/disturbance. Cause unknown, Possible catchment loading issue.	No specific actions undertaken in reporting period
TSS	16/08/2022	6/06/2023		
Nitrogen	28/03/2023		Minimal exceedance with unknown cause	No specific actions undertaken in reporting period

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

No other parameters have had exceedances in reporting period.

11.4 Reuse Annual Reporting

The recycled water scheme is located across the bay, immediately north of the STP and supplies Class B recycled water to one customer, Claremont Golf Club, for irrigation purposes.

Table 11-G: 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	52	52	52
Number analysed	52	52	52
Statistical summary			
Max	31	7.4	24196
90th percentile	15	7.4	523
50th percentile	5	7.2	10
Min	5	6.6	10
Summary of results			
% compliance with Maximum	100%	--	98%
% compliance with 90th percentile	--	--	--
% compliance with 50th percentile	--	--	90%
% compliance with pH range	--	100%	--

Note: Percentages reflective of complete dataset for the year.

No parameters had exceedances in reporting period when discharging to reuse.

The annual soil sampling was completed at Site's 1 and 2 on 9 November 2022. The annual compliance audit field component was also completed on 9 November 2022 with a follow up phone audit on 3 March 2023.

Table 11-H: Annual recycled water scheme compliance audit and soil monitoring summary

Program	Compliance audit	Soil monitoring
Compliance status	Non-compliant: IEMP does not reflect current site conditions (e.g. buffer zones to residential development) Recycled water was supplied to an unapproved second dam to the west of the current approved storage dam.	Soil salinity remained similar at both sites whilst soil sodicity increased at Site 1 and remained unchanged at Site 2. Both sites remain non-saline and non-sodic. Recycled water salinity and SAR quality data suggests there is no risk of soil permeability loss from recycled water irrigation. Below historic highs, phosphorous levels are considered excessive at Site 1 and high at Site 2. The amount of phosphorous applied in recycled

Comments		water (median 5.6mg/L) potentially exceeds soil factor losses at typical recycled water application rates.
	The report recommended: IEMP be updated to include amended buffer zones, nominated recycled water and potable water irrigation areas.	The report recommended: Actively reduce phosphorous levels by removing grass clippings from the site. Applying fertiliser or other soil amendment products containing phosphorous is not advised. Careful irrigation management to prevent over irrigation (and therefore nutrient accumulation) is remains important at this site to remain sustainable.

Raw soil monitoring data and all recommendations have been provided to the recycled water customer through the annual auditing and soil monitoring program.

TasWater has been in consultation with the recycled water customer to discuss TasWater's requirements following the customer re-filling the second dam and the customer receiving advice from NRE there is no requirement from the dam regulator to register the second dam.

11.5 Ambient monitoring program

No on-going monitoring program. Large scale 12-month ambient program completed in 2016, discharge management assessment completed in 2019 to review risk and impact of discharge to inform future capital planning.

Table 11-I: Program details

Program	NA – No requirement for ambient monitoring in the reporting period
Status	NA
Update	NA
Comments	NA

11.6 Groundwater monitoring

No groundwater monitoring program associated with the STP or RWS.

11.7 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 18 out of 79 in priority.

11.8 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 at this site.

Table 11-J: Biosolids sludge classification

Month	Number of Samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant Classification
Arsenic	12	3.6	3.0	2.4	3.9	B
Cadmium	12	1.2	0.9	0.7	1.2	B
Chromium	12	39.7	25.6	17.3	39.6	B
Copper	12	561	474.8	396	565.9	B
Lead	12	26.4	21.4	16.9	27.3	B
Mercury	12	2.57	0.6	0.03	1.9	B
Nickel	12	29.7	20.9	16.9	27.6	B
Zinc	12	972	779.6	589	1023.5	B

Table 11-K: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation Grade	Contamination Grade	Biosolids Classification	End use destination
186.04	14.3%	Anaerobic digestion	B	B	2	Richmond Farm. Coronation Hotel-Runnymede. Delmore Farm. Flexmore Park Farm. Whitemarsh Farm-Runnymede.

Notes: DST = Dry solid tonne.

11.9 Non-compliance with other permit requirements

Table 11-L: EPN Non-compliances

EPN Condition	Description of non-conformance	Current and Future Actions to prevent Non-Compliance
A1 Odour Management	Odour exceeds 2 OU limits on occasions at the site boundary	Capital projects to reduce the odour impact Refer to Section 11.11 for more details
EF3 Effluent quality limits for discharge to water	Discharge compliance with permit limits	See section 11.3 Discharge compliance with permit limits 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.

11.10 Complaints and Incident Reporting

Table 11-M: Complaints Reporting

Date	Category	Details	Mitigation Actions
3/10/2022	Waste Management	EPA has received a complaint about a large number of waste tyres being	Spare tyres removed from site. Investigations undertaken. Decision taken not to remove tyres.

		used on site at Cameron Bay WWTP to form walls.	
23/01/2023	Odour	Strong odour from the treatment plant.	Inspection undertaken. Odour mitigation project stage 1 completed.
8/12/2022	Odour	Strong odour from the treatment plant.	Inspection undertaken. Odour mitigation project stage 1 completed.

Table 11-N: Incident Reporting

Date	Category	Details	Mitigation Actions
3/03/2023	Effluent	Potential over-chlorination of effluent at Cameron Bay STP.	Investigations by the operators revealed a large spider on the flow sensor which caused the unit to interpret a higher level of flow than was actually occurring. The area has been thoroughly cleaned and the spider removed.
1/03/2023	Mechanical	Clarifier 2 at Cameron Bay STP is offline due to a bearing failure in the motor.	The clarifier being offline has not impacted the process. This will continue to be monitored (e.g. solids carryover in effluent). The new motor is scheduled to be installed next week and the clarifier to be turned online.

11.11 Any other relevant information

Table 11-O: Projects or significant operational events that occurred in FY 2022-23:

Project or significant operational event	Progress
Cameron Bay STP odour dispersion model update	Winter samples were collected in June 2023 and planning for summer sample collection in February 2024. The updated odour dispersion model will be available in May 2024.
New Dewatering Press	The dewatering press was successfully commissioned on the 3 March 2023 and was working within its operating envelope. The flows will vary dependant on the solids in the feed water, but the operating envelope will be 11m/hr to 17m3/hr of digested sludge being dewatered.

For further information on Cameron Bay STP please contact TasWater on 13 6992

www.taswater.com.au