

Water Systems Operation and Maintenance Video Training Series
Office of Water Programs
California State University, Sacramento
(3.0 Continuing Education Units)

COURSE DESCRIPTION

This course is designed to prepare water system operators to safely and cost-effectively operate and maintain drinking water systems. The objective of the course is to provide operators with knowledge, skills, abilities, and judgment in seven separate, critical areas of water treatment and distribution.

This series of videos provides needed training for operators of public water systems. Operators have the responsibility of ensuring that safe and pleasant drinking water is delivered to everyone's tap. The information provided in these videos focuses on seven critical areas and will help operators do their jobs with greater knowledge and efficiency.

COURSE OUTLINE

The course uses *Water Systems Operation and Maintenance Video Training Series* training videos and Learning Book.

Chapter 1 – Wellhead Protection

Identify sources of contamination and take corrective action

- Protect a well from contamination
- Maintain, inspect and troubleshoot a well and pumping station
- Design and implement a wellhead protection program

Chapter 2 – Hypochlorination

- Inspect, troubleshoot, maintain and safely operate hypochlorinators
- Safely prepare and mix chlorine solutions
- Administer a hypochlorination safety program

Chapter 3 – Water Storage Tanks

- Identify, inspect and safely operate a storage tank
- Collect representative samples
- Troubleshoot problems and protect and disinfect a storage tank

Chapter 4 – Sampling and Testing

- Collect representative samples, complete chain-of-custody, and collect and measure chlorine residual samples
- Collect and measure chlorine residual samples
- Properly maintain and store records

Chapter 5 – Inspecting a Pump Station

- Describe the purpose of distribution system pumps and well pumps
- Safely inspect and troubleshoot pump control panels
- Safely inspect and troubleshoot pump systems

Chapter 6 – Distribution Systems

- Identify components of a water distribution system and system valves
- Detect leaking pipes and locate buried pipes
- Repair by replacing a pipe section – cutting, disinfecting, and connecting
- Explain the importance of a cross-connection control program

Chapter 7 – Approaches to Compliance with Standards

- Identify areas of non-compliance with drinking water standards
- Develop and use a decision tree to assess alternatives
- Apply life cycle cost comparisons of alternatives
- Identify multiple alternatives for achieving compliance

TIME ASSIGNMENT

Video: The course uses training video, organized into seven separate topic areas. Each video topic is complemented by a chapter in the Learning Book *Water Systems Operation and Maintenance Video Training Series*. There is a total of 270 minutes of video, and it is expected that a student will watch a video twice to grasp the content. Projected viewing time for each minute of video is two minutes.

Text Pages: The course uses the Learning Book *Water Systems Operation and Maintenance Video Training Series* (246 pages). The average word count on a page from the training manual is 950 words. Some pages contain tables, graphs, or illustrations to enhance the presentation of information. It is assumed that readers spend equal time studying tables, graphs, and illustrations as they would spend reading the equivalent amount of text. Therefore, each page is assumed to contain the equivalent of 950 words. Accepted average adult reading speed is 200 – 250 words per minute. Therefore, each page is projected to require four minutes of student time for each reading.

Math problems: The course contains 19 wastewater treatment math problems. Projected average time to solve each math problem is three minutes.

Objective test questions: The course contains 277 objective test questions. Projected average response time is one minute per question.

Component	Minutes per Component Unit	Number of Component Units	Time to Complete Units
Video	2	270	540
Text pages	4	246	984
Math problems	3	19	57
Objective test questions	1	277	277
Total (minutes)			1,858 minutes
Total (hours)			31 hours