Rehabilitation of Water Distribution Systems: Current Technologies (RV-11158)
1 hour course

Course Description

The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the most current technologies to rehabilitate water distribution systems. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to identify technologies that are used to repair, rehabilitate and replace aging water distribution systems.

Course Objectives

By the end of this course, you will be able to:

- Define three key definitions of renewal methods
- List at least 4 technologies to rehabilitate water distribution systems that safeguard the health, safety and welfare of the public
- Describe the two different methods for repairing pipes
- Identify the 4 main technologies used in trenchless pipe replacements

Introduction – 10 minutes

This course covers current renewal techniques for water distribution systems in three key areas, which include repair, rehabilitation and replacement. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to identify technologies that are used to repair, rehabilitate and replace aging water distribution systems.

- Course Overview
- Learning Objectives
- Renewal Methods
    - Repair
    - Rehabilitation
    - Replacement

Repair – 17 minutes

Repair technologies are used for small segments of pipes and, specifically, for localized problems or for poor workmanship or construction. They can be short-term or long-term in nature. The technologies used for pipe repairs can be classified into two main groups – Open Cut and Spot Repairs.

- Repair Technologies Overview
- Open Cut Repairs
- Spot Repairs
- Repair Technologies Summary

Rehabilitation – 16 minutes

If the rehabilitation is to provide only corrosion protection, or the existing pipe is only partially deteriorated, then the remaining structural strength of the existing pipe can be incorporated into the fabric of the completed system, or the rehabilitated system. In situations when the existing pipe is fully deteriorated, the existing pipe acts merely as a right of way for the installation of the structural liner.

- Rehabilitation Technologies Overview
- Spray-On Linings
- Sliplining

- Cured-in-Place Pipe
- Inserted Hose Lining
- Close-Fit Lining
- Rehabilitation Technologies Summary

Replacement – 18 minutes

Water main replacement is a primary option where renovation of a pipe is necessary. It is frequently used when a pipe does not have enough structural strength and becomes prone to failure and where precise condition assessment and residual life estimation may be costly or otherwise difficult to implement. The two broad categories of water main replacement methods are trenched construction and trenchless construction.

- Replacement Technologies Overview
- Open Cut Construction
- Trenchless Replacement
- Replacement Technologies Summary

Conclusion – 5 minutes

Water distribution renewal methods can be divided into three overall categories as we have seen through this brief course. They include pipe repair, rehabilitation and replacement as discussed in this course.

- Summary

Resources

- References