

## 19. Deloraine STP

### 19.1 Activity and report details

Activity name	Deloraine STP		
Activity address	Off Racecourse Drive, Deloraine		
Permit number	Permit Conditions Environmental - 6237	Date of issue	2/07/2002
	EPN		7775
Treatment level	Secondary Treatment		
Authorised dry weather flows	860 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 2025		

**Figure 19-1: Deloraine Sewage Treatment Plant**



## 19.2 Monitoring and compliance summary

### 19.2.1. Flow data

**Table 19–A: Flow monitoring summary**

	Influent	Effluent	Reuse
<b>Location name</b>	Inlet	Meander River	No reuse scheme
<b>Coordinates</b>	E 472073 N 5403613	E 472240 N 5403970	NA
<b>Method of measurement</b>	Level sensor	Level sensor	NA
<b>Date of last calibration/validation (if applicable).</b>	16/12/2024	13/12/2024	NA

**Table 19–B: Annual flow and rainfall data**

Month	Average daily influent volume (kL/day)	Rainfall (mm/month) BOM Station ID 91227	Discharge to waters total effluent volume (ML)	Discharge to reuse total effluent volume (ML)
July 2024	1,078	74.8	33.43	--
August 2024	1,397	135	43.32	--
September 2024	2,232	94.8	66.96	--
October 2024	738	50.8	22.87	--
November 2024	680	77	20.39	--
December 2024	930	84	28.84	--
January 2025	658	47.4	20.39	--
February 2025	671	20	18.78	--
March 2025	652	35.8	20.22	--
April 2025	617	31.4	18.52	--
May 2025	589	27.8	18.25	--
June 2025	432	100	12.97	--
<b>Annual 2024–24</b>	<b>890</b>	<b>778.8</b>	<b>324.94</b>	<b>0.00</b>
<b>% of total discharge</b>	<b>--</b>	<b>--</b>	<b>100.0%</b>	<b>0.0%</b>

2024–25 monthly flow data was submitted directly to the EPA.

## 19.3 Bypass events

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

## 19.4 Discharge compliance with permit limits

**Table 19–C: Discharge compliance with permit limits**

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	5	15	--	15	10	8.5	8	200	20
90th percentile	--	--	--	--	--	--	--	--	--
50th percentile	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	6.5	--	--	--
<b>Samples analysed</b>									
Number required	12	12	--	12	12	12	12	12	12
Number analysed	12	12	--	12	12	12	12	12	12
<b>Statistical summary</b>									
Maximum	18.1	65.0	0.0	22.1	3.2	10.3	3.5	1153.0	228.0
90th percentile	12.0	59.4	0.0	17.7	2.1	10.2	2.9	170.3	190.5
50th percentile	2.1	11.5	0.0	9.2	1.1	8.3	1.0	57.5	26.2
Minimum	0.1	5.0	0.0	5.2	1.0	7.1	0.2	10.0	5.2
<b>EPN limit compliance</b>									
% compliance with maximum	67%	67%	--	75%	100%	58%	100%	92%	42%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	58%	--	--	--

**Table 19–D: Mass loads to the environment**

Mass Loads	EPN limit	Frequency	2024–25 result
Nitrogen	--	Annual	3312.4
Phosphorous (kg)	--	Annual	348.2
Method	Time weighted/Grab sample method		

**Table 19–E: Performance analysis (discharge to environment)**

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
pH	4/12/2024 4/02/2025 4/03/2025 1/04/2025 6/05/2025	Algae is the primary reason for elevated pH due to CO <sub>2</sub> uptake during photosynthesis. Algae is a source of oxygen and is fundamental to lagoon treatment.	No specific action taken
TSS	6/08/2024 7/01/2025 4/02/2025 4/03/2025 1/04/2025 6/05/2025 16/06/2025	Algae and significant sludge accumulation in the polishing lagoons are believed to be the primary reason for non-compliant BOD, E. coli and TSS.  Algae contribute directly to effluent TSS and BOD. Most of the non-compliant results were in warmer months when algal blooms occur. Shading from algae can also decrease UV disinfection of pathogens.  High sludge accumulation decreases the effective lagoon treatment capacity, resulting in high effluent BOD and E. coli.	Desludging Lagoon 1 and 2 scheduled to occur in January/February 2026, as per the current prioritisation planning schedule.
BOD	4/02/2025 4/03/2025 1/04/2025 16/06/2025	These issues are exacerbated during colder months when high inflows can contribute to lagoon short-circuiting.	
E. coli	3/09/2024		

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
Ammonia	2/07/2024	The plant had faulted, without being reset for the whole weekend (leading to aerators being offline and bypassing secondary treatment - high ammonia discharge to polishing lagoons). Ammonia discharge recovered after 4-5 days of normal operation.	Desludging Lagoon 1 and 2 scheduled to occur in January/ February 2026, as per the current prioritisation planning schedule.
	1/10/2024 12/11/2024 4/12/2024	<p>Repeated high rainfall events throughout July and August caused extensive solids washout from the aeration tanks. High plant flows and cooler temperatures meant the system was slow to recover, leading to several weeks of elevated ammonia discharge from the aeration tanks. The buffering volume of the polishing lagoons caused a lagging effect for measurable elevated ammonia in the plant effluent.</p> <p>Additionally, final effluent sampling indicates that nutrients (including ammonia) reached levels above what was measured in the upstream decant of the aeration tanks. This suggests a compounding effect, where nutrients were being released from the accumulated sludge in the polishing lagoon (likely due to changes in seasonal temperatures).</p> <p>A high rainfall storm event increased plant flows which caused solids washout from the aeration tanks. This decreased effective treatment capacity (especially for nitrification).</p>	<p>A trial to substitute alum for aluminium chlorohydrate for phosphorus removal due to its lower consumption of alkalinity and its potential to improve nitrification rates has been completed with the recommendations from the final report currently under review.</p> <p>Site SCADA upgrade and control improvements, including automated plant restarts on power flickers and improved alarming.</p>
Nitrogen	1/10/2024 12/11/2024 4/12/2024	Elevated nitrogen was largely driving by elevated ammonia levels – discussed above.	No specific action taken

No other parameters had exceedances in the reporting period.

## 19.5 Reuse annual reporting

No Recycled Water Scheme associated with this STP.

## 19.6 Ambient monitoring program

**Table 19–F: Program details**

<b>Program</b>	Deloraine STP AMP and in accordance with PCE 7775 Conditions and TasWater risk based ambient monitoring program.
<b>Status</b>	Ambient water quality and biennial, seasonal (spring/autumn) biological (AUSRIVAS) monitoring within the Meander River receiving environment.
<b>Update</b>	Monthly ambient water quality completed during the reporting period. Biological monitoring not required during the reporting period.
<b>Comments</b>	<p>Monthly ambient water quality was completed within the Meander River receiving environment. Key findings from the ambient water quality monitoring are summarised below:</p> <ul style="list-style-type: none"> <li>• Ammonia levels in the Meander River did not exceed the ANZG toxicant Default Guideline Value (tDGV) at any time at the upstream or downstream monitoring locations. Downstream ammonia levels in the Meander River exceeded the EPA Meander Catchment DGVs in the winter months, and at these times there was also a correlation with elevated upstream ammonia levels. Both upstream and downstream ammonia levels within the Meander River were well within the EPA DGVs during the summer and autumn low river flow period.</li> <li>• The nitrate EPA DGV was exceeded during the winter higher river flow months with downstream levels slightly higher but generally correlating with upstream levels. Both upstream and downstream nitrate levels within the Meander River well within the EPA DGVs during the summer and autumn period. The draft nitrate ANZG tDGV was not exceeded at any time, either upstream or downstream.</li> <li>• Downstream total nitrogen levels generally correlated with levels upstream with both monitoring locations exceeding the EPA DGV in July, August, and September 2024 and December 2025. The downstream location also exceeded the EPA DGV in October 2024.</li> <li>• Downstream total phosphorous levels correlated with upstream levels with both exceeding the EPA DGV occasionally during the July – December 2024 period. Downstream levels exceeded upstream levels and the EPA DGV from January – June 2025 when lower river flows were prevalent. Downstream dissolved reactive phosphorus levels also generally correlated with upstream levels.</li> <li>• Enterococci levels within the Meander River varied with upstream levels exceeding and correlating with downstream levels over most of the reporting period. Both monitoring locations significantly exceeded the EPA low risk guideline values for waters with current or potential recreational use especially during the summer and autumn months. STP effluent enterococci levels were generally always lower than both ambient monitoring locations except for a significant elevation observed in January 2025 that was not reflected at the downstream monitoring location.</li> <li>• Downstream <i>E. coli</i> levels correlated with upstream levels with both generally exceeding the EPA low risk guideline values for waters with current or potential recreational use and the draft ANZG livestock drinking water guidelines. A significant elevation was observed at both monitoring locations in December 2024. STP effluent <i>E. coli</i> levels were generally always lower than those observed within the Meander River except for an elevation observed in September 2024.</li> <li>• Potentially toxin producing blue-green algae (BGA) were detected in the STP effluent throughout the reporting period with significant elevations observed through January – June 2025 attributable to <i>Microcystis aeruginosa</i>. Ambient monitoring detected the presence of <i>M. aeruginosa</i> over the same period at the downstream monitoring location, but levels were well within the EPA/NHMRC low alert level classification for recreational water. No microcystin toxins were detected in the STP effluent nor at the downstream monitoring location.</li> </ul>

Effluent discharges appear to be having minimal impact on water quality within the Meander River receiving environment with sufficient mixing and dilution due to river flows. Water quality downstream of the effluent discharge mostly correlated with upstream water quality that is likely affected by agriculture and other inputs into the river system, as well as the STP effluent discharge. Elevated levels of potential toxin producing BGA may be impacting the Meander River but are within accepted recreational guideline values. Pathogen indicator organisms *E. coli* and enterococci are elevated at both the upstream and downstream monitoring locations in the Meander River and are not attributable to the STP effluent discharge, but pose a potential risk to public health, recreational and livestock drinking water Protected Environmental Values.

## 19.7. Groundwater monitoring

Site Status: Amber

Deloraine STP groundwater monitoring network consists of six groundwater monitoring bores, ID numbers DLGW1 – 6. The groundwater monitoring network is considered to provide good coverage of the STP with monitoring bores located downgradient of the lagoons and the likely receiving water body of the Meander River.

Bi-annual sampling at the extended analytical suite was completed in October 2024 and April 2025 across the network, as scheduled, except for bore ID DLGW2, which could not be located.

The 2024–25 groundwater monitoring event recorded exceedances of one adopted assessment criterion for bore ID's DLGW1 and DLGW5–6. Bore ID's DLGW3–4 show no signs of impact in analytical results.

Bi-annual sampling at the extended analytical suite is scheduled to continue at all monitoring bores during the 2025–26 groundwater monitoring program. Surface water sampling from the STP Sludge Lagoons 3 and 4 are also scheduled.

## 19.8. 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.

A Multi Criteria Assessment was undertaken by TasWater in 2024 to prioritise I&I investigation and works state-wide. This catchment was ranked 52 out of 108 in priority.

## 19.9. 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 deemed non-compliant with the 2024–25 SSMP due to lacking information on desludging schedule.

Sludge at this STP is captured within the sludge lagoons as well as the two polishing lagoons. No stockpiling occurs at this site.

**Table 19-G: Desludging status and comments**

Desludging status	Comments
High Priority	Desludging of polishing Lagoons 1 and 2 is scheduled to occur in FY2025-26, as per the current prioritisation planning schedule.

## 19.10. Non-compliance with other permit requirements

**Table 19-H: EPN Non-compliances**

EPN condition	Description of non-conformance	Future actions to be taken
EF2 Effluent quality limits for discharge to Meander River	Discharge to the environment is generally non-compliant with quality limits.	TasWater acknowledges the non-compliance with effluent discharge limits. These non-compliances are likely due to algae presence and significant sludge accumulation in the polishing lagoons, which impact the treatment process's ability to consistently meet EPN limits.  To address this, desludging of Lagoons 1 is scheduled for January/February 2026, which is expected to improve effluent quality.
OP2 Lagoon maintenance	The observed erosion is not considered to be a significant dam safety issue. However, TasWater is committed to developing a scope of works, which will include a deficiency priority review completed by the TasWater Dam Infrastructure team.	Taswater submitted a scope of work to the EPA for the Lagoon 2 erosion remediation. TasWater cannot commit to a specific completion date yet, however, this project has been included into the Dam infrastructure improvement program for the FY25-26.
WM1 Sewage Sludge Management Plan	Further information on desludging schedule required given this is listed as a high priority site in most recent AER. AER notes '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.' SSMP does not include this information.	Recent sludge profile results were included in Table 3-E in the 2024-25 SSMP. Whilst it was deemed as a high priority for desludging, it could not be slotted into the 2024-25 desludging schedule. It is however scheduled for completion in 2025-26. TasWater will not include schedules 2 years in advance as these lists are only confirmed 6 months out from upcoming FY.
EM1 Effluent Management	Discharge Management Plan overdue	TasWater acknowledges the requirement to prepare and submit a DMP. As a medium risk site in TW's ERA for discharge, Deloraine has not been prioritised within the current and future PSP 5 planned projects for improvement. TasWater is committed to addressing its highest risk discharges as a priority and maintain discharge quality, as a minimum, with medium discharge risk sites.
EM3 Discharge Management Plan	Discharge Management Plan overdue	

EPN condition	Description of non-conformance	Future actions to be taken
		Deloraine STP is considered within Regional Master Plan for Meander Valley. The long-term strategy is to rationalise the Deloraine STP under the Meander Valley Sewerage Strategy (MVSS).

### 19.11. Complaints and incident reporting

No complaints reported during the FY 2024–25 reporting period.

**Table 19–I: Incident reporting**

Date	Category	Details	Mitigation actions
03/09/2024	Weather event	Deloraine polishing lagoon one overtopping due to river flooding, with no way to release the excess.	Operations staff monitored and levels returned to normal following event

### 19.12. Any other relevant information

**Table 19–J: Projects or significant operational events that occurred in FY 2024–25:**

Project or significant operational event	Progress
Meander Tamar Sewerage Regional Master Plan	The Meander Tamar Sewerage Regional Master Plan has been completed and includes the short term and long-term considerations for the Deloraine STP with the ultimate decommissioning of the STP and transfer of sewage to the Longford STP.
Deloraine Lagoon 1 and 2 desludging	In progress, Schedule for January / February 2026.

For further information on Deloraine STP please contact TasWater on 13 6992

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