

## On-site Effluent Treatment National Testing Programme (OSET NTP)

### PERFORMANCE CERTIFICATE Biocycle 6300 On-site Domestic Wastewater Treatment System OSET NTP Trial 3, 2007/2008

#### System Tested

**Biocycle 6300** aerated submerged fixed film media treatment unit. Rated design capacity 1,400 litres/day. Total liquid volume 8,250 litres (primary treatment 3,700 litres; secondary treatment 4,550 litres). Emergency storage 1,300 litres. No tertiary treatment (such as UV disinfection) is incorporated.

#### Test Flow Rate

The **Biocycle 6300** was tested at 1,000 litres/day (equivalent to servicing a 3-bedroom 5 person household) over an 8 month (35 week) period November 2007 to July 2008 followed by a 1½ month (6 week) high flow test involving 5 days at 2,000 litres per day followed by 1,000 litres/day over the next 5 weeks.

#### Testing and Evaluation Procedures

A total of 21 daily treated effluent samples of organic matter (BOD) and suspended solids (TSS) from weeks 9, 17 and 27 were tested and evaluated as to meeting the secondary effluent quality requirements of the joint Australia/NZ Standard, AS/NZS 1547:2000.

A total of 21 daily treated effluent samples of BOD, TSS and faecal coliforms (FC) (weeks 9, 17 and 27) plus 16 samples at six day intervals of total nitrogen (TN), ammonia nitrogen (NH<sub>4</sub>-N) and total phosphorus (TP) during weeks 23 through 35 were benchmarked and rated on their median values. In addition, the energy used by the treatment system was assessed on the average of consumption levels over the 16 sample days, weeks 23 to 35.

#### Meeting AS/NZS 1547:2000 Secondary Effluent Quality Requirements

These requirements are that 90% of all test samples must achieve a BOD of  $\leq 20 \text{ g/m}^3$  and TSS of  $\leq 30 \text{ g/m}^3$ . The **Biocycle 6300** system **did not achieve** the above requirements (only **86%** of BOD and **55%** of TSS were within the above limits).

#### Benchmark Ratings

The **Biocycle 6300** system **achieved** the following effluent quality ratings:

Indicator Parameters	Median	Std Dev.	Rating	Rating System				
				A+	A	B	C	D
<i>BOD (g/m<sup>3</sup>)</i>	14	4.1	B	<5	<10	<20	<30	≥30
<i>TSS (g/m<sup>3</sup>)</i>	29	22	C	<5	<10	<20	<30	≥30
<i>Total nitrogen TN (g/m<sup>3</sup>)</i>	29.2	2.5	C	<5	<15	<25	<30	≥30
<i>Ammonia Nitrogen NH<sub>4</sub>-N (g/m<sup>3</sup>)</i>	12.6	7.2	C	<1	<5	<10	<20	≥20
<i>Total phosphorus TP (g/m<sup>3</sup>)</i>	5.2	0.8	C	<1	<2	<5	<7	≥7
<i>Faecal Coliforms FC (cfu/100mL)</i>	1,100,000	9.6x10 <sup>5</sup>	D	<10	<200	<10,000	<10,000	≥100,000
<i>Energy consumption (kWh/d)</i>	2.5 (ave)		C	0	<1	<2	<5	≥5

This Performance Certificate is specific to the **Biocycle 6300** model as specified above when operated at a flow rate of 1,000 litres/day, and is valid for 5 years from the date below. For the full OSET NTP report on the performance of the **Biocycle 6300** system contact Biocycle Holdings Ltd of Napier.

**NOTE:** The Biocycle 6300 treatment system is a “development” model and as such is not available commercially.

#### Authorised By:

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18 July 2011 [Revision to 9 April 2010 Version]

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