43 Prince of Wales (POW) STP

43.1 Activity and report details

Activity name	Prince of Wales (POW) STP		
Activity address	Derwent Park Road, Prince of Wales Bay, Hobart		
Permit number	Licence to Operate - 3540	**Date of issue**	8/03/1991
EPN	9208/1 8545/1	**Date of issue**	13/06/2018 05/03/2013
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	9900 kL/day		
Key Influent Source	Residential/Industrial/Tankered 6 x Category 3 Customers, 3 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 43-1: Prince of Wales Sewage Treatment Plant

43.2 Monitoring and compliance summary

43.2.1 Flow data

Table 43-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	Derwent River	No reuse scheme
Coordinates	E 524957 N 5257635	E 525066 N 5258516	NA
Method of Measurement	In line meter	Level sensor	NA
Date of last Calibration/Validation (if applicable).	19/02/2023	19/02/2023	NA

Table 43-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 94030	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	8,902	25.4	275.96	--
August 2022	9,500	62.8	294.50	--
September 2022	9,747	59.8	292.42	--
October 2022	9,418	87.9	291.94	--
November 2022	9,635	66.3	289.05	--
December 2022	9,572	61.7	296.73	--
January 2023	9,021	4.9	279.64	--
February 2023	9,399	49.4	263.17	--
March 2023	8,911	31.2	276.24	--
April 2023	8,274	23.6	248.22	--
May 2023	7,784	21.0	241.29	--
June 2023	8,839	61.7	265.17	--
Annual 2022-23	9,080	555.7	3,314.34	0.00
% of Total Discharge	--	--	100.0%	0.0%

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

43.2.2 Bypass events

Table 43-C (i): Bypass events summary for POWST01 - OPD

Bypass ID:	POWST01-OPD				
Bypass description:	Pumped bypass from primary effluent pump station to chlorine contact tank				
Treatment bypassed:	Secondary Treatment				
Treatment level of impacted effluent:	Screened, De-gritted, Primary Treated and Chlorinated				
Flows exceeding:	340 L/s (Approximate)				
Discharge location:	Derwent Estuary: 525066E, 5258516N (GDA94)				
Start date / time	**End date / time**	**Duration**	**Volume estimate**	**Cause**	**Response actions**
14/08/22 04:04	15/08/22 01:54	21.8 h	5692 kL	Rainfall Event	No specific actions undertaken
15/08/22 08:12	16/08/22 12:10	28.0 h	15545 kL	Rainfall Event	No specific actions undertaken
20/08/22 13:16	20/08/22 13:18	0.0 h	10 kL	Rainfall Event	No specific actions undertaken
22/08/22 08:00	22/08/22 11:02	3.0 h	163 kL	Rainfall Event	No specific actions undertaken
30/08/22 13:21	30/08/22 13:23	0.0 h	5 kL	Rainfall Event	No specific actions undertaken
01/09/22 14:35	01/09/22 15:05	0.5 h	36 kL	Rainfall Event	No specific actions undertaken
10/09/22 10:51	10/09/22 13:57	3.1 h	352 kL	Rainfall Event	No specific actions undertaken
16/09/22 13:45	16/09/22 19:43	6.0 h	510 kL	Rainfall Event	No specific actions undertaken
18/09/22 10:41	18/09/22 10:43	0.0 h	5 kL	Rainfall Event	No specific actions undertaken
06/10/22 16:15	06/10/22 16:17	0.0 h	5 kL	Rainfall Event	No specific actions undertaken
07/10/22 16:09	07/10/22 17:35	1.4 h	107 kL	Rainfall Event	No specific actions undertaken
14/10/22 10:41	14/10/22 10:57	0.3 h	10 kL	Rainfall Event	No specific actions undertaken

14/10/22 18:09	14/10/22 19:01	0.9 h	36 kL	Rainfall Event	No specific actions undertaken
17/10/22 10:07	17/10/22 10:09	0.0 h	5 kL	Rainfall Event	No specific actions undertaken
19/10/22 13:59	19/10/22 15:15	1.3 h	31 kL	Rainfall Event	No specific actions undertaken
20/10/22 11:03	20/10/22 13:01	2.0 h	61 kL	Rainfall Event	No specific actions undertaken
22/10/22 12:07	22/10/22 18:47	6.7 h	1367 kL	Rainfall Event	No specific actions undertaken
23/10/22 19:15	23/10/22 19:17	0.0 h	5 kL	Rainfall Event	No specific actions undertaken
24/10/22 16:31	24/10/22 17:43	1.2 h	15 kL	Rainfall Event	No specific actions undertaken
25/10/22 08:55	25/10/22 13:57	5.0 h	204 kL	Rainfall Event	No specific actions undertaken
26/10/22 07:49	28/10/22 23:27	63.6 h	11388 kL	Rainfall Event	No specific actions undertaken
29/10/22 10:41	29/10/22 12:29	1.8 h	61 kL	Rainfall Event	No specific actions undertaken
15/11/22 09:39	15/11/22 12:22	2.7 h	265 kL	Rainfall Event	No specific actions undertaken
20/11/22 07:25	20/11/22 07:45	0.3 h	97 kL	Rainfall Event	No specific actions undertaken
11/12/22 23:38	12/12/22 00:08	0.5 h	153 kL	Rainfall Event	No specific actions undertaken
13/12/22 21:38	13/12/22 23:38	2.0 h	459 kL	Rainfall Event	No specific actions undertaken
02/02/23 16:59	02/02/23 17:39	0.7 h	199 kL	Rainfall Event	No specific actions undertaken
04/02/23 08:09	04/02/23 08:59	0.8 h	143 kL	Rainfall Event	No specific actions undertaken
10/02/23 08:44	10/02/23 10:14	1.5 h	102 kL	Rainfall Event	No specific actions undertaken
21/02/23 13:32	21/02/23 13:42	0.2 h	51 kL	Rainfall Event	No specific actions undertaken
26/02/23 04:12	26/02/23 06:32	2.3 h	816 kL	Rainfall Event	No specific actions undertaken
07/03/23 19:12	07/03/23 20:22	1.2 h	153 kL	Rainfall Event	No specific actions undertaken
29/04/23 12:52	29/04/23 13:02	0.2 h	51 kL	Rainfall Event	No specific actions undertaken
03/05/23 08:42	03/05/23 09:02	0.3 h	102 kL	Rainfall Event	No specific actions undertaken
31/05/23 17:21	31/05/23 19:11	1.8 h	291 kL	Rainfall Event	No specific actions undertaken
10/06/23 11:57	10/06/23 13:47	1.8 h	444 kL	Rainfall Event	No specific actions undertaken

17/06/23 16:37	17/06/23 16:47	0.2 h	92 kL	Rainfall Event	No specific actions undertaken

Table 43-D (ii): Bypass events summary for POWST01 - OP

Bypass ID:	**POWST01-OP**				
Bypass description:	Primary effluent pump station overflow to outfall				
Treatment bypassed:	Secondary Treatment, Disinfection (Chlorine)				
Treatment level of impacted effluent:	Screened, De-gritted, Primary Treated				
Flows exceeding:	510 L/s (Approximate)				
Discharge location:	Derwent Estuary: 525066E, 5258516N (GDA94)				
Start date / time	**End date / time**	**Duration**	**Volume estimate**	**Cause**	**Response actions**
14/08/22 06:40	14/08/22 16:06	9.4 h	6587 kL	Rainfall Event	No specific actions undertaken
26/02/23 04:22	26/02/23 06:02	1.7 h	570 kL	Rainfall Event	No specific actions undertaken

43.3 Discharge compliance with permit limits

Table 43-E: 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	32	65	1.0	45	10	8.5	10	500	30
90th percentile	--	--	--	--	--	--	--	--	--
50th Percentile	--	--	--	--	--	--	--	--	--
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	44.6	90	1.98	47.4	3.9	7.5	8.0	24196	59.0
90th percentile	27.6	58	1.10	37.9	1.8	7.4	5.4	71	11.7
50th percentile	11.2	24	0.57	30.2	1.0	7.2	4.4	10	5.4
Min	0.8	6	0.06	13.6	1.0	6.8	1.5	10	4.0
EPN Limit Compliance									
% compliance with Maximum	92%	90%	85%	96%	100%	--	100%	96%	98%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	100%	--	--	--

Table 43-F: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	--	Annual	102400.1
Phosphorous (kg)	--	Annual	14599.6
Method	Flow weighted/Composite method		

Table 43-G: Performance Analysis (Discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance		Reasons for non-compliance	Actions to improve performance
E. coli	19/07/2022 23/05/2023		The poor result from the 23/5/2023 is due to the aeration tank 1 coming back online after the mixer was repaired. There are occasions of variable chlorine demand, with the total chlorine residual increasing when the dose rates have remained the same, or even reduced. It is suspected that variability due to trade waste and tankered waste may have been a contributing factor.	Regular review and adjustment of chlorine dose rates.
Chlorine	2/08/2022 9/08/2022 24/01/2023 21/02/2023	28/03/2023 4/04/2023 16/05/2023 20/06/2023		
TSS	8/11/2022		The cause of the TSS failure is unknown, effluent turbidity trends were within normal ranges.	No specific actions undertaken.
BOD	6/07/2022 12/07/2022 19/07/2022	26/07/2022 20/12/2022	BOD non-compliances typically occurred during times of process upset, which were typically believed to be due to trade waste and tankered waste.	Process settings adjusted as best as possible following review of process trends.
Ammonia	3/05/2023 9/05/2023 16/05/2023 20/06/2023		The process not designed as a nutrient removal plant. Nitrogen removal is incidental as part of the BOD removal process.	No specific actions undertaken.

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
Nitrogen	16/05/2023 20/06/2023		

No other parameters had exceedances in the reporting period.

43.4 Reuse Annual Reporting

No Recycled Water Scheme associated with this STP.

43.5 Ambient monitoring program

No ongoing routine ambient monitoring program

Table 43-H: Program details

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

43.6 Groundwater monitoring

No groundwater monitoring program associated with the STP.

43.7 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 22 out of 79 in priority.

43.8 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 43-I: Biosolids sludge classification summary

Month	Number of Samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant Classification
Arsenic	12	4.0	2.8	2.1	4.1	A
Cadmium	12	13.5	5.2	3.2	10.9	B
Chromium	12	51.4	36.5	24.8	52.4	B
Copper	12	589.0	473.6	416	566.2	B
Lead	12	69.9	41.5	33	62.0	A
Mercury	12	5.7	1.7	0.73	4.3	B
Nickel	12	30.4	24.5	17.9	30.8	A
Zinc	12	1670.0	1347.5	1040	1810.2	B

Table 43-J: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation Grade	Contamination Grade	Biosolids Classification	End use destination
317.42	23.0%	Anaerobic digestion	B	B	2	Richmond Farm. Coronation Hotel-Runnymede. Delmore Farm. Flexmore Park Farm. Whitemarsh Farm-Runnymede.
155.27	23.0%	Anaerobic digestion	B	U/C	U/C	Copping Landfill

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

43.9 Non-compliance with other permit requirements

Table 43-K: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
EF3 Effluent quality limits for discharge to the River Derwent	Discharge compliance with permit limits	See section 43.3 Discharge compliance with permit limits and Performance Analysis
OP3 Operational Procedures and Maintenance Manual	No contemporary Operational Procedures Manual	New SharePoint based solution for OPMMs currently being developed. First version to be implemented in FY24
EM3 (8545/1) Discharge Management Plan	Discharge Management Plan overdue	Plan in development for DMP submission dates following on from agreed format between TasWater and EPA in 2021

43.10 Complaints and incident reporting

Table 43-L: Complaints Reporting

Date	Category	Details	Mitigation Actions
16/06/2023	Odour	Odour complaint	No issues were identified at the STP on investigation. Clarifier #2 had been online for a number of weeks since being offline. Potentially could have occurred through shock load of trade waste which only lasted a short period or alternate nearby source.

Table 43-M: Incident Reporting

Date	Category	Details	Mitigation Actions
17/01/2023	Mechanical	Aeration failure in clarifier. Process upset and trade waste being diverted to Mac Point.	New aerator will be commissioned in March/April
17/04/2023	Mechanical	The mixer arm on Primary Clarifier 1 failed. The tank was drained, and the mixer arm inspected for rectification requirements. Possible odour and	Mixer arm repaired. Results indicate the secondary clarifier issue has not had a significant

		effluent quality impacts as aeration will be significantly reduced.	impact on effluent quality. No odour complaints received either.
26/06/2023	Process upset	Elevated TSS trends (30-100mg/l) from 26 July - 3 August 2022. Caused by tankered waste loading upsetting process.	Investigation undertaken. No significant impact on receiving environment

43.11 Any other relevant information

Table 43-N: Projects or significant operational events that occurred in FY 2022-23:

Project or significant operational event	Progress
NA	NA

For further information on the Prince of Wales STP please contact TasWater on 13 6992

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