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

**PERFORMANCE CERTIFICATE Extension**
**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. The initial Performance Certificate was issued on 20 February 2015 with a 5 year validity to 20 February 2020. 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.

On 21 November 2019 Duracrete Products Ltd applied to retest their **CleanStream TXR-1** plant in the 2021 OSET-NTP Trial 16 and applied for an extension to the above certificate through to the end of Trial 16. They provided a signed and legally witnessed statement confirming that there has been no change made whatsoever to the plant as tested in 2014. Hence OSET-NTP confirm that the validity of the Performance Certificate of 20 February 2015 as detailed above can be extended to 5 lMarch 2022.

With the pausing of OSET and Trial 16 occurring on 1st Jun 2021, OSET-NTP has further extended the Performance Certificate to **31st December 2026** following an application signed and legally witnessed statement by Duracrete Products Ltd confirming that there has been no change made whatsoever to the plant as tested in Trial 9.

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**Authorised By:**



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