

## 28. Kempton STP

### 28.1 Activity and report details

Activity name	Kempton STP		
Activity address	Lonsdale Lane, Kempton		
Permit number	Licence to Operate – 5135	Date of issue	8/12/1992
EPN	7956/1	Date of issue	7/03/2018
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 2024		

**Figure 28–1: Kempton Sewage Treatment Plant**



## 28.2 Monitoring and compliance summary

### 28.2.1 Flow data

**Table 28-A: Flow monitoring summary**

	Influent	Effluent	Reuse
<b>Location name</b>	Inlet	Green Points Rivulet	Kempton Reuse Scheme
<b>Coordinates</b>	E 515489 N 5291721	E 515394 N 5291934	E 515378 N 5291883
<b>Method of measurement</b>	In line meter	Estimate based on influent	Estimate based on influent
<b>Date of last calibration/validation (if applicable).</b>	9/08/2023	NA – to be installed	NA – to be installed

**Table 28-B: Annual flow and rainfall data**

Month	Average daily influent volume (kL/day)	Rainfall (mm/month) BOM Station ID 94143	Discharge to waters total effluent volume (ML)	Discharge to reuse total effluent volume (ML)
July 2023	132	37.2	0.00	4.09
August 2023	132	10.4	0.00	4.09
September 2023	136	27.2	0.00	4.09
October 2023	132	69.0	0.00	4.09
November 2023	136	52.8	0.00	4.09
December 2023	132	34.8	0.00	4.09
January 2024	132	70.8	0.00	4.09
February 2024	141	4.6	0.00	4.09
March 2024	132	8.4	0.00	4.09
April 2024	136	41.6	0.00	4.09
May 2024	132	10.6	0.13	3.96
June 2024	136	33.0	3.27	0.82
<b>Annual 2023-24</b>	134	400.4	3.40	45.65
<b>% of total discharge</b>	--	--	6.9%	93.1%

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

### 28.3 Bypass events

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

## 28.4 Discharge compliance with permit limits

**Table 28–C: Discharge compliance with permit limits**

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Total suspended solids
	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L	MPN/100mL	mg/L
<b>Permit/EPN limit</b>	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L	MPN/100mL	mg/L
<b>Maximum</b>	--	30	--	40.0	10.0	8.5	10.0	2000	40.0
<b>90th percentile</b>	--	--	--	--	--	--	--	--	--
<b>50th percentile</b>	--	--	--	--	--	--	--	--	--
<b>Minimum</b>	--	--	--	--	--	6.5	--	--	--
<b>Samples analysed</b>									
<b>Number required</b>	12	12	--	12	12	12	12	12	12
<b>Number analysed</b>	12	12	--	12	12	12	12	12	12
<b>Statistical summary</b>									
<b>Maximum</b>	21.0	84	--	26.4	2.8	9.2	11.3	3448	136.0
<b>90th percentile</b>	18.2	70	--	24.8	1.0	9.1	10.7	3020	129.3
<b>50th percentile</b>	3.0	25	--	10.4	1.0	8.0	6.9	313	40.8
<b>Minimum</b>	0.1	5	--	7.5	1.0	7.4	3.9	31	4.0
<b>EPN limit compliance</b>									
<b>% compliance with maximum</b>	--	50%	--	100%	100%	--	83%	83%	50%
<b>% compliance with 90th percentile</b>	--	--	--	--	--	--	--	--	--
<b>% compliance with 50th percentile</b>	--	--	--	--	--	--	--	--	--
<b>% compliance with pH range</b>	--	--	--	--	--	67%	--	--	--

**Table 28-D: Mass loads to the environment**

Parameter	EPN limit	Frequency	2023-24 result
Nitrogen (kg)	--	Annual	29.1
Phosphorous (kg)	--	Annual	19.8
Method	Time weighted/Grab sample method		

**Table 28-E: Performance analysis (discharge to environment)**

Effluent compliance parameter	Date(s) of non-compliance		Reasons for non-compliance	Actions to improve performance
BOD	11/01/2024 15/02/2024 7/03/2024	11/04/2024 13/05/2024 3/06/2024	Full disinfection and BOD removal capacity of the plant is not utilised at this location as further treatment is achieved in lagoon 3 (reuse dam).  Elevated Algae contributes to high E.coli, BOD, TSS, pH and phosphorus.	No specific actions.
E. coli	11/04/2024 13/05/2024			
pH	6/07/2023 11/01/2024 15/02/2024 7/03/2024			
Phosphorus	11/12/2023 7/03/2024			
TSS	11/01/2024 15/02/2024 7/03/2024	11/04/2024 13/05/2024 3/06/2024		

No other parameters had exceedances in the reporting period.

## 28.5 Reuse annual reporting

The Kempton STP supplies treated effluent to the Kempton recycled water scheme (RWS) for irrigation purposes to one customer at Oakmore Farm.

**Table 28-F: Reuse compliance summary**

Parameter	BOD5	pH	E coli
<b>Permit/EPN limit</b>	mg/L	Units	MPN/100ml
<b>Maximum</b>	50	9.0	10000
<b>90th percentile</b>	--	--	--
<b>50th percentile</b>	--	--	1000
<b>Minimum</b>	--	5.5	--
<b>Samples analysed</b>			
<b>Number required</b>	12	12	12
<b>Number analysed</b>	12	12	12
<b>Statistical summary</b>			
<b>Maximum</b>	84	9.2	3448
<b>90th percentile</b>	70	9.1	3020
<b>50th percentile</b>	25	8.0	313
<b>Minimum</b>	5	7.4	31
<b>Summary of results</b>			
<b>% compliance with maximum</b>	83%	--	100%
<b>% compliance with 90th percentile</b>	--	--	--
<b>% compliance with 50th percentile</b>	--	--	83%
<b>% compliance with pH range</b>	--	83%	--

**Table 28-G: Performance analysis (discharge to reuse)**

Reuse compliance parameter	Date(s) of elevated parameter	Reasons	Actions to improve performance
BOD	7/03/2024 11/04/2024	See Table 28-E.	See Table 28-E.
pH	11/01/2024 7/03/2024	See Table 28-E.	See Table 28-E.

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

Annual soil sampling was completed at one location (Site 2) at the RWS in November 2023. The 5-year heavy metal sampling was also completed in 2023. The field component of the annual compliance audit was completed in conjunction with the soil sampling program with a follow up phone audit in December 2024. A summary of the findings of the two programs are provided in Table 28-H. **Error! Reference source not found.**

**Table 28-H: Annual recycled water scheme compliance audit and soil monitoring**

Program	Compliance Audit	Soil Monitoring
Compliance status / summary	Compliant	Soil salinity and sodicity at the site (Site 2) increased in 2023, with the salinity indicator recording a new high. The site is now classified as saline (at a low level) and remains non-sodic.  Phosphorous and potassium levels remain above recommended range, and lower than historical highs.
Comments	NA	Elevated levels phosphorous and potassium levels are attributed to fertiliser application and not recycled water irrigation

Groundwater RWS site status: Green – (2022–23 Report).

The Kempton RWS groundwater network consists of three bores, ID numbers KMTGW1 – 3. KMTGW1 is located up flow of the recycled water irrigation area and may be considered a reference bore. Annual monitoring was completed at two monitoring bores ID’s KMTGW2 and KMTGW3 in June 2024. Bore ID KMTGW1 was unable to be located and was not sampled.

Following delays, the 2023–24 groundwater monitoring event report for Kempton RWS will be finalised and available in October 2024. Any actions to address identified potential issues will be determined following the hydrogeological review. The 2022–23 report found no evidence of impact on groundwater quality from the application of recycled water.

Annual sampling of the standard analytical suite is scheduled to be completed at all three monitoring bores during the 2024–25 groundwater monitoring program.

## 28.6 Ambient monitoring program

**Table 28-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>	Ongoing ambient monitoring during seasonal discharge events.
<b>Comments</b>	<p>Ambient monitoring occurred from July – November and again in June (regardless of whether the STP was discharging or not). Samples were unable to be collected in December and May due to no flow in the creek. Discharges to water occurred in May and June. The key findings are:</p> <ul style="list-style-type: none"> <li>• The DGV for ammonia was exceeded at the downstream sample site on two occasions (July and August) however the STP was not discharging.</li> <li>• Total nitrogen levels were highly variable, both upstream and downstream. Several results were lower than the DGV which is an improvement on the previous reporting period where all results exceeded the DGV.</li> <li>• Nitrate levels were below the DGV at both monitoring locations.</li> <li>• The total phosphorous level downstream was highest in June when the STP was discharging. No upstream data is available for comparison due to no flow in the creek.</li> <li>• The enterococci levels were generally low except for November when both sites recorded high results (upstream 15,531 and downstream 12,997 MPN/100mL), despite zero discharge to environment. Enterococci levels were also high (1,724 MPN/100mL) at the downstream site during the June discharge event.</li> </ul>

## 28.7 Groundwater monitoring

Site status: Green – (2022–23 report)

Kempton STP groundwater monitoring network consists of four groundwater monitoring bores, ID numbers KMTGW1, KMTGW2, KMTGW4 and KMTGW5. Bore ID's KMTGW5 and 4 are situated on the eastern boundary of the STP lagoons with bore ID KMTGW1 further to the east. Bore ID KMTGW2 is located to the immediately north of the STP. Annual sampling was completed at monitoring bore ID's KMTGW2, KMTGW4 and 5 in June 2024. Bore ID KMTGW1 was unable to be located on the ground for sampling.

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. The 2022–23 report found no exceedances or increasing trends identified in bores sampled this year. Bore ID KMTGW4 has an increasing trend in concentration of total nitrogen although levels are well below guideline values.

Annual sampling at the standard analytical suite is scheduled to continue at all four monitoring bores during the 2024–25 groundwater monitoring program.

## 28.8 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 2023 to prioritise I&I investigation and works state-wide. This catchment was ranked 68 out of 108 in priority.

### 28.9 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.

No stockpiling occurs at this site.

**Table 28–J: Desludging status and comments**

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

### 28.10 Non-compliance with other permit requirements

**Table 28–K: EPN non-compliances**

EPN condition	Description of non-conformance	Future actions to be taken
EF4 Effluent quality limits for discharge to water	Discharge compliance with permit limits	See section 28.4 Discharge compliance with permit limits and Performance Analysis
EF2 Effluent quality limits for discharge to a reuse scheme	Discharge compliance with reuse permit limits	See section 28.5 Reuse Annual Reporting and Performance Analysis
Flow Meter Validation	No flow meter	Flow meter in program to be installed

### 28.11 Complaints and incident reporting

No complaints and incidents reported during 2023–24 reporting period.

### 28.12 Any other relevant information

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

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