57 Selfs Point STP

57.1 Activity and report details

Activity name	Selfs Point STP		
Activity address	Self's Point Road, Newtown, Hobart		
Permit number	Licence to Operate - 3513	**Date of issue**	5/12/1995
EPN	9797/1 10344/1 8548	**Date of issue**	16/08/2018 15/01/2020 05/02/2013
Treatment level	Tertiary Treatment		
Authorised Dry Weather Flows	13000 kL/day		
Key Influent Source	Residential/Industrial 5 x Category 3 Customers, 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 57-1: Selfs Point Sewage Treatment Plant

57.2 Monitoring and compliance summary

57.2.1 Flow data

Table 57-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Sewer Inlet	Derwent River	Effluent Reuse Scheme
Coordinates	E 526076 N 5256001	E 530121 N 5248369	NA
Method of Measurement	In line meter	In line meter	NA
Date of last Calibration/Validation (if applicable).	16/05/23	16/05/23	NA

Table 57-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	10,377	25.4	265.74	0.00
August 2022	10,377	62.8	303.33	0.00
September 2022	10,699	59.8	272.76	0.00
October 2022	12,386	87.9	303.38	0.00
November 2022	11,017	66.3	277.94	2.00
December 2022	8,638	61.7	225.48	2.00
January 2023	9,416	4.9	227.18	2.00
February 2023	10,350	49.4	215.99	2.00
March 2023	8,662	31.2	233.07	2.00
April 2023	9,411	23.6	212.08	0.00
May 2023	9,710	21.0	219.82	0.00
June 2023	10,015	61.7	231.75	0.00
Annual 2022-23	10,084	555.7	2,988.52	10.00
% of Total Discharge	--	--	99.7%	0.3%

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

57.2.2 Bypass events

Table 57-C(i): Bypass events summary for SELST01-BPD

Bypass ID:	**SELST01-BPD**				
Bypass description:	Storm tanks full and overflowing to the start of the chlorine contact tank				
Treatment bypassed:	Secondary Treatment				
Treatment level of impacted effluent:	Screened, Primary Treated, Secondary Treatment (Trickling filter only), Disinfection (UV and Chlorine, only partial treatment if **SELST01-OFD** active)				
Flows exceeding:	~260 L/s				
Discharge location:	Blinking Billy outfall: 530090E, 5248376N (GDA94) AND Derwent Estuary short outfall: 526908E, 5256119N (GDA94) IF **SELST01-OFD** active				
Start date / time	**End date / time**	**Duration**	**Volume estimate**	**Cause**	**Response actions**
03/11/22 15:01	03/11/22 15:02	0.0 h	2 kL	Rainfall Event	No specific actions undertaken
15/11/22 08:55	15/11/22 20:12	11.3 h	1058 kL	Rainfall Event	No specific actions undertaken
13/12/22 20:58	13/12/22 23:48	2.8 h	174 kL	Rainfall Event	No specific actions undertaken
14/12/22 08:08	14/12/22 13:08	5.0 h	203 kL	Rainfall Event	No specific actions undertaken

Table 57-C (ii): Bypass events summary for SELST01-OFD

Bypass ID:	SELST01-OFD				
Bypass description:	Overflow to short outfall from final effluent wet well AND/OR from contact tank inlet channel				
Treatment bypassed:	Disinfection (UV & Chlorine) *This bypass has 2 overflow points, one before and one after disinfection. The resulting bypass flow will be partially disinfected*				
Treatment level of impacted effluent:	Screened, Primary Treated, Secondary Treatment (Only if **SELST01-BPD** is NOT active), Partial Disinfection (UV & Chlorine, see above)				
Flows exceeding:	~230L/s				
Discharge location:	Derwent Estuary short outfall: 526908E, 5256119N (GDA94)				
Start date / time	**End date / time**	**Duration**	**Volume estimate**	**Cause**	**Response actions**
16/08/22 13:26	16/08/22 13:28	0.0 h	5 kL	Rainfall Event	No specific actions undertaken
13/11/22 18:45	13/11/22 19:05	0.3 h	133 kL	Rainfall Event	No specific actions undertaken
15/11/22 08:55	15/11/22 22:02	13.1 h	2225 kL	Rainfall Event	No specific actions undertaken
13/12/22 21:18	14/12/22 02:48	5.5 h	486 kL	Rainfall Event	No specific actions undertaken
14/12/22 08:08	14/12/22 13:58	5.8 h	726 kL	Rainfall Event	No specific actions undertaken

Table 57-C (iii): Bypass events summary for SELST01-OND-1

Bypass ID:	SELST01-OND-1				
Bypass description:	Inlet pump station overflow to short outfall				
Treatment bypassed:	Primary Treatment, Secondary Treatment, Disinfection				
Treatment level of impacted effluent:	Screened				
Flows exceeding:	~ 450 – 570 L/s				
Discharge location:	Derwent Estuary short outfall: 526908E, 5256119N (GDA94)				
Start date / time	**End date / time**	**Duration**	**Volume estimate**	**Cause**	**Response actions**
22/10/2022 13:01	22/10/2022 13:52	0.9 h	Unknown	Rainfall Event	No specific actions undertaken
26/10/2022 9:27	26/10/2022 13:10	3.7 h	Unknown	Rainfall Event	No specific actions undertaken
15/11/2022 12:20	15/11/2022 12:31	0.2 h	Unknown	Rainfall Event	No specific actions undertaken
18/12/2022 19:44	18/12/2022 20:24	0.7 h	Unknown	Rainfall Event	No specific actions undertaken
26/02/2023 4:21	26/02/2023 4:37	0.3 h	Unknown	Rainfall Event	No specific actions undertaken
22/06/2023 22:26	23/06/2023 1:53	3.5 h	Unknown	Rainfall Event	No specific actions undertaken
23/06/2023 6:42	23/06/2023 7:57	1.3 h	Unknown	Rainfall Event	No specific actions undertaken

* The volume of this bypass cannot be calculated as it occurs BEFORE the plant inlet flow meter

57.3 Discharge compliance with permit limits

Table 57-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	2	15	1.0	10	5	8.5	3	750	20
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	4.2	16	2.20	12.5	2.5	7.5	8.9	24196	9.9
90th percentile	2.2	8	2.20	9.8	1.1	7.4	2.7	2125	8.6
50th percentile	0.2	5	0.65	7.2	1.0	7.3	0.8	85	4.3
Min	0.1	5	0.07	3.3	1.0	6.9	0.1	10	4.0
EPN Limit Compliance									
% compliance with Maximum	87%	98%	73%	96%	100%	--	94%	79%	100%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Total suspended solids
% compliance with pH range	--	--	--	--	--	100%	--	--	--

Table 57-E: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	--	Annual	20885.3
Phosphorous (kg)	--	Annual	3873.8
Method	Flow weighted/Composite method		

Table 57-F: Performance Analysis (Discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance		Reasons for non-compliance	Actions to improve performance
E. coli	12/07/2022 26/07/2022 2/08/2022 9/08/2022 16/08/2022	15/11/2022 13/12/2022 20/12/2022 10/01/2023 24/01/2023 2/05/2023	*E.coli* exceedances likely due to low chlorine residual. Some instances of high chlorine are related to elevated ammonia, since chlorine decays more slowly in the presence of ammonia. This is a particular issue due to the limited contact time in the chlorine contact tank. The system is not capable of automatically adjusting the chlorine dose rate in order to achieve a target chlorine residual concentration. The chlorine concentration at the environmental discharge point is expected to be significantly lower (~10 km pipeline).	Upgrade to the PLC and SCADA system to allow control improvements if required (completed August 2022). Chlorine control is included in the scope of the Selfs point upgrade project.
Chlorine	5/07/2022 13/09/2022 27/09/2022 28/12/2022 3/01/2023	21/02/2023 28/02/2023 7/03/2023 14/03/2023 21/03/2023		

Effluent compliance parameter	Date(s) of non-compliance		Reasons for non-compliance	Actions to improve performance
	7/02/2023 14/02/2023	28/03/2023 4/04/2023		
BOD	16/08/2022		The BOD failure is associated with a wet weather event. Reduced hydraulic retention time in the aeration tank and increased hydraulic load on the clarifier causes increased BOD.	No specific actions undertaken.
Ammonia	5/07/2022 24/01/2023 21/02/2023 7/03/2023	14/03/2023 21/03/2023 28/03/2023	Ammonia failures are typically associated with lower dissolved oxygen concentrations in the aeration tanks caused by increases in organic loading on the process.	Regular process adjustments to minimise ammonia and nitrogen exceedances.
Nitrogen	9/08/2022 13/12/2022		Increases in the aerobic fraction in the aeration tanks provides good ammonia removal, however, prevents sufficient denitrification from occurring	
Phosphorus	5/07/2022 9/08/2022 13/06/2023		Increased phosphorus load to the secondary treatment process causes increased effluent phosphorous	No specific actions undertaken.

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

No other parameters had exceedances in the reporting period.

57.4 Reuse Annual Reporting

The Selfs Point STP supplies recycled water for irrigation of sporting grounds at the Selfs Point recycled water scheme located Friends School Sports Ground. Following the May 2023 site visit to the RWS by representatives of the EPA and DoH and their review of the site Irrigation and Environmental Management Plan (IEMP) developed in 2020 to address the provision of Class B recycled water to the School sporting grounds, the supply of recycled water to the scheme has ceased until such time the microbial criteria for Class A recycled water can be met.

Table 57-G: Reuse Compliance Summary

Parameter	BOD5	pH	E coli
Permit/EPN limit	mg/L	Units	MPN/100ml
Maximum	10	9.0	--
90th percentile	--	--	--
50th Percentile	--	--	10
Minimum	--	5.5	--
Samples analysed			
Number required	52	52	52
Number analysed	52	52	52
Statistical summary			
Max	16	7.5	24196
90th percentile	8	7.4	2125
50th percentile	5	7.3	85
Min	5	6.9	10
Summary of results			
% compliance with Maximum	90%	--	--
% compliance with 90th percentile	--	--	--
% compliance with 50th percentile	--	--	19%
% compliance with pH range	--	100%	--

Table 57-H: Performance analysis (Discharge to reuse)

Reuse Compliance Parameter	Date(s) of non-compliance	Reasons for non-compliance	Future actions to improve performance
BOD	3/01/2023 14/02/2023	See Table 57-F: Performance Analysis (Discharge to environment)	See Table 57-F: Performance Analysis (Discharge to environment)

* Non-compliances only identified for the times STP has discharged to reuse

Annual soil sampling was completed at two sites (Site 1 and Site 2) at the RWS in November 2022. The annual compliance audit as reviewed against the 2020 Site Irrigation and Environmental Management Plan (IEMP) was completed in conjunction with the soil sampling with a follow up phone audit in December 2022. A summary of the findings of the programs is provided in the below table.

Table 57-I: Annual recycled water scheme compliance audit and soil monitoring summary

Program	Compliance audit	Soil monitoring
Compliance status	Minor non-compliance: Inadequate signage at front gate and boundary fence. Some inconsistences with IEMP – controls in place to manage potential risk caused by spray drift.	Soil salinity decreased at both sites whilst soil sodicity increased but remains within historical range. Site 1 is classified as slightly non-saline and non-sodic. Site 2 slightly saline and sodic. Nutrient levels are comparable to historical data. Phosphorus levels remain high at both sites, potassium is high at site 1 whilst sulphur level is high at site 2.
Comments	Signage at entrance gate is outdated and required to be in a more visible location. Signage is also required at the Brooker highway side of oval.	Recycled water quality data suggest only a slight to moderate risk of soil permeability loss from the application of recycled water. While elevated salinity is at both sites leaching from rainfall has appeared to effectively managed levels historically. Elevated nutrient levels attributed to fertiliser use and not recycled water irrigation.

57.5 Ambient monitoring program

Table 57-J: Program details

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

57.6 Groundwater monitoring

The Selfs Point groundwater monitoring network consisted of one groundwater monitoring bore (ID CBGW1) which was located at a historic recycled water irrigation customer. This bore has been lost and no longer included in the groundwater monitoring program. TasWater will investigate the monitoring requirements of this STP and RWS going forward.

57.7 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 47 out of 79 in priority.

Works this FY:

- Flow monitoring of New Town catchment. Review of next steps is in progress.

57.8 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 57-K: Biosolids sludge classification summary

Month	Number of Samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant Classification
Arsenic	12	2.8	2.0	0.5	3.3	A
Cadmium	12	2.2	0.6	0.1	1.7	B
Chromium	12	19.8	12.8	3.2	22.0	A
Copper	12	770.0	491.9	140.0	821.0	B
Lead	12	16.5	10.1	2.4	19.0	A
Mercury	12	0.6	0.4	0.12	0.7	A
Nickel	12	15.2	11.1	2.2	18.1	A
Zinc	12	406.0	267.7	80.6	456.9	B

Table 57-L: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation Grade	Contamination Grade	Biosolids Classification	End use destination
867.31	20.7%	Anaerobic digestion	B	B	2	Richmond Farm. Coronation Hotel-Runnymede. Delmore Farm. Flexmore Park Farm. Whitemarsh Farm-Runnymede.

Notes: DST = Dry solid tonne.

57.9 Non-compliance with other permit requirements

Table 57-M: EPN non-compliances

EPN 9797/1 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 57.3 Discharge compliance with permit limits and Performance Analysis
EF3 Effluent quality limits for discharge to a reuse scheme	Discharge compliance with reuse permit limits - Not Class A	See section 57.4 Reuse Annual Reporting and Performance Analysis
EM3 Discharge Management Plan	Discharge Management Plan overdue.	The long-term plan for this site is a major upgrade to include rationalisation of Macquarie Point STP. TasWater will work with EPA to resolve this non-compliance during FY2024.
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 in FY24
EPN 10344/1 Condition	**Description of non-conformance**	**Future Actions to be taken**
M1 (1.2) and M1 (4)	Show Cause Notice received on 11/07/2022 – sampling requirements for PFAS not strictly adhered to.	Full dataset of available sample analysis provided to EPA. Internal processes have been reviewed, improved and implemented by TasWater to address the non-compliance. No further instances of non-compliance.

57.10 Complaints and incident reporting

No complaints received during 2022-23 reporting period.

Table 57-N: Incident Reporting

Date	Category	Details	Mitigation Actions
6/07/2022	Process upset	The chlorine dosing injector had become fouled during manual dosing operations as part of an operations maintenance project (SCADA Upgrade) which involved a temporary power shut-down and alternate pumps and delivery network being used. The estimated flow during this period was 865 kL. All flow during this period went to the licenced Blinking Billy outfall discharge point.	The chlorine injector disassembled for cleaning. Pre-flushing stand-by network prior to connecting to service will be undertaken in the future.
4/07/2022	Mechanical	Clarifier Bridge Failure occurred. This may have caused an increase of sludge in Clarifier A, which may have in turn increased the solids in the effluent	Repaired and effluent quality returned to normal.
21/04/2023	Power Outage	Selfs Point STP main switchboard UPS failed. This resulted in a complete plant power outage for about 20 minutes (11.25am to 11.50am). All overflows we contained within the storm flow tanks then recirculated back to the inlet for treatment.	Electrically inspected and plant power was restored by by-passing the UPS circuit.

57.11 Any other relevant information

Table 57-O: Projects or significant operational events that occurred in FY 2022-23:

Project or significant operational event	Progress
Selfs Point STP Upgrade (this includes the decommissioning and transfer of flows from Macquarie Point STP)	Project in detailed design stage. EIS in draft, final version due for submission to EPA FY2024.

For further information on the Selfs Point STP please contact TasWater on 13 6992

www.taswater.com.au