44 Prospect Vale STP

44.1 Activity and report details

Activity name	Prospect Vale STP		
Activity address	Pitcher Parade, Prospect Vale, Launceston		
Permit number	Licence to Operate - 3590 Permit No. DA067/00	**Date of issue**	13/12/1988 20/09/2000
EPN	7958/2	**Date of issue**	23/09/2011
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	1720 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 44-1: Prospect Vale Sewage Treatment Plant

44.2 Monitoring and compliance summary

44.2.1 Flow data

Table 44-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	Dalrymple Creek then South Esk River	No reuse scheme
Coordinates	E507981 N5408607	E507790 N5408870	NA
Method of Measurement	In line meter	In line meter	NA
Date of last Calibration/Validation (if applicable).	13/09/2022	13/07/2022	NA

Table 44-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 91072	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	1,508	27.8	46.76	--
August 2022	2,529	88.9	78.40	--
September 2022	1,754	62.5	52.62	--
October 2022	2,410	120.4	74.97	--
November 2022	1,859	59.8	55.77	--
December 2022	1,453	49.7	45.05	--
January 2023	1,256	31.2	38.94	--
February 2023	1,279	24.8	35.81	--
March 2023	1,365	69.9	42.30	--
April 2023	1,410	57.6	42.30	--
May 2023	1,424	25.2	44.15	--
June 2023	2,322	117.6	69.67	--
Annual 2022-23	1,716	735.4	626.75	--
% of Total Discharge	--	--	100.0%	--

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

44.2.2 Bypass events

Table 44-C: Bypass events summary

Bypass ID:	PROST01-BPSD				
Bypass description:	Inlet pump station overflow to secondary lagoon 2				
Treatment bypassed:	Secondary Treatment (SBR)				
Treatment level of impacted effluent:	Screened, Secondary Treatment (Lagoon), Lagoon UVD				
Flows exceeding:	52L/s (Approximate)				
Discharge location:	Dalrymple Creek: 507790E, 5408870N (GDA94)				
Start date / time	**End date / time**	**Duration**	**Volume estimate**	**Cause**	**Response actions**
03/08/22 07:50	03/08/22 22:58	15.1 h	1720 kL	Rainfall Event	No specific actions undertaken
04/08/22 02:48	05/08/22 03:08	24.3 h	3534 kL	Rainfall Event	No specific actions undertaken
05/08/22 07:37	05/08/22 21:01	13.4 h	896 kL	Rainfall Event	No specific actions undertaken
06/08/22 09:51	06/08/22 11:44	1.9 h	116 kL	Rainfall Event	No specific actions undertaken
14/08/22 10:11	14/08/22 12:27	2.3 h	7 kL	Rainfall Event	No specific actions undertaken
16/08/22 09:49	16/08/22 14:36	4.8 h	480 kL	Rainfall Event	No specific actions undertaken
18/08/22 10:26	18/08/22 13:41	3.3 h	1 kL	Rainfall Event	No specific actions undertaken
08/09/22 10:32	08/09/22 12:21	1.8 h	111 kL	Power/Equipment failure	Rectified. Bypassed to lagoons and not environment.
14/09/22 10:49	14/09/22 11:04	0.3 h	15 kL	Rainfall Event	No specific actions undertaken
13/10/22 10:41	15/10/22 08:28	45.8 h	3673 kL	Rainfall Event	No specific actions undertaken
31/10/22 20:43	01/11/22 09:28	12.8 h	1489 kL	Power/Equipment failure	Rectified. Bypassed to lagoons and not environment.
03/11/22 11:28	03/11/22 11:38	0.2 h	4 kL	Power/Equipment failure	Rectified. Bypassed to lagoons and not environment.

14/11/22 12:40	14/11/22 17:45	5.1 h	275 kL	Rainfall Event	No specific actions undertaken
12/12/22 13:42	12/12/22 14:31	0.8 h	207 kL	Power/Equipment failure	Rectified. Bypassed to lagoons and not environment.
22/12/22 14:47	22/12/22 21:02	6.3 h	224 kL	Power/Equipment failure	Rectified. Bypassed to lagoons and not environment.
25/05/23 14:23	25/05/23 16:35	2.2 h	138 kL	Rainfall Event	No specific actions undertaken
31/05/23 22:10	31/05/23 23:57	1.8 h	278 kL	Rainfall Event	No specific actions undertaken
09/06/23 02:43	09/06/23 04:40	2.0 h	244 kL	Rainfall Event	No specific actions undertaken
18/06/23 21:18	19/06/23 01:28	4.2 h	551 kL	Rainfall Event	No specific actions undertaken
25/06/23 10:24	25/06/23 20:33	10.2 h	554 kL	Rainfall Event	No specific actions undertaken

44.3 Discharge compliance with permit limits

Table 44-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	20	--	20	10	8.5	10	200	30
90th percentile	--	--	--	--	--	--	--	--	--
50th Percentile	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	12	12	--	12	12	12	12	12	12
Number analysed	12	12	--	12	12	12	12	12	12
Statistical summary									
Max	7.9	39	--	12.4	1.6	8.5	10.8	684	70.0
90th percentile	5.7	29	--	10.5	1.2	7.9	9.0	478	52.5

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Total suspended solids
50th percentile	4.6	5	--	8.5	1.0	7.6	4.8	141	11.2
Min	0.013	5	--	5.8	1.0	7.2	3.1	10	4.0
EPN Limit Compliance									
% compliance with Maximum	100%	75%	--	100%	100%	--	92%	58%	75%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	100%	--	--	--

Table 44-E: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	--	Annual	5366.2
Phosphorous (kg)	--	Annual	3334.3
Method	Time weighted/Grab sample method		

Table 44-F: Performance Analysis (Discharge to environment)

Effluent compliance parameter		Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
E. coli	2/11/2022 7/12/2022 8/02/2023	8/03/2023 3/05/2023	Disinfection via a polishing lagoon is a passive system with no direct controls. Significant sludge accumulation in the polishing lagoon leads to short-circuiting and reduced treatment.	No specific actions taken in reporting period Prioritisation for desludging lagoons

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
BOD	7/09/2022 8/02/2023 8/03/2023	Presence of algae in the polishing ponds during warmer months is believed to be the primary reason for elevated BOD and suspended solids.	No specific actions taken in reporting period
TSS	11/01/2023 8/02/2023 8/03/2023		
Phosphorus	5/04/2023	Prospect Vale STP is not designed for phosphorus removal, which cannot be directly controlled.	No specific actions taken in reporting period

No other parameters had exceedances in the reporting period.

44.4 Reuse Annual Reporting

No Recycled Water Scheme associated with this STP.

44.5 Ambient monitoring program

Table 44-G: Program details

Program	Routine monthly monitoring during recreation season and biological monitoring
Status	Ambient water quality and biological monitoring completed during the reporting period.
Update	Ambient water quality and biological monitoring has been undertaken within Dalrymple Creek and at Duck Reach in the South Esk River during the reporting period.
Comments	Ambient water quality monitoring was conducted on a monthly basis during the recreational period (October 2022- April 2023) during effluent discharges into Dalrymple Creek, with water quality monitoring undertaken within Dalrymple Creek, upstream in the South Esk River at Trevallyn Dam and downstream at Duck Reach. Key findings from the ambient water quality monitoring data review were: • The Default Guideline Value (DGV) for ammonia was exceeded on numerous occasions within Dalrymple Creek including November 2022, January, April and May 2023. The DGV was not exceeded at the Duck Reach downstream monitoring location within the South Esk River but did exceed the EPA South Esk Catchment DGV in January 2023 and exceeded upstream levels within Trevallyn Dam. • Nitrate levels within Dalrymple Creek exceeded the DGV in July 2022 but on all other occasions was below this value. Nitrate levels within Duck Reach were all well below the EPA DGVs during monitoring throughout the recreational period. • Total nitrogen and total phosphorus levels downstream of the effluent discharge within Dalrymple Creek were elevated on most monitoring occasions and significantly exceeded the EPA catchment DGVs. Nitrogen levels in Trevallyn Dam exceeded Duck Reach levels on most occasions except in December 2022. Nitrogen levels within Trevallyn Dam and in Duck Reach exceed the EPA DGVs on all occasions during the recreational monitoring period. • Phosphorus levels were also slightly elevated at the Duck Reach monitoring location above the EPA DGV with levels exceeding those within Trevallyn Dam from December 2022 to March 2023. • Enterococci and *E. coli* levels were elevated within Dalrymple Creek especially from December 2022 – May 2023. Enterococci levels at the Duck Reach downstream monitoring location exceeded the NHMRC low risk primary contact GV in February & March 2023, but were well within the DoH recreational water guidelines on all occasions. Enterococci and *E. coli* levels were significantly elevated within Trevallyn Dam in November – December 2022, but were below low risk GV on all other occasions during the recreational monitoring period. • No BGA (species of concern) were detected in Trevallyn Dam nor Duck Reach during the recreational monitoring period. Biological monitoring was undertaken in autumn (April) 2022 and in autumn (March) 2023 during effluent discharges into Dalrymple Creek and the South Esk River. The summarised findings of biological monitoring were: • In both autumn 2022 and autumn 2023, the macroinvertebrate fauna in the South Esk River downstream of the Trevallyn Dam was in poor condition, with relatively low taxa diversity at all three sample sites. • In autumn 2022, AUSRIVAS analysis of both the upstream and downstream monitoring locations from the effluent discharge were placed in impairment band C ('severely impaired'), while the most downstream site was placed in impairment band D ('extremely impaired'). In autumn 2022, the TRCI analyses rated all three sites in Extremely Poor overall condition. • In autumn 2023, the AUSRIVAS analysis placed the upstream site in impairment band D ('extremely impaired') and the two downstream sites in impairment band C ('severely impaired').

	• In summary, in both autumn 2022 and autumn 2023, there was no evidence of effluent discharges (via Dalrymple Creek) on the macroinvertebrate fauna in the South Esk River downstream of the discharge. Effluent discharges into Dalrymple Creek have a significant impact on water quality within this ephemeral creek. Effluent discharges into the South Esk River have minimal impacts on recreational PEVs and there is likely minor eutrophication impacts. Trevallyn Dam water quality and flows have greater influence on water quality and aquatic ecosystem impacts especially during the recreational monitoring period.

44.6 Groundwater monitoring

Site status: Green – Limited STP impact (2022 report)

Prospect Vale STP groundwater monitoring network consists of four groundwater bores, ID numbers PVGW1-4. Due to timing and resourcing constraints no monitoring was completed in 2022-23 reporting period. In response biannual sampling is scheduled at all four bores in the 2023-24 groundwater monitoring program.

44.7 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 11 out of 79 in priority.

44.8 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 was fully compliant with the 2022-23 SSMP.

Table 44-H: Desludging status and comments

Desludging Status	Comments
High Priority	Desludging scheduled to occur in 2024, as per the current prioritisation planning schedule.

Table 44-I: Stockpile comments

Stockpile onsite	Volume of stockpile (estimated dst)
Stockpile in lagoon 1	Sludges from several sources stored in lagoon 1, ~ 1500 tonnes. Estimated 540dst biosolids

44.9 Non-compliance with other permit requirements

Table 44-J: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
EF2 Effluent quality limits to Dalrymple Creek	Discharge compliance with permit limits	See section 44.3 Discharge compliance with permit limits and Performance Analysis
EM1 Effluent Management	Effluent Reuse Feasibility study and Discharge Management Plan overdue.	Effluent reuse feasibility study dependant on LSIP outcome.
EM3 Discharge Management Plan	Discharge Management Plan overdue.	Submission timeframe TBC. Plan in development for DMP submission dates following on from agreed format between TasWater and EPA.

44.10 Complaints and Incident Reporting

Table 44-K: Complaints Reporting

Date	Category	Details	Mitigation actions
17/02/2023	Odour	Sewer odour coming from settling ponds	TasWater investigated and found no process upsets attributable to odour at the site. No specific actions taken overall in this case.

No incidents reported during the FY2022-23 reporting period.

44.11 Any other relevant information

Table 44-L: Projects or significant operational events that occurred in FY2022-23:

Project or significant operational event	Progress
Fencing of wetlands and remediation	Wetlands fencing delayed awaiting Meander Valley Council (MVC) agreement with MOU. Budget secured and confirmation of project work timing pending MOU agreement. Wetlands remediation to occur post rationalisation of STP within LSIP.
Launceston Sewerage Improvement Program (LSIP)	Prospect Vale is currently being reviewed for fast track rationalisation to Ti-Tree Bend within LSIP.

For further information on the Prospect Vale STP please contact TasWater on 13 6992
www.taswater.com.au