

NSF/ANSI STANDARD 350 ONSITE RESIDENTIAL AND COMMERCIAL WATER REUSE TREATMENT SYSTEMS

PERFORMANCE TESTING AND EVALUATION

The system shall be assembled, installed, and filled in accordance with the manufacturer's instructions.

The performance of the system shall be evaluated for 26 consecutive weeks. During the testing and evaluation period, the system shall be subjected to 16 weeks of design loading, followed by 7.5 weeks (52 days) of stress loading, and then an additional 2.5 weeks (18 days) of design loading.

The system shall be closed 7 days a week with a wastewater volume equivalent to the daily hydraulic capacity of the system. The following schedule shall be adhered to for dosing:

Dosing Period	Daily Hydraulic Capacity
6:00 AM to 9:00 AM	35%
11:00 AM to 2:00 PM	25%
5:00 PM to 8:00 PM	40%

Stress loading is designed to evaluate a system's performance under four non-ideal conditions.

- 1) Wash Day Stress
- 2) Working Parent Stress
- 3) Power/Equipment Failure Stress
- 4) Vacation Stress

During the design loading sequence, a minimum of 2/3's of the total scheduled data days shall be necessary for the test to be considered valid. During the stress loading sequence a minimum of 2/3's of the total scheduled data days and from at least 2 of the scheduled data days during any single stress recovery shall be necessary for the test to be considered valid.

The following influent samples shall be collected 3 times per week except for total phosphorous, COD, total Coli Form, TOC, and surfactants which shall be collected one time per week. The following effluent samples shall be collected three times per week during design loading periods and two times during each stress recovery period. SAR will be collected on the influent and effluent once every 2 months for a total of three samples over the course of the test.

Influent and effluent wastewater samples shall be collected in accordance with the table below. Influent samples shall be obtained during periods of system dosing, and effluent samples shall be obtained during periods of system discharge. Effluent samples shall be representative of all treated effluent discharged from the system, as sampled from a central point of collection of all treated effluent. 24 hour composite samples shall be flow-proportional. The location of the grab sample shall be appropriate to provide a sample that is representative of the influent or effluent. Systems containing storage of treated graywater shall be sampled at the outlet of the storage container.

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Parameter	Sample Type	Sample Location	
		Raw Influent	Treated Effluent
BOD5	24 h composite	X	
CBOD5	24 h composite		X
Total Suspended Solids	24 h composite	X	X
pH	Grab	X	X
Temperature oC	Grab	X	X
E Coli	Grab	X	X
Turbidity	24 h composite	X	
Disinfectant	24 h composite		X
TKN	24 h composite	X	
NO2/NO3	24 h composite	X	
Total Phosphorus	24 h composite	X	
COD	24 h composite	X	
Total Coliforms	Grab	X	
TOC	24 h composite	X	
Surfactants	24 h composite	X	
Fats, oil and grease	24 h composite	X	
SAR	24 h composite	X	
Iron	24 h composite	X	

CRITERIA FOR PASSING

CBOD₅

The average CBOD₅ of all effluent samples shall not exceed 10 mg/L. No single sample shall exceed 25 mg/L.

TSS

The average TSS of all effluent samples shall not exceed 10 mg/L. No single sample shall exceed 30 mg/L.

pH

The pH of individual effluent samples shall be between 6.0 and 9.0

Turbidity

The average turbidity of all effluent samples shall not exceed 5 NTU. No single sample shall exceed 10 NTU.

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Storage vessel disinfection

Systems containing storage of treated reuse water shall provide adequate disinfection. In the case of chlorine, the average total residual chlorine concentration of all effluent samples shall be ≥ 0.5 mg/L and ≤ 2.5 mg/L. Other disinfection procedures shall provide adequate disinfection to prevent microorganism growth in the treated reuse water storage while avoiding degradation of plumbing components and fixtures exposed to the treated reuse water.

Color

The color rating of each of the three diluted composite effluent samples shall be reported. There are no criteria that these values shall meet.

Odor

The overall rating of each of the three diluted composite effluent samples shall be non-offensive.

Oily film and foam

Oily films and foaming shall not be visually detected in any of the diluted composite effluent samples.

Energy consumption

The total energy consumption of the system measured throughout the test shall be reported as kWh/unit of water treated. There are no criteria this value shall meet.