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	Luisa Romero (Environmental Scientist)		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2024		

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).	1/11/2023	12/11/2023	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 2023	2,306	79.4	71.47	--
August 2023	2,202	57.4	68.26	--
September 2023	1,641	27.4	49.23	--
October 2023	1,411	41.2	43.75	--
November 2023	1,371	39.6	41.13	--
December 2023	1,436	56.6	44.52	--
January 2024	1,520	52.0	47.13	--
February 2024	1,294	10.8	37.54	--
March 2024	1,212	14.4	37.58	--
April 2024	1,351	55.4	40.53	--
May 2024	1,358	61.0	42.09	--
June 2024	1,695	80.0	50.85	--
Annual 2023-24	1,573	575.2	574.08	--
% of Total Discharge	--	--	100.0%	--

2023-24 monthly flow data was submitted directly to the EPA.

44.3 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**
08/07/23 08:38	08/07/23 16:19	7.7 h	1140 kL	Rainfall Event	No specific actions undertaken
28/07/23 09:55	28/07/23 13:43	3.8 h	551 kL	Rainfall Event	No specific actions undertaken
04/08/23 14:00	04/08/23 23:41	9.7 h	1412 kL	Rainfall Event	No specific actions undertaken
21/10/23 21:47	21/10/23 22:22	0.6 h	37 kL	Rainfall Event	No specific actions undertaken
27/12/23 19:28	27/12/23 20:28	1.0 h	132 kL	Rainfall Event	No specific actions undertaken
17/01/24 11:27	17/01/24 17:58	6.5 h	989 kL	Rainfall Event	No specific actions undertaken
10/02/24 22:58	10/02/24 23:46	0.8 h	43 kL	Power Failure	Rectification
02/04/24 09:03	02/04/24 10:03	1.0 h	35 kL	Rainfall Event	No specific actions undertaken
30/05/24 21:10	30/05/24 21:56	0.8 h	14 kL	Rainfall Event	No specific actions undertaken
11/06/24 07:32	11/06/24 16:34	9.0 h	1033 kL	Rainfall Event	No specific actions undertaken
29/06/24 03:44	29/06/24 14:15	10.5 h	1290 kL	Rainfall Event	No specific actions undertaken

44.4 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	15.0	20	--	20.0	10.0	8.5	10.0	200	30.0
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	10.3	27	--	13.1	1.0	8.5	9.9	616	40.1
90th percentile	6.4	26	--	11.3	1.0	8.4	9.7	481	30.9
50th percentile	4.8	7	--	8.3	1.0	7.8	6.8	274	9.0
Min	2.6	5	--	5.9	1.0	7.4	2.7	20	4.0
EPN Limit Compliance									
% compliance with Maximum	100%	75%	--	100%	100%	--	100%	33%	83%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	92%	--	--	--

Table 44-E: Mass loads to the environment

Parameter	EPN Limit	Frequency	2023-24 result
Nitrogen (kg)	--	Annual	4887.3
Phosphorous (kg)	--	Annual	3574.0
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	4/10/2023 8/11/2023 6/12/2023 10/01/2024 7/02/2024 10/04/2024 8/05/2024 5/06/2024	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. During summer months, disinfection capacity is reduced due to algae shading UV penetration while winter experiences shorter days with reduce UV exposure. Certain non-compliances (Oct, Nov, Jan, Feb and Apr) occurred in close proximity to wet weather events, which decrease lagoon HRT.	No specific actions taken in reporting period Prioritisation for desludging lagoons
BOD	8/11/2023 10/01/2024 7/02/2024	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	10/01/2024 7/02/2024		
pH	6/03/2024	Elevated pH is typically associated with algal blooms, which increase pH due to CO_2 stripping during photosynthesis.	No specific actions taken in reporting period

No other parameters had exceedances in the reporting period.

44.5 Reuse Annual Reporting

No Recycled Water Scheme associated with this STP.

44.6 Ambient monitoring program

Table 44-G: Program details

Program	Routine monthly monitoring during recreation season. Biennial, seasonal (spring and autumn) biological monitoring (AusRivAS)
Status	Ambient water quality completed during the reporting period. No biological monitoring completed during the reporting period.
Update	Ambient water quality monitoring was 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 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 during the recreational period (October 2023- March 2024). Key findings from the ambient water quality monitoring data review were: • Ammonia levels exceeded the ANZG Default Guideline Value (tDGV) within Dalrymple Creek especially during the summer autumn period but not at the Duck Reach monitoring location. Both the Trevallyn Dam upstream and the Duck Reach downstream monitoring locations exceeded the EPA DGVs for slightly to moderately disturbed ecosystems within the South Esk River catchment with downstream levels generally correlating with upstream levels. • Nitrate levels exceeded the ANZG Default Guideline Value (tDGV) within Dalrymple Creek especially during the winter months and this corelated with nitrate levels within the STP effluent discharge. Nitrate levels within Duck Reach were within the EPA DGV during the recreational period. Nitrate levels within Trevallyn Dam exceeded the EPA DGV throughout the winter months but were within the DGV during the summer period. • Total nitrogen levels within Dalrymple Creek were elevated and generally correlated with effluent discharge levels. Both the Trevallyn Dam upstream and the Duck Reach downstream monitoring locations exceeded the EPA DGV with Duck Reach levels generally correlating with upstream levels. • Total phosphorus levels within Dalrymple Creek were elevated and generally correlated with effluent discharge levels. Both the Trevallyn Dam upstream and the Duck Reach downstream monitoring locations exceeded the EPA DGV with Duck Reach levels generally correlating with upstream levels. A significant elevation in phosphorus was observed in Lake Trevallyn in October 2023 but this was not reflected in water quality at Duck Reach. • Total suspended solids (TSS) levels within Dalrymple Creek were elevated and generally correlated with effluent discharge levels. TSS levels within Trevallyn Dam and Duck Reach were generally all within the EPA DGV. • Enterococci levels within Dalrymple Creek were elevated at all times and exceeded the EPA low risk guideline values for waters with current or potential recreational use, especially during the summer months where significant elevations were observed. Levels of enterococci in the effluent discharge were also elevated during the summer months but at a much lower level than observed in Dalrymple Creek Enterococci levels were significantly lower at Duck Reach in January and March 2024, but still exceeded the low risk guidelines. Elevations above the low risk guidelines were also observed upstream within Lake Trevallyn in some of the winter months. • *E. coli* levels within Dalrymple Creek were elevated at all times and exceeded the EPA low risk guideline values for waters with current or potential recreational use, especially during the summer months where significant elevations were observed. *E. coli* levels were significantly lower at Duck Reach and within the low risk guidelines at all times. Elevations above the low risk guidelines were observed upstream within Lake Trevallyn in some of the winter months. • Blue-green algae (BGA) and potential toxin producing BGA were detected within Trevallyn Dam and Duck Reach in January and February 2024 related to a bloom

	that was occurring at the time. Potential toxin producing BGA were detected within Dalrymple Creek that coincided with BGA in the effluent discharge. Levels of BGA in Dalrymple Creek and Duck Reach were below the EPA/NHMRC low alert level classification for recreational water. Effluent discharges into the Pitcher Parade Wetlands and Dalrymple Creek are likely having a significant impact on water quality within this receiving environment especially from nutrients, but also from pathogens and potential BGA risks. Pathogens levels within the Pitcher Parade Wetlands and Dalrymple Creek are significantly more elevated than effluent discharge levels suggesting there are other contributing factors with these pathogen indicators at this location, likely from aquatic birds and other species present in the wetlands. These impacts were not observed within Duck Reach during the summer monitoring period although occasional elevations of pathogens pose a risk to recreational Protected Environmental Values in the South Esk River. Trevallyn Dam water quality and flows appear to have greater influence on water quality impacts at Duck Reach especially during the recreational monitoring period, although the effluent discharge is also a contributing factor.

44.7 Groundwater monitoring

Site status: Green – (2022-23 report)

Prospect Vale STP groundwater monitoring network consists of four groundwater bores, ID numbers PVGW1-4. One round of sampling was completed across the network in November 2023. The second (annual) sampling round was not completed. TasWater has put measures in place for the 2024-25 sampling program to address scheduling and resourcing delays experienced in recent years.

Following delays, the 2023-24 report will be finalised and available in October 2024. Any actions to address identified potential issues will be determined following the hydrogeological review. Previous monitoring reported all nutrient concentrations below the adopted guideline criterion except one bore, ID PVGW2 for total phosphorous concentrations which is also showing signs of increasing trend of several analytes.

Biannual sampling is scheduled to recommence at all four bores in the 2024-25 groundwater monitoring program.

44.8 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 2024 to prioritise I&I investigation and works state-wide. This catchment was ranked 14 out of 108 in priority.

44.9 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 2023-24 SSMP.

Table 44-H: Desludging status and comments

Desludging status	Comments
High Priority	Desludging of lagoon 2 scheduled to occur in 2024-25, as per the current prioritisation planning schedule.

Table 44-I: Stockpile comments

Stockpile onsite	Volume of stockpile (estimated dst)
Stockpile in lagoon 1 (converted sludge drying bed)	Sludges from several sources currently stored in lagoon 1. Legacy sludge will be tested, classified and disposed of to farmland along with the sludge contents from lagoon 2 (pending results of testing)

44.10 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.	TasWater acknowledges the non-compliance associated with the DMP condition. We are working towards the intent of the EPN condition to prioritise discharge risk reduction projects in line with our EPA endorsed Wastewater Risk Management Plan and Price and Service Plan process. Prospect Vale is included within LSIP for rationalisation to Ti Tree Bend.

44.11 Complaints and incident reporting

No complaints or incidents reported during the FY2023-24 reporting period.

44.12 Any other relevant information

Table 44-K: Projects or significant operational events that occurred in FY2023-24:

Project or significant operational event	Progress
Launceston Sewerage Improvement Program (LSIP).	Prospect Vale is currently being investigated for rationalisation to the existing Ti Tree Bend STP as the first significant activity in delivering the LSIP. The project is currently in the design stage and will ultimately result in decommissioning and rehabilitation of the STP.

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