ANSI/AWWA **C671-21**

(Revision of ANSI/AWWA C671-16)

AWWA Standard

Online Turbidimeter Operation and Maintenance

Effective date: Aug. 1, 2021.
First edition approved by Board of Directors Jan. 16, 2016.
This edition approved March 30, 2021.
Approved by American National Standards Institute April 5, 2021.

American Water Works Association

Approved American National Standard ANSI

STANDARD Since 1881

AWWA Standard

This document is an American Water Works Association (AWWA) standard. It is not a specification. AWWA standards describe minimum requirements and do not contain all of the engineering and administrative information normally contained in specifications. The AWWA standards usually contain options that must be evaluated by the user of the standard. Until each optional feature is specified by the user, the product or service is not fully defined. AWWA publication of a standard does not constitute endorsement of any product or product type, nor does AWWA test, certify, or approve any product. The use of AWWA standards is entirely voluntary. This standard does not supersede or take precedence over or displace any applicable law, regulation, or code of any governmental authority. AWWA standards are intended to represent a consensus of the water industry that the product described will provide satisfactory service. When AWWA revises or withdraws this standard, an official notice of action will be placed withdraws this standard, an official notice of action will be placed in the Official Notice section of *Journal AWWA.* The action becomes effective on the first day of the month following the month of *Journal AWWA.* publication of the official notice.

American National Standard

An American National Standard implies a consensus of those substantially concerned with its scope and provisions. An American National Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American National Standard does not in any respect preclude anyone, whether that person has approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard. American National Standards are subject to periodic review, and users are cautioned to obtain the latest editions. Producers of goods made in conformity with an American National Standard are encouraged to state on their own responsibility in advertising and promotional materials or on tags or labels that the goods are produced in conformity with particular American National Standards.

CAUTION NOTICE: The American National Standards Institute (ANSI) approval date on the front cover of this standard indicates completion of the ANSI approval process. This American National Standard may be revised or withdrawn at any time. ANSI procedures require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of ANSI approval. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036; 212.642.4900, or emailing info@ansi.org.

ISBN-13, print: 978-1-64717-053-3

ISBN-13, electronic: 978-1-61300-589-7

DOI: http://dx.doi.org/10.12999/AWWA.C671.21

Committee Personnel

The AWWA Standards Committee on Online Monitoring, which reviewed and approved this standard, had the following personnel at the time of approval:

Darryl Green, *Chair*

General Interest Members

T.L. Engelhardt, Consultant, Loveland, Colo.
T.A. Pajor, City of Wichita, Wichita, Kans.
E.S. Ralph (*liaison, nonvoting*), Standards Engineer Liaison, AWWA, Denver, Colo.
M.E. Richardson, North Carolina Waterworks Operators Association, Wilmington, N.C.
W.J. Soucie, Central Lake County Joint Action Water Agency, Lake Bluff, Ill.
C.D. Tona, City of Redding, Redding, Calif.
R.D. Vaidya, CDM Smith, Tampa, Fla.
Z.R. Yu, Jacobs, Kitchener, Ont.

Producer Members

J. Evans *(alternate)*, Chemtrac Systems Inc., Norcross, Ga.
B.G. LaBelle, GF Piping Systems, Irvine, Calif.
V. Malkov, Hach Company, Loveland, Colo.
V.V. Rajasekharan *(alternate)*, Hach Company, Fort Collins, Colo.
M. Sadar, Tintometer, Fort Collins, Colo.
M. Vandiver, Chemtrac, Inc., Norcross, Ga. (AWWA)

User Members

C.R. Dugan (*liaison, nonvoting*), Standards Council Liaison, East Lansing-Meridian Water and Sewer Authority, East Lansing, Mich.
D. Green, Henderson Utility Department, Henderson, Tenn.
A. Goodman, Lansing Board of Water & Light, Lansing, Mich.
J. Miller, American Water, Bradenton, Fla.
T.M. Scribner, City of Westminster, Broomfield, Colo.

This page intentionally blank.

Contents

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

This page intentionally blank.

Foreword

This foreword is for information only and is not a part of ANSI/AWWA C671.*

I. Introduction.

I.A. *Background.* This standard describes online turbidimeter operation and maintenance for online turbidimeters used in the treatment and monitoring of municipal water supplies or in the treatment of municipal wastewater effluent or reuse applications.

I.B. *History.* Over the past decade, significant advancements in turbidity measurement have been observed. Although today's instruments meet the same basic requirements of nephelometers, improvements in advanced electronics, ratio algorithms, techniques to eliminate stray light interference, and software have produced modern measurement technologies that are far more accurate and stable. In addition, the new designs may have a greater dynamic range, can be used to measure samples with more complex matrices, and may help minimize the effects of optical interferences.

The selection of the best turbidity instrument design will depend on the specific water quality. Sample composition and process requirements typically dictate the type of technology to be used. Water samples with high levels of dissolved color or absorbance may require a long wavelength (in the 830–890 nm range) or ratio measurement. For membrane filtration effluent monitoring and granular media filter effluent monitoring, instruments that both comply with regulatory monitoring requirements and have the highest accuracy and precision at low-turbidity levels should be used (e.g., a laser nephelometer).

The AWWA Standards Council approved the formation of a committee to create a standard for online instrument operation and maintenance during its March 2006 meeting. A chair for the new Online Monitoring Committee was selected in August 2006, and the committee held its first meeting at the Water Quality and Technology Conference in Denver, Colo., in November 2006.

The first edition of ANSI/AWWA Standard C671 was approved by the AWWA Board of Directors on Jan. 16, 2016. This edition was approved on March 30, 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

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