Pretreatment Facility Inspection
Office of Water Programs
California State University, Sacramento
(9.0 Continuing Education Units)

Objective

This course is designed to train inspectors to safely and efficiently inspect industrial pretreatment facilities.

Scope

The purpose of this course is to train operators to become pretreatment facility inspectors and to improve the knowledge and skills of current inspectors. The course stresses duties and responsibilities, including ethical responsibilities, of pretreatment inspectors. Topics covered include development and application of regulations, sources of industrial wastewater, source control processes and procedures, monitoring wastewater flows, and collecting and transporting representative samples. Operators will also learn how to respond to emergencies, limit the impact of an incident, and take enforcement action. Administrative topics include public relations; planning and funding an industrial waste pretreatment program; developing a database management program; and implementing an industrial waste monitoring program. Detailed procedures are provided to help operators prepare for inspections. Also included are lists of pertinent questions that should be answered when inspecting various types of industries.

Pretreatment Facility Inspection, Chapter 1, The Pretreatment Facility Inspector

Following completion of Chapter 1, students should be able to:

1. Describe a pretreatment facility.
2. Describe the purpose of a pretreatment facility inspection program.
3. Explain the importance of the work performed by pretreatment facility inspectors.
4. List the major duties performed by inspectors.
5. Explain how to become a pretreatment facility inspector.
6. Find sources of further training information on how to do the jobs performed by inspectors.

This chapter is designed to fire up the students' interest in being pretreatment facility inspectors and learning how to do the job properly and safely.

Chapter 2, Pretreatment Program Administration

Following completion of Chapter 2, students should be able to:

1. Describe the main administrative aspects of a pretreatment program.

2. Determine the sources of funding for a pretreatment program.
3. Issue and review industrial waste discharge permits,
4. Evaluate the applications of a database management system for their industrial waste program.
5. Establish a public relations program.
6. Perform their duties in an ethical manner.

The main purpose of this chapter is to provide inspectors with a knowledge of how to administer a pretreatment facility inspection program.

Chapter 3, Development and Application of Regulations

Following completion of Chapter 3, students should be able to:

1. Identify the legal authorities involved in a pretreatment program.
2. List the important aspects of EPA's regulations.
3. Describe the various types of EPA standards.
4. Outline the development of categorical limits.
5. Identify types of industries and facilities subject to the categorical program.
6. Explain the electroplating and metal finishing regulations and their differences.
7. Describe the contents and significance of a Wastewater Ordinance.
8. Plan or review a pretreatment program.
9. Explain the role of local authorities in the control of pollutants.
10. Establish and implement an industrial waste enforcement program.
11. Keep current with changing regulations.

The main purpose of this chapter is to provide pretreatment inspectors and program managers with a background of how the rules and regulations we work with have developed historically. This information will be very helpful when explaining applicable rules and regulations to industrial dischargers.

Chapter 4, Inspection of a Typical Industry

Following completion of Chapter 4, students should be able to:

1. Schedule inspections of pretreatment facilities.
2. Prepare for an inspection.
3. Meet and deal with various types of industrial contacts.
4. Enter an industry for an inspection.
5. Inspect an industrial pretreatment facility, including the outfall, effluent treatment equipment and in-plant wastewater control equipment.
6. Discuss violations and complaints with industrial representatives.
7. Write reports describing results of inspections.
8. Conduct an inspection following approved safety procedures.

The main purpose of this chapter is to teach inspectors how to approach an industry when appearing at an industrial site to conduct an inspection. The chapter discusses how to schedule, prepare for, and conduct an inspection, and how to meet with industry contacts, enter a facility and discuss the inspector's findings.

Chapter 5, Safety in Pretreatment Inspection and Sampling Work

Following completion of Chapter 5, students should be able to:

1. Determine safety equipment and supplies needed to conduct an inspection.
2. Drive safely to and from inspection sites.
3. Identify a confined space.
4. Test the atmosphere in a confined space.
5. Enter, work in and leave a confined space safely.
6. Identify and protect themselves from hazardous materials.
7. Identify and protect themselves from physical hazards.
8. Collect samples following safe procedures.

The main purpose of this chapter is to make inspectors aware of the potential hazards they may encounter in performing their duties and the safe procedures they must follow to avoid being the victims of accidents.

Chapter 6, Sampling Procedures for Wastewater

Following completion of Chapter 6, students should be able to:

1. Define the goal of each sampling occasion and select appropriate sampling techniques.
2. Prepare for going into the field and collecting samples at pretreatment sites and in sewers.
3. Collect, label and preserve samples.
4. Transport samples to a laboratory for analysis.
5. Analyze samples in the field using field test kits.
6. Document the sample collection and transportation procedures.
7. Install and monitor field sensors to measure constituents in industrial wastestreams.
8. Trace an illegal discharge back up a sewer to the source.
9. Use appropriate quality assurance/quality control (QA/QC) procedures to minimize sampling errors.

The main purpose of this chapter is to teach inspectors how to collect wastewater samples and properly label, preserve and transport them to a laboratory for analysis.

Chapter 7, Wastewater Flow Monitoring

Following completion of Chapter 7, students should be able to:

1. List the reasons for measuring flows.
2. Identify the conditions for measuring flows in open channels.
3. Describe the various types of open-channel flowmeters.
4. Select the appropriate instrumentation for open-channel flow measurements.
5. Determine the accuracy of open-channel flowmeters.
6. Identify the various types of closed-pipe flow metering systems.
7. Describe flow-proportioned pacing of automatic samplers.
8. List approximate measurement methods.

The main purpose of this chapter is to acquaint inspectors with the various types of flowmeters, their limitations, and factors that could produce inaccurate results.

Chapter 8, Industrial Wastewaters

Following completion of Chapter 8, students should be able to:

1. Describe the types of industrial wastewaters discharged to sewers.
2. Explain the difference between concentration and mass of pollutants.
3. Outline various types of manufacturing processes and the wastewaters generated from each process.
4. Identify the sources of industrial wastewaters and describe their effects on the pretreatment system and the POTW collection, treatment, and disposal systems.

The main purpose of this chapter is to teach pretreatment facility inspectors the sources and types of industrial wastewaters discharged to sewers and the effects of these wastewaters on the POTW collection, treatment and disposal systems.

Chapter 9, Pretreatment Technology (Source Control)

Following completion of Chapter 9, students should be able to:

1. Identify sources and discharge characteristics of industrial wastestreams.
2. Establish treatment and discharge objectives.
3. Select and evaluate methods of pollution prevention and source control.
4. Identify and evaluate options for treatment of wastestreams.
5. Explain facility operational considerations.
6. Evaluate source monitoring (compliance and operational) programs.

The main purpose of this chapter is to acquaint pretreatment inspectors with the methods of source control and options available to industry for treatment of wastestreams.

Chapter 10, Industrial Inspection Procedures

Following completion of Chapter 10, students should be able to:

1. Explain to POTW officials and the regulated community the intent of pretreatment facility inspections and the importance of industrial inspections and monitoring activities.
2. Perform inspection tasks in a safe manner.
3. Prepare for and conduct on-site industrial inspections.
4. Inspect the following types of industries:
    1. Electroplating and metal finishing
    2. Petroleum refineries
    3. Pulp and paper industries
    4. Chemical manufacturing
    5. Food processing
    6. Dairy products
    7. Rendering
    8. Small businesses
    9. Centralized waste treatment facilities

The main purpose of this chapter is to acquaint pretreatment inspectors with specific procedures that should be followed when inspecting several different types of industrial facilities. The chapter explains not only what to look for but also how to document an inspection.

Chapter 11, Emergency Response

Following completion of Chapter 11, students should be able to:

1. Plan a response procedure for an emergency.
2. Determine who should be involved in an emergency.
3. Respond to an emergency.
4. Identify the material.
5. Determine the affected area.
6. Limit the impact of the incident.
7. Prepare enforcement proceedings.

The main purpose of this chapter is to make pretreatment inspectors aware of what needs to be done during an emergency, who should do it, and the role of a pretreatment inspector during an emergency.

TIME ASSIGNMENT

Text Pages: The course uses the training manual *Pretreatment Facility Inspection* (894 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 142 wastewater treatment math problems. Projected average time to solve each math problem is three minutes.

Questions: The course contains 323 assessment questions integrated into the reading. Each question requires a written response consisting one or more sentences. Projected average review question time is two minutes per question.

Discussion questions: The course contains 164 discussion questions. Each discussion question requires a written response consisting one or more sentences. Projected average discussion question time is two minutes per question.

Review questions: The course contains 172 comprehensive review questions. Projected average response time is one minute per question.

Objective test questions: The course contains 348 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
Text pages	4	716	2,864
Math problems	3	216	648
Questions	2	528	1,056
Discussion questions	2	170	340
Review questions	1	178	356
Objective test questions	1	496	496
Total (minutes)			**5,668**
Total (hours)			**94**