TO: Joint Committee on Drinking Water Treatment Units

FROM: Dr. Robert Powitz, Chair of the Joint Committee

DATE: January 25, 2024

SUBJECT: Proposed revisions to:
NSF/ANSI 42: *Drinking Water Treatment Units – Aesthetic Effects* (42i130r1)
NSF/ANSI 53: *Drinking Water Treatment Units — Health Effects* (53i155r1)
NSF/ANSI 401: *Drinking Water Treatment Units — Emerging Compounds / Incidental Contaminants* (401i35r1)

Revision 1 of NSF/ANSI 42 issue 130, NSF/ANSI 53 issue 155, and NSF/ANSI 401 issue 35 is being forwarded to the Joint Committee for consideration. Please review the proposal and **submit your ballot by February 15, 2024** via the NSF Online Workspace <www.standards.nsf.org>.

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 proposed revisions update maximum operating pressure so chemical reduction testing verifies the performance of the filter at a specific flow rate.

Background

An issue paper (DWTU-2023-9) noted that due to manufacturing variances, the maximum operating pressure for reduction testing can conflict with the rated service flow testing. The rated service flow test stipulates that the rated service shall be equal to or less than the minimum initial clean system flow rate obtained during contaminant reduction testing at an inlet pressure of 410 ± 20 kPa (60 ± 3 psig). For systems that have inherent variation in the flow rate, this requirement becomes problematic because contaminant testing is run at the same pressures.

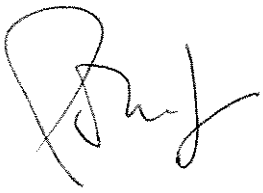
Additionally, the chloramine reduction section of NSF/ANSI 42 (7.3.2.7.1) already includes language to allow pressures up to 90 psi to be used to reach the flow rate specified by the manufacturer.

This ballot updates language so that the reduction portion of chemical reduction testing verifies the performance of the filter at a specific flow rate, not that the system flows at a specific flow rate at that pressure. The rated service flow and minimum service flow already test these requirements separately.

The ballot also harmonizes language and requirements with the existing chloramine reduction testing protocol in NSF/ANSI 42. It also adds a missing word to NSF/ANSI 53, Sections 7.2.3.7.2 and 7.2.7.8.2, for accuracy and consistency with other similar sections.

For additional background information, please refer to the original issue paper and the maximum operating pressure discussion excerpt from the 2023 DWTU JC annual meeting summary under Referenced Items.

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, NSF
(734) 214-6223 / mmilla@nsf.org

[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. Rationale statements are in *italics* and only used to add clarity; these statements will NOT be in the finished publication.]

NSF/ANSI 42:

Drinking Water Treatment Units – Aesthetic Effects

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7.3 Chemical reduction testing

7.3.1 Chemical reduction claims

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7.3.1.6 Methods

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7.3.1.6.1 Plumbed-in systems and faucet mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.1.6. The systems shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The systems shall be operated on a 50% on / 50% off cycle basis with a 15- to 40-min cycle, up to 16 h per 24-h period, followed by a minimum 8-h rest under pressure (a cycle of up to 10% on / 90% off is permissible if requested by the manufacturer for POU systems only).

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7.3.1.6.3 POE systems

One system shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.1.6. The system shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate.~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The system shall be operated continuously 16 h per 24-h period followed by an 8-h rest under pressure or if requested by the manufacturer the systems shall be operated on a 50% on / 50% off basis, 16 h per 24-h period, followed by an 8-h rest under pressure. The cycle time shall be no shorter than 20 min.

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7.3.3 Chlorine reduction testing

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7.3.3.7 Methods

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7.3.3.7.1 Plumbed-in systems and faucet mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.3.7. The systems shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial

dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The systems shall be operated on a 50% on / 50% off cycle basis with a 15- to 40-min cycle, up to 16 h per 24-h period, followed by a minimum 8-h rest under pressure (a cycle of up to 10% on / 90% off is permissible if requested by the manufacturer for POU systems only).

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7.3.3.7.3 POE systems

One system shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.3.7. The system shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The system shall be operated continuously 16 h per 24-h period followed by an 8-h rest under pressure or if requested by the manufacturer the systems shall be operated on a 50% on / 50% off basis, 16 h per 24-h period, followed by an 8-h rest under pressure. The cycle time shall be no shorter than 20 min.

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7.3.4 Hydrogen sulfide and phenol reduction testing

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7.3.4.7 Methods

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7.3.4.7.1 Plumbed-in systems and faucet mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.4.7. The systems shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The systems shall be operated on a 50% on / 50% off cycle basis with a 15- to 40-min cycle, up to 16 h per 24-h period, followed by a minimum 8-h rest under pressure (a cycle of up to 10% on / 90% off is permissible if requested by the manufacturer for POU systems only).

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7.3.4.7.3 POE systems

One system shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.4.7. The system shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The system shall be operated continuously 16 h per 24-h period followed by an 8-h rest under pressure or if requested by the manufacturer the systems shall be operated on a 50% on / 50% off basis, 16 h per 24-h period, followed by an 8-h rest under pressure. The cycle time shall be no shorter than 20 min.

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7.3.5 Iron and manganese reduction testing

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7.3.5.7 Methods

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7.3.5.7.1 Plumbed-in systems and faucet mounted systems

One system shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.5.7. The system shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate.~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The systems shall be operated on a 50% on / 50% off cycle basis with a 15- to 40-min cycle, up to 16 h per 24-h period, followed by a minimum 8-h rest under pressure (a cycle of up to 10% on / 90% off is permissible if requested by the manufacturer for POU systems only).

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7.3.5.7.3 POE systems

One system shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.5.7. The system shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate.~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The system shall be operated continuously 16 h per 24-h period followed by an 8-h rest under pressure or if requested by the manufacturer the systems shall be operated on a 50% on / 50% off basis, 16 h per 24-h period, followed by an 8-h rest under pressure. The cycle time shall be no shorter than 20 min.

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7.3.6 pH adjustment testing

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7.3.6.7 Methods

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7.3.6.7.1 Plumbed-in systems and faucet mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions using the appropriate test water specified in Section 7.3.6.6. The systems shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate~~ and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The systems shall be operated on a 50% on / 50% off basis, 16 h per 24-h period, followed by an 8-h rest under pressure. A 10% on / 90% off cycle of operation may be used in testing if requested by the manufacturer.

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7.3.6.7.3 POE systems

One system shall be conditioned in accordance with the manufacturer's instructions. The system shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The system shall be operated continuously 16 h per 24-h period followed by an 8-h rest under pressure or if requested by the manufacturer the systems shall be operated on a 50% on / 50% off basis, 16 h per 24-h period, followed by an 8-h rest under pressure. The cycle time shall be no shorter than 20 min.

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7.3.7 Zinc reduction testing

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7.3.7.7 Methods

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7.3.7.7.1 Plumbed-in systems and faucet mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.7.7. The systems shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate.~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The systems shall be operated on a 50% on / 50% off cycle basis with a 15- to 40-min cycle, up to 16 h per 24-h period, followed by a minimum 8-h rest under pressure (a cycle of up to 10% on / 90% off is permissible if requested by the manufacturer for POU systems only).

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7.3.7.7.3 POE systems

One system shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.7.7. The system shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The system shall be operated continuously 16 h per 24-h period followed by an 8-h rest under pressure or if requested by the manufacturer the systems shall be operated on a 50% on / 50% off basis, 16 h per 24-h period, followed by an 8-h rest under pressure. The cycle time shall be no shorter than 20 min.

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7.4.7 Methods for nominal particulate reduction (85%)

7.4.7.1 Plumbed-in systems and faucet mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions, using the general test water specified in Section 7.4.6. The systems shall be tested using the appropriate influent challenge water specified in Section 7.4.6.4, at the manufacturer's rated service flow or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless

a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate~~., and at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The systems shall be operated on a 50% on / 50% off basis with a 1- to 3-min cycle, 16 h per 24-h period, followed by an 8-h rest under pressure. A 10% on / 90% off cycle of operation may be used in testing, if requested by the manufacturer.

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7.4.7.3 POE systems

One system shall be conditioned in accordance with the manufacturer's instructions. The system shall be tested using the appropriate influent challenge at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate~~. and an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted, although the system may experience some change in dynamic pressure. The system shall be operated on a 50% on / 50% off basis with a 1- to 3-min cycle for four cycles. Following the fourth cycle, the system shall be operated continuously 16 h per 24-h period followed by an 8-h rest under pressure.

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NSF/ANSI 53:

Drinking Water Treatment Units — Health Effects

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7.2 Chemical reduction testing

7.2.1 Chemical reduction claims

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7.2.1.7 Methods – POU

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7.2.1.7.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.1.7. The systems shall be tested using the appropriate influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.2.1.6 shall be used.

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7.2.1.8 Method – POE

Two smaller sized systems or one full-size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.1.7. The systems shall be tested using the appropriate influent challenge water. The full-size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean

service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.2.1.6 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.2.1.6 shall be used.

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7.2.2 Inorganic reduction testing

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7.2.2.7 Methods – POU

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7.2.2.7.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.2.7. The systems shall be tested using the appropriate influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.2.2.6 shall be used.

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7.2.2.8 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.2.7. The systems shall be tested using the appropriate influent challenge water. The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or flow rate specified by the manufacturer ~~the maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.2.2.6 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire

test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.2.2.6 shall be used.

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7.2.3 Nonregenerating perchlorate reduction testing

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7.2.3.7 Method – POU

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7.2.3.7.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.3.7. The systems shall be tested using the influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.2.3.6 shall be used.

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7.2.3.7.2 Plumbed-in systems with reservoirs

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.3.7. The system shall be tested using the influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. Where the design of the system does not lend itself to the operating cycle specified in Section 7.2.3.6, the operating cycle shall be a repetitive complete filling and emptying of the reservoir. It is acceptable to run this cycle continuously for 24 h/d.

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7.2.3.8 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions using the perchlorate reduction water specified in Section 7.2.3.5. The systems shall be tested using the influent challenge water (Section 7.2.3.5). The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi)~~. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.2.3.6 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The

pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.2.3.6 shall be used.

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7.2.5 Volatile organic chemical (VOC) reduction – Surrogate organic chemical testing

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7.2.5.7 Methods – POU

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7.2.5.7.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.5.7. The systems shall be tested using the appropriate influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.2.5.6 shall be used.

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7.2.5.8 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.5.7. The systems shall be tested using the appropriate influent challenge water. The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.2.5.6 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.2.5.6 shall be used.

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7.2.6 Nonregenerating PFAS reduction testing

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7.2.6.7 Method – POU

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7.2.6.7.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.6.7. The systems shall be tested using the influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.2.6.6 shall be used.

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7.2.6.7.2 Plumbed-in systems with reservoirs

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.6.7. The system shall be tested using the influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate.~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. Where the design of the system does not lend itself to the operating cycle specified in Section 7.2.6.6, the operating cycle shall be a repetitive complete filling and emptying of the reservoir. It is acceptable to run this cycle continuously for 24 h/d.

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7.2.6.8 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions using the PFAS reduction water specified in Section 7.2.6.5 with the test contaminant present. The conditioning volume shall be excluded from the volume measured as the influent challenge volume for capacity and sample point determination. The systems shall be tested using the influent challenge water (Section 7.2.6.5). The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.2.6.6 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.2.6.6 shall be used.

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7.2.7 N-nitrosodimethylamine (NDMA) reduction testing

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7.2.7.8 Method – POU

7.2.7.8.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

The systems shall be tested using the influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.2.7.7 shall be used.

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7.2.7.8.2 Plumbed-in systems with reservoirs

The system shall be tested using the influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. Where the design of the system does not lend itself to the operating cycle specified in Section 7.2.7.7, the operating cycle shall be a repetitive complete filling and emptying of the reservoir. It is acceptable to run this cycle continuously for 24 h/d.

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7.2.7.9 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions using the NDMA reduction water specified in Section 7.2.7.6. The systems shall be tested using the influent challenge water (Section 7.2.7.6). The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.2.7.7 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.2.7.7 shall be used.

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7.3 Mechanical filtration reduction claims

7.3.1 Asbestos reduction testing

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7.3.1.6 Methods

7.3.1.6.1 Plumbed-in systems without reservoirs

Two systems shall be conditioned in accordance with the manufacturer's instructions, using the general test water specified in Section 7.3.1.4.1 without the asbestos fibers. The systems shall be tested using the general test water in Section 7.3.1.4.1 at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic inlet pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The cycle time specified in Section 7.3.1.5 shall be used. The asbestos suspension specified in Section 7.3.1.4.3 shall be added to the water just prior to the sample point. The asbestos suspension specified feed shall be of a volume equal to 10 min of initial unit flow, or 10 empty bed volumes, whichever is greater. The cyst test shall be performed prior to the asbestos reduction test.

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7.3.2 Cyst reduction

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7.3.2.1 Live *Cryptosporidium parvum* oocyst reduction

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7.3.2.1.6 Methods

7.3.2.1.6.1 Plumbed-in systems without reservoirs

Two systems shall be conditioned in accordance with the manufacturer's instructions, using the general test water specified in Section 7.3.2.1.4.1. The systems shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic inlet pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The cycle time in Section 7.3.2.1.5 shall be used.

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7.3.2.2 Polystyrene microsphere reduction for systems other than those used in bottled water plants

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7.3.2.2.6 Methods

7.3.2.2.6.1 Plumbed-in systems without reservoirs

Two systems shall be conditioned in accordance with the manufacturer's instructions, using the general test water specified in Section 7.3.2.2.4.1. The systems shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic inlet~~

~~pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The cycle time in Section 7.3.2.2.5 shall be used.

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7.3.3 Turbidity reduction challenge

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7.3.3.6 Methods – POU

7.3.3.6.1 Plumbed-in systems without reservoirs

Two systems shall be conditioned in accordance with the manufacturer's instructions, using the general test water specified in Section 7.3.3.4.1. The systems shall be tested using the challenge water in Section 7.3.3.4.3 at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic inlet pressure of 410 ± 20 kPa (60 ± 3 psig).~~ The cycle time specified in Section 7.3.3.5 shall be used.

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7.3.3.7 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions and Section 7.3.3.6. The systems shall be tested using the appropriate influent challenge water. The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.3.3.5 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.3.3.5 shall be used.

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7.4 Metals reduction testing

7.4.1 Arsenic reduction testing

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7.4.1.1 Pentavalent arsenic reduction claims

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7.4.1.1.6 Methods – POU

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7.4.1.1.6.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.4.1.1.6. The systems shall be tested using the appropriate influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.4.1.1.5 shall be used.

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7.4.1.1.7 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions and Section 7.4.1.1.6. The systems shall be tested using the appropriate influent challenge water. The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.4.1.1.5 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.4.1.1.5 shall be used.

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7.4.1.2 Arsenic reduction claims

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7.4.1.2.1.6 Methods – POU

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7.4.1.2.1.6.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.4.1.2.1.6. The systems shall be tested using the appropriate influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable using a dynamic pressure of 410 ± 20 kPa (60 ± 3 psig) and the operating cycle specified in Section 7.4.1.2.1.4.~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.4.1.2.1.4 shall be used.

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7.4.1.2.1.7 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions and Section 7.4.1.2.1.6. The systems shall be tested using the appropriate influent challenge water. The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.4.1.2.1.4 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.4.1.2.1.4 shall be used.

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7.4.2 General metals reduction

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7.4.2.7 Methods – POU

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7.4.2.7.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.4.2.7. The systems shall be tested using the appropriate influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.4.2.6 shall be used.

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7.4.2.8 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions and Section 7.4.2.7. The systems shall be tested using the appropriate influent challenge water. The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater

than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.4.2.6 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.4.2.6 shall be used.

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7.4.3 Lead reduction testing

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7.4.3.7 Methods

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7.4.3.7.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.4.3.7. The systems shall be tested using the appropriate influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.4.3.6 shall be used.

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7.4.4 Mercury reduction testing

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7.4.4.7 Methods – POU

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7.4.4.7.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.4.4.7. The systems shall be tested using the appropriate influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.4.4.6 shall be used.

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7.4.4.8 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer's instructions and Section 7.4.4.7. The systems shall be tested using the appropriate influent challenge water. The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The

pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate or ~~rated service flow~~ 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.4.4.6 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.4.4.6 shall be used.

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7.5 Microcystins reduction claims

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7.5.7 Methods – POU

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7.5.7.1 Plumbed-in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions using the appropriate general test water specified in Section 7.5.5. The systems shall be tested using the appropriate influent challenge water at the manufacturer’s rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.5.6 shall be used.

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7.5.8 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.3) shall be conditioned in accordance with the manufacturer’s instructions and Section 7.5.7. The systems shall be tested using the appropriate influent challenge water. The full size unit shall be tested at the manufacturer’s rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.5.6 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.5.6 shall be used.

NSF/ANSI 401:

Drinking Water Treatment Units — Emerging Compounds / Incidental Contaminants

7.2 Chemical reduction claims

7.2.1 Chemical reduction testing – Active media

7.2.1.6 Methods - POU

7.2.1.6.1 Plumbed in systems without reservoirs and all faucet-mounted systems

Two systems shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.1.6. The systems shall be tested using the appropriate influent challenge water at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~maximum flow rate attainable by setting an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The operating cycle specified in Section 7.2.1.5 shall be used.

7.2.1.7 Method – POE

Two smaller sized systems or one full size unit (refer to Section 7.1.4) shall be conditioned in accordance with the manufacturer's instructions and Section 7.2.1.6. The systems shall be tested using the appropriate influent challenge water. The full size unit shall be tested at the manufacturer's rated service flow rate or a higher flow rate specified by the manufacturer. The systems shall be tested at an initial dynamic pressure of 410 kPa (60 psig), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the specified initial clean service flow rate. ~~at the rated service flow at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi).~~ The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to the rated service flow or the flow rate specified by the manufacturer ~~maximum flow rate achievable~~ through the entire test, but if the flow rate cannot be maintained at greater than 25% of the specified initial clean service flow rate ~~rated service flow~~ or 4.0 GPM, whichever is greater, the test shall be terminated. The operating cycle specified in Section 7.2.1.5 shall be used.

Two scaled down systems shall be tested at the modeled flow rate at an initial dynamic pressure of 410 ± 20 kPa (60 ± 3 psi), unless a higher pressure is required to attain the specified flow rate. The pressure shall be increased as necessary to a maximum of 620 kPa (90 psig) to achieve the modeled flow rate. The pressure shall not be readjusted although the system may experience some change in dynamic pressure. The flow rate shall be controlled to that flow rate or the maximum flow rate achievable through the entire test, but if the flow rate cannot be maintained at greater than 25% of the modeled flow rate, the test shall be terminated. The operating cycle specified in Section 7.2.1.5 shall be used.

Rationale:

The proposed revisions update maximum operating pressure so chemical reduction testing verifies the performance of the filter at a specific flow rate.

Due to manufacturing variances, the maximum operating pressure for reduction testing can conflict with the rated service flow testing. The rated service flow test stipulates that the rated service shall be equal to or less than the minimum initial clean system flow rate obtained during contaminant reduction testing at an inlet pressure of 410 ± 20 kPa (60 ± 3 psig). For systems that have inherent variation in the flow rate, this requirement becomes problematic because contaminant testing is run at the same pressures.

The chloramine reduction section of NSF/ANSI 42 (7.3.2.7.1) allows pressures up to 90 psi to be used to reach the flow rate specified by the manufacturer.

This ballot:

- ***Updates language so that the reduction portion of chemical reduction testing verifies the performance of the filter at a specific flow rate, not that the system flows at a specific flow rate at that pressure. The rated service flow and minimum service flow already test these requirements separately.***
- ***Harmonizes language and requirements with the existing chloramine reduction testing protocol in NSF/ANSI 42.***
- ***Adds the missing word "not" to the third to last sentence of NSF/ANSI 53, Sections 7.2.3.7.2 and 7.2.7.8.2 for accuracy and consistency with similar sections.***