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Joint Committee on Drinking Water Treatment Units

June 3, 2025

**Proposed revision to NSF/ANSI 58: *Reverse Osmosis Drinking Water Treatment Systems* (58i113r1)**

Revision 1 of NSF/ANSI 58, issue 113 is being forwarded to the Joint Committee for consideration. Please review the proposal and **submit your ballot by June 24, 2025** via the NSF Online Workspace.

Please review all ballot materials. When adding comments, please include the section number applicable to your comment and add all comments under one comment number whenever possible. If you need additional space, please use the attached blank comment template in the reference documents and upload online via the browse function.

## Purpose

The purpose of this ballot is to add language for multi-tap systems and enabling power sources during materials evaluation.

## Background

An issue paper (DWTU-2025-1) noted that NSF/ANSI 58 does not contain language regarding multi-tap systems or enabling power sources during materials evaluation. This language does appear in NSF/ANSI 42 and 53.

Accordingly, this ballot adds that language to NSF/ANSI 58 for consistency.

Please refer to the issue paper under Referenced Items for additional background information.

If you have any questions about the technical content of the ballot, you may contact me in care of:

Dr. Robert Powitz
Chair, Joint Committee on Drinking Water Treatment Units
c/o Monica Milla
Joint Committee Secretariat
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**[Note – The recommended changes to the standard which include the current text of the relevant section(s) indicate deletions by use of ~~strikeout~~ and additions by gray highlighting. The ‹¶ symbol indicates moving the bullet left to a higher level. Rationale statements are in *italics* and only used to add clarity; these statements will NOT be in the finished publication.]**

NSF/ANSI 58:

# Reverse Osmosis Drinking Water Treatment Systems

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## 4 Materials

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### 4.4 Materials Evaluation

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#### 4.4.3 Exposure

**4.4.3.1** The system or component(s) of a system shall be installed, flushed, and conditioned in accordance with the manufacturer's instructions. If instructions are not provided, systems shall be operated with the outlet closed until the storage tank is full, or component(s) shall be flushed with one unit volume using the exposure water (see Section 4.4.2) at an initial inlet static pressure of 340 kPa (50 psig).

**4.4.3.2** After flushing and conditioning in accordance with Section 4.4.3.1, systems shall be refilled with exposure water as specified in Section 4.4.2 and maintained for 24 h at an ambient temperature of 23 ± 2 °C (73 ± 3 °F). A water sample shall be collected for analysis by emptying the storage tank completely and then sub-sampling. If the water holding volume of the storage tank is < 2 L, sufficient samples shall be exposed to provide the required volume of extractant water. The system outlet shall then be closed, and the system shall be maintained for another 24 h at an ambient temperature of 23 ± 2 °C (73 ± 3 °F). A water sample shall again be collected for analysis by emptying the storage tank completely and then sub-sampling. This process shall be repeated to give a total of three 24-h exposures. Systems without storage tanks shall be exposed as membrane elements, except that the recovery shall be dictated by the system. Samples collected shall be composited and analyzed in accordance with Section 4.4.1.

This sequence is summarized as follows:

a) Install the test system(s) on the test stand.
b) Flush and condition with exposure water.
c) Close the system outlet and maintain for 24 h.
d) Empty the storage tank(s), if applicable, and sample.
e) Repeat steps c and d for a total of three sampling events.
f) Composite the three samples and analyze.

Components other than membrane elements shall follow the same process but shall be flushed according to the manufacturer’s instructions prior to each 24-h exposure. A daily 2-L collection volume is recommended to ensure there is sufficient volume in the composite sample to conduct the requested analyses. If the water holding volume of the product is > 2 L, the entire volume shall be collected in a suitable collection vessel, and a 2-L subsample obtained from this volume. If the water holding volume of the product is < 2 L, sufficient samples shall be exposed to provide at least $^1/_3$ of the volume required for analysis of extractant water at each sample point. Samples collected shall be composited and analyzed in accordance with Section 4.4.1.

Membrane elements shall follow the same process, with the recovery set at the manufacturer's specification through the use of reject flow control. One membrane element shall be exposed in a suitable housing, with a 2-L sample drawn as product water after each 24-h exposure. The initial exposure shall involve flushing and conditioning in accordance with the manufacturer's instructions. Subsequent exposure shall involve no additional flushing and conditioning after the 2-L sample is drawn. Samples collected shall be composited and analyzed in accordance with Section 4.4.1.

**4.4.3.3** A daily 2-L collection volume is recommended to ensure there is sufficient volume in the composite sample to conduct the requested analyses. If the water holding volume of the product is > 2 L, the entire volume shall be collected in a suitable collection vessel, and a 2-L subsample obtained from this volume. If the water holding volume of the product is < 2 L, sufficient samples shall be exposed to provide at least $^1/_3$ of the volume required for analysis of extractant water at each sample point. The maximum number of samples exposed shall not exceed 16 with 125 mL of extractant water drawn from each sample. If the components with a water holding volume that is < 250 mL and is able to be identified as one that ~~will~~ only occurs once in the flow path of dispensed treated water (such as diverters, faucets, RO shutoff valves, or specialty components) then a volume of 250 mL shall be drawn from each sample using a maximum number of eight samples.

**4.4.3.4** All samples collected shall be composited and analyzed in accordance the applicable methods referenced in Section 4.4.1. For multiple outlet systems, a composite sample shall be collected from all potable water outlets. The unit volume of the system shall be divided by the total number of potable water outlets and this amount shall be collected from each outlet. Systems that are designed to heat or cool the product water shall be connected to an appropriate power source and operated to heat or cool the water. The system shall be operated at the manufacturer's default temperature setting. If adjustable, the system shall be operated at the highest setting available.

**4.4.3.45** Systems with adsorptive or absorptive media shall be tested with and without the media. Testing without media shall include removal of any granular adsorptive or absorptive media, and removal of any adsorptive or absorptive replacement elements.

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***Rationale:***

- ***Adds language for multi-tap systems and enabling power sources during materials evaluation. This language is in NSF/ANSI 42 and 53 and is being added to 58 for consistency.***
- ***Editorial change in Section 4.4.3.3 from future to present tense per style guidelines.***