

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

### PERFORMANCE CERTIFICATE Oasis Series 2000L On-site Domestic Wastewater Treatment System, OSET NTP Trial 10, 2014/2015

#### System Tested

The **Oasis Series 2000L system** is a Submerged Aerated Filter Wastewater Treatment Plant using 200m<sup>2</sup> multiple PE tubes as the submerged fixed growth filter system. The manufacturers rated design capacity is 1,600 litres/day. Total operational liquid volume is 6,720 litres (Primary Chamber 3,400 litres; Aeration Chamber 1,880 litres; Clarifier 430 litres; Pump Chamber 1,010 litres; Emergency storage 2,540 litres). No tertiary treatment (such as UV disinfection) is incorporated. It comprises a single 5 chamber concrete tank. The air blower is Gardner Denver AP80 running continuously, located in a turret over the plant. There is a Zabel 1.6mm effluent filter in the Primary Chamber and an Azud 130 micron final effluent filter. The manufacturers stated service frequency is 6 monthly.

#### Test Flow Rate

The **Oasis Series 2000L system** was tested at 1,000 litres/day (equivalent to servicing a 3-bedroom 5 to 6 person household) over an 8 month (35 week) period November 2014 to July 2015 followed by a 1 month (4 week) high load effects test involving 5 days at 2,000 litres per day then 1,000 litres/day over the following 2 weeks.

#### Testing and Evaluation Procedures

A total of 37 treated effluent samples of organic matter (BOD<sub>5</sub>) and suspended solids (TSS) at generally six day intervals during weeks 9 to 35 were tested and evaluated against the secondary effluent quality requirements of the joint Australia/NZ standard AS/NZS 1547:2012.

A total of 16 treated effluent samples of organic matter (BOD<sub>5</sub>), total suspended solids (TSS), total nitrogen (TN), ammonia nitrogen (NH<sub>4</sub>-N), total phosphorus (TP) and faecal coliforms (FC) at generally six day intervals during weeks 23 through 35 were tested and the results benchmarked and rated on their median values. In addition, the energy used by the treatment system was assessed on the mean of consumption levels over the 16 sample days.

#### AS/NZS 1547:2012 Secondary Effluent Quality Requirements

These requirements are that 90% of all test samples must achieve a BOD<sub>5</sub> of  $\leq 20$  g/m<sup>3</sup> and TSS of  $\leq 30$  g/m<sup>3</sup> with no one result for BOD<sub>5</sub> being  $>30$  g/m<sup>3</sup> and no one result for TSS being  $>45$  g/m<sup>3</sup>. The **Oasis Series 2000L system achieved** a performance level of **100%** for BOD<sub>5</sub> and **100%** for TSS based on the full set of 37 test results in weeks 9 to 35, with no results exceeding the maximums. The **Oasis Series 2000L system thus meets** the secondary effluent quality requirements of AS/NZS 1547:2012 at the test flow rate of 1,000 L/day (ie at 63% of the plants advised design capacity).

#### Benchmark Ratings

The **Oasis Series 2000L system achieved** the following effluent quality ratings for the sixteen benchmarking results in weeks 20 to 35.

Indicator Parameters	Median	Std Dev	Rating	Rating System				
				A+	A	B	C	D
BOD (mg/L)	2	0	A+	<5	<10	<20	<30	≥30
TSS (mg/L)	1.5	1.3	A+	<5	<10	<20	<30	≥30
Total Nitrogen (mg/L)	20.5	3.8	B	<5	<15	<25	<30	≥30
NH <sub>4</sub> - Nitrogen (mg/L)	0.2	0.1	A+	<1	<5	<10	<20	≥20
Total phosphorus (mg/L)	3.9	0.4	B	<1	<2	<5	<7	≥7
Faecal Coliforms (cfu/100mL)	10,400	5,800	C	<10	<200	<10,000	<100,000	≥100,000
Energy (kWh/d) (mean)	1.3	0.04	B	0	<1	<2	<5	≥5

This Performance Certificate is specific to the **Oasis Series 2000L** model as specified above when operated at a flow rate of 1,000 litres/day (63% of advised plants design capacity), and is valid for 5 years from the date below. For the full OSET NTP report on the performance of the **Oasis Series 2000L system** contact **Oasis Clearwater Environmental Systems**, Christchurch, P: +64 3 344 0262, or E: [office@oasisclearwater.co.nz](mailto:office@oasisclearwater.co.nz).

#### Authorised By:



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