



## **Alaska Distribution System Review (10 hours)**

### **Course Syllabus**

#### **Purpose**

This course covers important topics for Distribution System Operators.

#### **Topics**

System Design and Layout  
Distribution Piping  
Water Storage  
Fire Hydrants and Valves  
Water Meters  
Pumps and Motors  
Cross-Connection Control  
Disinfection  
Corrosion Control  
Water Quality  
Water Main Installation and Backfilling  
Safety  
Regulations  
Hydraulics

#### **CEUs (Contact Hours)**

Upon completion of this course, you will receive a certificate for 1.0 CEUs (10 contact hours).

#### **Completion Requirements**

In order to receive [IACET CEU](#) credit for this course, you must complete the following:

- Complete each individual lesson module by watching the video lecture, completing the lesson handout, and passing the lesson quiz.

Once you have completed all of these elements, your course completion certificate will be automatically placed into your learning account for printing/downloading. It will remain in your learning account even after your course access has expired.

#### **Learning Objectives**

##### System Design and Layout

Upon completion of this lesson the student will be able to:

- Define system design and layout vocabulary
- Identify what makes a water system “public”
- Identify the different types of public water systems
- Describe distribution system design considerations
- Describe different system layout designs

### Distribution Piping

Upon completion of this lesson the student will be able to:

- Define piping vocabulary
- Identify the four main pipe selection considerations
- Describe the construction material and construction characteristics of common pipe
- Describe different pipe joints and their applications

### Water Storage

Upon completion of this lesson the student will be able to:

- Define water storage vocabulary
- Identify the purpose of water storage
- Describe the differences between various types of storage facilities
- Describe how storage facilities are constructed

### Hydrants and Valves

Upon completion of this lesson the student will be able to:

- Define hydrants and valves vocabulary
- Identify the four main types of hydrants
- Describe gate valve construction and use
- Describe globe valve construction and uses
- Describe ball valve construction and use
- Describe butterfly valve construction and uses
- Describe relief valve construction and uses
- Describe pressure regulating valve construction and uses
- Describe air and vacuum relief valve construction and uses
- Describe altitude valve construction and uses

### Water Meters Review

Upon completion of this lesson the student will be able to:

- Define water meters vocabulary
- Describe the construction and operation of the different types of water meters
- Describe the normal application of the various water meters

### Pumps and Motors Review

Upon completion of this lesson the student will be able to:

- Define pumps and motors vocabulary
- Describe the construction and operation of velocity type pumps
- Describe the functions of the main components of a centrifugal pump
- Describe the theory of operation and common uses of positive displacement pumps
- Describe the differences between the various types of single and three-phase motors

### Cross-Connection Control Review

Upon completion of this lesson the student will be able to:

- Define cross-connection control vocabulary
- Describe the purpose of cross-connection control
- Describe potential cross-connections

- Describe backflow control devices

#### Distribution Disinfection Review

Upon completion of this lesson the student will be able to:

- Define distribution disinfection vocabulary
- Describe the different characteristics of disinfecting agents
- Identify the different disinfection methods for water mains
- Identify different disinfection methods for water storage facilities

#### Corrosion Control Review

Upon completion of this lesson the student will be able to:

- Define corrosion control vocabulary
- Recall the factors affecting corrosion
- Describe the tools used to control corrosion
- Identify the LCR (Lead and Copper Rule) requirements

#### Water Quality Review

Upon completion of this lesson the student will be able to:

- Define water quality vocabulary
- Identify types of samples collected
- Identify sample custody requirements
- Describe which water quality parameters are monitored
- Describe what different water quality parameters indicate
- Describe the different public notification requirements

#### Water Main Installation and Backfilling

Upon completion of this lesson the student will be able to:

- Define water main installation and backfilling vocabulary
- Describe proper installation preparation
- Describe safe trenching practices
- Describe proper pipe installation
- Describe proper backfill placement, compaction, and tamping
- Recall key information about water saturation, mounding, and equipment

#### Safety Review

Upon completion of this lesson the student will be able to:

- Define safety vocabulary
- Describe trenching safety requirements
- Describe confined space safety requirements
- Describe how to set up a traffic diversion

#### Regulations

Upon completion of this lesson the student will be able to:

- Explain why the Safe Drinking Water Act was passed by Congress
- Recall why amendments to the SDWA were passed
- Recall the classes of public water systems covered by the Act
- Recall the principal requirements of the Act

- Recall special regulations of the Act that have been enacted by US EPA

### Hydraulics

Upon completion of this lesson the student will be able to:

- Define hydraulics vocabulary
- Recall key equivalents related to pressure and head
- Demonstrate how to solve simple force calculations
- Recall types of Head and Head Loss

### **Support**

Students can contact our student support staff with any course-related, content-related, or technology-related inquiries.

Our office hours are Monday-Thursday, 9-5 CT, and Friday 9-12 CT.

### **Contact Info**

Phone Number: (661) 874-1655

General Course Inquiries: [Info@americanwatercollege.org](mailto:Info@americanwatercollege.org)

