ANSI/AWWA **G200-21**

(Revision of ANSI/AWWA G200-15)

AWWA Management Standard

Distribution Systems Operation and Management

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American Water Works Association

Approved American National Standard ANSI

STANDARD Since 1881

AWWA Management Standard

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Contents

All AWWA standards follow the general format indicated subsequently. Some variations from this format may be found in a particular standard.

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Foreword

This foreword is for information only and is not a part of ANSI/AWWA G200.*

I. Introduction.

I.A. *Background.* The AWWA standards program is designed to serve water, wastewater, and reclaimed water utilities—hereafter referred to as the water sector—their customers, owners, service providers, and government regulators. The standards developed under the program are generally intended to improve a utility's overall operations and service. Among the standards is a specific effort to establish formal management and operations guidelines. These guidelines identify the appropriate practices, procedures, and behaviors whose implementation will promote effective and efficient utility operations and contribute to protection of public health, public safety, and the environment.

AWWA's standards process has been used for more than 100 years to produce ANSI-accredited standards for materials and processes that are used by the water and wastewater utility industries. These standards are recognized worldwide and have been adopted by many utilities and organizations. Likewise, these performance standards are developed using the same ANSI-recognized formal approval process. Volunteer standards committees establish standard practices in a uniform and appropriate format.

Formal standards committees have been and continue to be formed to address the individual standards practices for the diverse areas of water sector operation. A formal standards committee was created in 2009 to develop standards for distribution systems operation and management, water treatment plant operations, and source water management. This standard is the outcome of the Distribution Systems Operation and Management Standard Committee.

The Utility Management G-Series Standards were developed to assist utilities with identifying and implementing applicable best management practices. To further enhance the use of the Standards, the AWWA Utility Quality Management Committee developed both self-assessment and peer-review programs to assist utilities that choose to meet performance criteria contained within the Standards. The Committee developed a framework for the stringent expectations of all Utility Management Standards, as follows:

- Utility Management Standards are voluntary, and their intent is to provide guidance toward best management practices.

* American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

- The requirements set forth in the Standards describe best practices that are achievable but not necessarily the best of class.
- The language used in the Standards should avoid requirements related to numeric values and words such as "shall" or "must" in areas that describe or could be considered in exceedance of existing local and/or federal regulations.

I.B. *History.* Previous editions of ANSI/AWWA G200 were approved by the AWWA Board of Directors on June 14, 2009, and Jan. 24, 2015. This edition of G200 was approved on June 10, 2021.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF International (NSF[†]) to develop voluntary third-party consensus standards and a certification program for direct and indirect drinking water additives. Other members of the original consortium included the Water Research Foundation (formerly AwwaRF) and the Conference of State Health and Environmental Managers (COSHEM). The American Water Works Association (AWWA) and the Association of State Drinking Water Administrators (ASDWA) joined later.

In the United States, authority to regulate products for use in, or in contact with, drinking water rests with individual states.[‡] Local agencies may choose to impose requirements more stringent than those required by the state. To evaluate the health effects of products and drinking water additives from such products, state and local agencies may use various references, including

1. Specific policies of the state or local agency.

2. Two standards developed under the direction of NSF: NSF/ANSI/CAN[§] 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI/CAN 61, Drinking Water System Components—Health Effects.

3. Other references, including AWWA standards, *Food Chemicals Codex, Water Chemicals Codex*[¶] and other standards considered appropriate by the state or local agency.

Various certification organizations may be involved in certifying products in accordance with NSF/ANSI/CAN 61. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdictions. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

[†] NSF International, P.O. Box 130140, 789 North Dixboro Road, Ann Arbor, MI 48105.

[‡] Persons outside the United States should contact the appropriate authority having jurisdiction.

[§] Standards Council of Canada, 55 Metcalfe Street, Suite 600, Ottawa, ON K1P 6L5 Canada.

[¶] Both publications available from The National Academies Press, 500 Fifth Street NW, Keck 360, Washington, DC 20001.

Annex A, "Toxicology Review and Evaluation Procedures," to NSF/ANSI/CAN 61 does not stipulate a maximum allowable level (MAL) of a contaminant for substances not regulated by a USEPA final maximum contaminant level (MCL). The MALs of an unspecified list of "unregulated contaminants" are based on toxicity testing guidelines (noncarcinogens) and risk characterization methodology (carcinogens). Use of Annex A procedures may not always be identical, depending on the certifier.

ANSI/AWWA G200 does not address additives requirements. Thus, users of this standard should consult the appropriate state or local agency having jurisdiction in order to

1. Determine additives requirements, including applicable standards.
2. Determine the status of certifications by parties offering to certify products for contact with, or treatment of, drinking water.
3. Determine current information on product certification.

II. Special Issues.

II.A. *Chlorine and Chloramine Degradation of Elastomers*

The selection of materials is critical for water service and distribution piping in locations where there is a possibility that elastomers will be in contact with chlorine or chloramines. Documented research has shown that elastomers such as gaskets, seals, valve seats, and encapsulations may be degraded when exposed to chlorine or chloramines. The impact of degradation is a function of the type of elastomeric material, chemical concentration, contact surface area, elastomer cross section, environmental conditions as well as temperature. Careful selection of and specifications for elastomeric materials and the specifics of their application for each water system component should be considered to provide long term usefulness and minimum degradation (swelling, loss of elasticity or softening) of the elastomer specified.

II.B. *Advisory Information on Application of Standards.* This standard includes only those requirements that are limited exclusively to the operation and management of the drinking water distribution system. Separate standards will cover utility programs such as safety, emergency preparedness and security, financial management, water treatment, source water protection, and business systems.

II.C. *Consecutive Systems*. Many times, consecutive systems that purchase water from others have very little control over water quality issues such as disinfection by-products, but it remains a good idea to monitor such parameters regardless if it is required or not by the relevant regulatory agency.

III. Use of This Standard. It is the responsibility of the user of an AWWA standard to determine that the products described in that standard are suitable for use in the particular application being considered.

III.A. *Options and Alternatives.* The following items should be provided by the purchaser.

1. Standard used—that is, ANSI/AWWA G200, Distribution Systems Operation and Management, of latest revision.

2. Whether compliance with NSF/ANSI/CAN 61, Drinking Water System Components—Health Effects, is required.

3. Details of federal, state, provincial, territorial, and local requirements (Sec. 4.1.1).

III.B. *Modification to Standard.* Any modification to the provisions, definitions, or terminology in this standard must be provided in the purchaser's specifications.

IV. Major Revisions. Major changes made to the standard in this revision include the following:

1. Information on Chlorine and Chloramine Degradation of Elastomers was included in the Foreword of the standard. (Sec. II.A.)

2. Definitions for internal corrosion, potable water, reclaimed water, water audit, and wastewater have been added. The definition of disinfection by-products (DBP) was updated to define factors that may influence DBP formation. (Sec. 3)

3. Disinfectant residual requirements were updated in relation to relevant regulatory agencies and recommendations were updated in relation to meeting disinfection needs. (Sec. 4.1.3.1)

4. Additional guidance on system pressure (Sec. 4.2.1) has been added regarding maximum pressures, pressure monitoring locations and methods, and responding to pressure issues.

5. Water loss information has been updated with guidance on water audits, loss control programs, and response to system leaks and breaks. Reference to AWWA Manual M36 for guidance has been added. (Sec. 4.2.4)

6. Fire hydrant maintenance has been updated to include verifying proper draining of dry-barrel hydrants. (Sec. 4.2.6)

7. Guidance on pump operational logs and comparison of operating points have been included. (Sec. 4.3.2.1)

8. Pipeline replacement program records recommendations have been updated to connect to asset management and budgeting processes. (Sec. 4.3.3.1)

9. Recommendations for gathering feedback from personnel has been added to the Employee Training and Development section. (Sec. 5.2)

10. Basis for rejection section has been removed as it is not applicable to this standard. (Sec. 5)

V. Comments. If you have any comments or questions about this standard, please contact AWWA Engineering and Technical Services at 303.794.7711; write to the department at 6666 West Quincy Avenue, Denver, CO 80235-3098; or email at standards@awwa.org.

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American Water Works Association

Dedicated to the World's Most Important Resource®

AWWA Management Standard

Distribution Systems Operation and Management

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes the critical requirements for the effective operation and management of drinking water distribution systems.

Sec. 1.2 Purpose

The purpose of this standard is to define the critical requirements for the operation and management of water distribution systems, including maintaining water quality, system management programs, and operation and maintenance of facilities.

Sec. 1.3 Application

This standard can be referenced in the evaluation of distribution systems operation and management. The stipulations of this standard apply when this document has been referenced and then only to the operation and management of distribution systems.