

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

PERFORMANCE CERTIFICATE Waipapa Tanks Maxi-Treat® MV-C 3000 On-site Domestic Wastewater Treatment System, OSET NTP Trial 3, 2007/2008

System Tested

Maxi-Treat® MV-C 3000 venturi aeration submerged fixed film media treatment unit. Rated design capacity 2,400 to 3,000 litres/day. Total liquid volume 8,030 litres (primary treatment 4,500 litres; secondary treatment 3,530 litres). Emergency storage 1,200 litres. No tertiary treatment (such as UV disinfection) is incorporated.

Test Flow Rate

The **Maxi-Treat® MV-C 3000** 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 (NH₄-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 ≤ 20 g/m³ and TSS of ≤ 30 g/m³. The **Maxi-Treat® MV-C 3000** system achieved a performance level of **100%** for BOD and **95%** for TSS.

Benchmark Ratings

The **Maxi-Treat® MV-C 3000** system achieved the following effluent quality ratings:

Indicator Parameters	Median	Std Dev.	Rating	Rating System				
				A+	A	B	C	D
<i>BOD (g/m³)</i>	3	1.6	A+	<5	<10	<20	<30	≥30
<i>TSS (g/m³)</i>	8	6.0	A	<5	<10	<20	<30	≥30
<i>Total nitrogen TN (g/m³)</i>	11.90	1.0	A	<5	<15	<25	<30	≥30
<i>Ammonia Nitrogen NH₄-N (g/m³)</i>	0.30	0.8	A+	<1	<5	<10	<20	≥20
<i>Total phosphorus TP (g/m³)</i>	4.95	0.6	B	<1	<2	<5	<7	≥7
<i>Faecal Coliforms FC (cfu/100mL)</i>	72,000	5x10 ⁴	C	<10	<200	<10,000	<100,000	≥100,000
<i>Energy consumption (kWh/d)</i>	8.4 (ave)		D	0	<1	<2	<5	≥5

This Performance Certificate is specific to the **Maxi-Treat® MV-C 3000** 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 **Maxi-Treat® MV-C 3000** system contact Waipapa Tanks Ltd of Kerikeri.

Authorised By:

Ian Gunn, Acting Technical Manager, OSET NTP
9 April 2010