

Sewage Treatment Plant Performance Report

2016-17



Unitywater

Serving you today,
investing in tomorrow.



Message from the CEO

I am pleased to share with you our Sewage Treatment Plant Performance Report for 2016-17. This report provides information about the individual and collective performance of the 17 sewage treatment plants (STPs) that we operate across our service area.

I am proud to announce that Unitywater achieved overall STP compliance of 99.1% this financial year.

We are licensed by the Department of Environment and Heritage Protection (DEHP) to collect and treat sewage to meet a range of quality standards and compliance targets. We consistently achieve overall compliance because we take our responsibility for safe, sustainable sewage treatment seriously. We embrace the highest operating standards and we have effective governance in place to manage risks and remain sensitive to the environment.

Our 17 sewage treatment plants (STPs) collected and treated 50,680 million litres of sewage in 2016-17. This report details performance and compliance for each STP and also explains the few occasions where we exceeded compliance targets.

Over the next five years, we will invest \$188 million in our treatment plant infrastructure to improve reliability, continuously improve our operations and meet the demands of our growing communities. Ever mindful of the residents living near our STPs, we have also invested almost \$3 million in odour reduction at our Maroochydore plant.

We are developing our workforce to enable STP staff to operate multiple plants and improving after-hours STP monitoring.

We are also fast approaching operational excellence thanks to the power of some innovative industry technologies. Some of our focus areas over the next few years include: converting waste into energy, recovering valuable resources such as phosphorus for fertiliser and using real-time data to drive efficient operations and rapid decision making (this is known as Unitywater's Smart STP initiative).

These innovations will allow us to continue delivering on our key purpose – "keeping communities healthy".

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



George Theo
Chief Executive Officer



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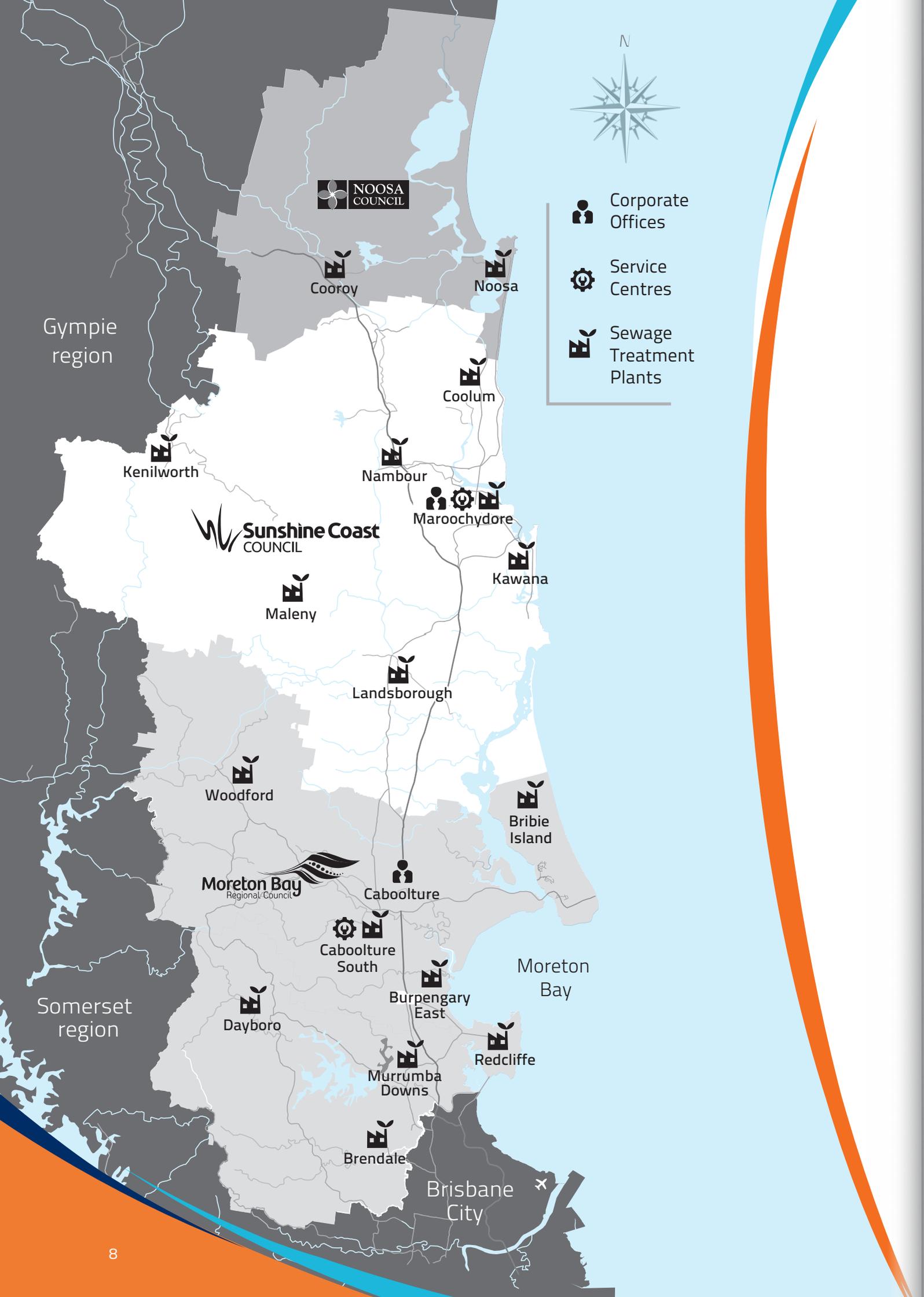
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-  Corporate Offices
-  Service Centres
-  Sewage Treatment Plants

Gympie region

NOOSA COUNCIL

Cooroy

Noosa

Coolum

Kenilworth

Nambour

Maroochydore

Sunshine Coast COUNCIL

Kawana

Maleny

Landsborough

Woodford

Bribie Island

Moreton Bay Regional Council

Caboolture

Caboolture South

Moreton Bay

Somerset region

Dayboro

Burpengary East

Redcliffe

Murrumba Downs

Brendale

Brisbane City

1. Introduction

Unitywater supplies more than 755,609 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 Heritage Protection (DEHP). We hold the following DEHP 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 *Sustainable Planning Act 2009 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 2016 - June 2017

Number of sewerage connections	281,015
Kilometres of sewer main pipes	5,708 km
Number of sewage pump stations	781
Number of sewage treatment plants	17
Volume of sewage collected and treated	50,680 ML ¹

1. Does not include 2092 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 Heritage Protection (DEHP) requires that our sewage treatment plants discharge effluent that meets quality and quantity conditions to minimise impacts on the health of waterways in Queensland.

We report on concentrations of contaminants such as organic matter, suspended solids, chlorine and pathogens. Release volumes and mass loads are also evaluated to compare with limits specified by DEHP.

In the 2016–17 financial year, we achieved over 99% compliance in overall effluent quality discharged from our sewage treatment plants. DEHP allows fluctuations in effluent quality parameters (DEHP, 2014) which means 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 2016–17 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	35,797	BNR ¹	✓			99.2%
Bribie Island	22,316	Biological nitrogen removal and chemical phosphorus removal			✓	99.9%
Burpengary East	42,636	BNR	✓			99.9%
Coolum	25,763	BNR	✓			99.8%
Cooroy	9452	BNR	✓		✓	100%
Dayboro	1015	Biological nitrogen removal			✓	99.5% ²
Kawana	102,391	Biological nitrogen removal	✓	✓		99.0%
Kenilworth	290	Oxidation Pond	✓		✓	100%
Landsborough ³	12,577	BNR	✓	✓		
Maleny	2412	Biological nitrogen removal and chemical phosphorus removal	✓		✓	100%
Maroochydore	116,020	BNR	✓			96.9%
Murrumba Downs	124,395	BNR	✓			99.5%
Nambour	42,673	BNR	✓			100%
Noosa	46,833	BNR	✓			100%
Redcliffe	59,296	BNR		✓		100%
South Caboolture	54,731	Biological nitrogen removal and chemical phosphorus removal	✓			100%
Woodford	1939	Biological nitrogen removal and chemical phosphorus removal	✓			100%
	Overall Compliance					99.1% ⁴

Notes:

1. Biological Nutrient Reduction (BNR) – Reduces nitrogen and phosphorus biologically.
2. Because Dayboro STP discharges to restricted land (not a waterway) and therefore poses no risk to human health, the plant is licensed to disinfect by natural sunlight. The effectiveness is therefore impacted by weather conditions (i.e. disinfection is less effective on rainy days).
3. 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.
4. Effluent quality met stringent quality standards 991 out of every 1000 times (well within the quality standards set by the Environmental Licence). Overall compliance is calculated on a flow-weighted basis in accordance with the National Performance Report.

3. Performance in Detail

(JULY 2016 – JUNE 2017)

Each of our plants has different release parameters due to the nature of the discharge point (e.g. waterway or land) or when the plant was issued DEHP approval to operate. An example of this is Brendale STP which has mass load limits and Bribie Island STP which does not.

When reading the following tables, please refer to the Definitions and Legend on page 25 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
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	✓

* TSS short term 80th percentile target was exceeded five times in the 2016-17 financial year. Please refer to the next page for further details.

** Median Faecal Coliforms target was exceeded once in the 2016-17 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	✓

3.2 Bribie Island Sewage Treatment Plant

Table 4 – Bribie Island 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	✓
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	✓

* Short term 50th percentile Total Nitrogen was exceeded twice in the 2016-17 financial year. Please refer to the next page for further details.

** Maximum Total Nitrogen was exceeded once in the 2016-17 financial year. Please refer to the next page for further details.

Exceedances

Total Nitrogen

The short term 50th percentile Total Nitrogen target was exceeded twice and the maximum Total Nitrogen target was exceeded once. Ex-Tropical Cyclone Debbie caused wet weather flow conditions which caused the short term exceedance. The maximum Total Nitrogen exceedance was caused by a power failure which changed the operation of the aeration blowers to its default parameters. We modified the plant control system modified to prevent a recurrence of a similar event and subsequent samples have successfully met compliance. Overall 96.2% and 98.1% compliance in short term and maximum Total Nitrogen targets was achieved respectively.

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	265	median	✓
			80th percentile	✓

* Maximum Free Chlorine Residual was exceeded once in the 2016-17 financial year. Please refer to the next page for further details.

Table 6 – Burpengary East STP Mass Limits

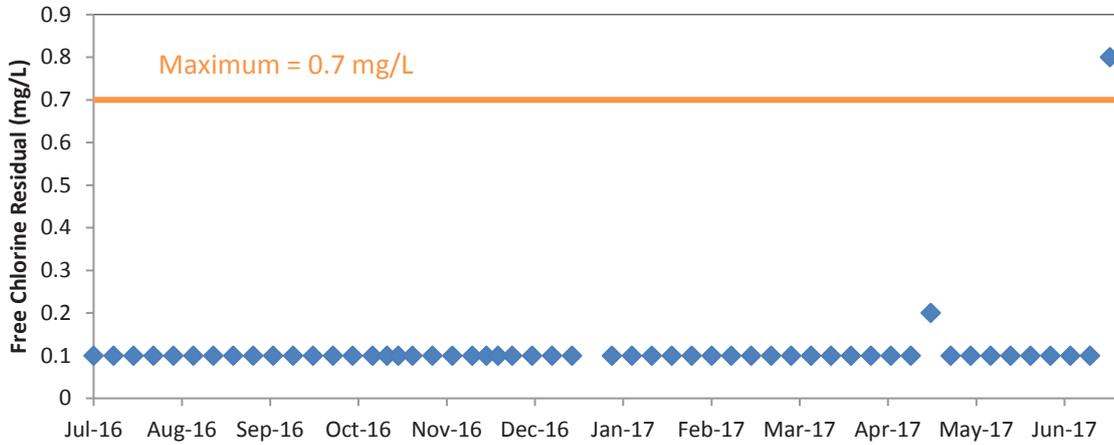
Parameter	Unit	Number of Days	Limit Type	Compliant
Average Annual Flow	ML/yr	365	maximum	✓
Nitrogen Mass Load	kg/yr	-	maximum	✓
Phosphorus Mass Load	kg/yr	-	maximum	✓

Exceedances

Free Chlorine Residual

The Free Chlorine Residual target was exceeded once. The single spike is attributed to the required algal cleaning of a chlorine contact tank using liquid chlorine. Our facility has since met full compliance. The overall Free Chlorine Residual performance achieved 98.1% compliance.

Figure 5 – Burpengary East STP – Free Chlorine Residual – Maximum



3.4 Coolum Sewage Treatment Plant

Table 7 – Coolum 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	✓
NH ₃ -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	✓

* Maximum Free Chlorine Residual was exceeded once in the 2016-17 financial year. Please refer to the next page for further details.

Table 8 – Coolum STP Mass Limits

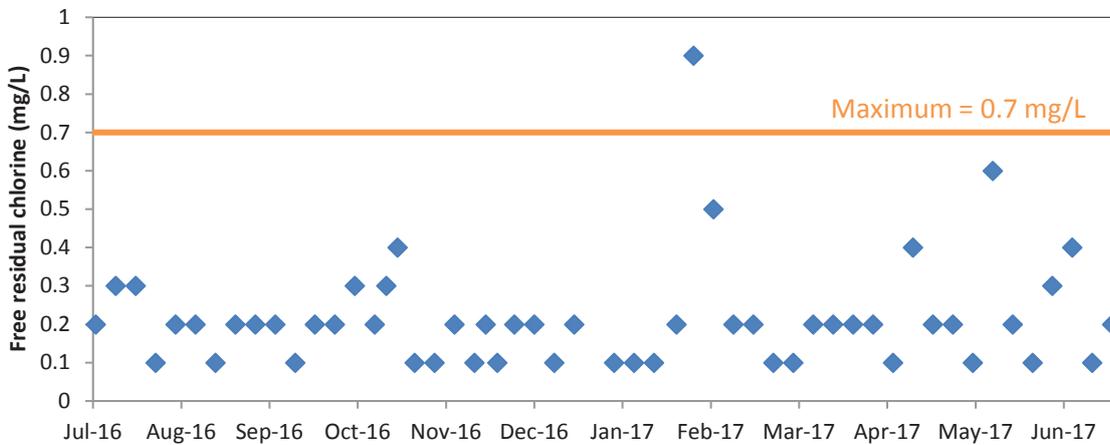
Parameter	Unit	Number of Days	Limit Type	Compliant
Average Annual Flow	ML/yr	365	maximum	✓
Nitrogen Mass Load	kg/yr	-	maximum	✓
Phosphorus Mass Load	kg/yr	-	maximum	✓

Exceedances

Free Chlorine Residual

The Free Chlorine Residual target was exceeded once in early 2017. A follow-up test by our staff on the same day resulted in a Free Chlorine Residual of 0.1 mg/L (less than the <0.7 mg/L maximum), indicating a potential testing error. Compliance for maximum Free Chlorine Residual of 98.1% was achieved.

Figure 6 – Coolum STP – Free Chlorine Residual – 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 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	60	median	✓ *
			80th percentile	✓

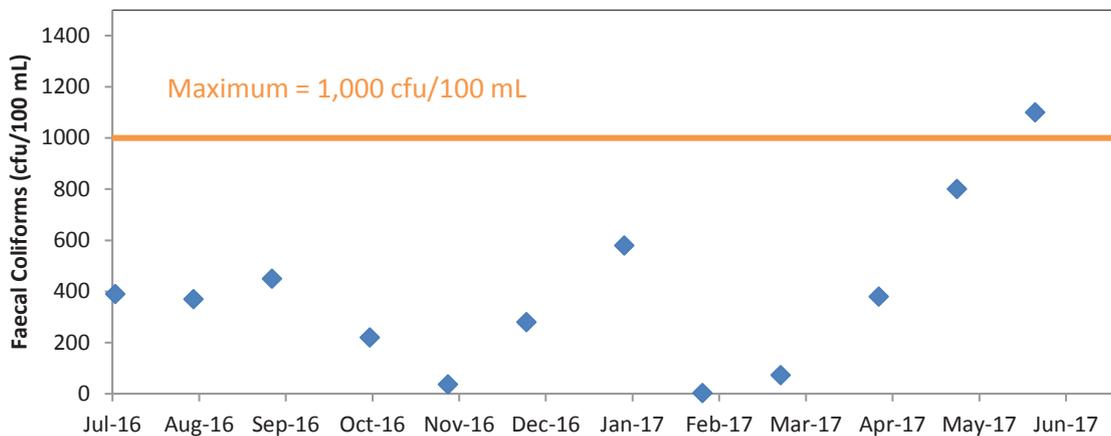
* Median E.coli was exceeded once in the 2016-17 financial year. Please refer to the next page for further details

Exceedances

E.coli

The median E.coli level was exceeded once in June 2017. This is the only facility that relies on sunlight to disinfect effluent, as this small plant discharges to land onsite and poses no risk to the environment or the community. The single exceedance was caused by algae growth and rainy weather conditions. Overall, 91.7% compliance in median E.coli was achieved.

Figure 7 – Dayboro STP – E.coli – Median



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	53	median	✓
			80th percentile	✓ **

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

* Free Chlorine Residual was exceeded six times in the 2016-17 financial year. Please refer to the next page for further details.

** 80th percentile Faecal Coliforms was exceeded once in the 2016-17 financial year. Please refer to the next page for further details.

3.8 Kenilworth Sewage Treatment Plant

Table 13 – Kenilworth STP Release Targets[^]

Parameter	Unit	Number of Samples	Target Type	Compliant
BOD ₅	mg/L	52	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
TSS	mg/L	52	long term 80th percentile	✓
			short term 80th percentile	✓
			maximum	✓
pH	pH units	52	range	✓
DO	mg/L	52	minimum	✓
Faecal Coliforms	cfu/ 100 mL	52	median	✓
			80th percentile	✓

[^] Note that no discharge to the nearby creek was released from Kenilworth Sewage Treatment Plant (i.e. treated effluent was released to the disposal area). Therefore 100% compliance was attained.

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	✓

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	✓

[^] Total number of samples of effluent. Note that effluent released to the constructed wetlands and forest irrigation is sampled from the same location, however flow is diverted to either, but not both, outfalls on any one day.

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

Average Annual Flow	ML/yr	365	maximum	✓
Nitrogen Mass Load	kg/yr	-	maximum	✓ **
Phosphorus Mass Load	kg/yr	-	maximum	✓

* Median Faecal Coliforms was exceeded five times while 80th percentile Faecal Coliforms was exceeded once in the 2016-17 financial year. Please refer to the next page for further details.

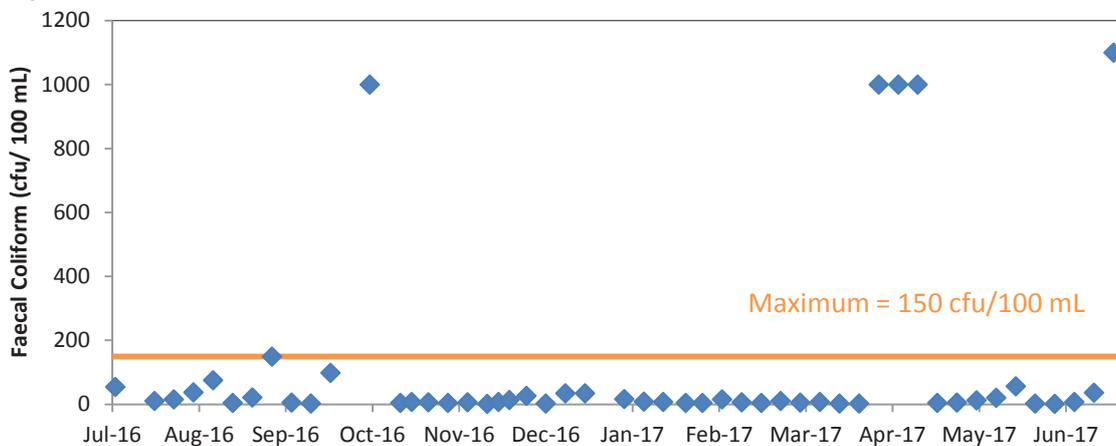
** Nitrogen Mass Load was exceeded three times in the 2016-17 financial year. Please refer to the next page for further details.

Exceedances

Faecal Coliforms

The median Faecal Coliforms target was exceeded five times, while maximum (80th percentile) Faecal Coliforms was exceeded once. This was due to several reasons, including a faulty level modulating valve in the ultraviolet (UV) channel which is used to ensure bacteria reduction. Overall, 89.8% and 98.0% compliance in median and maximum Faecal Coliforms respectively were achieved. Additional spare parts to improve valve reliability are currently being sourced.

Figure 10 – Maroochydore STP – Faecal Coliforms – Median



3.11 Murrumba Downs Sewage Treatment Plant

Table 18 – Murrumba Downs 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	✓
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	✓ **

* Total Phosphorous exceeded its short term 50th percentile four times in the 2016-17 financial year. There was no effluent quality non-compliance however, as Total Phosphorus mass load was well below the licence limit.

** Median and 80th percentile Faecal Coliforms were both exceeded twice in the 2016-17 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	290	maximum	✓
			average	✓
Volumetric Release	ML/d	365	maximum on any one day	✓

Table 20 – Murrumba Downs STP Mass Limits

Parameter	Unit	Number of Samples	Limit Type	Compliant
BOD ₅	kg/yr	53	annual load	✓
	kg/d		50th percentile load	✓
TN	kg/yr	53	annual load	✓
	kg/d		50th percentile load	✓
TP	kg/yr	53	annual load	✓
	kg/d		50th percentile load	✓

Exceedances

Faecal Coliforms

The Faecal Coliforms target was exceeded four times. This was attributed to the performance of the UV disinfection unit. The issues included electrical faults which were promptly repaired and high flow through the UV disinfection system. Overall, 96.2% compliance was attained for both median Faecal Coliforms and 80th percentile Faecal Coliforms.

Figure 13 – Murrumba Downs STP – Faecal Coliforms – Median

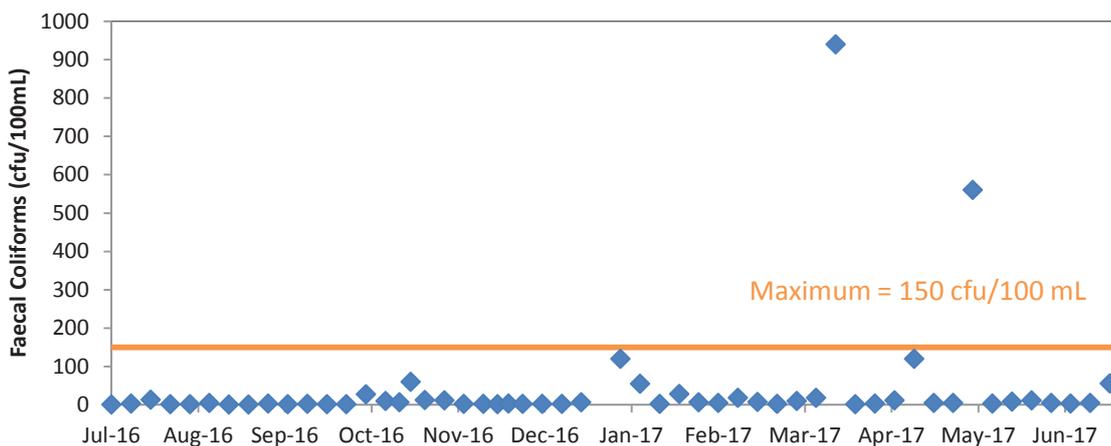
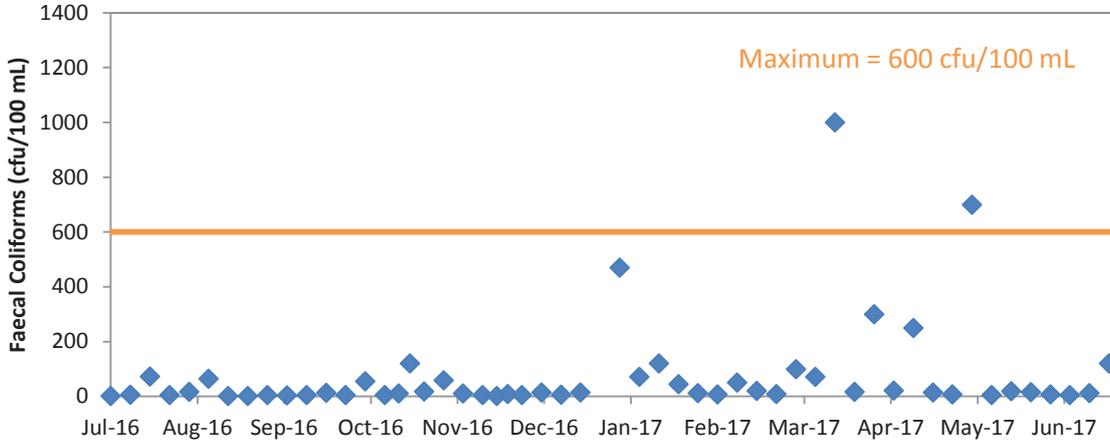


Figure 14 – Murrumba Downs STP – Faecal Coliforms – 80th Percentile



3.12 Nambour Sewage Treatment Plant

Table 21 – Nambour 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	✓
NH ₃ -N	mg/L	53	long term 50th percentile	✓
			maximum	✓
TN	mg/L	53	long term 50th percentile	✓
TP	mg/L	53	long term 50th percentile	✓
Faecal Coliforms	cfu/ 100 mL	51	median	✓ *
			80th percentile	✓

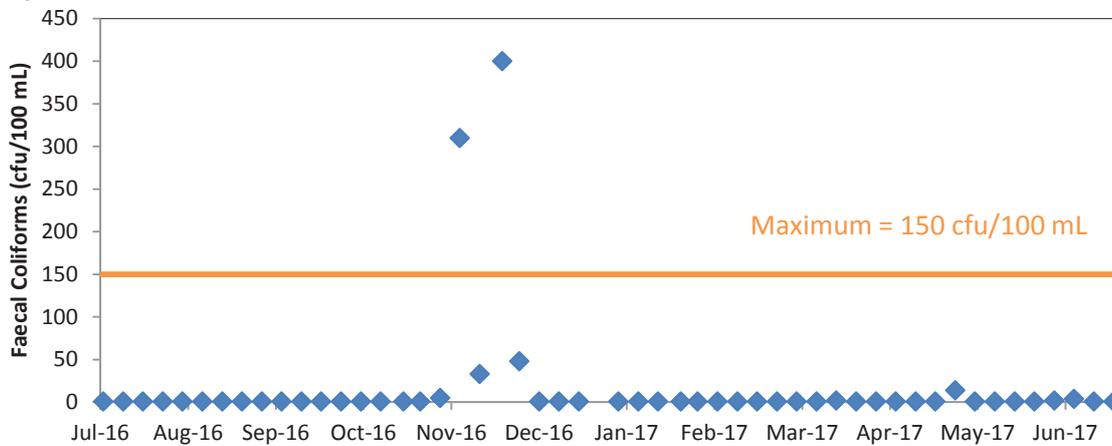
* Faecal Coliforms was exceeded twice in the 2016-17 financial year. Please refer to the next page for further details.

Exceedances

Faecal Coliforms

The median Faecal Coliforms target was exceeded twice in late 2016 due to normal 'wear and tear' of filtration membranes, which was isolated and repaired. Membranes normally ensure that pathogen levels such as Faecal Coliforms are fully removed from the effluent water. The median Faecal Coliform levels met 96.1% compliance throughout.

Figure 15 – Nambour STP – Faecal Coliforms – Median



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	54	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	✓

Table 25 – Redcliffe 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	✓

3.15 South Caboolture Sewage Treatment Plant

Table 26 – South Caboolture 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	✓

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	✓

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	✓

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	✓

4. Odour Reduction

Table 30 – Odour Reduction

STP	No major odour issues
Brendale	✓
Bribie Island	✓
Burpengary East	✓
Coolum	✓
Cooroy	✓
Dayboro	✓
Kawana	✓
Kenilworth	✓
Landsborough	✓
Maleny	✓
Maroochydore	✓
Murrumba Downs	✓
Nambour	✓
Noosa	✓
Redcliffe	✓
South Caboolture	✓
Woodford	✓

We have been taking steps to address the odour issues impacting on our local community around the Maroochydore STP.

To reduce these issues, we have implemented a number of initiatives including installing a new odour control unit, reinstalling the digester flare, a ferrous chloride dosing system and a solar dryer bypass, as well as commissioning a new biosolids conveyor.

5. Definitions and Legend

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

Table 31 – 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.
DEHP	Department of Environment and Heritage Protection	
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.
IDEA	Intermittent Decanted Extended Aeration	A three stage wastewater treatment process that involves aeration, settling and decanting.
NH ₃ – N	Ammonia nitrogen	A chemical compound that is removed in order to maintain the health of waterways. High levels can cause environmental issues such as eutrophication.
SBR	Sequential Batch Reactors	A draw-and-fill biological treatment process that uses aerobic microorganisms to break down and treat wastewater.
TN	Total Nitrogen	The sum of nitrate, nitrite and ammonia that is removed in order to maintain the health of waterways and prevent environmental issues such as eutrophication.
TP	Total Phosphorus	The sum of phosphorus compounds that is removed in order 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	Potential Hydrogen	A figure expressing the acidity or alkalinity of the water

Table 32 – Definition of Units

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

Table 33 – Legend

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



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