

Pretreatment Facility Inspection
California State University, Sacramento
(7.5 Continuing Education Units)

COURSE DESCRIPTION

This course is designed to train pretreatment facility inspectors in employing enforcement and advisory actions to regulate the disposal of industrial wastewater into the sanitary wastewater collection system; protect the physical structures and ensure the safety of operation and maintenance personnel of the wastewater collection and treatment systems; protect the health and safety of the public and the environment; achieve compliance with pretreatment regulations as required under the General Pretreatment Regulations, Categorical Standards, and local source control ordinances; and prevent the illegal discharge of industrial pollutants into wastewater collection and stormwater collection systems.

COURSE OUTLINE

This manual provides pretreatment facility inspectors with the knowledge and skills to safely sample, monitor, and inspect pretreatment facilities for pollution prevention and regulatory compliance.

Chapter 1, Introduction to Pretreatment Facility Inspection

Learning Objectives

1. Explain how pretreatment regulations protect communities, workers, equipment, and the environment.
2. Describe the role pretreatment facility inspectors play in industry compliance with pretreatment regulations.
3. Identify pretreatment technologies and source control methods that are appropriate to reduce the generation of contaminants or remove contaminants from wastestreams at a variety of industries, including food and beverage establishments and dental offices.
4. Understand basic math concepts and solve common math problems using those concepts.

The main purpose of this chapter is to give an overview of pretreatment facilities and processes, regulations, and inspection procedures.

Chapter 2, Safety

Learning Objectives

1. Describe the safety equipment and supplies needed to conduct an inspection.
2. Identify a confined space and describe testing the atmosphere within one, as well as entering, working in, and leaving a confined space safely.
3. Identify personal protective equipment for both hazardous materials and physical hazards.
4. Describe collecting samples while following safe procedures.

The main purpose of this chapter is to train inspectors in conducting inspections and sampling using safe procedures and proper equipment.

Chapter 3, Wastewater Characterization and Flow Monitoring

Learning Objectives

1. Describe the types of industrial wastewaters discharged to collection systems from manufacturing processes.

2. Explain the difference between concentration and mass of pollutants.
3. Identify the sources of industrial wastewater.
4. Describe the effect of industrial wastewater on the pretreatment and collection systems and on the POTW treatment and disposal systems.
5. List the reasons for measuring flow.
6. Identify the conditions and appropriate instrumentation for measuring flows in open channels, the types of open-channel flowmeters, and describe how to determine the accuracy of open-channel flowmeters.
7. Identify the various types of closed-pipe flow-metering systems.
8. Describe flow-proportioned pacing of automatic samplers.
9. List approximate measurement methods.

The main purpose of this chapter is to train inspectors in recognizing characteristics of industrial wastewater from different sources and in measuring industrial wastewater flow.

Chapter 4, Inspection and Sampling

Learning Objectives

1. Describe pretreatment facility monitoring and inspections and their importance; how to schedule, prepare, and perform inspections following approved safety procedures; and using appropriate QA/QC procedures.
2. Describe engaging industrial contacts, and be able to discuss violations and complaints with industrial representatives.
3. Describe installing and monitoring field sensors to measure constituents in industrial wastestreams.
4. Describe pollutants, sources, and effects of stormwater in industrial environments.
5. Describe operational and structural source control BMPs for stormwater management in industrial environments, and outline treatment BMP details.
6. Describe a sampling program, its sampling plan, goals, and techniques; explain the preparation process for collecting field samples at pretreatment sites and in the collection system; and explain documenting sample collection and transportation procedures.
7. Describe the collecting, labeling, preserving, and transporting of samples to a laboratory for analysis, and describe the sample analysis in the field using field test kits.
8. Explain tracing an illegal discharge through a collections system to the source.

The main purpose of this chapter is to train inspectors to conduct pretreatment facility inspections and sampling.

Chapter 5, Pretreatment Program Management

Learning Objectives

1. Explain the primary aspects of a pretreatment program plan and how to successfully implement the program.
2. Detail the primary administrative aspects of a pretreatment program.
3. Describe the important aspects of the EPA's regulations, standards, and categories.
4. Describe the contents and significance of a wastewater ordinance.
5. Explain planning and implementing a response procedure for an emergency.

The main purpose of this chapter is to train inspectors in implementing a pretreatment program that meets applicable regulations and standards.

TIME ASSIGNMENT

Text pages: The content from the training manual used in this course, *Pretreatment Facility Inspector*, includes 684 pages. The average word count on a page from the training manual is 531 words. The training manual used for this course contains text, tables, graphs, illustrations, math example problems, section questions, and chapter review questions to enhance the presentation of information and the student learning experience. The course is designed for students to spend the same amount of time reading the tables, graphs, and illustrations as they spend reading the equivalent amount of related chapter text. Therefore, each page is assumed to contain the equivalent of 531 words. The average reading speed is 130 words per minute; therefore, each page is projected to require 4 minutes of student time for each reading.

Math example problems: The course contains 134 math example problems. The projected average time to solve each math problem is 3 minutes.

Section questions: The course contains 286 section questions, located in the “Check Your Understanding” sections integrated throughout the chapter text. These questions enable students to self-assess their understanding of a section’s material before proceeding to the next section. The projected average response time is 2 minutes per question.

Chapter review questions: The course contains 205 review questions, located in the “Chapter Review” at the end of each chapter. Question types include fill-in, multiple choice, and matching. The projected average response time is 2 minutes per question.

Objective test questions: The course contains 190 test questions. There is 1 objective test per chapter. The projected average response time is 2 minutes per question.

Course component	Number of component units	Minutes required to complete component unit	Total time assignment for component
Text pages	684 ×	4 =	2,736
Math example problems	134 ×	3 =	402
Section questions	286 ×	2 =	572
Chapter review questions	205 ×	2 =	410
Objective test questions	190 ×	2 =	380
			4,500 minutes
			75 hours