



**American Water Works  
Association**

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**ANSI/AWWA G481-14**  
(First Edition)

**AWWA Management Standard**

# Reclaimed Water Program Operation and Management

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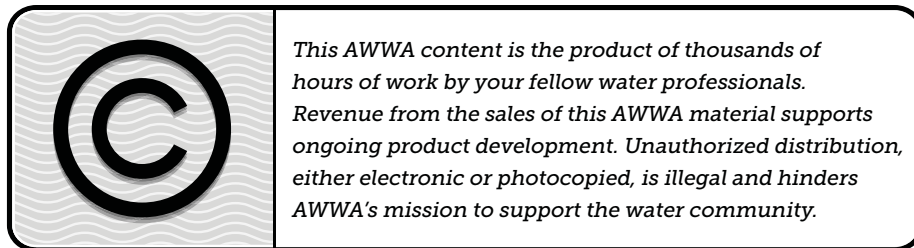
## AWWA Management Standard

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# Foreword

*This foreword is for information only and is not a part of ANSI\*/AWWA G481.*

## **I. Introduction**

I.A. *Background.* The AWWA utility management standards are designed to serve water, wastewater, and reuse utilities—hereafter, the water sector—and 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. One aspect of the standards program is an effort to establish formal management and operations guidelines. These guidelines identify 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 90 years to produce American National Standards Institute (ANSI)-approved standards for materials and processes that are used by the water sector. These standards are recognized worldwide and have been adopted by many utilities and organizations. Likewise, this performance standard is developed using the same ANSI-recognized formal 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 standard practices for the diverse areas of water, wastewater, and reuse utility operations. A formal standards committee was created in November 2006 to develop this standard for reclaimed water program operation and management systems. This standard is the outcome of the Reclaimed Water Standards Committee.

I.B. *History.* Recognizing that meeting future water needs requires innovative management strategies today, the AWWA Standards Council authorized the development of a management standard on reclaimed water program operation and management in 1999. This is the first edition of this standard. It was approved by the AWWA Board of Directors on January 19, 2014.

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

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

of the original consortium included the American Water Works Association Research Foundation (AwwaRF, now Water Research Foundation\*) 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. An advisory program formerly administered by USEPA, Office of Drinking Water, discontinued on Apr. 7, 1990.
2. Specific policies of the state or local agency.
3. Two standards developed under the direction of NSF, NSF‡/ANSI 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI 61, Drinking Water System Components—Health Effects.
4. 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 61. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdiction. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

Annex A, “Toxicology Review and Evaluation Procedures,” to NSF/ANSI 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 G481 does not address additives requirements. Users of this standard should consult the appropriate state or local agency having jurisdiction in order to

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\* Water Research Foundation, 6666 W. Quincy Avenue, Denver, CO 80235.

† Persons outside the United States should contact the appropriate authority having jurisdiction.

‡ NSF International, 789 N. Dixboro Road, Ann Arbor, MI 48105.

§ Both publications available from National Academy of Sciences, 500 Fifth Street NW, Washington, DC 20001.



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, reclaimed water.
3. Determine current information on product certification.

## **II. Special Issues.**

II.A. *Advisory Information on Application of Standards.* This standard includes only those requirements that are limited exclusively to operation and management practices for reclaimed water programs. Separate standards adopted by the standards program cover utility management programs such as distribution system operation and management, water treatment, source water protection, security, emergency planning practices, communications and customer relations, and business systems. More topics will be added over time, including those for wastewater utilities.

II.B. *Advisory Information on Regulatory Issues.* This standard does not provide requirements for regulatory issues. At the approval of this standard, there are no federal regulations governing water reclamation and reuse; however for states where they have not been delegated primacy for permitting, USEPA remains the authority having jurisdiction.

II.C. *Indirect and Direct Potable Reuse.* This standard does not address direct potable reuse applications. AWWA recognizes that reclaiming wastewater effluent for indirect potable uses such as replenishing drinking water sources, maintaining aquifer levels, increasing stream flow or other purposes may be a viable option, assuming there is an appropriate level of treatment and safeguards to protect public health.

**III. Use of This Standard.** It is the responsibility of the user of an AWWA standard to determine that the products and provisions described in that standard are suitable for and compatible with the user's intended application being considered.

III.A. *General.* The user should consider the following when developing a reclaimed water program:

1. Throughout the industry the terms *reclaimed water*, *recycled water*, and *water reuse* are used, in some instances reflecting a geographic preference, in other cases due to regulatory definition and requirements, and still other cases related to end use. The terms are often used interchangeably, but the user should be cautioned that there are specific instances when one term is more appropriate than the other.
2. The type and location of nonpotable demands that may be served by reclaimed water and the ability to economically meet the anticipated demands.
3. The quantity and quality of reclaimed water available for the development of a nonpotable water distribution system.

4. The water conservation and environmental benefits achieved with the development of a dual distribution system.

5. Ability to create and maintain a reclaimed water system within existing state regulations to create an integrated water supply system.

6. Knowledge base related to reclaimed water within the purveyor's service area and willingness to develop appropriate public education programs to integrate reclaimed water into a local water supply system.

7. Regulatory authority to operate and manage a reclaimed water system with legal rights to the reclaimed water source.

8. Backflow and cross-connection control program regulatory entities are not often well-defined and the user is cautioned to be aware of which regulations pertain to their jurisdiction and whether there are conflicts between entities that may directly affect developing a reclaimed water program.

9. Financial capability to initiate new system development and willingness to adjust existing rate structure to equitably distribute cost of service to existing and future purveyor customers.

10. Management structure envisioned to treat, distribute, and bill for reclaimed/recycled water service and ability to add or redistribute staff responsibilities for the expanded utility system.

11. Staff capacity to develop new user agreements, utility and on-site design and retrofit requirements and standard details, system master planning, and capital program development and adjustment in utility rate structures.

III.B. *Modification to Standard.* There is no applicable information for this section.

**IV. Major Revisions.** This is the first edition; as such, there are no major revisions.

**V. Comments.** If you have any comments or questions about this standard, please call AWWA Engineering and Technical Services at 303.794.7711, Fax 303.794.6303, write to the department at 6666 West Quincy Avenue, Denver, CO 80235, or email the department at [standards@awwa.org](mailto:standards@awwa.org).



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## AWWA Management Standard

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# Reclaimed Water Program Operation and Management

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## SECTION 1: GENERAL

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### **Sec. 1.1 Scope**

This standard describes the critical requirements for the effective operation and management of a reclaimed water program. Reclaimed water, for the purposes of this standard, is treated domestic wastewater that is at all times adequately and reliably treated to the level appropriate for the end use.

### **Sec. 1.2 Purpose**

The purpose of this standard is to define the critical requirements for the effective operation and management of a reclaimed water program.

### **Sec. 1.3 Application**

This standard can be referenced in the evaluation of a reclaimed water program operation and management. The stipulations of this standard apply when this document has been referenced and only to the operation and management of reclaimed water programs.