

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

PERFORMANCE CERTIFICATE

Devan Green On-site Domestic Wastewater Treatment System, OSET NTP Trial 5, 2009/2010

System Tested

Devan Green floating growth fixed film media treatment unit. Rated design capacity 1,500 litres/day. Total liquid volume 6,220 litres (primary treatment 3,000 litres; secondary treatment aeration 1,650 litres; clarification 1,570 litres). Emergency storage 1,580 litres. No tertiary treatment (such as UV disinfection) is incorporated.

Test Flow Rate

The **Devan Green** 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 2009 to July 2010 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 3 weeks.

Testing and Evaluation Procedures

A total of 38 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), total 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 BOD₅ of $\leq 20 \text{ g/m}^3$ and TSS of $\leq 30 \text{ g/m}^3$ with no one result for BOD₅ being $>30 \text{ g/m}^3$ nor no one result for TSS being $>45 \text{ g/m}^3$. The **Devan Green** system **achieved** a performance level of **100%** for BOD₅ and **76%** for TSS with 5 results for TSS being $>45 \text{ g/m}^3$. The **Devan Green** system thus **did not meet** the overall secondary effluent quality requirements of the Standard.

Benchmark Ratings

The **Devan Green** system **achieved** the following effluent quality ratings:

Indicator Parameters	Median	Std Dev.	Rating	Rating System				
				A+	A	B	C	D
BOD₅ (g/m³)	6.5	4.7	A	<5	<10	<20	<30	≥30
TSS (g/m³)	13.5	21.0	B	<5	<10	<20	<30	≥30
Total nitrogen TN (g/m³)	33.4	2.5	D	<5	<15	<25	<30	≥30
Ammonia Nitrogen NH₄-N (g/m³)	2.9	1.14	A	<1	<5	<10	<20	≥20
Total phosphorus TP (g/m³)	4.2	0.55	B	<1	<2	<5	<7	≥7
Faecal Coliforms FC (cfu/100mL)	72,500	29.6 x 10³	C	<10	<200	<10,000	<100,000	≥100,000
Energy (kWh/d) (mean)	1.54	--	B	0	<1	<2	<5	≥5

This Performance Certificate is specific to the **Devan Green** 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 **Devan Green** system contact Devan Group at Tauranga, (07) 578 8726.

NOTE: The Devan Green treatment system is a "development" model and as such is not available commercially.

Authorised By:

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