

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

PERFORMANCE CERTIFICATE

WaterGurus NovaClear On-site Domestic Wastewater Treatment System, OSET NTP Trial 4, 2008/2009

System Tested

WaterGurus NovaClear membrane bioreactor treatment unit. Rated design capacity 2,200 litres/day. Total liquid volume 4,500 litres [primary and secondary (aeration) treatment 3,300 litres; clarification (membrane bioreactor) 600 litres; pump chamber 600 litres]. Emergency storage 1,400 litres. Tertiary treatment for bacterial removal is incorporated within the membrane filter process.

Test Flow Rate

The **WaterGurus NovaClear** was tested at 1,000 litres/day (equivalent to servicing a 3-bedroom 5 person household) over an 8 month (35 week) period November 2008 to July 2009 followed by a 1 month (4 week) high load effects test involving 5 days at 2,000 litres per day followed by 1,000 litres/day over the following 3 weeks.

Testing and Evaluation Procedures

A total of 37 treated effluent samples of organic matter (BOD₅) and suspended solids (TSS) at generally six day intervals during weeks 9 to 35 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 16 treated effluent samples of organic matter (BOD₅), suspended solids (TSS), total nitrogen (TN), ammonia nitrogen (NH₄-N), total phosphorus (TP) and faecal coliforms (FC) at generally six day intervals 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 mean 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 **WaterGurus NovaClear** system achieved a performance level of **100%** for BOD₅ and **100%** for TSS and thus met the secondary effluent quality requirements of the Standard.

Benchmark Ratings

The **WaterGurus NovaClear** system achieved the following effluent quality ratings:

Indicator Parameters	Median	Std Dev.	Rating	Rating System				
				A+	A	B	C	D
BOD (g/m ³)	2.0	0.0	A+	<5	<10	<20	<30	≥30
TSS (g/m ³)	0.3	0.9	A+	<5	<10	<20	<30	≥30
Total nitrogen TN (g/m ³)	29.4	3.6	C	<5	<15	<25	<30	≥30
Ammonia Nitrogen NH ₄ -N (g/m ³)	1.1	1.0	A	<1	<5	<10	<20	≥20
Total phosphorus TP (g/m ³)	4.2	0.3	B	<1	<2	<5	<7	≥7
Faecal Coliforms FC (cfu/100mL)	0	3.6	A+	<10	<200	<10,000	<100,000	≥100,000
Energy (kWh/d) (mean)	4.6	-	C	0	<1	<2	<5	≥5

This Performance Certificate is specific to the **WaterGurus NovaClear** 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 **WaterGurus NovaClear** system contact WaterGurus (NZ) Ltd of Christchurch.

Authorised By:

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