Mackay REGIONAL COUNCIL

Sarina Water Recycling Facility Department of the Environment and Energy Annual Report 01 July 2016 to 30 June 2017

Contents

Introduction 2
Annual Report Submission 2
Average Dry Weather Flow and Maximum Peak Weather Flow 2
Total Nitrogen and Total Phosphorus 3
Annual Mass Loads 5
Non-compliance with EPBC approval 2011/6005 5

Figures

Figure 1: Total Nitrogen SWRF 01 July 2016 to 30 June 2017 4
Figure 2: Total Phosphorous SWRF 01 July 2016 to 30 June 2017 5

Tables

Table 1: Total Nitrogen and Total Phosphorous SWRF 01 July 2016 to 30 June 2017 3
Table 2: Mass Loads Total Nitrogen and Total Phosphorous SWRF 01 July 2016 to 30 June 2017 5

Annual Report Sarina Recycled Water Recycling Facility EPBC 2011-6005 for the reporting period 01 July 2016 – 30 June 2017

Introduction

Construction of the Sarina Water Recycling Facility (SWRF) commenced on 04 February 2013. The first inflow into the plant commenced on 01 August 2014 with the first releases to Plane Creek on 09 August 2014. The plant was formally handed over to council on 14 November 2014.

The SWRF replaced the 40-year-old Sarina Sewage Treatment Plant which used an outdated Biological Trickle Filter treatment process. The SWRF is an 8,000 EP biological nutrient removal plant utilising a membrane bioreactor process. The main plant comprises of inlet works, a biological reactor and a submerged membrane reactor. The sludge handling is by aerobic digestion and centrifuge dewatering.

Additional and peripheral plant includes the chemical dosing systems for sodium hypochlorite, alum, caustic soda, citric acid and polymer additions, dewatering plant, chemical storage, switchroom and transformer, and the associated support equipment for the central process area. With the addition of an integrated membrane system, the plant can meet effluent pathogen quality requirements and also provides for tertiary filtration, allowing the effluent to be utilised for supply to recycled water schemes.

Annual Report Submission

This is the annual report as per EPBC Authorisation EPBC 2011-6005 for the twelve-month period from 01 July 2016 to 30 June 2017. This report was submitted to the Department of the Environment and Energy and uploaded to council's internet as per Condition 2 of the authorisation.

This is an amended reporting period and was requested by Mackay Regional Council to bring the EPBC reporting into line with other statutory reporting periods. The Department of the Environment and Energy approved the amendment to the reporting period (01 July to 30 June) on 02 August 2016.

Average Dry Weather Flow and Maximum Peak Weather Flow

The maximum average dry weather flow was 0.63 megalitres per day (ML/day) which is below the maximum of 2.16 ML/. The maximum peak weather flow was 8.278 ML/day which is less than the maximum of 9.2 ML/day.

In March 2017, Severe Tropical Cyclone Debbie and associated rainfall impacted the Mackay Region. 751mm of rain was recorded at the SWRF between the 27 and 30 March 2017.

Total Nitrogen and Total Phosphorus

The maximum concentrations of Total Nitrogen and Total Phosphorous released into Plane Creek are represented in Table 1 and graphically in Figures 1 and 2.

Table 1: Total Nitrogen and Total Phosphorous SWRF 01 July 2016 to 30 June 2017

Date	Total Nitrogen (mg/L)		Total Phosphorus (mg/L)	
	Result	Maximum	Result	Maximum
4/07/2016	3.8	15	0.28	3
12/07/2016	2.6	15	0.16	3
20/07/2016	2.2	15	0.49	3
28/07/2016	3.9	15	0.41	3
5/08/2016	5	15	0.5	3
13/08/2016	4.3	15	0.44	3
21/08/2016	3	15	0.17	3
29/08/2016	2.5	15	0.28	3
6/09/2016	3.9	15	1.24	3
14/09/2016	2.6	15	0.42	3
23/09/2016	2	15	0.44	3
29/09/2016	2.2	15	0.4	3
8/10/2016	1.6	15	0.24	3
16/10/2016	1.5	15	0.23	3
24/10/2016	1.1	15	0.98	3
1/11/2016	3.5	15	0.46	3
9/11/2016	4.8	15	0.3	3
17/11/2016	4.3	15	0.47	3
25/11/2016	4.1	15	0.52	3
3/12/2016	3.1	15	0.61	3
11/12/2016	3.7	15	0.5	3
19/12/2016	2.7	15	0.25	3
28/12/2016	2.2	15	0.48	3
4/01/2017	2.4	15	0.40	3
12/01/2017	2.4	15	0.47	3
20/01/2017	3.1	15	0.11	3
28/01/2017	3.2	15	0.21	3
5/02/2017	2.4	15	0.28	3
10/02/2017	0.6	15	0.38	3
13/02/2017	2.1	15	0.37	3
21/02/2017	2.2	15	0.34	3
1/03/2017	2.7	15	0.18	3
9/03/2017	2.1	15	0.46	3
17/03/2017	3.1	15	0.42	3
2/04/2017	1	15	0.25	3
10/04/2017	2.1	15	0.54	3
18/04/2017	2.6	15	0.37	3

Date	Total Nitrogen (mg/L)		Total Phosphorous (mg/L)	
	Result	Maximum	Result	Maximum
26/04/2017	2.2	15	0.35	3
4/05/2017	2.8	15	0.28	3
12/05/2017	2.9	15	0.41	3
20/05/2017	1.4	15	0.41	3
28/05/2017	3.3	15	0.56	3
5/06/2017	1.6	15	0.55	3
13/06/2017	3.2	15	0.63	3
21/06/2017	4.1	15	0.24	3
29/06/2017	1.8	15	0.53	3

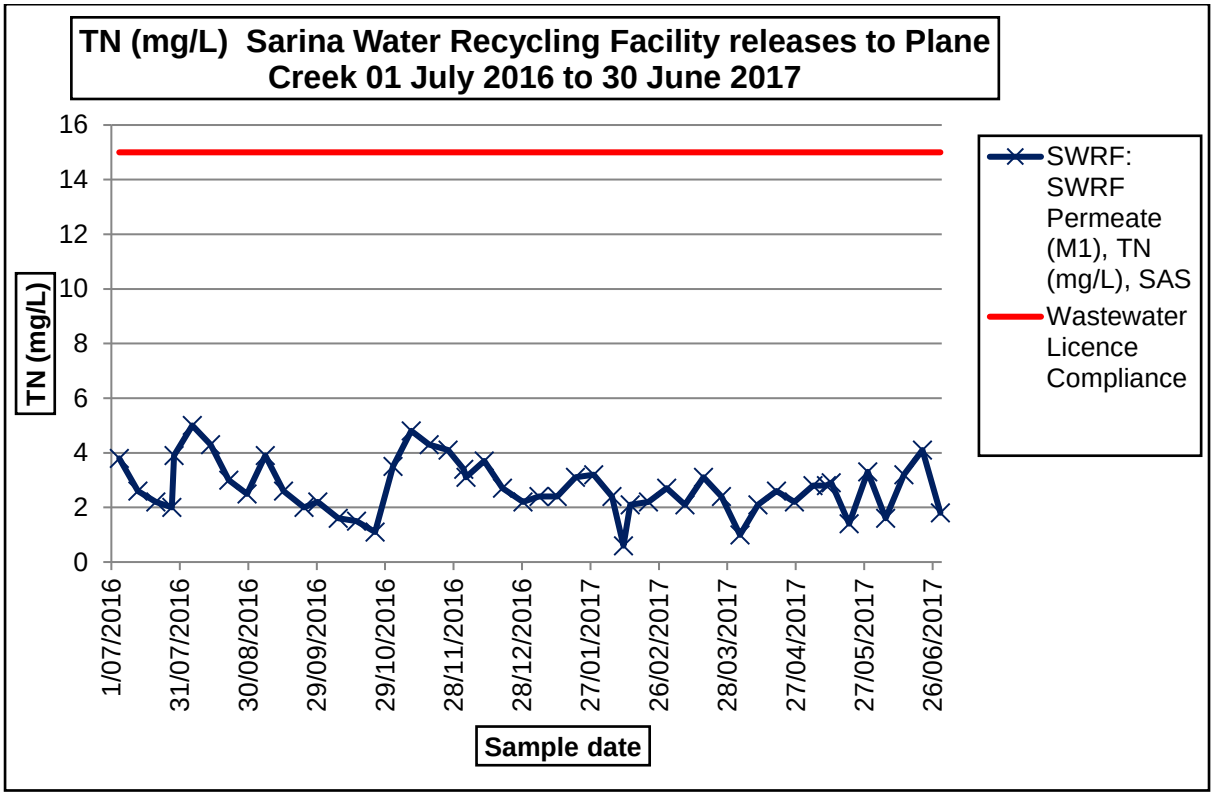

Figure 1: Total Nitrogen SWRF 01 July 2016 to 30 June 2017

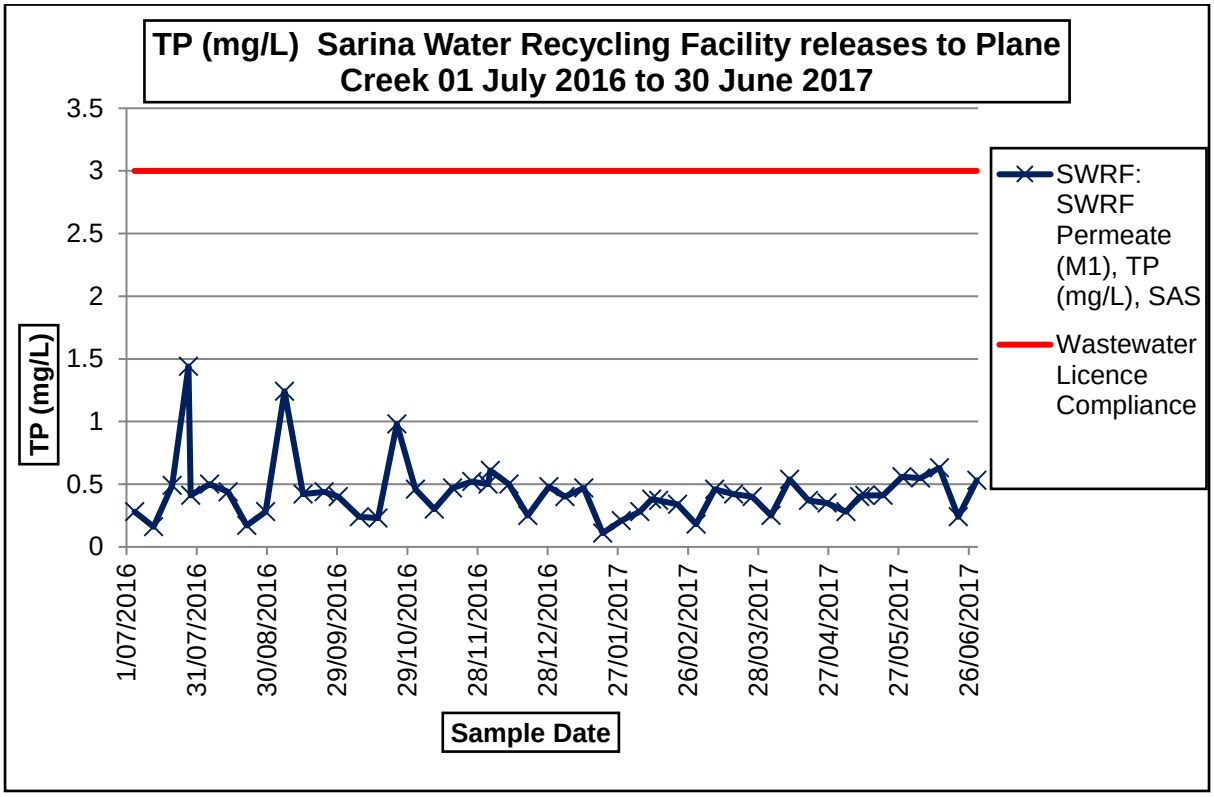

Figure 2: Total Phosphorous SWRF 01 July 2016 to 30 June 2017

Annual Mass Loads

Table 2 below shows the annual mass loads for the reporting period for both Total Nitrogen and Total Phosphorous. To bring the mass load calculation into line with annual NPI reporting, the NPI formula was used to determine the mass loads of Total Nitrogen and Total Phosphorous.

Both were below the statutory limits.

Table 2: Mass Loads Total Nitrogen and Total Phosphorous SWRF 01 July 2016 to 30 June 2017

	Mass Loads (kg)	Limits (kg)
Total Nitrogen	941	4,338
Total Phosphorous	146	868

There have been no reports of any slick or visible evidence of oil or grease, litter or other objectionable matter at the release point M1.

Non-compliance with EPBC approval 2011/6005

During the reporting period, there were no exceedences of the conditions stipulated under EPBC approval 2011/6005.