

Manual of Water Supply Practices

M4

Water Fluoridation

Principles & Practices

Sixth Edition



American Water Works
Association

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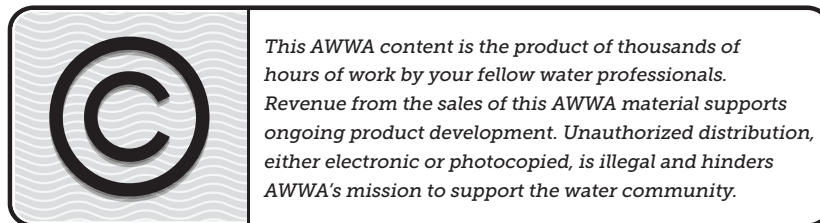
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Preface



The American Water Works Association has been an active partner in water fluoridation from the original pioneering studies on its implementation and effectiveness from 1945 through 1951, and has supported community water fluoridation since 1951.

In addition, from the 1940s to the 1960s, the US Public Health Service provided national leadership in water fluoridation practice and issued periodic technical advisories on water fluoridation. The US Environmental Protection Agency (USEPA) provided support and guidance on technical practice from 1972 to 1978 until the Centers for Disease Control and Prevention (CDC) assumed responsibility for providing support to state water fluoridation programs in 1978.

These organizations' wealth of knowledge gained through the experiences and management of several thousands of fluoridation process installations can improve future installations and enhance successful continued operations to provide improved health for our communities.

This manual is a resource to assist decision makers planning to use fluoridation treatment, engineers designing and installing these facilities, and water utility personnel managing water operations. The manual presents guidelines and is not intended to take the place of expert advice. Anyone planning or using fluoridation should carefully consider fluoride research, regulations, and methods. State or provincial regulatory requirements should always be the first point of reference for water fluoridation design and practices to improve the health of the citizens.

The first edition of the American Water Works Association *M4 Water Fluoridation Principles & Practices* was prepared from material supplied and previously published by the USEPA. The second edition was updated and revised using additional technical collaboration with the US Centers for Disease Control and Prevention. The third, fourth, and fifth editions were updated and revised incrementally by section. This sixth edition represents a substantial updating and revising of the manual's content to remain consistent with industry practices and to reflect changes in regulatory and public health guidance and the experience of contributing authors.

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Ari Copeland, Chair, Black & Veatch Corporation, Waterbury, Conn.
David Baker, Enprotec / Hibbs & Todd, Inc., Colorado Springs, Colo.
Angela Kana-Spitz, Short Elliott Hendrickson Inc., Denver, Colo.
Barbara Melcher, CDM Smith, Carlsbad, Calif.
Michael Wentink, Nebraska DHHS, Division of Public Health, Office of Drinking Water and Environmental Health, North Platte, Neb.

Additional contributing committee members, *M4 Water Fluoridation Principles & Practices*:

Dr. Katherine Ann Alfredo, Staten Island, N.Y.
Charly C. Angadicheril, City of Fort Worth, Fort Worth, Texas
John A. Consolvo, City of Philadelphia, Philadelphia, Penn.
Stephen Gasteyer, Michigan State University, East Lansing, Mich.
Michael S. Grimm, Happy Valley, Ore.
Kimberly Gupta, Portland Water Bureau, Portland, Ore.
David Heumann, Los Angeles Department of Water and Power, Los Angeles, Calif.
Daniel Huggins, City of London Water Operations, London, Ont., Canada
Dr. Alisha Knowles, Halifax Water, Halifax, N.S., Canada
Hoy Yi (Mandy) Lai, CDM Smith, Walnut Creek, Calif.
Brian John Leto, Pasadena, Calif.
Edward A. Moreno, DDS, West Liberty, Iowa
Tom Napier, Dept. of State Health Services, Austin, Tex.
Bryan R. Phinney, Keller Associates, Inc., Pocatello, Idaho
Chet V. Shastri, City of Fort Wayne, Fort Wayne, Ind.
Preeti Shridhar, City of Renton, Renton, Wash.
Steve H. Via, AWWA, Washington, D.C.
Dr. June M. Weintraub, San Francisco Dept. of Public Health, San Francisco, Calif.
Jason Yoshimura, CDM, Carlsbad, Calif.

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Water Fluoridation

INTRODUCTION

The goal of this manual is to assist with the planning and operation of fluoridation systems by decision makers, design engineers, and water utility personnel. This chapter discusses fluoride occurrence, growth of community water fluoridation, and legal issues surrounding fluoridation. The regulatory requirements of community water fluoridation are also addressed, including both federal regulations and the varying approaches states have used to implement fluoridation programs. Additionally, fluoridation outside of the United States is discussed.

Fluoridation in this manual refers to the addition of fluoride to drinking water to maintain a recommended level to improve oral health. Fluoridation was named as one of the Ten Great Public Health Achievements in the 20th Century by the Centers for Disease Control and Prevention (CDC) along with the use of chlorine for disinfection of public water supplies (CDC Morbidity and Mortality Weekly Report, April 2, 1999). Control of infectious diseases has resulted from clean water and improved sanitation. Infections such as typhoid and cholera transmitted by contaminated water, a major cause of illness and death early in the 20th century, have been reduced dramatically by improved sanitation. Water fluoridation was first implemented in 1945, and in 1951, the National Research Council (NRC) of the National Academy of Sciences (NAS), the US Surgeon General, and professional organizations including the American Water Works Association (AWWA) and the American Dental Association (ADA) recommended that communities implement water fluoridation. The US Public Health Service (USPHS) recommended a range of 0.7 to 1.2 mg/L (based on annual average ambient temperature) as part of the 1962 Drinking Water Standards. In 2011, the US Department of Health and Human Services (USHHS) proposed changing the recommended fluoride level in drinking water to a single value of 0.7 mg/L. According to national health surveillance statistics reported by the USPHS and the CDC, the number of people with access to fluoridated water continues to increase and in 2012, 210.6 million people in the United States had access to fluoridated water.*

* 2012 Water Fluoridation Statistics from the US Centers for Disease Control (CDC).