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

PERFORMANCE CERTIFICATE
CleanStream TXR-1 On-site Domestic Wastewater Treatment System,
OSET NTP Trial 9, 2013/2014

System Tested
The **CleanStream TXR-1 system** is a packed bed recirculating textile filter wastewater treatment unit. The manufacturer's rated design capacity is 1,200 litres/day. Total liquid volume is 7,400 litres (primary treatment 2 tanks each with an effluent filter 3,700 and 1,200 litres; secondary treatment with packed bed 900 litres; recirculation tank 1,100 litres; pump chamber 700 litres). Emergency storage is 1,500 litres. No tertiary treatment (such as UV disinfection) is incorporated. The manufacturer's stated service frequency is annual.

Test Flow Rate
The **CleanStream TXR-1 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 2013 to July 2014 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 37 treated effluent samples of organic matter (BOD_5) 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_5), total suspended solids (TSS), total nitrogen (TN), ammonia nitrogen (NH_4-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 benchmark period.

AS/NZS 1547:2012 Secondary Effluent Quality Requirements
These requirements are that 90% of all test samples must achieve a BOD_5 of $\leq$ 20 g/m^3 and TSS of $\leq$ 30 g/m^3 with no one result for BOD_5 being >30 g/m^3 and no one result for TSS being >45 g/m^3. The **CleanStream TXR-1 system achieved** a performance level of **100%** for BOD_5 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 **CleanStream TXR-1 system** thus **meets** the secondary effluent quality requirements of AS/NZS 1547:2012.

Benchmark Ratings
The **CleanStream TXR-1 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*	*1*	A+	*<5*	*<10*	*<20*	*<30*	*≥30*
TSS (mg/L)	*3*	*1*	A+	*<5*	*<10*	*<20*	*<30*	*≥30*
Total Nitrogen (mg/L)	*37.1*	*5*	D	*<5*	*<15*	*<25*	*<30*	*≥30*
NH_4- Nitrogen (mg/L)	*1.9*	*4*	A	*<1*	*<5*	*<10*	*<20*	*≥20*
Total phosphorus (mg/L)	*4.4*	*0.5*	B	*<1*	*<2*	*<5*	*<7*	*≥7*
Faecal Coliforms (cfu/100mL)	*65,000*	*100,000*	C	*<10*	*<200*	*<10,000*	*<100,000*	*≥100,000*
Energy (kWh/d) (mean)	*0.98*	*0.12*	A	*0*	*<1*	*<2*	*<5*	*≥5*

This Performance Certificate is specific to the **CleanStream TXR-1** 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 **CleanStream TXR-1 system** contact **Duracrete Products Ltd**, Kamo, Whangarei, Ph: 0800 387 227 Email:ric@duracrete.co.nz.

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