

Course Description Sheet

COURSE TITLE

Distribution System Basics, Materials, and Appurtenances

COURSE DURATION

1 Hour

OVERVIEW

While the delivery of drinking water is the most visible part of the distribution system, the system must be built to the higher meet peak hour demands and maximum daily demand, as well as plus fire flow requirements. This course explores the various materials and equipment utilized in the installation and maintenance of potable water of clean water distribution systems.

PREREQUISITES

No prior knowledge is required.

BEHAVIORAL OBJECTIVES

After successfully completing this course, you will be able to:

- Understand water distribution systems.
- Explain water distribution system hydraulics.
- Explain distribution systems materials, features, and design considerations.
- Describe pipe and pump materials and selection.
- Describe the installation and use of fire hydrants, as well as design considerations introduced.
- Explain the installation and use of valves.
- Explain water hammer.
- Discuss storage of water both above and below ground

COURSE OUTLINE

Chapter	Minutes
Introduction	1
Water Distribution Systems	14
General Design and Installation Considerations for Mains	12
Pipe Materials	6
Common Types of Valves and Appurtenances and Installation Considerations	9
Meters	7
Water Storage Tanks	4
Pressure Tanks and Surge Tanks	1
Tank Maintenance	2
Conclusion	1

Summary	3
Course Total	60

AVAILABILITY

This course is offered online and is available 24 hours a day, 7 days a week, 365 days a year.

TRAINING METHODOLOGY & EVALUATION

This course is self-paced online training. Review exercises reinforce the content, and students are evaluated with a multiple-choice exam. Upon completion, students are prompted to submit a course evaluation.

REFERENCES

AWWA. 2008. Distribution System Requirements for Fire Protection, 4th Edition. AWWA Manual M31. American Water Works Association.

AWWA. 2002. PVC Pipe--Design and Installation, 4th Edition: AWWA Manual M23. American Water Works Association.

AWWA. 2004. Steel Pipe: A Guide for Design and Installation, 4th Edition: AWWA Manual M11. American Water Works Association.

AWWA. 2005. C605 - AWWA Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water. AWWA.

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AWWA. 2006. Installation, Field Testing, and Maintenance of Fire Hydrants, 4th Edition: AWWA Manual M17. American Water Works Association.

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AWWA. 2008. Concrete Pressure Pipe, 3rd Edition: AWWA Manual M9. American Water Works Association.

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AWWA. 2009. Ductile-Iron Pipe and Fittings, 3rd Edition: AWWA Manual M41. American Water Works Association.

AWWA. 2009. C909 - AWWA Standard for Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 In. through 24 In. (100 mm through 600 mm) for Water, Wastewater, and Reclaimed Water Services. AWWA.

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AWWA. 2014. External Corrosion Control for Infrastructure Stability, 3rd Edition: AWWA Manual M27. American Water Works Association.

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City of Seattle, Washington. 2023. Standard Specifications for Road, Bridge, and Municipal Construction.

Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers. 2022 Edition. Ten State Standards - Recommended Standards for Water Works.

WSDOH, 2020, Water System Design Manual, Washington State Department of Health, DOH Publication 331-123, Revised June 2020

WSDOH, 2020, Water Systems Planning Guidebook, Washington State Department of Health, DOH Publication 331-068, Revised August 2020

Water Distribution System Operation and Maintenance, Fifth Edition, Office of Water Programs California State University and USEPA.

WSDOH. 2004. Cross Connection Control for Small Water Systems, DOH 331-234, Washington State Department of Health.

WSDOE and DOH. 2006. Pipeline Separation Design and Installation Reference Guide. WSDOE Pub. 06-10-029. Washington State Department of Ecology.

WSDOT and APWA. 2022. Standard Specifications for Road, Bridge, and Municipal Construction – Division 7-09: Water Mains. WSDOT Pub. M41-10. Washington State Department of Transportation.