

### 31 Lilydale STP

#### 31.1 Activity and report details

Activity name	Lilydale STP		
Activity address	Golconda Road, Lilydale		
Permit number	Licence to Operate - 3379	Date of issue	21/01/1986
EPN	471/2	Date of issue	6/11/2008
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	135 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 31--1: Lilydale Sewage Treatment Plant



## 31.2 Monitoring and compliance summary

### 31.2.1 Flow data

Table 31-A: Flow Monitoring Summary

	Influent	Effluent	Reuse
Location Name	Inlet	McGowan's Creek	Hollybanks property
Coordinates	E 518093 N 5434232	E 517940 N 5434381	E 517946 N 5434394
Method of Measurement	In line meter	Estimate based on influent	In line meter
Date of last Calibration/Validation (if applicable).	13/07/2022	NA	13/07/2022

Table 31-B: Annual Flow and Rainfall Data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 91346	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	135	47.0	0.54	3.64
August 2022	238	122.6	7.36	0.00
September 2022	139	64.4	4.11	0.00
October 2022	245	311.0	7.41	0.00
November 2022	158	101.8	4.52	0.00
December 2022	103	22.6	3.19	0.00
January 2023	106	78.4	0.00	3.32
February 2023	126	46.4	0.00	3.50
March 2023	149	86.0	0.00	4.62
April 2023	146	64.2	0.00	4.37
May 2023	160	97.8	0.00	4.70
June 2023	301	108.4	2.69	6.33
Annual 2022-23	167	1150.6	29.82	30.47
% of Total Discharge	--	--	49.5%	50.5%

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

### 31.2.2 Bypass events

There were no bypass events associated with the STP during the reporting period.

### 31.3 Discharge compliance with permit limits

Table 31-C: 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	30	50	--	40	10	8.5	10	1000	50
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	1.8	18	--	6.3	6.1	10.2	2.3	1616	51.0
90th percentile	1.3	13	--	5.4	1.0	9.9	1.9	667	12.6
50th percentile	0.3	5	--	3.2	1.0	7.8	1.1	36	7.3
Min	0.1	5	--	2.0	1.0	6.9	0.5	10	4.0
EPN Limit Compliance									
% compliance with Maximum	100%	100%	--	100%	100%	--	100%	92%	92%
% 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	--	--	--	--	--	75%	--	--	--

Table 31-D: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	--	Annual	105.0
Phosphorous (kg)	--	Annual	23.8
Method	Time weighted/Grab sample method		

Table 31-E: Performance Analysis (Discharge to environment)

Parameter	Date(s) of Non-compliance	Reasons for Non-compliance	Actions to improve performance
pH	20/12/2022	Algae is believed to be the primary reason for elevated pH. Algae is a source of oxygen and is fundamental to lagoon treatment. The non-compliant result was during a warmer month when algal blooms typically occur.	No specific actions

No other parameters had exceedances in the reporting period when discharging to the environment.

### 31.4 Reuse Annual Reporting

Lilydale STP supplies treated effluent to the Lilydale recycled water scheme (RWS) located at the Hollybanks property.

Table 31-F: 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	12	12	12
Number analysed	12	12	12
Statistical summary			
Max	18	10.2	1616
90th percentile	13	9.9	667
50th percentile	5	7.8	36
Min	5	6.9	10
Summary of results			
% compliance with Maximum	100%	--	100%
% compliance with 90th percentile	--	--	--
% compliance with 50th percentile	--	--	92%
% compliance with pH range	--	83%	--

Table 31-G: Performance Analysis (Discharge to reuse)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
pH	13/02/2023	Algae is believed to be the primary reason for elevated pH. Algae is a source of oxygen and is fundamental to lagoon treatment. The non-compliant result was during a warmer month when algal blooms typically occur.	No specific actions

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

No other parameters had exceedances in the reporting period.

Annual soil sampling was completed at two sites (Primary and Secondary) at the RWS in April 2023. The annual compliance audit was completed in conjunction with the soil sampling. A summary of the findings of the programs is provided in the below table.

Table 31-H: Annual recycled water scheme compliance audit and soil monitoring summary

Program	Compliance audit	Soil monitoring

<b>Compliance status</b>	Compliant	Soil salinity increases at primary site (Saline and non-sodic) Secondary site is within recommended range. K levels continued to increase and are above recommended ranges at both sites. Elevated K levels have contributed to an elevated grass tetany risk for grazing livestock. P levels excessive at both sites. S levels are slightly elevated at Primary Site but remain within historical levels.
<b>Comments</b>	Landowner noted the underground pipework is leaking and current irrigation system is inefficient.	Elevated nutrient levels at this property are likely attributed to supplementary fertiliser application and not recycled water irrigation due to low application rates and low levels of P supplied by recycled water irrigation. Soil data has been provided to customer.

ECse = Electrical Conductivity at saturation extent, Ch = Chloride, ESP = Exchangeable sodium percentage, P = Phosphorous, K = Potassium, S = Sulphur

RWS groundwater site status: To be determined

Lilydale groundwater monitoring network consists of one bore, LDGW1. The bore was repaired (bent well casing) in August 2021. Annual sampling was completed in July 2023.

Annual sampling at the standard analytical suite is scheduled to continue during the 2023-24 groundwater monitoring program.

### 31.5 Ambient monitoring program

Table 31-I: Program details

<b>Program</b>	Seasonal Discharge Program - Routine monitoring during discharge to water.
<b>Status</b>	Ambient monitoring completed during discharge events within the reporting period.
<b>Update</b>	Ambient water quality monitoring conducted during seasonal discharge events.
<b>Comments</b>	<p>Monthly ambient water quality monitoring occurred during discharges to McGowans Creek from July – December 2022 and in June 2023. Key findings from the ambient water quality data review were:</p> <ul style="list-style-type: none"> <li>Ammonia and nitrate levels within McGowans Creek (upstream and downstream) were all within the Default Guideline Values (DGVs) but occasionally exceed the EPA Pipers Catchment DGV with downstream levels trending with upstream levels during STP discharge events.</li> <li>The EPA DGV for nitrogen was frequently exceeded during discharge events but again downstream levels trended with upstream levels in McGowans Creek.</li> <li>Both upstream and downstream total nitrogen levels exceeded the EPA DGV with downstream levels higher than upstream levels suggesting an impact from STP effluent discharges.</li> <li>Similarly, total phosphorus levels downstream trended with upstream levels except for a peak reported upstream in October 2022.</li> <li>Similarly, total suspended solids (TSS) levels downstream trended with upstream levels.</li> <li>Enterococci levels at the downstream monitoring location generally exceeded, but trended with, upstream levels. Both upstream and downstream levels exceeded the low risk NHMRC recreational GV. Downstream <i>E. coli</i> levels trended with upstream levels with both monitoring locations exceeding the EPA GVs for recreation and Class B recycled water use.</li> <li>No blue-green algae (species of concern) were detected at the upstream or downstream monitoring locations during the effluent discharges into McGowans Creek.</li> </ul> <p>Seasonal discharges into McGowans Creek receiving environment occurred throughout the winter 2022 – early summer 2023 period and again in winter 2023 due to unavailability of the recycled</p>

water scheme. Effluent discharges contribute but appeared to have a minimal impact on the downstream receiving environment with upstream inputs and resultant water quality the main contributor to downstream water quality.

### 31.6 Groundwater monitoring

Site status: Green – no sign of STP impact (2022 report)

Lilydale STP groundwater network consists of four monitoring bores, ID numbers LDGW4, LDGW6-8. One round of sampling was completed at monitoring bore ID's LDGW4 and LDGW6-7 in July 2023. Bore ID LDGW8 was unable to be sampled due to access (bore covered). The scheduled second sampling round was not completed due to timing and resourcing constraints at bore ID's LDGW7-8.

The 2022-23 report, complete with hydrogeological review will be finalised by October 2023. Any actions to address identified potential issues will be determined following the review.

Biannual sampling at the standard analytical suite is scheduled for bore ID's LDGW7-8 in 2023-24 monitoring program. Annual sampling at the standard suite is scheduled for bore ID's LDGW4 and LDGW6.

### 31.7 Inflow and infiltration (I&I)

The latest revision to the TasWater Inflow and Infiltration Management Plan includes details of the actions undertaken state-wide 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 71 out of 79 in priority.

### 31.8 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.

No stockpiling occurs at this site.

Table 31-J: Desludging status and comments

Desludging Status	Comments
Low Priority	Desludging is outside of the current prioritisation planning schedule.

### 31.9 Non-compliance with other permit requirements

Table 31-K: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
EF6 Effluent quality limits for discharge to a Reuse Scheme	Discharge compliance with reuse permit limits	See section 31.4 Reuse Annual Reporting and Performance Analysis
OP1 Operational Procedures Manual	No contemporary Operational Procedures Manual	New SharePoint based solution for OPMMs currently being developed. First version to be implemented in FY24

### **31.10 Complaints and incident reporting**

No complaints or incidents reported during the FY2022-23 reporting period.

### **31.11 Any other relevant information**

None.

For further information on the Lilydale STP please contact TasWater on 13 6992

[www.taswater.com.au](http://www.taswater.com.au)