

## **5.13. WATER AND WASTEWATER QUARTERLY REPORT FOR PERIOD ENDING 30 JUNE 2017**

**GENERAL MANAGER** Nicholas Wellwood, General Manager Operations  
**DEPARTMENT** Water and Wastewater

### **RECOMMENDATION**

**It is recommended that the Quarterly Report of the Water and Wastewater branch for the period ending 30 June 2017 be received and noted.**

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### **EXECUTIVE SUMMARY**

This report documents progress on key operational and service delivery areas as well as the Regulatory compliance status within the Water and Wastewater Branch for the period 1 April to 30 June 2017.

Whilst the results are generally positive the areas for improvement are noted and will be the focus of the branch over the next quarter. Notable capital improvements include the completion of the Mowbray Water Main Upgrade and the Rex Creek Intake Design for the Water Infrastructure Security project.

### **BACKGROUND**

This report is the fourth Quarterly Report submitted by the Water and Wastewater Branch during the 2016/2017 Financial Year. This report highlights progress against key performance areas required by the Department of Energy and Water Supply and required compliance levels by the Department of Environment and Heritage Protection.

### **COMMENT**

This report enables Councillors and the community to obtain a strategic view of activities within the Water and Wastewater Branch.

The Quarterly Report documents progress on key operational and service delivery aspects and regulatory compliance levels.

The Water and Wastewater Quarterly Report does not include comprehensive progress reporting in terms of the Capital Works Programs, Operational Plan and financial statements as these are dealt with in separate Quarterly Reports to Council.

### **FINANCIAL/RESOURCE IMPLICATIONS**

Failure to comply with required standards and to respond quickly and effectively to water and wastewater incidents may result in harm to the community and substantial penalties.

### **RISK MANAGEMENT IMPLICATIONS**

Council as a registered water service provider has a statutory obligation to ensure it is able to provide water and wastewater services to customers. Council's reputation would suffer if it is unable to maintain service levels at prescribed standards. This Quarterly Water and Wastewater report provides information on strategies implemented by the Water and

Wastewater branch to minimise occupational health and safety risks and risks to Council infrastructure.

## SUSTAINABILITY IMPLICATIONS

**Economic:** It is essential to adequately maintain water and wastewater infrastructure in order to provide satisfactory services in support of economic development in the Shire.

**Environmental:** Failing to provide adequate and compliant water and wastewater services can lead to environmental harm and breaching of licence conditions.

**Social:** The Community expects fully operational and compliant water and wastewater services.

## CORPORATE/OPERATIONAL PLAN, POLICY REFERENCE

This report has been prepared in accordance with the following:

### Corporate Plan 2014-2019 Initiatives:

#### Theme 1 - Celebrating Our Communities

*1.2.4 - Network, advocate and partner with stakeholders to achieve positive outcomes.*

#### Theme 5 – Governance

*5.1.3 - Monitor and regularly review procurement practices to ensure legislative compliance and “value for money”.*

*5.3.4 - Develop practices and skill levels to ensure safety and wellbeing in the workplace.*

*5.3.5 - Develop a workforce that is highly effective, efficient and productive, proud to deliver value for money for ratepayers and residents.*

## COUNCIL’S ROLE

Council can play a number of different roles in certain circumstances and it is important to be clear about which role is appropriate for a specific purpose or circumstance.

The implementation of actions will be a collective effort and Council’s involvement will vary from information only through to full responsibility for delivery.

The following areas outline where Council has a clear responsibility to act:

**Asset-Owner** Meeting the responsibilities associated with owning or being the custodian of assets such as infrastructure.

**Regulator** Meeting the responsibilities associated with regulating activities through legislation or local law.

## CONSULTATION

**Internal:** Nil

**External:** Water and wastewater quality parameters are tested by an accredited laboratory and test results and service levels are required to be reported to the Department of Energy and Water Supply and the Department of Environment and Heritage Protection.

**Community:** Nil

## ATTACHMENTS

10. Water and Wastewater Quarterly Report for the period ending 30 June 2017 **[5.13.1]**

## Water and Wastewater Quarterly Report

### 1 April 2017 – 30 June 2017

The aim of the Water and Wastewater Quarterly Report is to inform Councillors and the community on the progress of key operational and service delivery areas as well as regulatory compliance status within the Water and Wastewater Branch.

The Water and Wastewater Quarterly Report does not include comprehensive progress reporting in terms of the Capital Works Programs and the Operational Plan which are dealt with in separate Quarterly Reports to Council.

This report highlights certain aspects of the activities of the Water and Wastewater Branch that are generally industry benchmark indicators as well as key performance areas and compliance monitoring parameters as required by the Department Energy Water Supply (DEWS) and the Department of Environment and Heritage Protection (DEHP).

## Water

### 1. Water reticulation services

General maintenance was carried out on all schemes for this quarter including all intake flushing programs and cleaning/flushing of dead end mains. Hydrant and valve maintenance also continued throughout the schemes.

Cert III water management training continued for four members of the Water Team.

Capital works completed during the reporting period included the completion of the Mowbray Water Main Upgrade.

**Table 1. Water Reticulation Services**

<b>Douglas Shire Reticulation (all schemes)</b>	
Settlement Meter Reads	80
New Water Services Connections	16
Service Repairs	126
Water Mains Repairs	5
Water Quality Complaints	1
Flushing Events: Mossman/Port Douglas/ Cooya/ Newell	4
Flushing Events: Whyanbeel/Wonga	1
Flushing Events: Daintree/ De Meio	0

There were 2 water quality complaints during the reporting period, as shown in Table 2 below. Both issues were resolved following investigation and testing.

**Table 2. Water Complaints**

Address	CRM No & Date	Nature of water complaint	How it was resolved	Response Time
4 Mile Beach Locality	2017/45743 24/05/17	Pool maintenance employee raised concerns about the high level of chlorine content in the water at various properties he was servicing	Water tested and residual was 0.9. Further investigation established that the contractor test equipment was faulty.	30 mins
Hibiscus Court, Rocky Point	RFI 3/04/2017	Customer raised concerns regarding metals in their water	Water tested showed traces of lead. Meter raised and pipe flushed. Retested and no metals detected.	30 mins

## 2. Water schemes and potable water consumption

### Site Visit by DEWS

A site visit was undertaken by officers from DEWS on 6 June 2017. The two officers visited the Mossman WTP and the Whyanbeel WTP as part of their northern region tour of water service providers. The site visit was very successful and informative for the officers who were not familiar with Council's infrastructure.



Douglas Water Staff with DEWS Officers – Whyanbeel Water Intake

### All Schemes

Raw Water quality was good in all intakes averaging below 1.0 NTU except for frequent storm turbidity events. The intake levels all remained relatively high due to the rain events.

Intermittent heavy rainfall occurred during the reporting period causing flooding in the water plant intake creeks. The rainfall occurrences during the reporting period improved the intake levels. There were a high number of high raw water turbidity events due to the heavy rainfall with subsequent impacts to plant operations, but in all instances demand was met. Throughout the schemes, pump stations performed well with no incidents.

The DeMeio Drive bore field and storage reservoir operated at normal production. Craiglie reservoir was fully operational. The gas chlorination plant performed well with no incidents. Annual servicing by external contractors of the gas chlorine plant was completed. The Flagstaff reservoir also performed well, and the calcium hypo automated dosing facility was operational, maintaining stable chlorine levels in the reservoir. Rocky Point reservoir storage levels were adequately maintained during the reporting period. The calcium hypo automated dosing facility was operational, maintaining stable chlorine residual levels.

Capital Works completed during the reporting period included the Water Infrastructure Security project with the Rex Creek Intake design and the Daintree Bore design both being completed. The investigation into the Backwash Water Discharge and Re-Use Options for the Mossman WTP was also completed in readiness for the next stage of the program to go to tender.

Cert III and Cert IV water industry training continued for two water plant operators.

**Mossman/Port Douglas Scheme**

Mossman Water Treatment Plant met all demand requirements during the reporting period. In the latter part of the reporting period, consumer demand started to increase particularly in Port Douglas, which was indicative of the commencement of the tourist season.

Rex Creek intake levels fluctuated due to heavy rainfall events followed by periods of stable weather. Average levels stabilised at 0.7m with good clean flow. Maximum instantaneous demand flow rate was at 370L/s which was well above the average demand requirement of 130L/s.

All UF racks were operational, and maintenance works continued with cartridge repairs to ensure compliance with UF rack integrity test limits. Calibration checks of all flow meters and general maintenance works were also undertaken.

There were no water quality reportable incidents in the Mossman/Port Douglas water scheme for the report period.

**Fig 1. Rex Creek Intake level for the period 1 April 2017 – 30 June 2017**

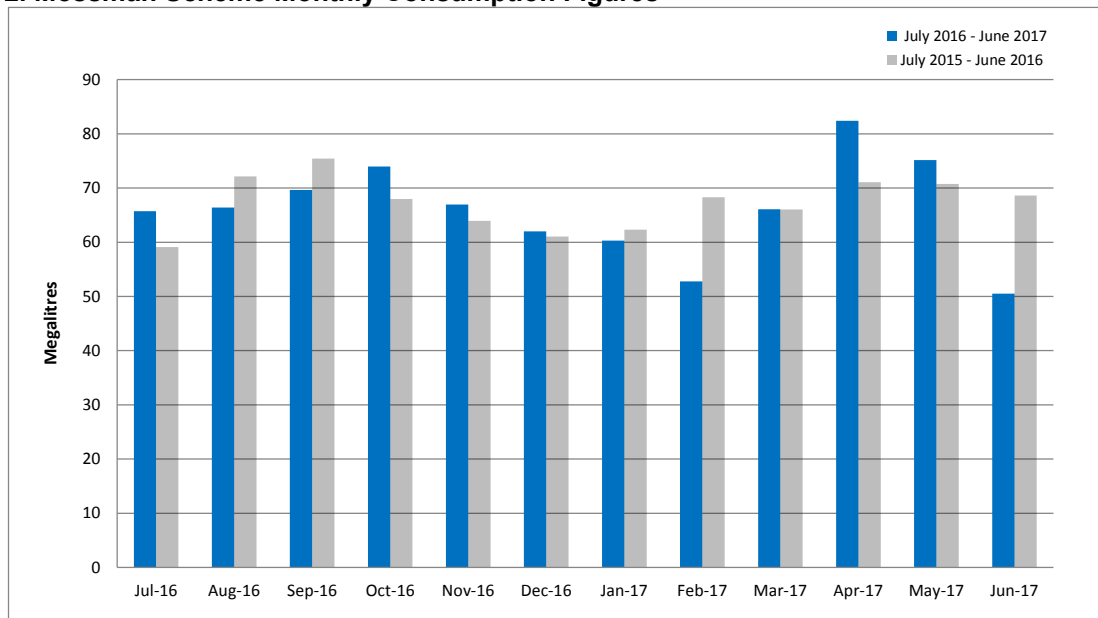


Mossman Water Treatment Plant met all demand requirements during the reporting period. Current trends indicate increasing consumption typical of seasonal trends and visitor numbers to the region.

**Mossman Water Supply**

The total monthly consumption of water in Mossman, Cooya Beach and Newell Beach areas can be seen in Fig 2.

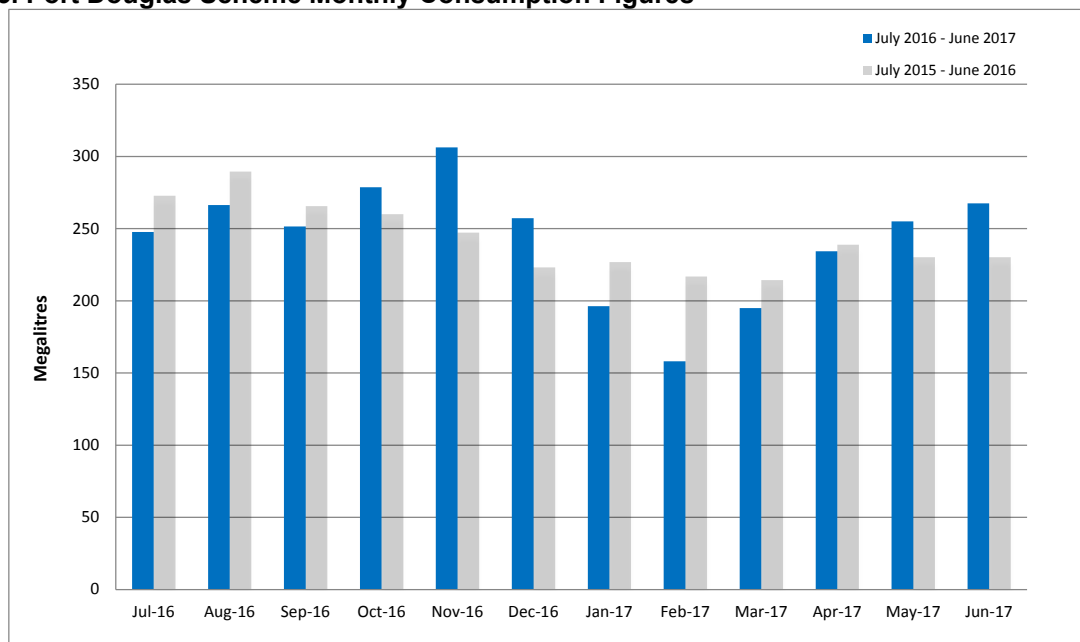
**Fig 2. Mossman Scheme Monthly Consumption Figures**



**Port Douglas Water Supply**

Current trends indicate increasing consumption typical of seasonal trends and visitor numbers to the region, and in particular within Port Douglas. The total monthly consumption of water in Port Douglas can be seen in Fig 3.

**Fig 3. Port Douglas Scheme Monthly Consumption Figures**



### Whyanbeel Scheme

Whyanbeel Water Treatment Plant met all demand requirements during the reporting period. A number of leaks in the reticulation system resulted in higher demand than usual for the time of year, putting pressure on the operational performance of the plant. Once the leaks were identified, repairs were quickly undertaken which resolved the issue. Reservoir levels were low at times due to heavy rainfall events, however overall demand capacity was adequately met.

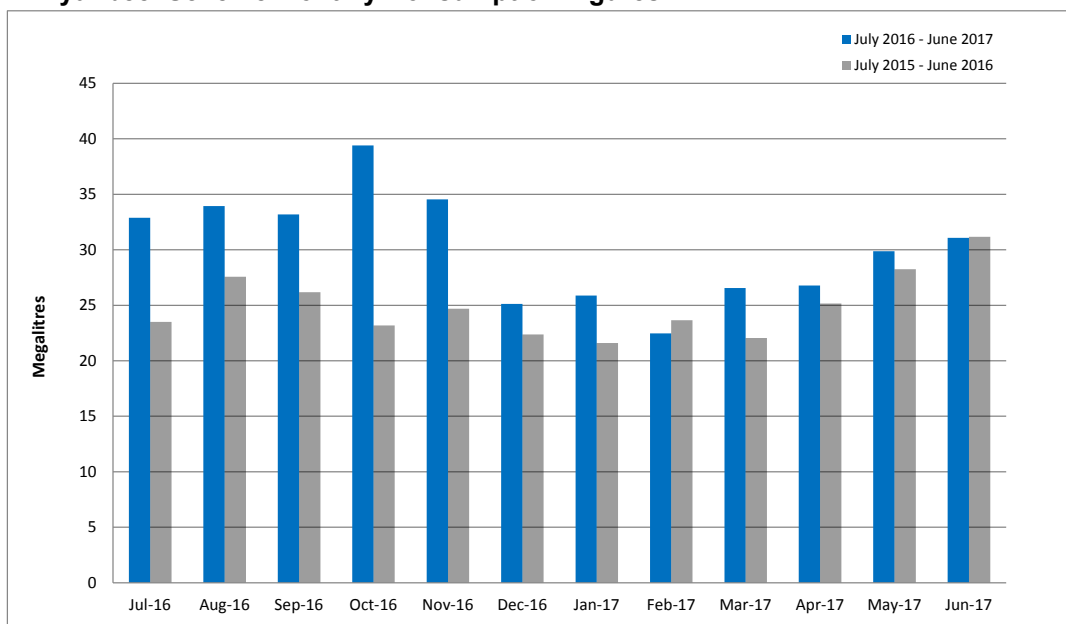
The Ultra Filtration rack was fully operational during the reporting period. Maintenance works undertaken included repairs to the cartridges to ensure compliance with UF rack integrity test limits, calibration checks of all flow meters, and general maintenance work.

There was one water quality reportable incident during the report period in the Whyanbeel Water Scheme. A high level of lead content was detected in a sample taken from the water meter at a residence in Hibiscus Court. The water was tested in response to a request by the resident. Upon investigation, it was established that there had been contamination of the sample when it was taken. This was supported in further testing that was undertaken after the water meter and pipe were replaced, and flushing of the line prior to the sample being taken again. There was no detection of lead anywhere else within the reticulation system prior to the first test being taken, or post investigation.

### Whyanbeel Water Supply

The total monthly consumption of water in the Whyanbeel scheme can be seen in Fig 4.

**Fig 4. Whyanbeel Scheme Monthly Consumption Figures**



### Daintree Scheme

Daintree Water Treatment Plant operated at capacity to meet increased demand during the report period. Intake levels at Intake Creek fluctuated from very low, to high during flood events. Some blockages of the intake were experienced causing a number of plant shutdowns but adequate storage levels were maintained to meet consumer demand.

To maintain UF filter efficiency, ongoing chemical clean-in-place operations were undertaken. Maintenance works included Cartridge repairs to ensure compliance with UF rack integrity test limits, calibration checks of all flow meters and general maintenance work.

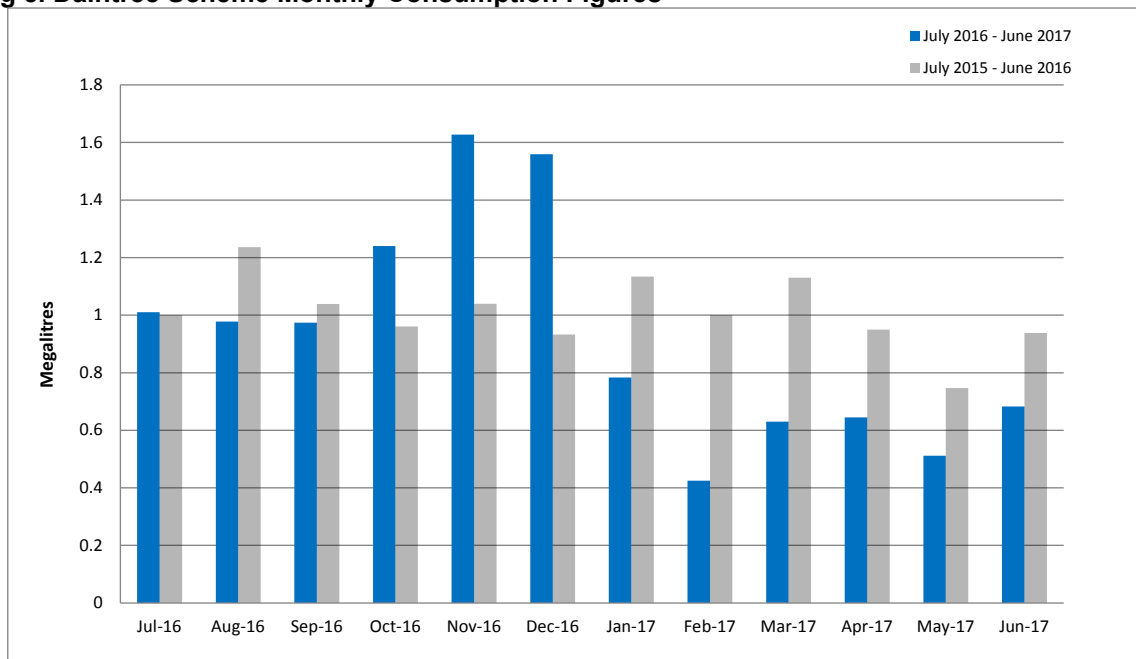


There were no water quality reportable incidents during the report period.

### Daintree Water Supply

The total monthly consumption of water in the Daintree scheme can be seen in Fig 5.

**Fig 5. Daintree Scheme Monthly Consumption Figures**



### 3. Water quality monitoring and results

Drinking water is sampled at intakes, reservoirs, treatment plants and in the reticulation network to ensure compliance with the Australian Drinking Water Guideline (ADWG).

For the reporting period a total of 473 treated and 14 raw water samples were taken in the 3 water supply schemes. A total of 487 treated and raw water samples were tested by a NATA accredited laboratory for physical, chemical and microbiological parameters. All tested parameters in water samples taken during the reporting period were compliant with Australian Drinking Water Guidelines (ADWG) and standards required by the Water Supply Regulator and Queensland Health.

#### Mossman/Port Douglas Supply Scheme

Average monthly values for key operational and compliance parameters can be seen in Table 3, 4 and 5 for treated water at the Mossman Treatment Plant, Port Douglas Reservoirs and Port Douglas/Mossman Reticulation network, respectively. Fig 6 indicates the daily turbidity trends at the intake and treated water as recorded at the Mossman Water Treatment Plant for the period April to June 2017.

**Table 3. Average monthly values for key operational and compliance parameters in treated water at Mossman Treatment Plant.**

Month	pH	Temp °C	Total Alkalinity mg CaCO <sub>3</sub> /L	Free chlorine mg/L	Total chlorine mg/L	<i>E.coli</i> CFU/ 100ml	Hetero- trophic Plate CFU/mL	Total coliforms CFU/100ml
<b>Standard</b>	6.5-8.5	10-30	0-25	0.1-4.0	Max 5.0	<1	-	0-10
<b>Jan-17</b>	7.91	22.9	6.5	1.35	1.44	<1	<1	<1
<b>Feb-17</b>	7.86	22.1	5.5	1.29	1.38	<1	<1	<1
<b>Mar-17</b>	7.56	20.5	10.5	1.34	1.36	<1	<1	<1

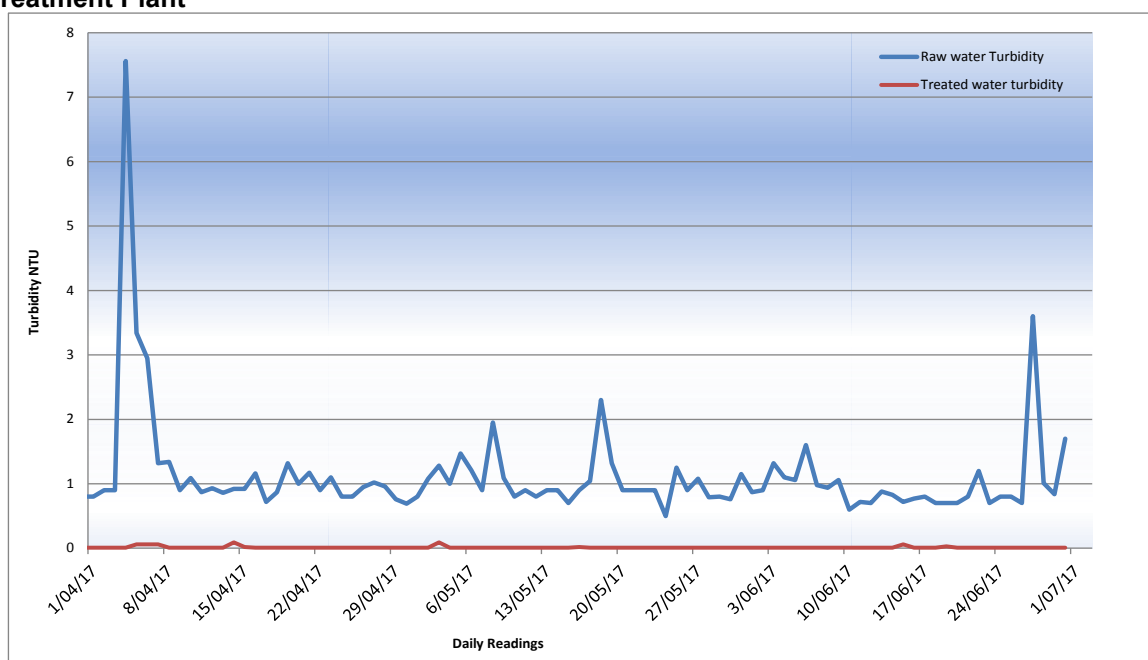
**Table 4. Average monthly values for key operational and compliance parameters in the Port Douglas Reservoirs.**

Month	pH	Temp °C	Total Alkalinity mg CaCO <sub>3</sub> /L	Free chlorine mg/L	Total chlorine mg/L	<i>E.coli</i> CFU/ 100ml	Hetero- trophic Plate CFU/mL	Total coliforms CFU/100ml
<b>Standard</b>	6.5-8.5	10-30	0-25	0.1-4.0	Max 5.0	<1	-	0-10
<b>Jan-17</b>	8.04	24.5	8	1	1.11	<1	~6	<1
<b>Feb-17</b>	7.74	22.7	6.5	1.04	1.12	<1	~6	<1
<b>Mar-17</b>	7.6	21.6	11.5	1.04	1.09	<1	~2	<1

**Table 5. Average monthly values for key operational and compliance parameters in the Mossman/Port Douglas Reticulation Network.**

Month	pH	Temp °C	Free chlorine mg/L	Total chlorine mg/L	<i>E.coli</i> CFU/ 100ml	Hetero- trophic Plate CFU/mL	Total coliforms CFU/100ml
<b>Standard</b>	6.5-8.5	10-30	0.1-4.0	Max 5.0	<1	-	0-10
<b>Jan-17</b>	8.16	26.2	0.88	0.95	<1	~1	<1
<b>Feb-17</b>	7.95	24.5	0.83	0.94	<1	~1	<1
<b>Mar-17</b>	7.95	23.3	0.89	0.91	<1	<1	<1

**Fig 6. Turbidity trends at the Rex Creek intake and treated water at the Mossman Water Treatment Plant**



**Whyanbeel Supply Scheme**

Average monthly values for key operational and compliance parameters can be seen in Table 6, Table 7 and Table 8 for treated water at the Whyanbeel Treatment Plant/Reservoir and Whyanbeel Reticulation Network, respectively. Fig 7. indicates the daily turbidity trends at the intake and treated water as recorded at the Whyanbeel Water Treatment Plant for the period April to June 2017.

**Table 6. Average monthly values for key operational and compliance parameters in treated water at Whyanbeel Treatment Plant**

Month	pH	Temp °C	Total Alkalinity mg CaCO <sub>3</sub> /L	Free chlorine mg/L	Total chlorine mg/L	E.coli CFU/100ml	Hetero-trophic Plate CFU/mL	Total coliforms CFU/100 ml
<b>Standard</b>	6.5-8.5	10-30	0-25	0.1-4.0	Max 5.0	<1	-	0-10
<b>Jan-17</b>	7.95	23	<5	1.25	1.35	<1	<1	<1
<b>Feb-17</b>	7.82	22.2	<5	1.26	1.3	<1	<1	<1
<b>Mar-17</b>	7.48	20.5	8	1.13	1.15	<1	<1	<1

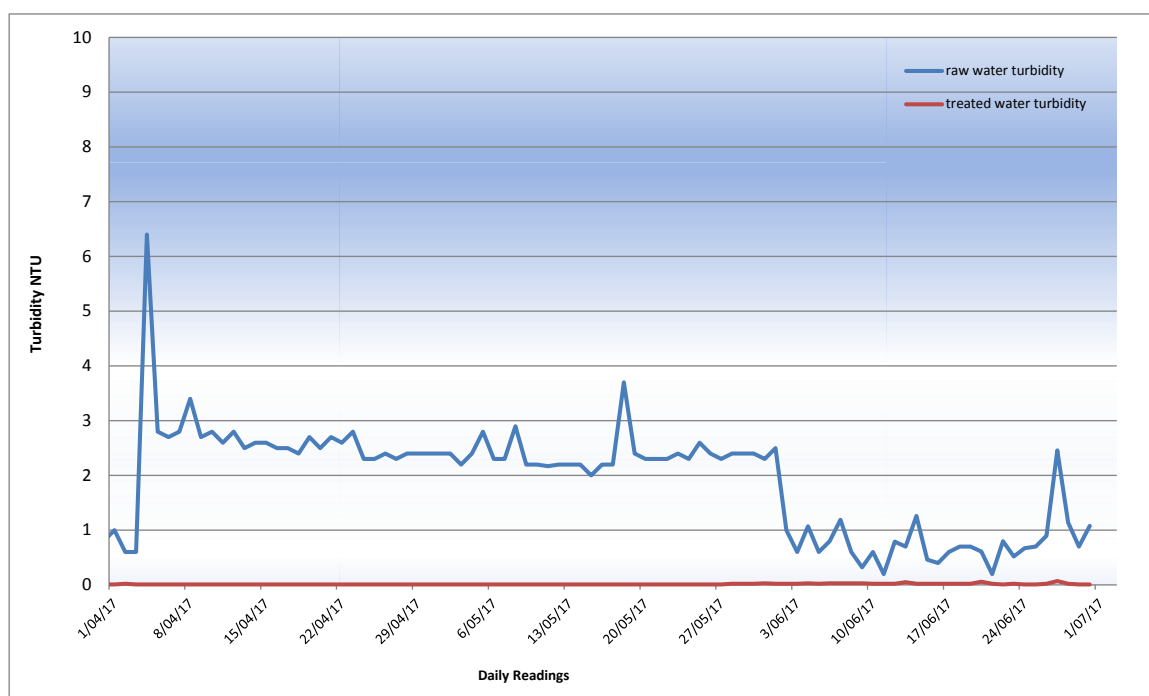
**Table 7. Average monthly values for key operational and compliance parameters in the Whyanbeel Reservoir.**

Month	pH	Temp °C	Total Alkalinity mg CaCO <sub>3</sub> /L	Free chlorine mg/L	Total chlorine mg/L	<i>E.coli</i> CFU/100ml	Heterotrophic Plate CFU/mL	Total coliforms CFU/100 ml
<b>Standard</b>	6.5-8.5	10-30	0-25	0.1-4.0	Max 5.0	<1	-	0-10
<b>Jan-17</b>	8.1	24.8	9	1.1	1.23	<1	~5	<1
<b>Feb-17</b>	8	24.8	9	1.08	1.1	<1	~1	<1
<b>Mar-17</b>	7.65	24	14	1.03	1.05	<1	<1	<1

**Table 8. Average monthly values for key operational and compliance parameters in the Whyanbeel Reticulation Network.**

Month	pH	Temp °C	Free chlorine mg/L	Total chlorine mg/L	<i>E.coli</i> CFU/100ml	Heterotrophic Plate CFU/mL	Total coliforms CFU/100ml
<b>Standard</b>	6.5-8.5	10-30	0.1-4.0	Max 5.0	<1	-	0-10
<b>Jan-17</b>	8.38	25.4	0.95	1.04	<1	<1	<1
<b>Feb-17</b>	8.26	24.9	0.93	1.02	<1	~1	<1
<b>Mar-17</b>	7.86	23.8	0.94	0.92	<1	~1	<1

**Fig 7. Turbidity trends at the Little Falls Creek intake and treated water at the Whyanbeel Water Treatment Plant**



### Daintree Supply Scheme

Average monthly values for key operational and compliance parameters can be seen in Table 8 and Table 9 for treated water at the Daintree Treatment Plant and Daintree Reticulation network, respectively. Fig 8. indicates the daily turbidity trends at the intake and treated water as recorded at the Daintree water treatment plant for the period April to June 2017. Due to seasonal fluctuations, the water quality had a slight increase in total alkalinity however this was still within acceptable parameters. (\*The increased elevation has no detrimental impact on consumer health – refer table below).

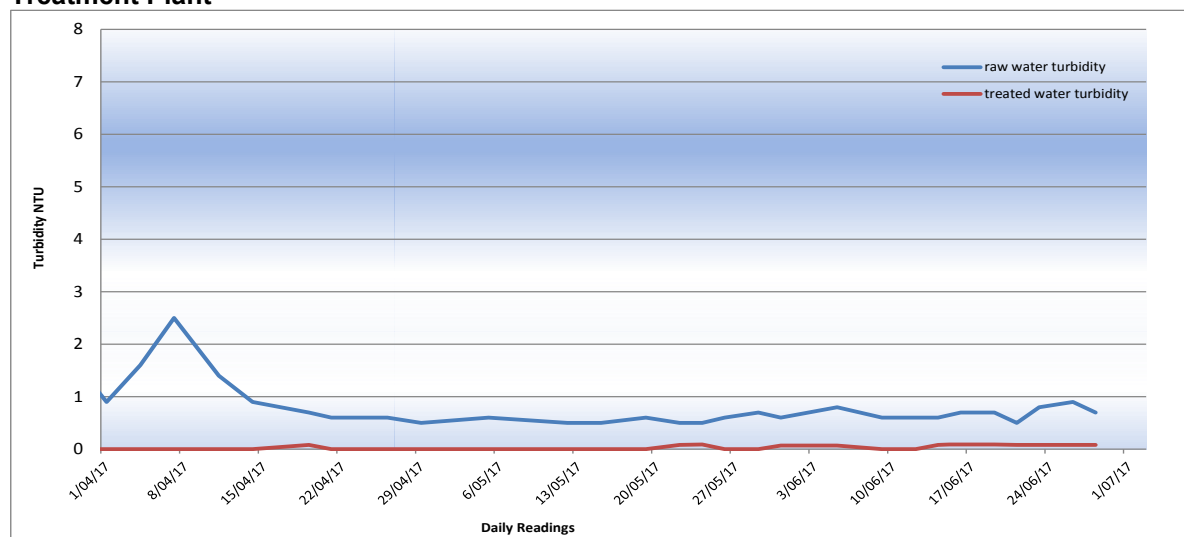
**Table 9. Average monthly values for key operational and compliance parameters in treated water at Daintree Treatment Plant.**

Month	pH	Temp °C	Total Alkalinity mg CaCO <sub>3</sub> /L	Free chlorine mg/L	Total chlorine mg/L	<i>E.coli</i> CFU/ 100ml	Hetero-trophic Plate CFU/mL	Total coliforms CFU/100ml
<b>Standard</b>	6.5-8.5	10-30	0-25	0.1-4.0	Max 5.0	<1	-	0-10
<b>Jan-17</b>	7.15	25.3	21	1.05	1.08	<1	<1	<1
<b>Feb-17</b>	7.64	23.8*	26	1.04	1.14	<1	<1	<1
<b>Mar-17</b>	7.25	22.3*	28	0.9	0.88	<1	<1	<1

**Table 10. Average monthly values for key operational and compliance parameters in the Daintree Reticulation Network.**

Month	pH	Temp °C	Free chlorine mg/L	Total chlorine mg/L	<i>E.coli</i> CFU/ 100ml	Hetero-trophic Plate CFU/mL	Total coliforms CFU/100ml
<b>Standard</b>	6.5-8.5	10-30	0.1-4.0	Max 5.0	<1	-	0-10
<b>Jan-17</b>	7.88	25.8	0.9	1	<1	~19	<1
<b>Feb-17</b>	8.2	24	0.96	1.04	<1	<13	<1
<b>Mar-17</b>	7.6	22.5	0.8	0.83	<1	<1	<1

**Fig 8. Turbidity trends at the Intake/Martin Creek intake and treated water at the Daintree Water Treatment Plant**



#### 4. Plumbing and drainage

Plumbing applications were steady during the reporting period. A large volume of Backflow registration applications were received and are intended to be entered into the new Backflow Register during the next reporting period. Please refer to Table 10. below.

**Table 10. Plumbing and Drainage Services**

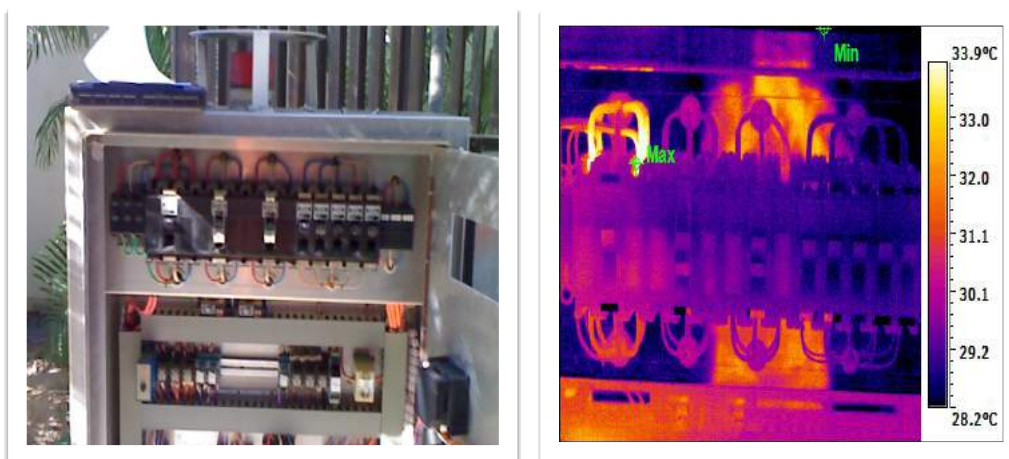
No. of plumbing and drainage applications received	95
No. of plumbing and drainage permits issued	95
No. of plumbing and drainage inspections undertaken	95
No. of properties audited – Backflow	50
No. of registrations received - Backflow	336

### Wastewater

#### 5. Wastewater reticulation services

General maintenance programs were carried out at the reticulation networks and 31 pump stations in the Mossman and Port Douglas catchments. Electrical storms during this period caused power outages at some pump stations, and some electrical faults to pumps and control equipment that were quickly rectified.

Annual servicing occurred on all KSB and Flygt pumps, and general servicing of all treatment plant pumps was undertaken. Thermo scanning was also carried out on all electrical switchboards.



Switchboard – Normal View and Thermal View

Capital works completed for this reporting period included the raising of a sewer man hole in readiness for relining capital works in Sorrento Crescent, Port Douglas, and the replacement of the SBR diffusers at the Port Douglas WWTP.

Due to a sewer main break, the Mossman WWTP had a non-compliance incident relating to a spill for the reporting period. Additionally, a small leak to a pressure main occurred which was a non-compliance for the Port Douglas WWTP. Both incidents were reported to DEHP as soon as they occurred.

**Table 11. Wastewater Reticulation Services**

	<b>Port Douglas Catchment</b>	<b>Mossman Catchment</b>
Pump Blockages	6	6
Sewer Chokes	1	0
Sewer Main Breaks	1	1
HCB Repairs (House Connection Branch)	1	0
Odour Complaints	0	1

## 6. Liquid trade waste

The successful applicant for the revised position of Environmental Technical Officer (previously Technical Officer Water) commenced employment with Council on 5 June 2017. The incumbent Plumbing and Drainage Officer took over the role of Trade Waste Officer, and the Environmental Technical Officer will be assisting as required. The internal Council inspection and testing program is intended to recommence in July 2017.

**Table 12. Liquid Trade Waste Services**

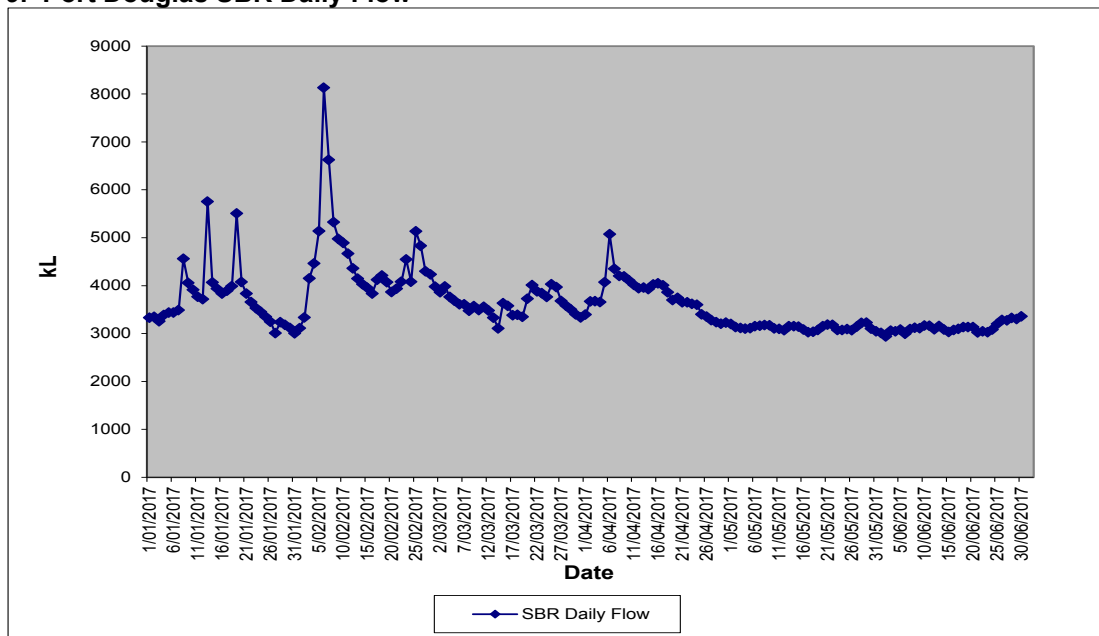
Total Businesses Holding an Approval	139
Change of Business Ownership	2
Business Closures	2
New Approval Applications	2
Renewal Applications Received	31
Inspections Undertaken	4

## 7. Influent and irrigation flows

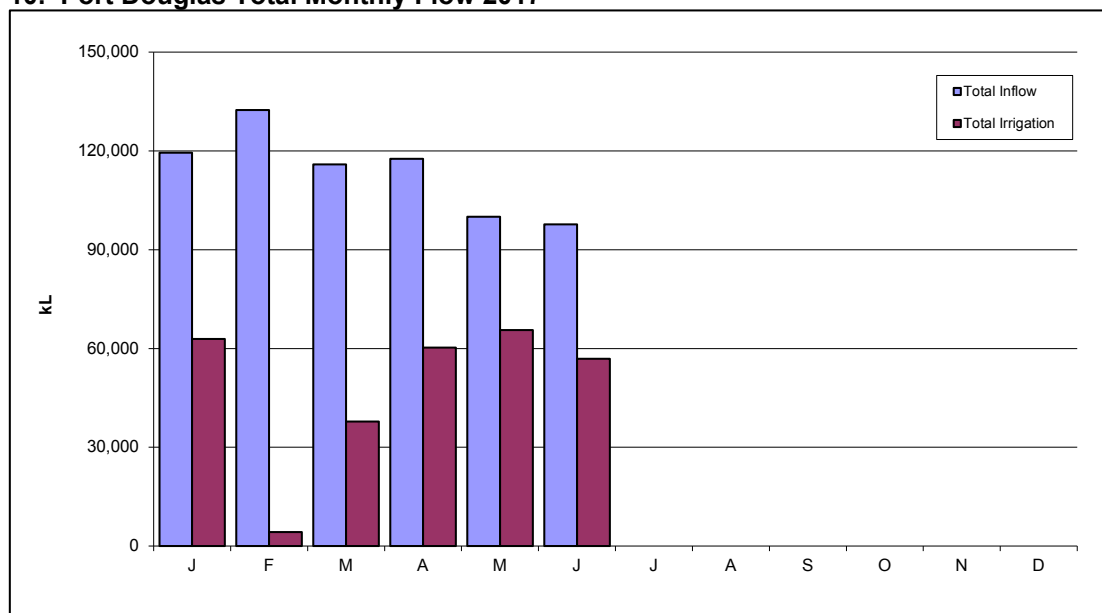
### Port Douglas Wastewater Treatment Plant

A total of 304,276 kL of influent entered the Port Douglas Wastewater Treatment Plant during the reporting period. The average daily flow was 3,343 kL/day. Tanker truck contractors delivered 495 kL of septage to the plant and 1.246 ML of Leachate from the Killaloe Landfill and Transfer Station. Influent is treated in a Sequencing Batch Reactor (SBR) which produced compliant effluent during the reporting period. A total of 49% of the treated effluent was pumped to two resorts and the remaining discharged into the Dickson Inlet. The Sheraton Mirage received 100,517 kL and Palmer Sea Reef received 67,191 kL of treated effluent during this period. Total rainfall on site during the reporting period was measured as 225 mm. On 5 April 2017, the highest rainfall on a day was recorded as 59 mm. Daily SBR flows and total monthly flows for 2017 are presented in Fig 9 and 10 respectively.

**Fig 9. Port Douglas SBR Daily Flow**



**Fig 10. Port Douglas Total Monthly Flow 2017**



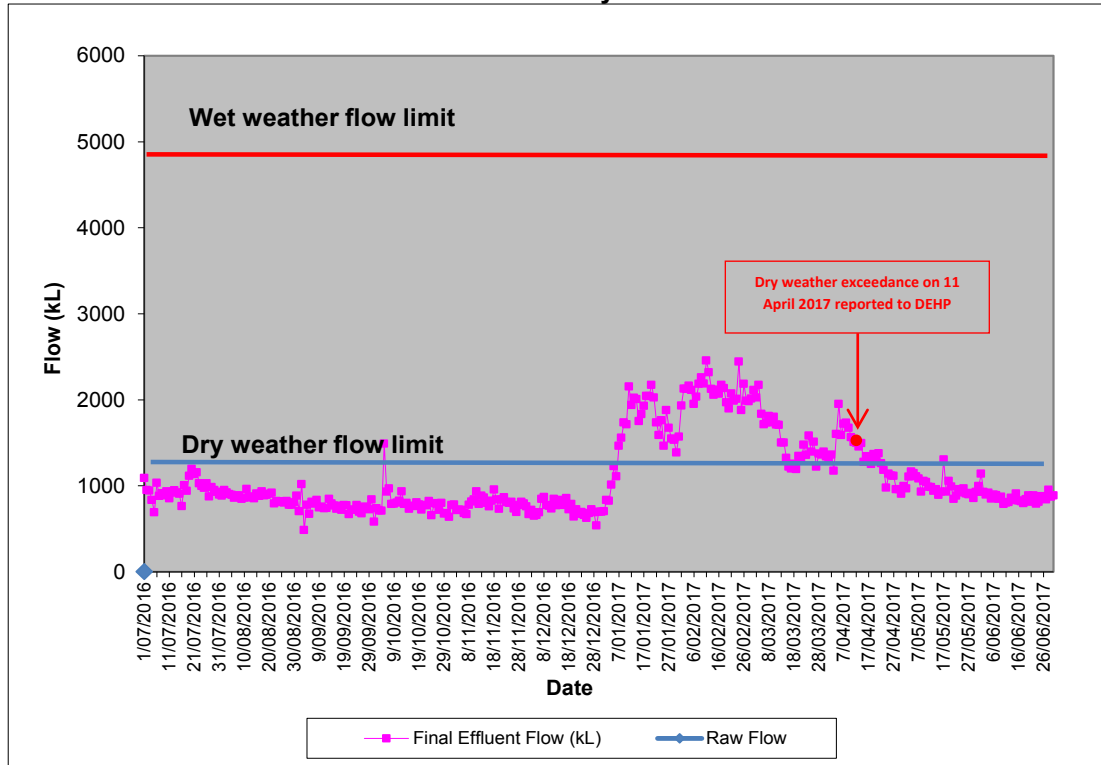
**Mossman Wastewater Treatment Plant**

The Mossman Wastewater Treatment Plant received a total influent flow of 95,663 kL during the reporting period. The average daily flow was 1,051 kL/day. Influent is treated in an Oxidation Ditch system and compliant effluent is discharged into the Mossman River. A total of 294.5 mm of rain fell on site for the reporting period with the highest daily rainfall measured at 65 mm on 5 April 2017.

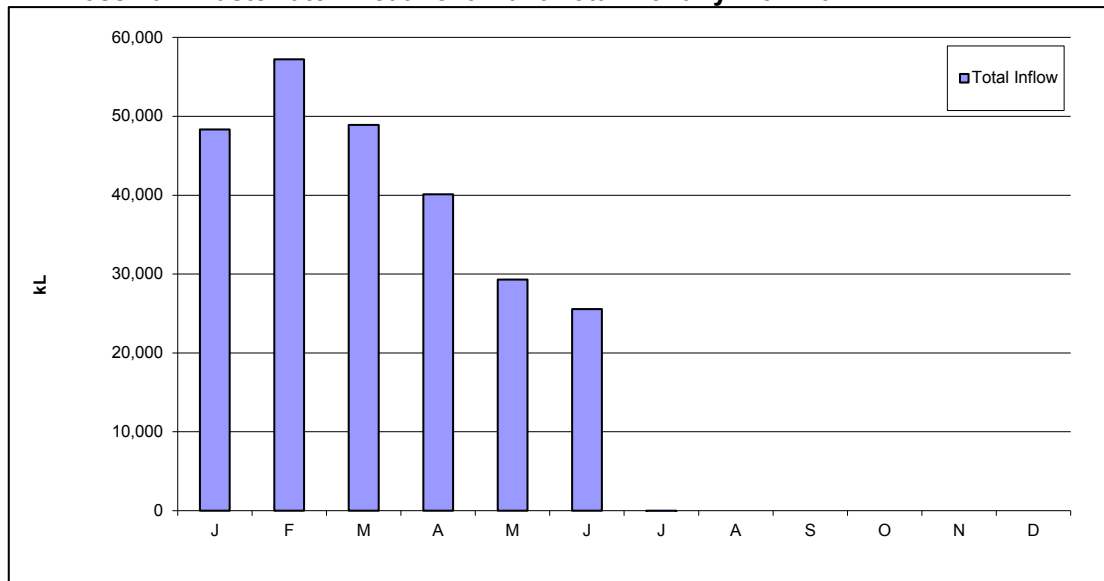
Daily flows from the Mossman Wastewater Treatment Plant and total monthly flows for 2017 are presented in Fig 11 and 12 respectively.



**Fig 11. Mossman Wastewater Treatment Plant Daily Flow**



**Fig 12. Mossman Wastewater Treatment Plant Total Monthly Flow 2017**



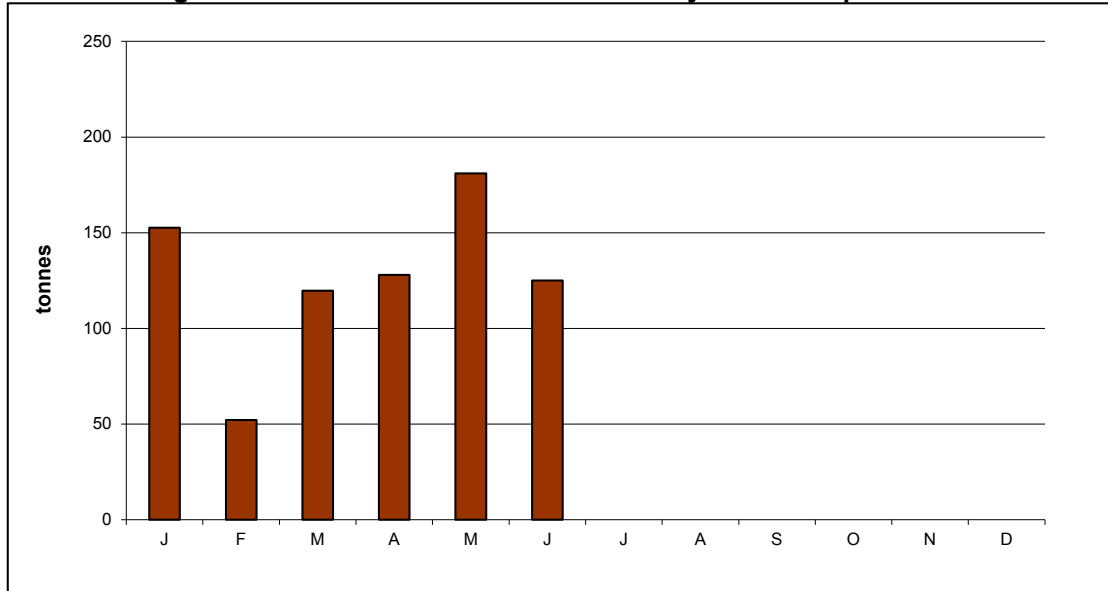
**8. Bio-solids Production**

Bio-solids were produced at the dewatering plants at Mossman Wastewater Treatment Plant (17% solids) and Port Douglas Wastewater Treatment Plant (12% solids). Bio-solids were transported by Arkwood Organics to Edmonton Farms, Tablelands Regional Farms and Spring Mount Waste Facility for further treatment and beneficial land application as organic fertiliser and soil conditioner.

**Port Douglas Wastewater Treatment Plant**

At Port Douglas Wastewater Treatment Plant, 431.34 tonnes of wet biosolids were produced during the reporting period and sent to farms for beneficial reuse. This amount of wet biosolids equates to 51.76 dry tonnes. The monthly bio-solids production trends can be seen in Fig 13.

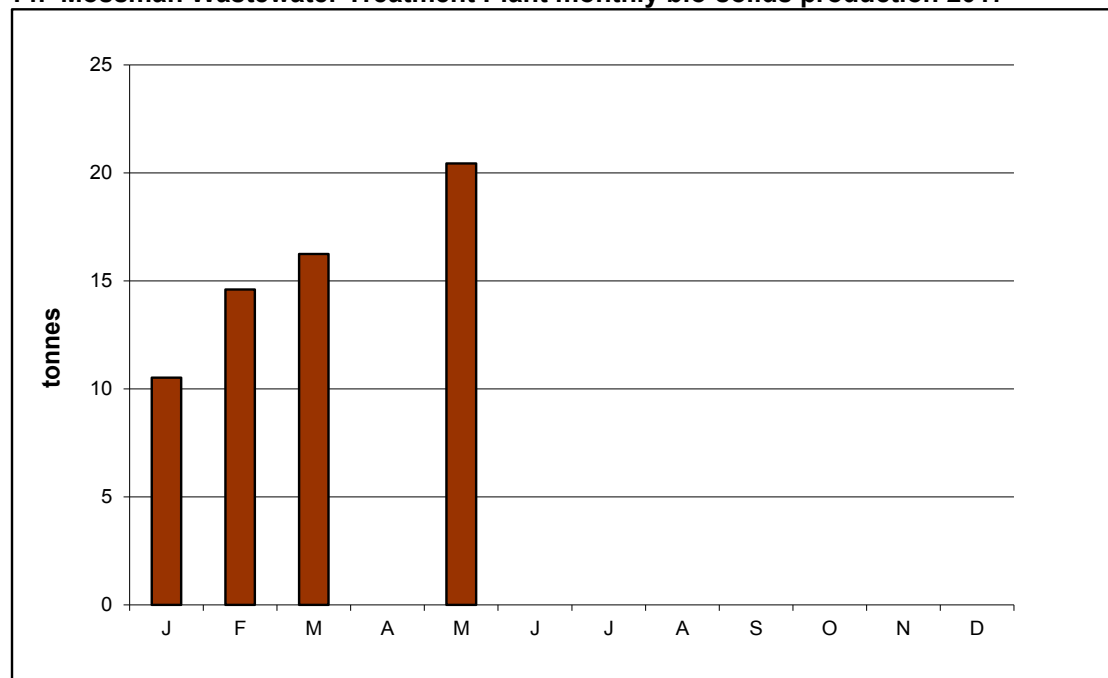
**Fig 13. Port Douglas Wastewater Treatment Plant monthly bio-solids production 2017**



**Mossman Wastewater Treatment Plant**

At Mossman Wastewater Treatment Plant, 20.44 tonnes of wet biosolids were produced during the reporting period and sent to farms for beneficial reuse. This amount of wet biosolids equates to 3.44 dry tonnes. The monthly bio-solids production trends can be seen in Fig 14.

**Fig 14. Mossman Wastewater Treatment Plant monthly bio-solids production 2017**



**\*No biosolids removed in April and June 2017**

### Effluent quality and compliance

During the reporting period a total number of 257 wastewater compliance samples were taken from the treatment processes, bio-solids, final effluent, receiving waters and bores in both wastewater catchments. Samples were tested by a NATA accredited laboratory for physical, chemical and microbiological parameters.

During the reporting period all parameters tested in the Port Douglas and Mossman catchment were compliant with maximum concentrations as per licence definitions and conditions. However, there was a non-compliant flow exceedance on a dry weather day at the Mossman WWTP on 11 April 2017 that was reported to DEHP.

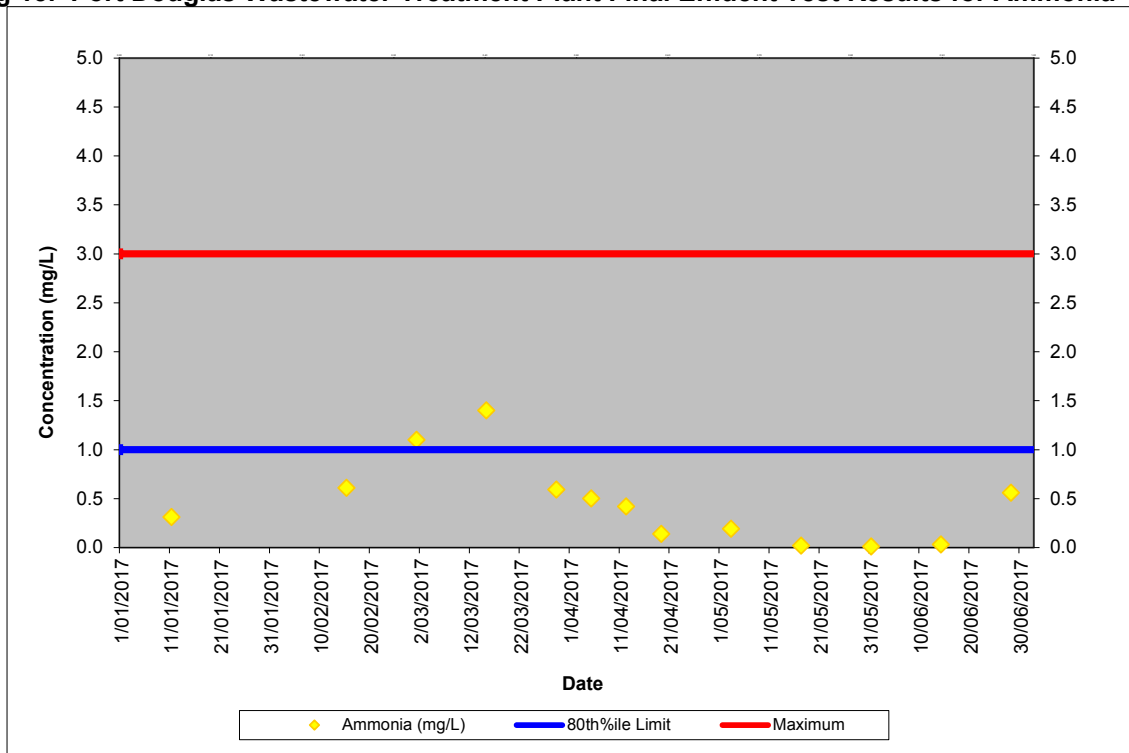
The process and compliance is monitored each day by in-house analyses of samples at the plants. Process settings, effluent quality, flow rates, pump stations performance and maintenance aspects are monitored and controlled with SCADA Citect via an extensive telemetry network.

A draft letter was received by DEHP regarding transportation of leachate to the Port Douglas WWTP. The GMO and CEO attended a meeting with the Acting Regional Director of DEHP in Cairns during the first week in July to discuss licence requirements. Negotiations are still ongoing regarding the amendments to the EA Licence conditions to ensure compliance for Mossman Wastewater Treatment Plant.

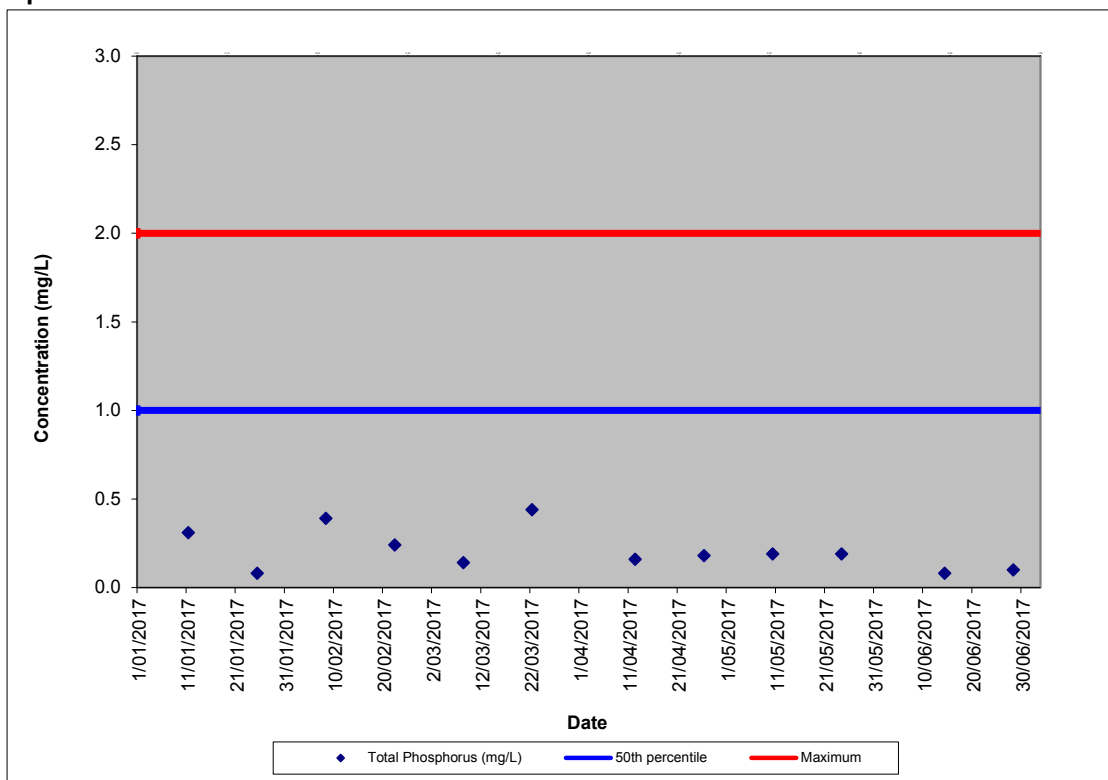
### Port Douglas Wastewater Treatment Plant

The results for final effluent key licence compliance parameters (Ammonia, Total Phosphorous, and Total Suspended Solids & BOD<sub>5</sub>) are shown in Fig 15, 16, 17 & 18

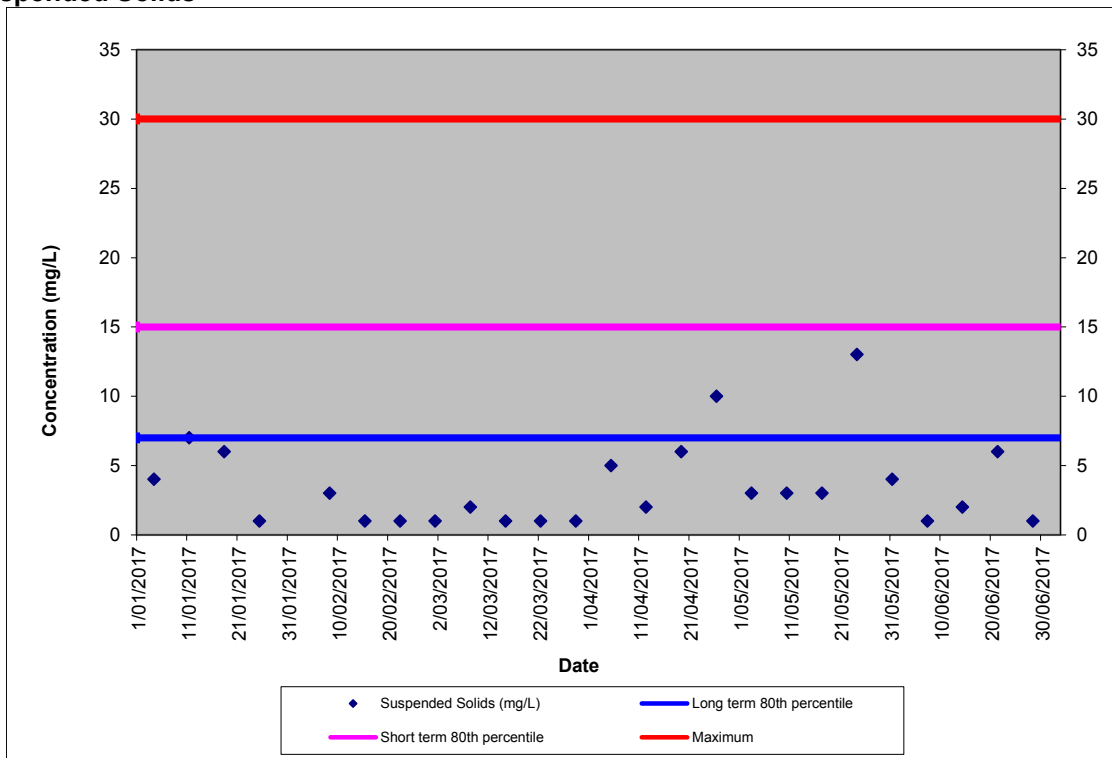
**Fig 15. Port Douglas Wastewater Treatment Plant Final Effluent Test Results for Ammonia**



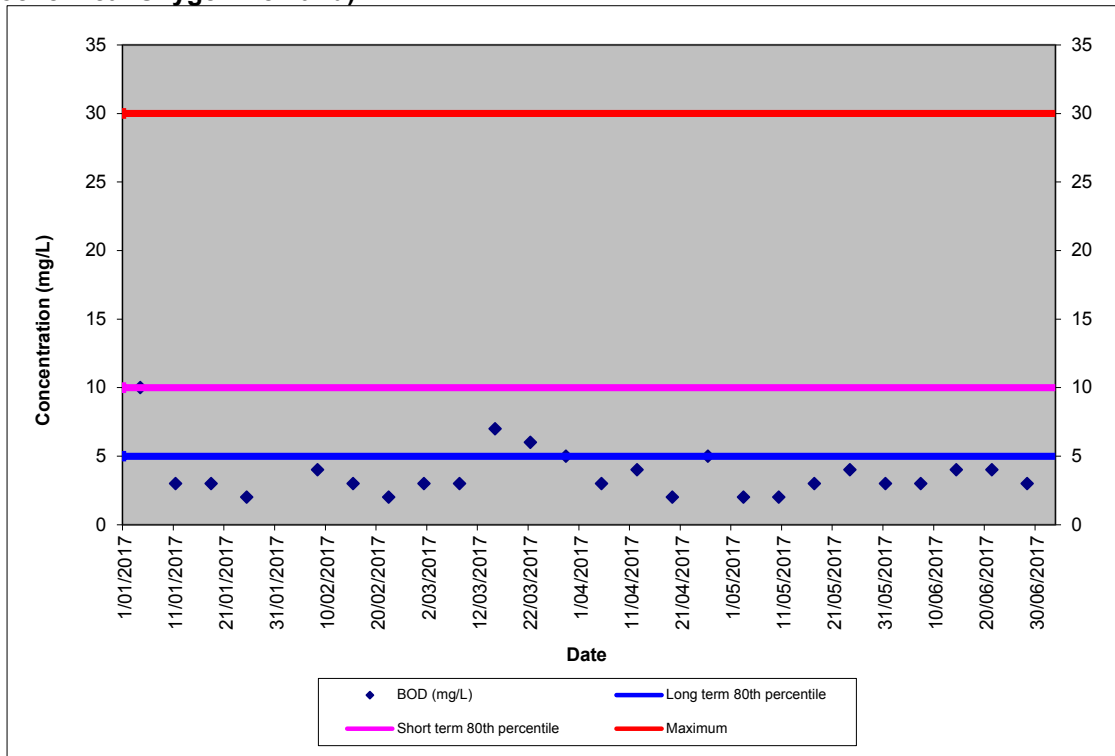
**Fig 16. Port Douglas Wastewater Treatment Plant Final Effluent Test Results for Total Phosphorous**



**Fig 17. Port Douglas Wastewater Treatment Plant Final Effluent Test Results for Total Suspended Solids**



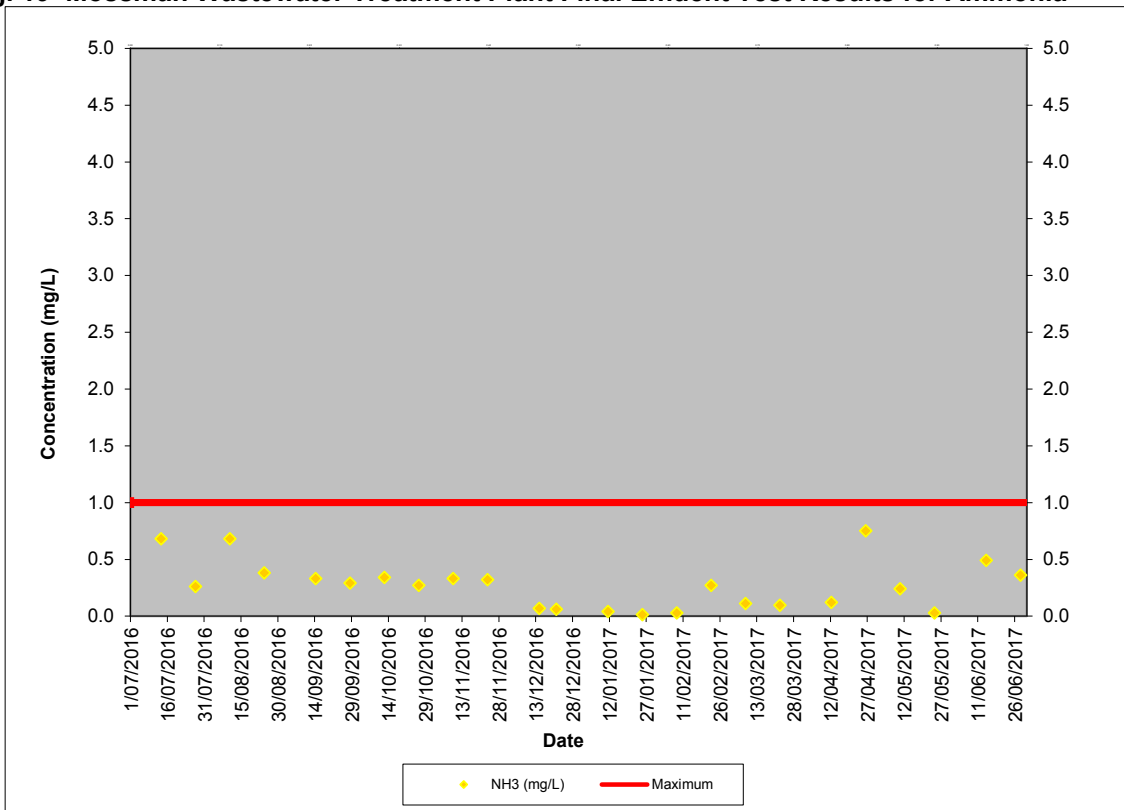
**Fig. 18 Port Douglas Wastewater Treatment Plant Final Effluent Test Results for BOD<sub>5</sub> (Biochemical Oxygen Demand)**



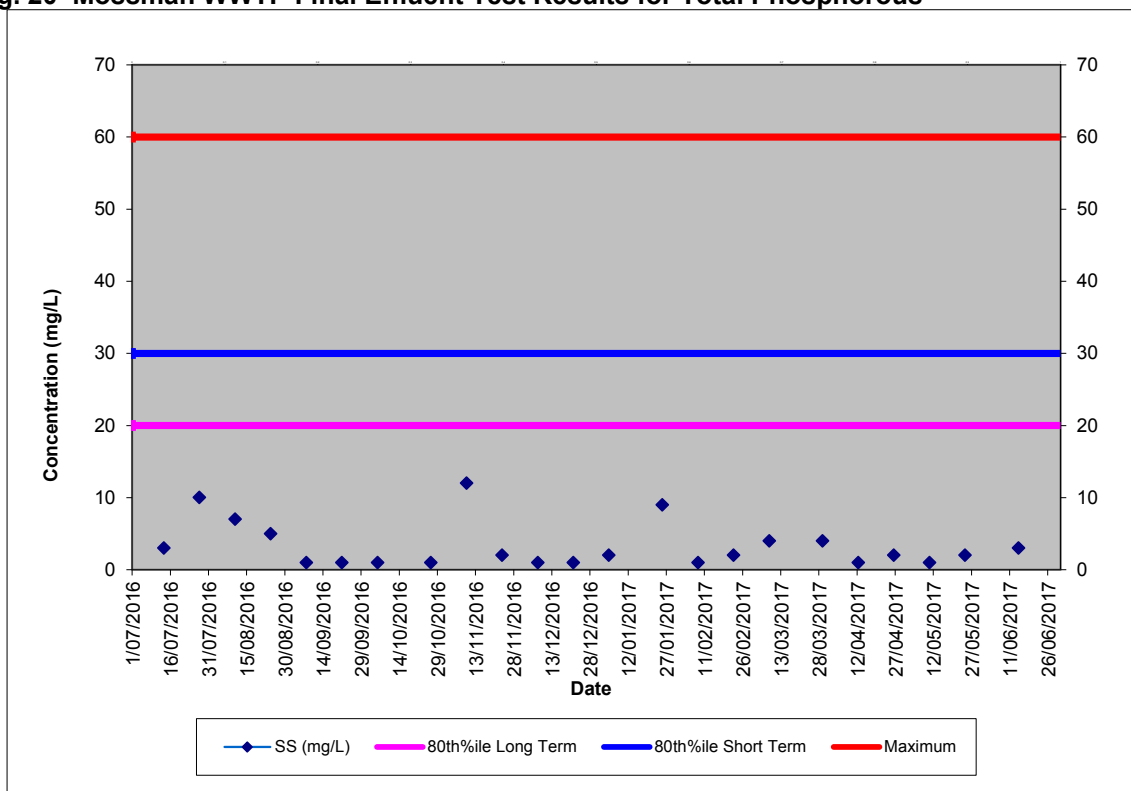
**Mossman Wastewater Treatment Plant**

The results for final effluent key licence compliance parameters (Ammonia, Total Phosphorous, Total Suspended Solids & BOD<sub>5</sub>) are shown in Figures 19, 20, 21 & 22.

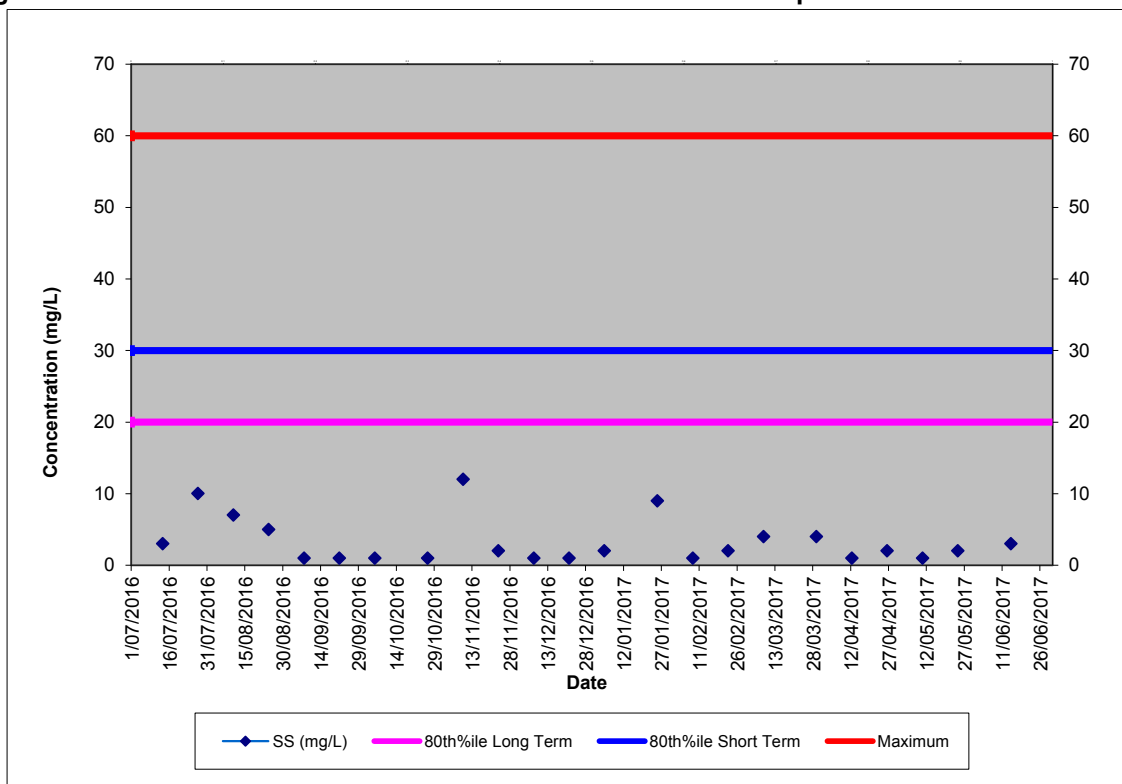
**Fig. 19 Mossman Wastewater Treatment Plant Final Effluent Test Results for Ammonia**



**Fig. 20 Mossman WWTP Final Effluent Test Results for Total Phosphorous**



**Fig. 21 Mossman WWTP Final Effluent Test Results for Total Suspended Solids**



**Fig. 22 Mossman Wastewater Treatment Plant Final Effluent Test Results for BOD<sub>5</sub> (Biochemical Oxygen Demand)**

