

ANNUAL

Sewage Treatment Plant

PERFORMANCE REPORT

JULY 2017 - JUNE 2018



Unitywater

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investing in tomorrow.

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Dear Customers

I am pleased to share with you our Sewage Treatment Plant Performance Report for 2017-18. Within this report you will find details of the individual and collective performance of Unitywater's sewage treatment plants (STPs).

We measure the performance of our STPs against the quality standards and compliance targets contained within our licence issued by the Department of Environment and Science (DES) to collect and treat sewage.

During the 2017-18 year our 17 STPs collected and treated 58,477 million litres of sewage across our service area.

We are always looking for ways to optimise and continuously improve the way we plan, deliver, operate and maintain our STPs. Unitywater's Asset Management Strategy aligns our operations with the best practice asset management of ISO55000. This ensures we will operate our STPs at the lowest whole-of-life cost, which balances the need for expenditure on assets with our desire to deliver excellent customer service.

At more than 40 years of age, our Maroochydore STP contains some infrastructure that is at the end of its useful life. Currently we are investigating innovations that will bring the plant into the future, improving public and environmental health.

In addition to the important aspects of cost and customer service, our current investigations for not just Maroochydore but all of our STPs is our corporate strategic goal of self-sustaining STPs. Our aim is to reduce the purchase of energy needed to operate our plants so that by 2027 they will be energy and carbon neutral.

To this end, our investigations include collecting industrial and commercial food waste to generate biogas, developing the business case for capturing solar energy at our STPs and finding suitable locations for this technology, and exploring if we can manufacture hydrogen using treated wastewater. The challenge for Unitywater is that most of our STPs are small compared with those utilities that have successfully implemented this technology. Nevertheless, we are confident with our ability to innovate to achieve our aim.

If you have any questions or feedback on the content of this report, please don't hesitate to call our Customer Contact Centre on 1300 086 489.



George Theo
Chief Executive Officer



 **NOOSA COUNCIL**

-  Corporate Offices
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Gympie region

 Cooroy

 Noosa

 Coolum

 Kenilworth

 Nambour



 Maroochydore

 **Sunshine Coast COUNCIL**

 Kawana

 Maleny

 Landsborough

 Woodford

 Bribie Island

 **Moreton Bay Regional Council**

 Caboolture


 Caboolture South

Moreton Bay

 Burpengary East

Somerset region

 Dayboro

 Redcliffe

 Murrumba Downs

 Brendale

Brisbane City

1. Introduction



Unitywater supplies more than 777,000 people across 5223 square kilometres with sewerage and water services.

We monitor effluent quality from each sewage treatment plant to assess compliance with conditions specified under the licence granted by the Department of Environment and Science (DES). We hold the following DES registration and approval:

- a. A single Registration Certificate, authorising Unitywater to operate sewage treatment plants; and
- b. A single Environmental Authority (Environmental Licence) for the following sewage treatment plants:
 - Brendale
 - Burpengary East
 - Bribie Island
 - Coolum
 - Cooroy
 - Dayboro
 - Kawana
 - Kenilworth
 - Landsborough
 - Maleny
 - Maroochydore
 - Murrumba Downs
 - Nambour
 - Noosa
 - Redcliffe
 - South Caboolture
 - Suncoast (decommissioned)
 - Woodford

Should we not meet our obligations as set out in the licence, penalties may apply in accordance with the *Planning Act 2016* and *Environmental Protection Act 1994*.

This report is published to provide you with information about effluent quality and some licence compliance statistics from our sewage treatment plants. By meeting licence conditions, we ensure high quality service, minimising impacts on waterways in our local communities.

1.1 Quick Statistics July 2017 - June 2018

Number of sewerage connections	289,527
Kilometres of sewer main pipes	5,789 km
Number of sewage pump stations	784
Number of sewage treatment plants	17
Volume of sewage collected and treated	58,477 ML ¹

1. Does not include 668 ML diverted to Queensland Urban Utilities (QUU) via the Kedron Brook Sewerage Scheme. This sewage would be treated to meet QUU's licence requirements.

2. Effluent Quality Summary

The Department of Environment and Science (DES) requires that all sewage treatment plants discharge effluent that meets quality and quantity conditions to minimise impacts on the health of waterways in Queensland.

Concentrations of contaminants such as organic matter, suspended solids, chlorine and pathogens are measured and reported. Release volumes and mass loads are also evaluated to compare with limits specified by DES.

In the 2017-18 financial year, Unitywater achieved 97% compliance against overall effluent standards discharged from our sewage treatment plants. DES allows fluctuations in effluent quality parameters (DEHP, 2014) and therefore the plants performed within the overall quality standards set by the Environmental Licence. The table below provides a summary of where treated effluent is discharged and overall effluent quality compliance in the 2017-18 financial year.

Table 1 – Effluent Quality Compliance

Sewage Treatment Plant	Catchment Equivalent Population	Treatment Process	Discharge to:			Effluent Quality Compliance
			Freshwater Body	Ocean	Irrigation, wetlands or groundwater	
Brendale	36,167	BNR ¹	✓			99.9%
Bribie Island	23,211	Biological nitrogen removal and chemical phosphorus removal			✓	99.7%
Burpengary East	45,909	BNR	✓			99.6%
Coolum	26,578	BNR	✓			99.9%
Cooroy	9,711	BNR	✓		✓	100%
Dayboro	1,019	Biological nitrogen removal			✓	100%
Kawana	117,293	Biological nitrogen removal	✓	✓		99.8%
Kenilworth	327	Oxidation Pond	✓		✓	100%
Landsborough²	12,925	BNR	✓	✓		99.9%
Maleny	2,423	Biological nitrogen removal and chemical phosphorus removal	✓		✓	99.7%
Maroochydore	107,922	BNR	✓			84.7%
Murrumba Downs	128,341	BNR	✓			99.5%
Nambour	43,708	BNR	✓			100%
Noosa	47,220	BNR	✓			100%
Redcliffe	60,332	BNR		✓		100%
South Caboolture	58,253	Biological nitrogen removal and chemical phosphorus removal	✓			99.7%
Woodford	2,053	Biological nitrogen removal and chemical phosphorus removal	✓			99.6%
Overall Compliance						96.7%

- Notes: 1. Biological Nutrient Reduction (BNR) – Reduces nitrogen and phosphorus biologically.
 2. A separate 'Performance in Detail' table is not provided for Landsborough Sewage Treatment Plant as effluent from this facility is combined with Kawana Sewage Treatment Plant effluent before being released to the outfall.

3. Performance in Detail (JULY 2017 – JUNE 2018)



Each of Unitywater's plants has different release parameters due to the nature of the discharge point (e.g. waterway or land) or when the plant was issued DES approval to operate. For example, Brendale STP has mass load limits and Bribie Island STP does not.

When reading the following table, please refer to the Definitions and Legend table on page 35 for further explanation of the acronyms and units of measurement.

3.1 Brendale Sewage Treatment Plant

Table 2 – Brendale STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD₅	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
pH	pH units	53	range	✓
DO	mg/L	53	minimum	✓
Free Chlorine Residual	mg/L	53	maximum	✓
Faecal Coliforms	cfu/100 mL	265	median	✓ *
			80th percentile	✓ **

* Median Faecal Coliforms target was exceeded once in the 2017-18 financial year. Please refer to the next page for further details.

** 80th percentile Faecal Coliforms target was exceeded once in the 2017-18 financial year. Please refer to the next page for further details.

Table 3 – Brendale STP Mass Limits

Parameter	Unit	Number of Days	Limit Type	Compliant
Average Annual Flow	ML/yr	365	maximum	✓
Nitrogen Mass Load	kg/yr	-	maximum	✓
Phosphorus Mass Load	kg/yr	-	maximum	✓

Exceedances

Faecal Coliforms

Target median and 80th percentile Faecal Coliforms were exceeded in October 2017. This was caused by a high wet weather flow event which exceeded the capacity of the plant's UV disinfection system. Overall, 98.1% compliance with Faecal Coliforms limits was achieved in the 2017-18 financial year.

Figure 1 – Brendale STP – Faecal Coliform – Median

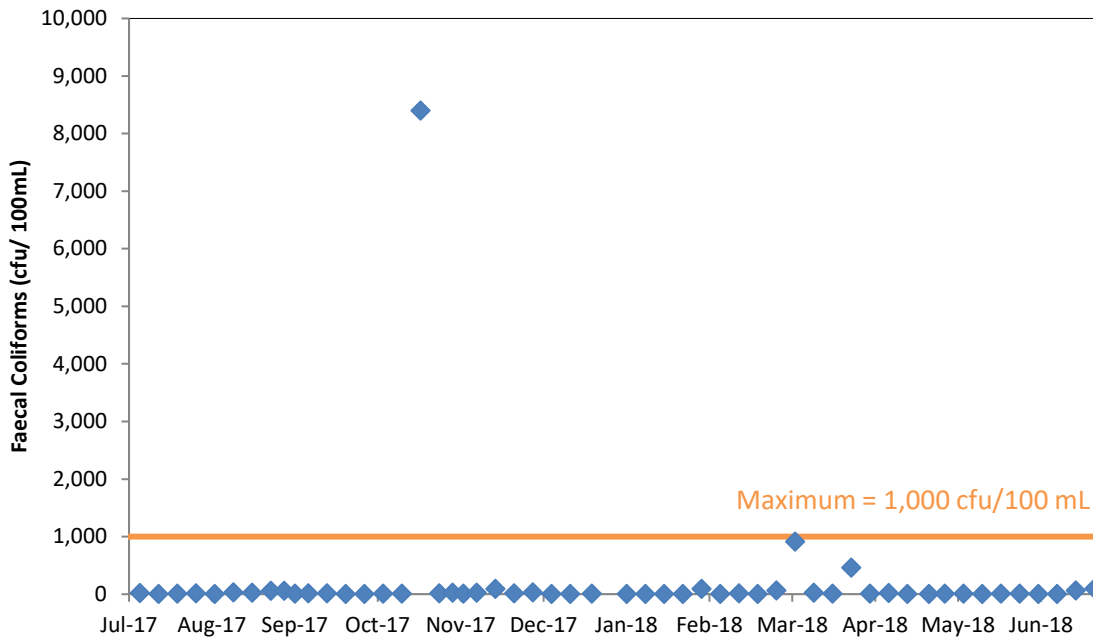
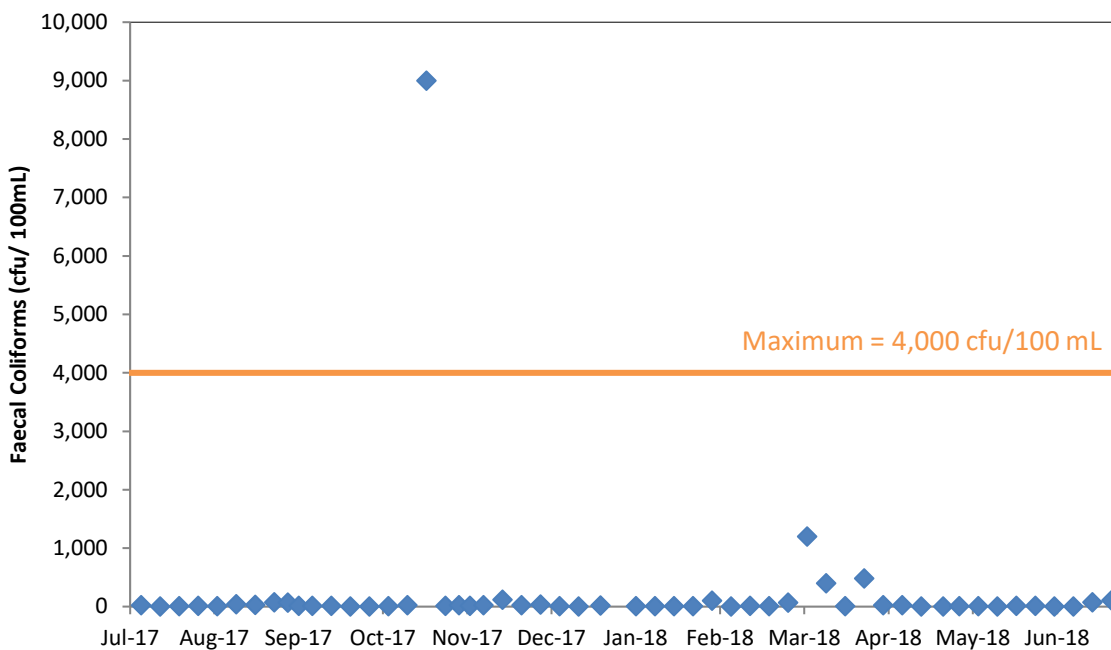


Figure 2 – Brendale STP – Faecal Coliform – 80th Percentile



3.2 Bribie Island Sewage Treatment Plant

Table 4 – Bribie Island STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD₅	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
pH	pH units	53	range	✓ *
DO	mg/L	53	minimum	✓
TN	mg/L	53	long term 50th percentile	✓
			short term 50th percentile	✓
			maximum	✓ **
TP	mg/L	53	long term 50th percentile	✓
			short term 50th percentile	✓
			maximum	✓

* pH was outside the compliance range twice in the 2017-18 financial year. Please refer to the next page for further details.

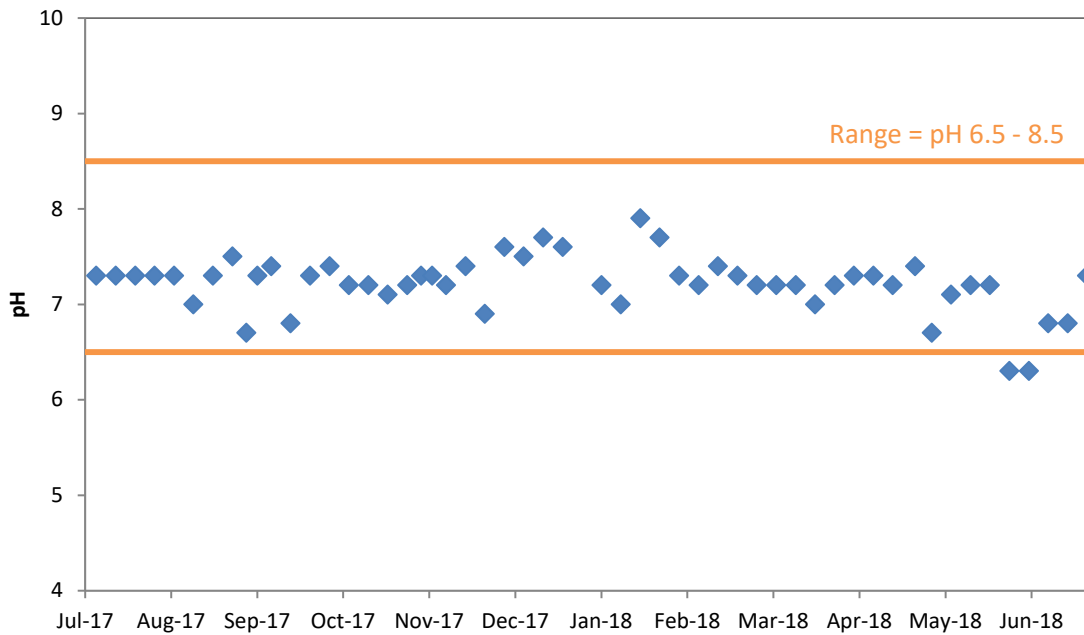
** Maximum total nitrogen was exceeded once in the 2017-18 financial year. Please refer to the next page for further details.

Exceedances

pH

The Bribie Island STP exceeded the pH compliance range twice in the 2017-18 financial year. The temporary reductions in pH were caused by aluminium sulphite dosing to remove phosphorus. Overall, 96.2% compliance with pH limits was achieved in the 2017-18 financial year.

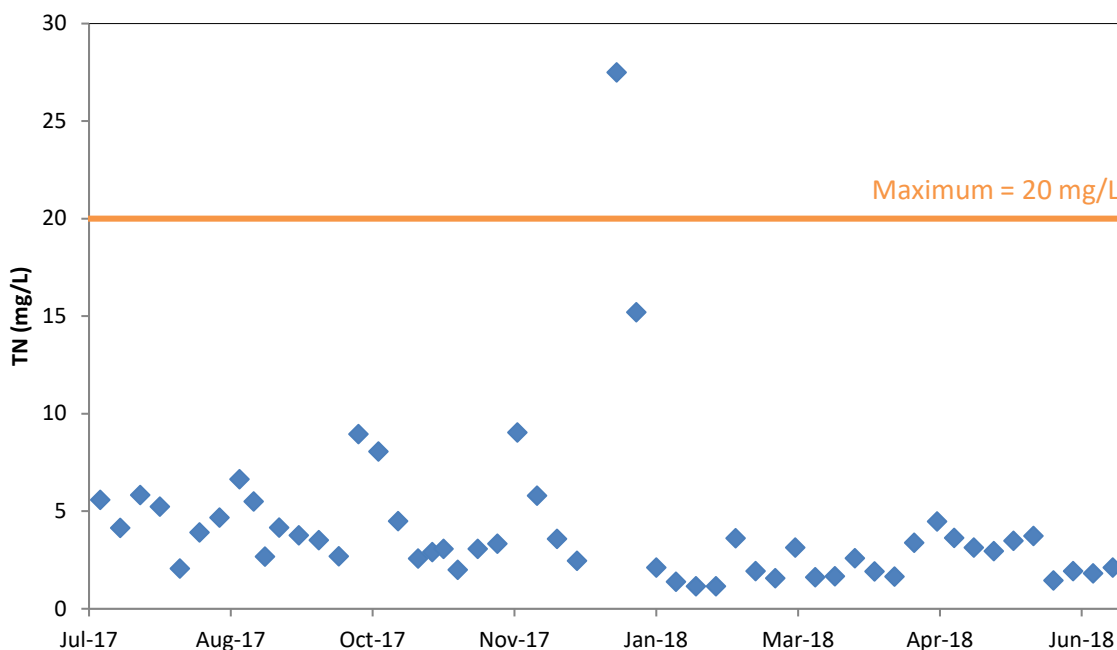
Figure 3 – Bribie Island STP – pH



Total Nitrogen

Maximum total nitrogen was exceeded once in the 2017-18 financial year caused by a wet weather event in January 2018. Overall, 98.1% compliance in total nitrogen maximum targets was achieved in the 2017-18 financial year.

Figure 4 – Bribie Island STP – Total Nitrogen – Maximum



3.3 Burpengary East Sewage Treatment Plant

Table 5 – Burpengary East STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD ₅	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
pH	pH units	53	range	✓
DO	mg/L	53	minimum	✓
Free Chlorine Residual	mg/L	53	maximum	✓
Faecal Coliforms	cfu/100 mL	260	median	✓ *
			80th percentile	✓ **

* Median Faecal Coliforms target was exceeded once in the 2017-18 financial year. Please refer to the next page for further details.

** 80th percentile Faecal Coliforms target was exceeded once in the 2017-18 financial year. Please refer to the next page for further details.

Table 6 – Burpengary East STP Mass Limits

Parameter	Unit	Number of Days	Limit Type	Compliant
Average Annual Flow	ML/yr	365	maximum	✓
Nitrogen Mass Load	kg/yr	-	maximum	✓
Phosphorus Mass Load	kg/yr	-	maximum	✓

Exceedances

Faecal Coliforms

Target median and 80th percentile Faecal Coliforms were both exceeded due to high wet weather flows in October 2017. 98.1% compliance for median and 80th percentile Faecal Coliforms was achieved in the 2017-18 financial year.

Figure 5 – Burpengary East STP – Faecal Coliform – Median

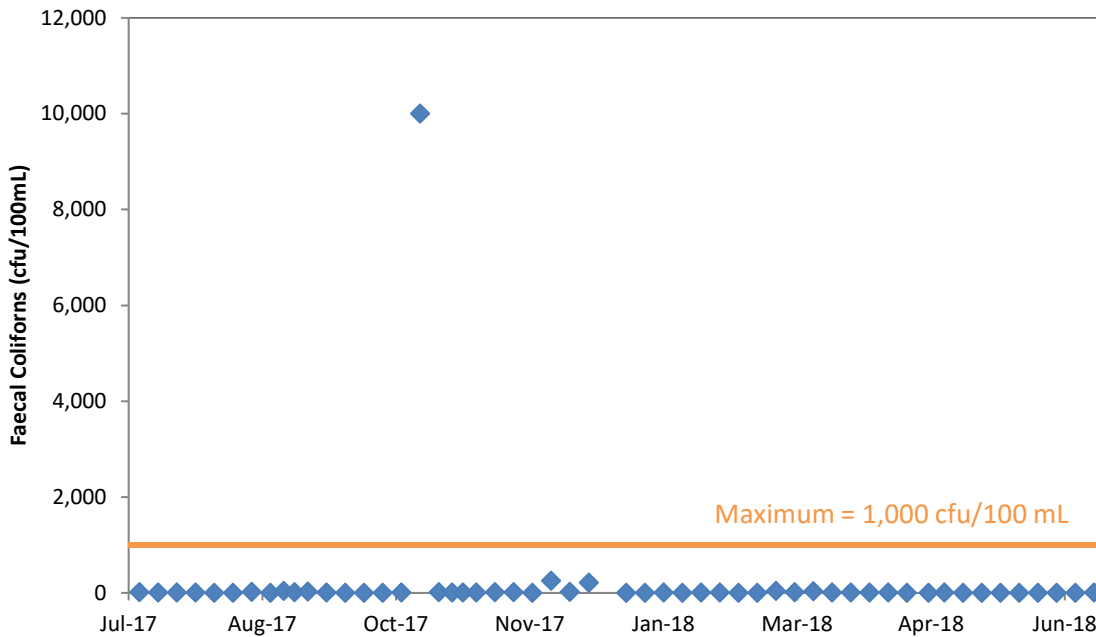
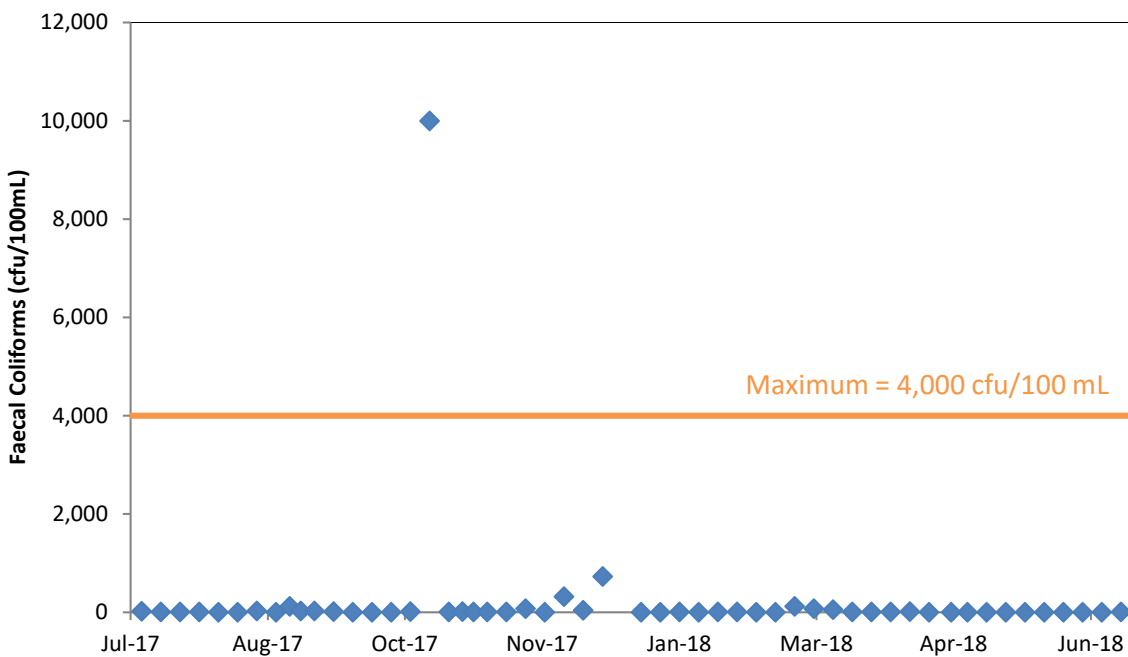


Figure 6 – Burpengary East STP – Faecal Coliform – 80th Percentile



3.4. Coolum Sewage Treatment Plant

Table 7 – Coolum STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD₅	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
pH	pH units	53	range	✓
DO	mg/L	53	minimum	✓ *
NH₃-N	mg/L	53	long term 50th percentile	✓
			maximum	✓
Free Chlorine Residual	mg/L	53	maximum	✓
Faecal Coliforms	cfu/100 mL	53	median	✓
			80th percentile	✓

* Dissolved Oxygen below the minimum target was recorded once in the 2017-18 financial year. Please refer to the next page for further details.

Table 8 – Coolum STP Mass Limits

Parameter	Unit	Number of Days	Limit Type	Compliant
Average Annual Flow	ML/yr	365	maximum	✓
Nitrogen Mass Load	kg/yr	-	maximum	✓
Phosphorus Mass Load	kg/yr	-	maximum	✓

3.5. Cooroy Sewage Treatment Plant

Table 9 – Cooroy STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
pH	pH units	53	range	✓
DO	mg/L	53	minimum	✓
TN	mg/L	53	long term 50th percentile	✓
			maximum	✓
TP	mg/L	53	long term 50th percentile	✓
			maximum	✓
Intestinal Enterococci	mg/L	159	long term 50th percentile	✓
			maximum	✓

Table 10 – Cooroy STP Mass Limits

Parameter	Unit	Limit Type	Compliant
Nitrogen Mass Load	kg/yr	maximum	✓
Phosphorus Mass Load	kg/yr	maximum	✓

3.6. Dayboro Sewage Treatment Plant

Table 11 – Dayboro STP Contaminants Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD ₅	mg/L	12	80th percentile	✓
			maximum	✓
TSS	mg/L	12	80th percentile	✓
			maximum	✓
pH	pH units	12	range	✓
NH ₃ -N	mg/L	12	50th percentile	✓
			maximum	✓
E.Coli	mg/L	65	median	✓
			80th percentile	✓

3.7. Kawana-Landsborough Sewage Treatment Plants

Table 12 – Kawana-Landsborough STP Release Targets[^]

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD ₅	mg/L	53	long term 80th percentile	✓
			maximum	✓
TSS	mg/L	53	long term 80th percentile	✓
			maximum	✓
pH	pH units	53	range	✓
DO	mg/L	53	minimum	✓
NH ₃ -N	mg/L	53	long term 50th percentile	✓
			maximum	✓
Free Chlorine Residual	mg/L	53	maximum	✓
Faecal Coliforms	cfu/100 mL	54	median	✓ *
			80th percentile	✓

[^] Note that effluent to the main outfall contains flow from both Kawana and Landsborough STPs.

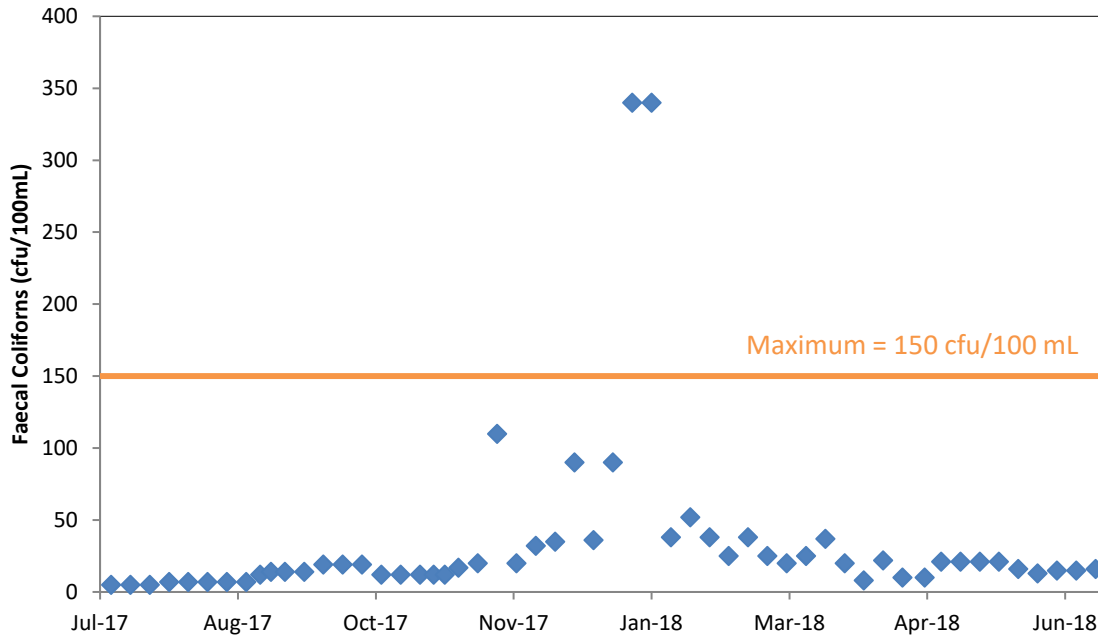
* Median Faecal Coliforms was exceeded twice in the 2017-18 financial year. Please refer to the next page for further details.

Non-Compliance

Faecal Coliforms

The median Faecal Coliforms target was exceeded twice in early 2018. As part of the current upgrade works at Kawana Sewage Treatment Plant, a new chlorination system will be installed to improve reliability. Compliance for median Faecal Coliforms of 96.3% was achieved.

Figure 8 – Kawana-Landsborough STP – Faecal Coliforms – Median



3.8 Kenilworth Sewage Treatment Plant

Table 13 – Kenilworth STP Release Targets[^]

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD₅	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
pH	pH units	53	range	✓
DO	mg/L	53	minimum	✓
Faecal Coliforms	cfu/100 mL	53	median	✓
			80th percentile	✓

[^] Note that no discharge to the nearby creek was released from Kenilworth STP. Treated effluent was released to the disposal area and thus 100% compliance was achieved.

3.9 Maleny Sewage Treatment Plant

Table 14 – Maleny STP Release Targets to Constructed Wetlands

Parameter	Unit	Number of Samples ^	Target Type	Compliant
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
pH	pH units	53	range	✓
DO	mg/L	53	minimum	✓*
TN	mg/L	53	long term 50th percentile	✓
TP	mg/L	53	long term 50th percentile	✓
E. Coli	cfu/100 mL	53	median	✓

* Dissolved Oxygen below the minimum target was recorded once in the 2017-18 financial year. Please refer to the next page for further details.

Table 15 – Maleny STP Release Targets to Forest Irrigation

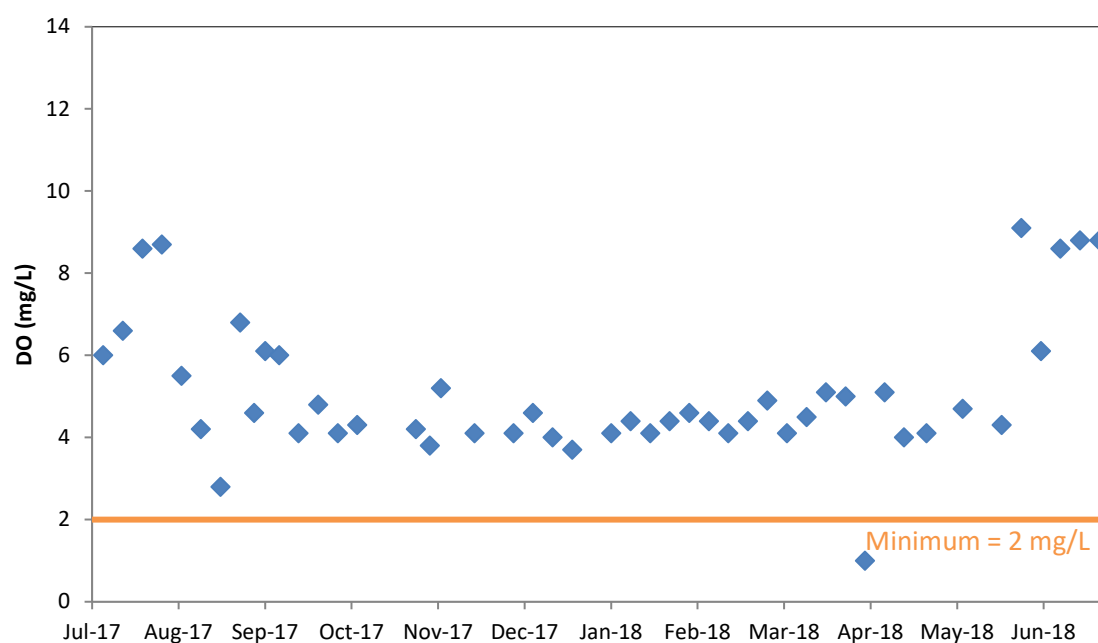
Parameter	Unit	Number of Samples ^	Limit Type	Compliant
pH	pH units	53	range	✓
Electrical Conductivity	µs/cm	53	maximum	✓
TN	mg/L	53	maximum	✓
TP	mg/L	53	maximum	✓
E. Coli	cfu/100 mL	53	median	✓

^ Note that effluent released to the constructed wetlands and forest irrigation is sampled from the same location, however flow is diverted to only one, but not both, outfall on any one day.

Dissolved Oxygen

Dissolved Oxygen below the minimum was recorded once in early 2018. The short term departure from compliance range was due to a Dissolved Oxygen probe calibration error. 98.1% compliance for minimum Dissolved Oxygen was achieved in the 2017-18 financial year.

Figure 9 – Maleny STP – DO – Minimum



3.10 Maroochydore Sewage Treatment Plant

Table 16 – Maroochydore STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
Faecal Coliforms	cfu/100 mL	53	median	✓ *
			80th percentile	✓ *

Table 17 – Maroochydore STP Mass Limits

Parameter	Unit	Number of Samples	Limit Type	Compliant
Average Annual Flow	ML/yr	365	maximum	✓
Nitrogen Mass Load	kg/yr	-	maximum	✓
Phosphorus Mass Load	kg/yr	-	maximum	✓

* Median Faecal Coliforms was exceeded ten times while 80th percentile Faecal Coliforms was exceeded eight times in the 2017-18 financial year. Please refer to the next page for further details.

Non-Compliance

Faecal Coliforms

Median Faecal Coliforms was exceeded ten times while 80th percentile Faecal Coliforms was exceeded eight times in the 2017-18 financial year. Several reasons caused these exceedances, including a faulty valve in the ultraviolet (UV) channel, ferrous chloride staining of the UV lamps and maintenance of the anaerobic digester that caused an inventory variance in site solids. Overall, 81.5% and 84.9% compliance in median and 80th percentile Faecal Coliforms respectively were achieved. A specialist maintenance team has been engaged to improve UV system reliability.

Figure 10 – Maroochydore STP – Faecal Coliforms – Median

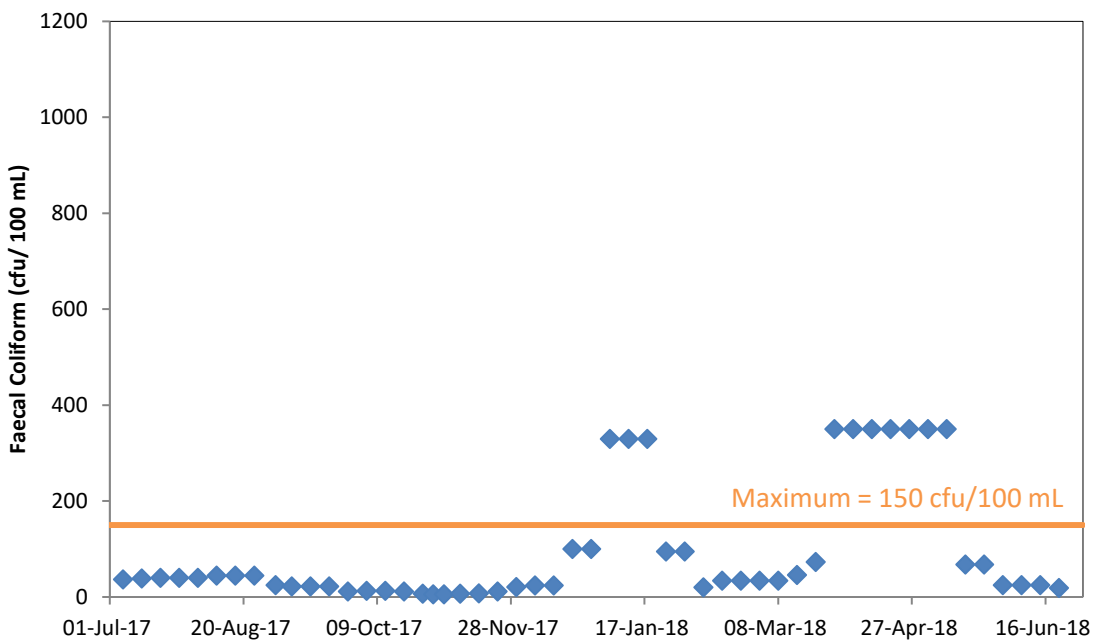
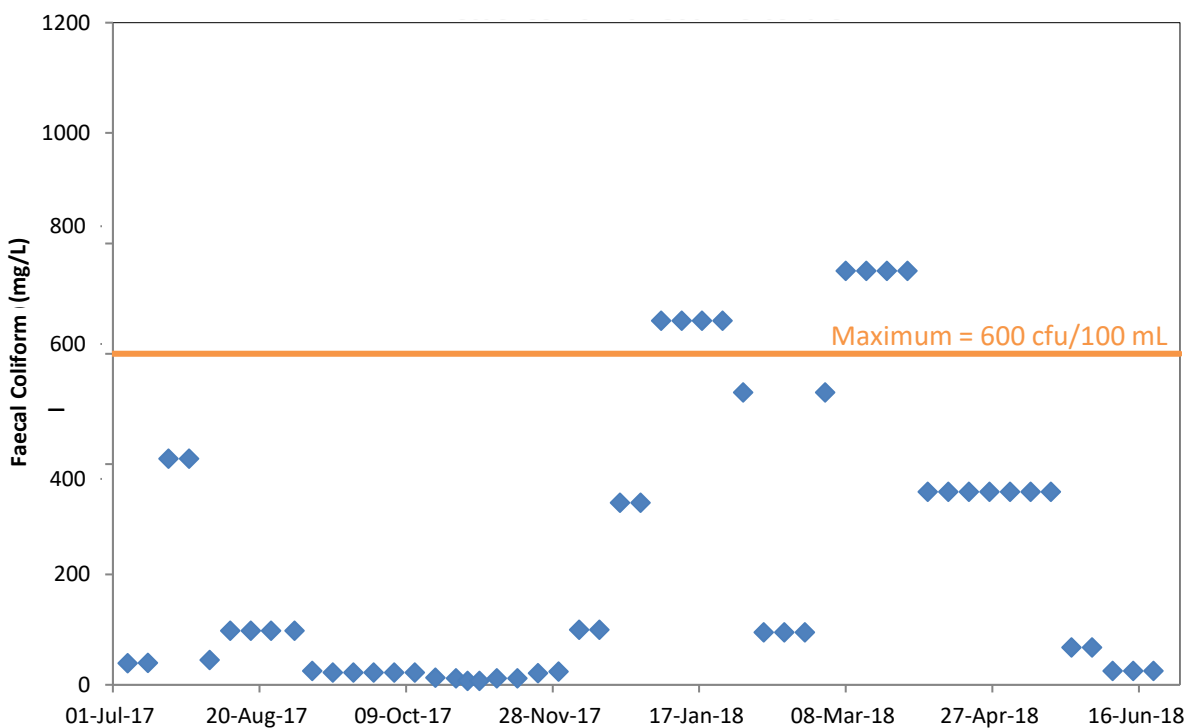


Figure 11 – Maroochydore STP – Faecal Coliforms – 80th Percentile



3.11 Murrumba Downs Sewage Treatment Plant

Table 18 – Murrumba Downs STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD₅	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
pH	pH units	53	range	✓
DO	mg/L	53	minimum	✓
Ammonia Nitrogen	mg/L	53	maximum	✓
TN	mg/L	53	long term 50th percentile	✓
			short term 50th percentile	✓
			maximum	✓
TP	mg/L	53	long term 50th percentile	✓
			short term 50th percentile	✓
			maximum	✓
Faecal Coliforms	cfu/100 mL	265	median	✓ *
			80th percentile	✓ *

* Median and 80th percentile Faecal Coliforms were both exceeded four times in the 2017-18 financial year. Please refer to the next page for further details.

Table 19 – Murrumba Downs STP Volumetric Limits

Parameter	Unit	Number of Samples	Limit Type	Compliant
Dry Weather Flow	ML/d	268	maximum	✓
			average	✓
Volumetric Release	ML/d	365	maximum on any one day	✓

3.13 Noosa Sewage Treatment Plant

Table 22 – Noosa STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
Faecal Coliforms	cfu/100 mL	53	median	✓
			80th percentile	✓

Table 23 – Noosa STP Mass Limits

Parameter	Unit	Number of Samples	Limit Type	Compliant
Average Annual Flow	ML/yr	365	maximum	✓
Nitrogen Mass Load	kg/yr	-	maximum	✓
Phosphorus Mass Load	kg/yr	-	maximum	✓

3.14 Redcliffe Sewage Treatment Plant

Table 24 – Redcliffe STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD ₅	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
pH	pH units	53	range	✓
DO	mg/L	53	minimum	✓
Free Chlorine Residual	mg/L	53	maximum	✓*
Faecal Coliforms	cfu/100 mL	260	median	✓**
			80th percentile	✓***

* Free Chlorine maximum limit was exceeded once in the 2017-18 financial year. Please refer to the next page for further details.

** Median Faecal Coliforms was exceeded twice in the 2017-18 financial year. Please refer to the next page for further details.

*** 80th percentile Faecal Coliforms was exceeded once in the 2017-18 financial year. Please refer to the next page for further details.

Faecal Coliforms

Target median Faecal Coliforms was exceeded twice and 80th percentile Faecal Coliforms was exceeded once in the 2017-18 financial year. The short term excursion from compliance range was caused by a blockage in the chlorine dosing line in August and power fluctuations in the Redcliffe Peninsula in January. Overall, 96.2% and 98.1% compliance for median and 80th percentile Faecal Coliforms were achieved respectively.

Figure 15 – Redcliffe STP – Faecal Coliform – Median

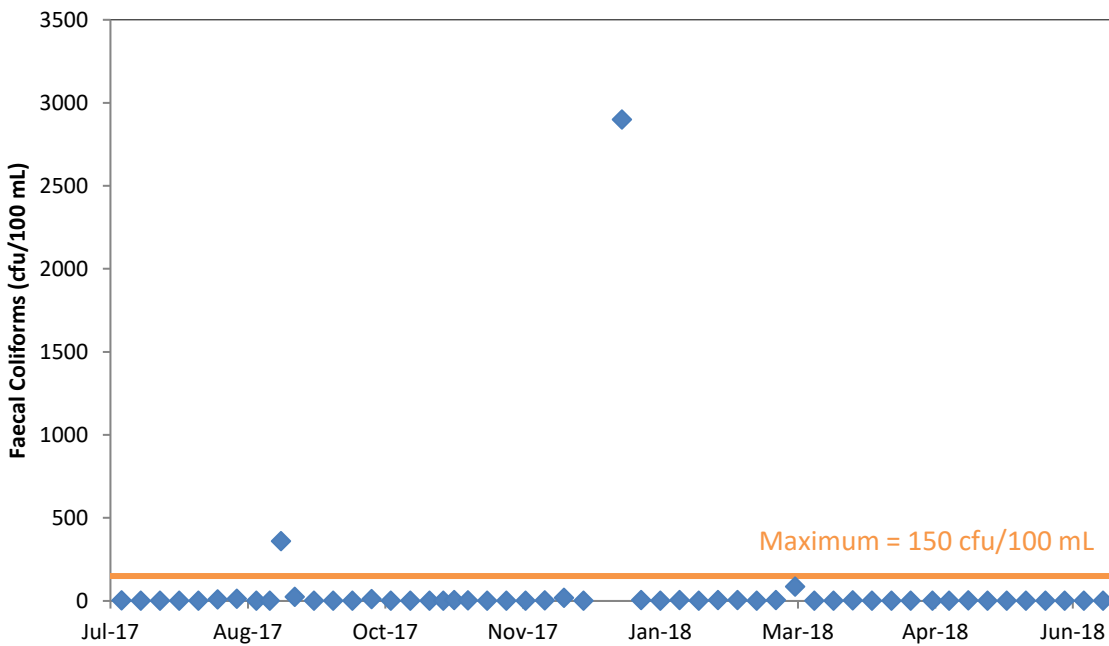
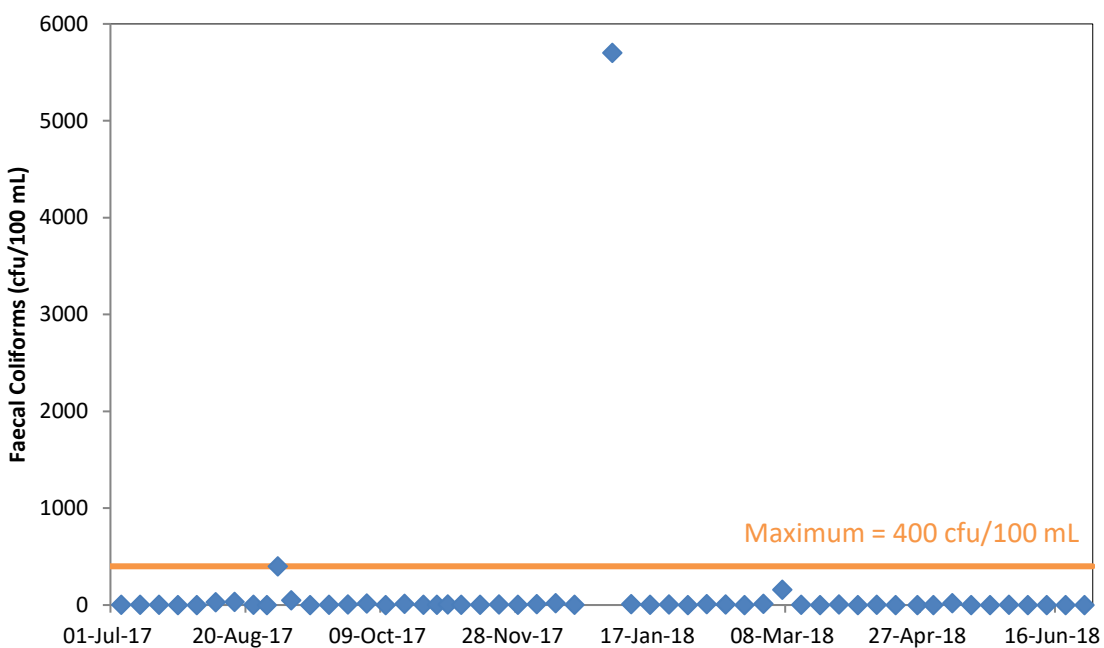


Figure 16 – Redcliffe STP – Faecal Coliform – 80th Percentile



3.15 South Caboolture Sewage Treatment Plant

Table 26 – South Caboolture STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD₅	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
pH	pH units	53	range	✓*
DO	mg/L	53	minimum	✓
Free Chlorine Residual	mg/L	53	maximum	✓
Faecal Coliforms	cfu/100 mL	265	median	✓
			80th percentile	✓

* pH was outside the compliance range twice in the 2017-18 financial year. Please refer to the next page for further details.

Table 27 – South Caboolture STP Mass Limits

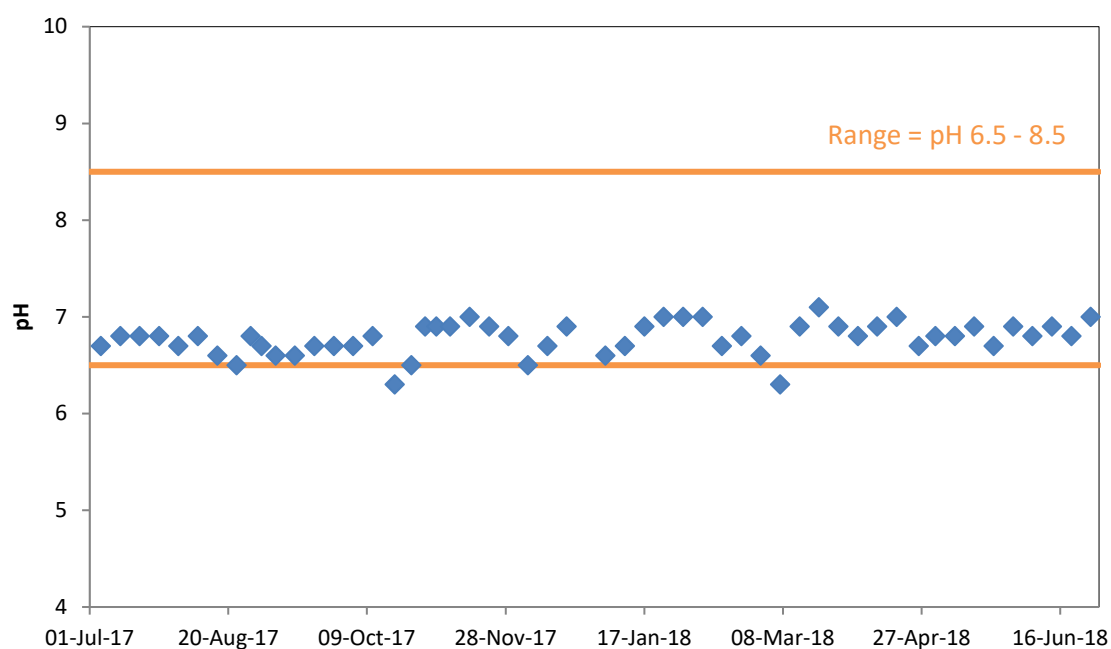
Parameter	Unit	Number of Samples	Limit Type	Compliant
Average Annual Flow	ML/yr	366	maximum	✓
Nitrogen Mass Load	kg/yr	-	maximum	✓
Phosphorus Mass Load	kg/yr	-	maximum	✓

Exceedances

pH

pH was measured outside the compliance range twice in the 2017-18 financial year. The short term departure from compliance range was caused by high wet weather flows. Overall, 96.2% compliance with pH limits was achieved in the 2017-18 financial year.

Figure 17 – South Caboolture STP – pH



3.16 Woodford Sewage Treatment Plant

Table 28 – Woodford STP Release Targets

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD ₅	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
TSS	mg/L	53	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓*
pH	pH units	53	range	✓**
DO	mg/L	53	minimum	✓
Free Chlorine Residual	mg/L	53	maximum	✓
Faecal Coliforms	cfu/100 mL	265	median	✓
			80th percentile	✓

* Maximum Total Suspended Solids was exceeded once in the 2017-18 financial year. Please refer to the next page for further details.

** pH was outside of the compliance range once in the 2017-18 financial year. Please refer to the next page for further details.

Table 29 – Woodford STP Mass Limits

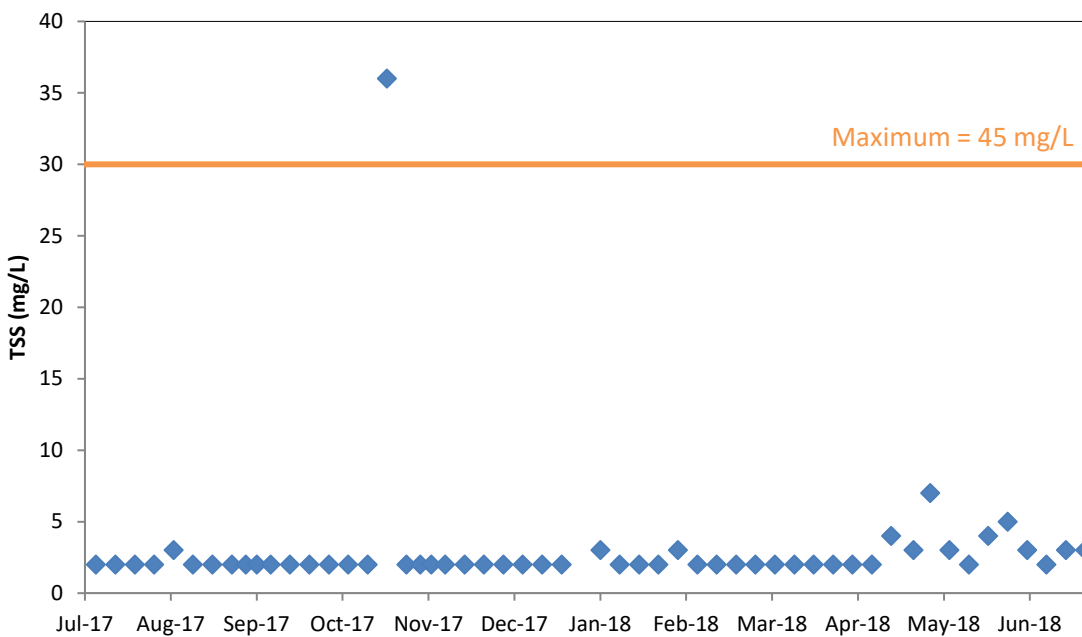
Parameter	Unit	Number of Samples	Limit Type	Compliant
Average Annual Flow	ML/yr	365	maximum	✓
Nitrogen Mass Load	kg/yr	-	maximum	✓
Phosphorus Mass Load	kg/yr	-	maximum	✓

Exceedances

TSS

Maximum Total Suspended Solids was exceeded once in late 2017. The short term departure from compliance range was caused by a wet weather event. Overall, 98.1% compliance for Total Suspended Solids maximum was achieved.

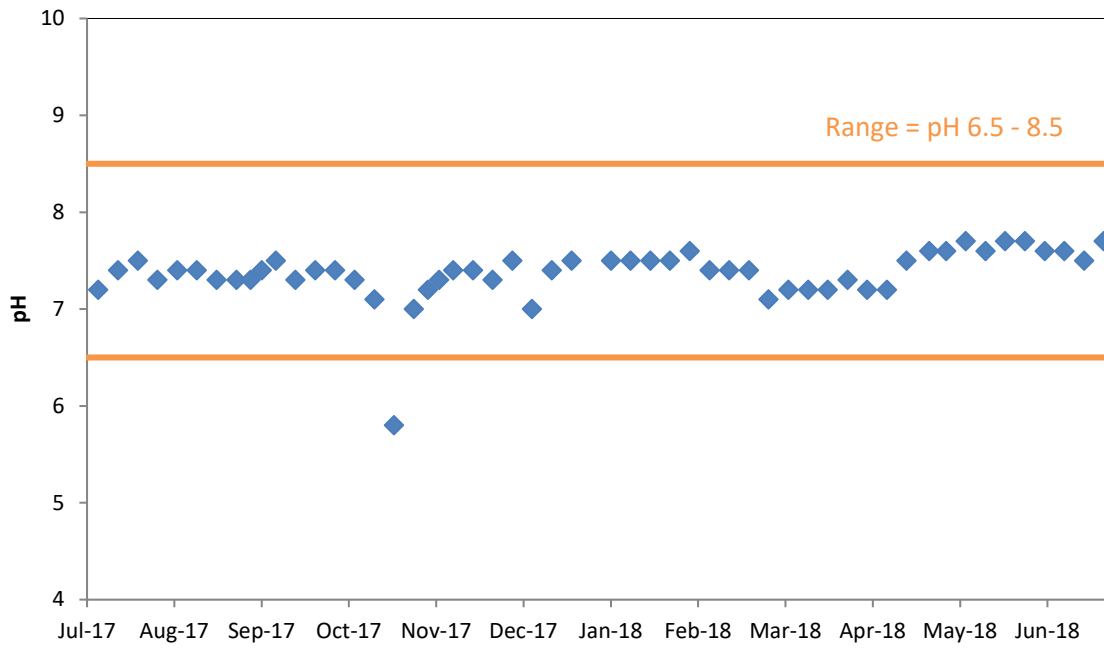
Figure 18 – Woodford STP – TSS – Maximum



pH

pH was outside the compliance range once in the 2017-18 financial year. The short term departure from compliance range was caused by a wet weather event. Overall, 98.1% compliance with pH limits was achieved in the 2017-18 financial year.

Figure 19 – Woodford STP – pH



4. Definitions and Legend

Definitions of acronyms, units of measurement and legends used throughout this performance report are defined below.

Table 30 – Acronyms and Definitions

Acronym	Term	Definition
BOD ₅	biochemical oxygen demand after 5 day test	The amount of dissolved oxygen needed by aerobic organisms to break down organic material.
BNR	biological nutrient removal	A process used for nitrogen and phosphorous removal from sewage.
DES	Department of Environment and Science	
DO	dissolved oxygen	Gaseous oxygen that is mixed in water and is available to aquatic organisms for respiration.
E.Coli	Escherichia coli	Used as an indicator of pathogenic organisms that may cause diseases.
NH ₃ – N	ammonia nitrogen	A chemical compound that is removed to maintain the health of waterways. High levels can cause environmental issues such as eutrophication.
TN	total nitrogen	The sum of nitrate, nitrite and ammonia that is removed to maintain the health of waterways and prevent environmental issues such as eutrophication.
TP	total phosphorus	The sum of phosphorus compounds that is removed to maintain the health of waterways and prevent environmental issues such as eutrophication.
TSS	total suspended solids	Total amount of small solid particles that remain suspended within the wastewater.
UV	ultraviolet	A technology using radiation that disinfects wastewater.
	faecal coliform	Used as an indicator of pathogenic organisms that may cause diseases.
pH		A figure expressing the acidity or alkalinity of the water

Table 31 – Definition of Units

Units	Definition
µs/cm	micro-Siemens per centimetre
cfu/100 mL	colony forming units per 100 millilitres
kg/yr	kilogram per year
mg/L	milligrams per litre
ML	megalitres
ML/yr	megalitres per year
NTU	Nephelometric Turbidity Units

Table 32 – Legend

Symbol	Compliance value
✓	> 90%
✓	80% - 90%
✗	< 80%



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