

Computer Modeling of Water Distribution Systems

AWWA MANUAL M32

Third Edition



**American Water Works
Association**

Manual of Water Supply Practices — M32, Third Edition

Computer Modeling of Water Distribution Systems

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Foreword

The Engineering Modeling and Applications Committee's (EMAC) mission is to assemble and disseminate information on the use of modeling, GIS, and data management in the design, analysis, operation, and protection of water system infrastructure. The committee was formed in 1982 as the Computer Assisted Design of Water Systems Committee and was renamed the Engineering Computer Applications Committee and eventually to its current name. The Committee consists of volunteers, a liaison from the Engineering and Construction Division, and an AWWA staff advisor. The committee develops programs for the Annual Conference and specialty conferences, manuals, and other documents.

The purpose of the M32 manual is to share collective expertise on distribution system modeling so that it is better understood and applied more effectively to benefit water utilities and water customers everywhere. The manual is intended to be a basic level or primer reference manual to provide new to intermediate modelers with a basic foundation for water distribution system modeling. The manual is intended to take users through the modeling process from model development through calibration to system analysis.

The manual has in-depth discussion on:

- Model Construction and Development,
- Field Data Collection and Testing,
- Model Calibration,
- Steady State Analysis,
- Extended Period Simulation,
- Water Quality Analysis,
- Transient Analysis, and
- Tank Mixing Analysis

M32 is designed to help modelers use water models as effective tools to plan, design, operate, and improve water quality within their water distribution systems.

There have been many advancements in the computer modeling field and, together with emerging issues of the water industry, the main goal of the M32 manual update is to focus on key areas that face today's modeler and utility. Key objectives of the update have been to:

- Reorganize the manual for better flow,
- Change the manual to address recent changes in the water modeling industry, and
- Expand the manual to include key topics more relevant to today's modelers.

Chapters are organized as follows:

Chapter Title

- | | |
|---|----------------------------------|
| 1 | Introduction |
| 2 | Building and Preparing the Model |
| 3 | Hydraulic Tests and Measures |

- 4 Hydraulic Calibration (New)
- 5 Steady State Simulation
- 6 Extended Period Simulation
- 7 Water Quality Modeling
- 8 Transient Analysis (New)
- 9 Tank Mixing and Water Age (New)

The Committee is responsible for updating the M32 manual and individuals on this committee have dedicated their time and energy to update the manual to better support the water industry.

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