

Wastewater Treatment Plant Operator Certification Training Instructor Guide



Module 22: Industrial Pretreatment Programs

This course includes content developed by the Pennsylvania Department of Environmental Protection (Pa. DEP) in cooperation with the following contractors, subcontractors, or grantees:

The Pennsylvania State Association of Township Supervisors (PSATS)
Gannett Fleming, Inc.
Dering Consulting Group
Penn State Harrisburg Environmental Training Center

A Note to the Instructor

Dear Instructor:

The primary purpose of *Module 22: Industrial Pretreatment Programs* is to provide a brief history of the National Pretreatment Program, introduce participants to the legal authorities necessary to develop and operate a Pretreatment Program, and familiarize participants with the methods POTWs use to identify and monitor Industrial Users, enforce the regulations, and report to authorities. This module has been designed to be completed in approximately 3 hours, but the actual course length will depend upon content and/or delivery modifications and results of course dry runs performed by the DEP-approved sponsor. The number of contact hours of credit assigned to this course is based upon the contact hours approved under the DEP course approval process. To help you prepare a personal lesson plan, timeframes have been included in the instructor guide at the Unit level and at the Roman numeral level of the topical outline. You may need to adjust these timeframes as necessary to match course content and delivery modifications made by the sponsor. Please make sure that all teaching points are covered and that the course is delivered as approved by DEP.

Web site URLs and other references are subject to change, and it is the training sponsor's responsibility to keep such references up to date.












Delivery methods to be used for this course include:

- Lecture
- Discussion Questions
- Charts and Tables
- PowerPoint Presentation

To present this module, you will need the following materials:

- One workbook per participant
- Extra pencils
- Laptop (loaded with PowerPoint) and an LCD projector **or** overheads of presentation and an overhead projector
- Screen
- Flip Chart
- Markers

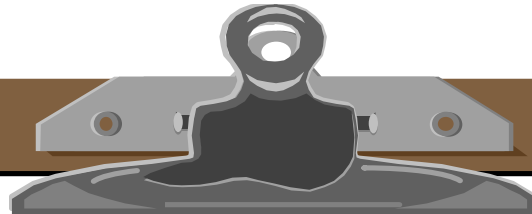
Icons to become familiar with include:

Participant Workbook	Instructor Guide
 Exercise/Activity	Icons used in the Participant Workbook also apply to the Instructor Guide. Additional icons include: Ans: Answer to exercise, case study, discussion, question, etc.
 Case Study	
 Discussion Question	
 Calculation(s)	
 Quiz	
 Key Definition(s)	
 Key Point(s)	
	 PowerPoint Slide
	 Overhead
	 Flip Chart
	 Suggested "Script"

Instructor text that is meant to be general instructions for the instructor is designated by being written in script font and enclosed in brackets. For example:

[Ask participants if they have any questions on how to read the table. Answer any questions participants may have about how to read the table.]

If your module includes the use of a PowerPoint presentation, below are some helpful controls that you may use within the Slide Show.



PowerPoint Slide Show Controls

You can use the following shortcuts while running your slide show in full-screen mode.

To	Press
Advance to the next slide	N, ENTER, or the SPACEBAR (or click the mouse)
Return to the previous slide	P or BACKSPACE
Go to slide <number>	<number>+ENTER
Display a black screen, or return to the slide show from a black screen	B
Display a white screen, or return to the slide show from a white screen	W
Stop or restart an automatic slide show	S
End a slide show	ESC
Return to the first slide	Both mouse buttons for 2 seconds
Change the pointer to a pen	CTRL+P
Change the pen to a pointer	CTRL+A
Hide the pointer and button temporarily	CTRL+H
Hide the pointer and button always	CTRL+L
Display the shortcut menu	SHIFT+F10 (or right-click)
Erase on-screen annotations	E
Go to next hidden slide	H
Set new timings while rehearsing	T
Use original timings while rehearsing	O
Use mouse-click to advance while rehearsing	M

INSTRUCTOR GUIDE

INTRODUCTION OF MODULE: 5 minutes



Display Slide 1—Module 22: Industrial Pretreatment Programs.

[Welcome participants to “Module 22 – Industrial Pretreatment Programs.” Indicate the primary purpose of this course is to provide a brief history of the National Pretreatment Program, introduce participants to the legal authorities necessary to develop and operate a Pretreatment Program, and familiarize participants with the methods POTWs use to identify and monitor Industrial Users, enforce the regulations, and report to authorities.]

[Introduce yourself.]

[Provide a brief overview of the module. Alert participants to the fact that this module will provide an introduction to the topic. Training events of several days’ duration cover the topic much more fully.]



This module contains 5 units. On page i, you will see the topical outline for **Unit 1 – Introduction to the National Pretreatment Program** and **Unit 2 – Regulatory Authority**.

[Briefly review outline.]



If you turn the page, you will see the topical outline for **Unit 3 – Identifying and Monitoring Industrial Users**, **Unit 4 – Enforcement Implementation**.

INSTRUCTOR GUIDE

[Continue to briefly review outline.]



Turn the page now and you will see the outline for **Unit 5 – Recordkeeping and Reporting Requirements**.

INSTRUCTOR GUIDE

[Finish reviewing the outline.]

[This page was intentionally left blank.]

INSTRUCTOR GUIDE

UNIT 1: 30 minutes



Display Slide 2—Unit 1: Introduction to the National Pretreatment Program.



At the end of this unit, you should be able to:

- Identify the historical basis for the National Pretreatment Program.
- Explain the general regulatory structure of the National Pretreatment Program.
- List three prohibited discharges under the National Pretreatment Program.
- Describe what a categorical pretreatment standard is under the National Pretreatment Program.

OVERVIEW: 10 minutes

Regulatory History



In an attempt to control the discharge of pollution into our nation's waterways, a number of legislative initiatives were passed throughout the early years of the twentieth century. However, none were very effective in reducing pollutant discharges until the legislation of the 1970s.

The birth of the Environmental Protection Agency, or EPA, in December 1970 signaled a change in mindset for controlling pollution by establishing a single government agency with direct responsibility for administering all major environmental laws.

With the momentum building to restore and protect the quality of our nation's water resources, Congress passed Public Law 92-500, the Federal Water Pollution Control Act Amendments of 1972 in October of that year. This law, which was commonly referred to as the Clean Water Act, was designed to clean up the nation's waterways from past pollution and establish a program to minimize future pollution.

[Review information in the workbook.]



EPA was created to consolidate the federal government's environmental regulatory activities into a single agency. Overall, 15 components from 5 executive departments and independent agencies were consolidated to form the EPA. Therefore, EPA's authority has a broad scope. The federal water pollution control program was transferred to EPA from the Department of the Interior.

Currently, the CWA is only one of 10 comprehensive environmental protection laws administered by the EPA.

Regulatory Structure



Although the CWA provided an opportunity for the federal government to be involved in pollution control, effective implementation of the program would require a partnership among all levels of government.

We will discuss the responsibilities of each level of government in Unit 2. Let's just note the highlights of each level's authority here.

[Review information in the workbook.]



Before we get into a further discussion about these levels, I want to first provide a brief overview of the Pretreatment Regulations. Turn the page now.

General Pretreatment Regulations



First, let's ask what pretreatment means in the context we are discussing.



*[Review the definition of **pretreatment**.]*



You see that pretreatment can include a wide range of activities and the type of pretreatment that is appropriate will vary from industry to industry because the pollutants vary for each industry.



Now we can take a look at the objectives of the General Pretreatment Regulations.

[Review information in the workbook.]



A large part of the General Pretreatment Regulations is devoted to a description of the responsibilities that have been established for federal, state, and local governments and industries to implement the pretreatment regulations. In addition, the regulations establish mechanisms by which the various levels of authority can manage the process of implementing the regulations.

INSTRUCTOR GUIDE

PRETREATMENT STANDARDS: 20 minutes



A variety of pretreatment standards have been promulgated. We will explore this topic next.

The Pretreatment Standards are one aspect of the General Pretreatment Regulations that relate specifically to quantitative and qualitative characteristics of industrial wastewater discharges.



Display Slide 3 – Pretreatment Standards.



Generally, Pretreatment Standards include...

[Review information on the PowerPoint slide. Click to display each of the three bulleted points separately.]

Prohibited Discharge Standards



There are *general* and *specific* discharge prohibitions. The general prohibitions, as one might expect, refer to any pollutant that would impact the POTW's performance. The specific prohibitions address individual pollutants in more detail.

[Review information in the workbook.]

Categorical Pretreatment Standards



*[Review the definition of **categorical pretreatment standards**.]*



[Emphasize the key point.]



For those industries that are regulated by a categorical standard, the standard generally stipulates a mass or concentration limitation on the discharge to a POTW of specific pollutants associated with that category. Compliance is generally measured or calculated at the categorical process discharge point, and not at the end of pipe discharge point for the industrial facility. However, because some facilities only have accessible monitoring points at locations downstream of combined categorical and non-categorical wastewater discharges, the calculation of the pollutant load for regulatory purposes can sometimes get complicated. We will touch on this topic briefly in Unit 3.

[Review information in the workbook.]



Figure 1.1 shows the table of contents for the categorical standard for the metal finishing point source category.

Let's take a little time to explore the content of this standard, which is typical of what you might see in many of the categorical standards.

The standard includes a description of the metal finishing category. Other standards, where appropriate, also include subparts with descriptions of the specific processes that are regulated by the standard. Also included are pertinent definitions and monitoring requirements. The standard also presents effluent standards (433.13, 433.14, and 433.16) for direct dischargers in addition to the pretreatment requirements for indirect dischargers. For this course we are obviously most concerned about the pretreatment requirements, which are broken down into standards for existing sources (433.15) and standards for new sources (433.17). Let's explore the content of Section 433.15, Pretreatment Standards for Existing Sources.



Refer now to Figure 1.2, which presents Section 433.15, Pretreatment Standards for Existing Sources.

Note that the categorical standard refers to the requirements imposed by the General Pretreatment Regulations. In addition, the categorical standard imposes both maximum daily and monthly average discharge limitations on several pollutants that are characteristic of the metal finishing industry, primarily inorganic pollutants.

TTO refers to Total Toxic Organics, which is a list of over 100 organic chemicals on EPA's priority pollutant list. The TTO limit is a summation of the concentrations of all the pertinent TTO. Note that for monitoring purposes, the metal finisher may be allowed to substitute a certification in lieu of monitoring that states that TTO have not been discharged by the facility and that the facility is implementing the required toxic organics management plan. However, if monitoring for TTO is required, the pertinent TTO may be fewer than the complete list if the metal finisher can reasonably assert that certain TTO are not expected to be present in the wastewater discharge.

For reference, amenable cyanide refers to cyanide that is amenable to alkaline chlorination.

[Finish reviewing the part of Figure 1.2 that continues onto this page. Depending on the experience of the class, the instructor may also consider a brief discussion of the rationale behind each categorical standard:]



The basis for the requirements in each of the categorical standards is a survey and assessment of numerous companies operating within each specific industrial category. The data gathered on the operations and wastewater for the companies evaluated in the assessment is compiled in a development document specific for each industrial category and subcategory. This development document details the basis and rationale for the discharge requirements presented in each of the categorical standards.

Local Limits



We will have a detailed discussion of local limits in Unit 2. For now, we will just familiarize ourselves with the concept.



[Review the definition of local limits.]

[Review information in the workbook.]



This concludes the overview and background of the Pretreatment Program. In order to implement the program, regulatory authority must be granted to a local agent. In Unit 2, we will learn more about this authority.

INSTRUCTOR GUIDE

[Have the participants review the Key Points on this page.]



Exercise for Unit 1 – Introduction to the National Pretreatment Program

1. NPDES is an abbreviation for National Pollution Discharge Elimination System.
2. POTW is an abbreviation for Publicly Owned Treatment Works.
3. List the four objectives of the General Pretreatment Regulations
 - a. Minimizing the mass of pollutants that pass through a POTW into a receiving stream.
 - b. Preventing or minimizing any interference with a POTW's treatment processes.
 - c. Preventing or minimizing the mass of pollutants contained in sewage sludge.
 - d. Encouraging recycling of wastewaters and sludge.
4. List three discharges prohibited under the National Pretreatment Program.

Answers may vary. See page 1-4.

INSTRUCTOR GUIDE

UNIT 2: 55 minutes



Display Slide 4—Unit 2: Regulatory Authority.



At the end of this unit, you should be able to:

- Identify three levels of regulatory authority for administering a Pretreatment Program.
- Describe how Pretreatment Program authority is established for any state.



Display Slide 5 – Unit 2: Regulatory Authority (continued).



The last of the objectives for Unit 2 include:

- Identify three mechanisms by which local authority manages industrial dischargers.
- Differentiate between a sewer use ordinance and an Industrial User permit.
- Discuss why local limits may be required by a local authority.

INSTRUCTOR GUIDE

FEDERAL AUTHORITY: 10 minutes

National Pretreatment Standards



There are three types of government authorities: federal, state, and local. One of the federal responsibilities includes developing and modifying the pretreatment standards.



*[Review the definition of **Indirect Discharge**.]*

[Review information in the workbook.]

Approval Authority for Non-authorized States



A second federal responsibility involves approving, or acting instead of, state authorities.

[Review information in the workbook.]



[Emphasize the key point.]

Monitoring Implementation and Initiating Enforcement



A third federal responsibility is to monitor program implementation and initiate enforcement. The General Pretreatment Regulations recognize that regulations without consistent and adequate enforcement authority are not effective.

[Review information in the workbook.]



Figure 2.1 provides a listing of the roles and responsibilities for various authorities.



EPA exercises its authority through its headquarters as well as through its regional offices. In general, EPA headquarters is responsible for development and modification of regulations, although technical guidance, policy statements, and enforcement can also be responsibilities of EPA headquarters.

EPA regional offices are generally more involved in the hands-on administration of state and local Pretreatment Programs including oversight and enforcement activities. However, guidance and policies are also issued at the regional level. Pennsylvania is located within the purview of EPA Region III.

The chain of authority includes states with authorized pretreatment programs. Such states interface with EPA and provide direct oversight of local pretreatment programs, including program approval, technical guidance, general oversight, and enforcement as required. Since Pennsylvania has not been authorized to administer pretreatment programs, EPA Region III provides that function in Pennsylvania.

The local authorities with approved pretreatment programs are responsible for directly administering the pretreatment program with the industrial users. As such, local authorities are the first line of communication with the industrial users and are directly responsible for ensuring that the industrial users are aware of their responsibilities and that they are in compliance with all pretreatment requirements, including local limits, if required.

INSTRUCTOR GUIDE

STATE AUTHORITY: 10 minutes

Establishing State Approval Authority



Thirty-four states (as of June 2004) have EPA-approved Wastewater Pretreatment Programs and, therefore, these states are responsible for implementation and enforcement of the programs. These states rely on state regulations for their legal authority to implement Pretreatment Programs.

[Review information in the workbook.]

State Discharge Limits

[Review information in the workbook.]

NPDES Permits if Authorized

[Review information in the workbook.]



[Emphasize the key point.]

INSTRUCTOR GUIDE

LOCAL AUTHORITY: 35 minutes

Legal Authority



As a Control Authority, a POTW must have the legal authority, through state law, to implement the requirements of the Pretreatment Program. The state must enable the local site to act so that the regulations can be implemented, monitored, and enforced.

[Review information in the workbook.]



[Emphasize the key point.]

Sewer Use Ordinance



A Sewer Use Ordinance establishes pretreatment requirements for all users and details how the Pretreatment Program will be administered and enforced. The Sewer Use Ordinance must detail the scope of authority.

[Review information in the workbook.]

INSTRUCTOR GUIDE



[Emphasize the key point.]



Figure 2.2 presents the Table of Contents for EPA's Model Sewer Use Ordinance. You can see how completely it presents the guidelines for each area of responsibility.

[Read through each item of the Model Sewer Use Ordinance so the class will better understand the broad scope of the document and the level of detail and amount of effort that is involved not only in developing the Sewer Use Ordinance itself but in the implementation of the requirements.]

[If time permits, answer questions concerning the Model Sewer Use Ordinance.]

[This page is a continuation of Figure 2.2.]

[This page is a continuation of Figure 2.2.]

[This page is a continuation of Figure 2.2.]

INSTRUCTOR GUIDE

[This page is a continuation of Figure 2.2.]

[Although the Table of Contents is generally self-explanatory, after reading through the Table of Contents, ask the class if it has any questions about the general content of the ordinance.]



Now let's look at the next level of control for the Local Authority: the Industrial User Permit.

Industrial User Permits



Industrial User Permits, commonly called discharge permits, define user-specific discharge requirements. In this respect, they are much more detail-oriented than sewer use ordinances.

An Industrial User Permit is required for each Significant Industrial User. The Significant Industrial User has been defined for us.



*[Review the definition of **Significant Industrial User**.]*

[Review information in the workbook.]

Authority Granted through State Law



Authority for Local Authorities to implement certain aspects of a Pretreatment Program may be derived through State Law. For example, in Pennsylvania, the Publicly Owned Treatment Works Penalty Law grants certain authority to Local Authorities.

[Review information in the workbook.]



Ask participants the following question. Allow various participants to share his/her answer. You may want to write all the answers on a flip chart. Encourage participants to write all the answers in the workbook.



Legal authority must provide the certain powers to the control authority. What specific powers of authority would be necessary?

Ans: *[Various answers are possible. Be sure that answers include, at a minimum, the following:*

- ❖ *Enforce pollutant control*
- ❖ *Enforce pretreatment standards*
- ❖ *Control Industrial User discharges to POTW through permits or other means*
- ❖ *Establish compliance schedules*
- ❖ *Conduct activities to verify compliance*
- ❖ *Obtain remedies for non-compliance*
- ❖ *Observe confidentiality]*



Take a look now at Figure 2.3—Approved Pretreatment Programs in Pennsylvania. Note that the contact information was valid as of May, 2004.



Figure 2.3 lists the Approved Pretreatment Programs in Pennsylvania with the current EPA Region III contact person (as provided in the PADEP web site). Each of these local authorities has gone through the Pretreatment Program development process, submitted a Pretreatment Program request to EPA Region III, and received approval to administer the Local Pretreatment program. Each of these Local Authorities also has received an NPDES permit (from Pennsylvania) as a direct discharger. The Local Authority is responsible for meeting the requirements of the NPDES permit and in doing so, may have to impose discharge limits on the industrial users within its service area to ensure that its NPDES discharge permit limits are never exceeded.

Pretreatment Program Implementation Procedures



Control Authorities have defined responsibilities for implementing the pretreatment regulations. You should be aware of these responsibilities; we will discuss many of them in more detail today.

[Review information in the workbook.]

Local Limits



When a Control Authority establishes local discharge limits, as it is authorized to do, it must detail the reasons for the limits. Alternately, a Control Authority may decide that local limits are not required in a certain circumstance. It must document and record the particulars of that decision, too.



[Emphasize the key point.]



*[Review the definition of **Pollutants of Concern**.]*



Examples of pollutants of concern are presented in Figure 1.2 for the Metal Finishing Category.

Factors Impacting the Development of Local Limits



To decide whether or not to establish local discharge limits, the Control Authority must assess a variety of resources and conditions. In the next section, we will look at the specific processes. Right now, let's just review the overall factors that are considered.

[Review information in the workbook.]

Headworks Analysis Method for Establishing Local Limits



Headworks analysis refers to the assessment of the pollutant load that is discharged into the head end of the treatment facility. There are four steps involved in a Headworks Analysis. Performing the analysis will allow a Control Authority to determine the need for local limits and the parameters of those limits if needed.

The four steps include determining the pollutants of concern, collecting and analyzing data, calculating the Maximum Allowable Headworks Loading (MAHL), and determining the need for (and implementing) the local limits.

[Review information in the workbook.]



[Review the definition of MAHL (Maximum Allowable Headworks Loading).]

[Finish reviewing information in the workbook.]



[Emphasize the first key point.]



[Emphasize the second key point.]

Additional Requirements for Local Authority



A Control Authority is specifically required to maintain a Significant Industrial User List, and must create and implement an Enforcement Response Plan. Finally, the Authority is required to collect sufficient funds to implement the Pretreatment Program and to maintain adequate staffing to run the program.

Additional Resources



As I mentioned earlier, this class serves only to introduce you to the Pretreatment Program. To become fully versed in all the nuances of the regulations, you would need to read numerous publications and attend some intensive training courses geared to just a specific area of the Program. Developing Local Limits is one aspect of the Program that requires in-depth research and expertise to perform. Some reference materials are listed in your workbook.

Keep an eye out for other reference suggestions that pertain to a specific subject throughout the workbook.

INSTRUCTOR GUIDE

[Have the participants review the Key Points on this page.]



Exercise for Unit 2 – Regulatory Authority

1. Explain the difference between direct and indirect discharges.

Direct discharge is into a stream or other body of water. Indirect discharge refers to an industrial user that discharges wastewater through a POTW rather than directly to a receiving stream, such as a river.

2. Only state discharge limits that are more stringent than federal requirements take precedence over the federal requirements.

X True ___ False

3. Pollutants of concern are defined as

- ___ contaminants that interfere with POTW performance
- ___ adversely impact POTW sludge
- ___ cause the POTW to exceed its NPDES discharge limits
- ___ chemicals that can adversely impact workers
- X all of the above

4. MAHL is an abbreviation for Maximum Allowable Headworks Loading.

5. Explain the meaning of a significance industrial user.

- A user subject to categorical discharge requirements, OR
- An Industrial User contributing an average of 25,000 gallons per day of process wastewater, OR
- An Industrial User contributing a process discharge with at least 5% of the total POTW dry weather influent flow or 5% of the organic load, OR
- An Industrial User designated as a significant Industrial User by the control authority.

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INSTRUCTOR GUIDE

UNIT 3: 45 minutes



Display Slide 6—Unit 3: Identifying and Monitoring Industrial Users.



At the end of this unit, you should be able to:

- List and explain four elements of an industrial survey.
- List and explain the three general steps in completing an inspection of industrial facilities.
- Discuss why proper sampling location is critical for monitoring effectiveness.



Display Slide 7 –Unit 3: Identifying and Monitoring Industrial Users (cont'd.)



Additional objectives for this unit include:

- List guidelines for establishing sampling frequency.
- Identify three elements of good sampling protocol.

INSTRUCTOR GUIDE

INDUSTRIAL SURVEY: 15 minutes

Identify and Locate Industrial Users Subject to the Pretreatment Program



Control Authorities have a responsibility, through the pretreatment regulations, to identify users subject to the pretreatment regulations. You see that the key point in your workbook emphasizes that the Control Authority is mandated to identify these users, but how does that happen? This section will explore that question.

[Review information in the workbook.]

Elements of the Initial Survey



[Ask participants the following question. Allow them to share answers. Write the answers on a flip chart and remind participants to note the answers in their workbooks.]



What are some resources that may be valuable in locating Industrial Users?

Ans: *[Various answers are possible. Be sure that participants provide at least the following answers:*

- ❖ *Water and sewer billings*
- ❖ *Utility company records*
- ❖ *Business license records*
- ❖ *Property tax records*
- ❖ *Telephone directories]*

Survey Each Industrial User to Obtain Necessary Information



After locating potential Industrial Users, the POTW needs to compile the necessary discharge information for each Industrial User. This will allow analysis that leads to the POTW's management of Industrial Users' impacts on the POTW influent.

[Review information in the workbook.]



When might a preliminary written questionnaire be more practical than an in-person survey?

Ans: *[If there is a large Industrial User base, it may be more economical and resource-sensitive to conduct a written survey rather than an in-person survey for every user.]*



[Emphasize the key point.]

Conduct Follow-up Activities to Complete or Update Information Needs



In some cases, especially when written questionnaires are used, it will be necessary to follow-up with some users who do not provide complete information or who fail to respond to the survey request.



[Emphasize the key point.]

[Review information in the workbook.]



[Review the key point.]

Data Summary for Development of Pretreatment Program



After assembling the data, the next step is to compile and manipulate the data. From this, the POTW can extract the information necessary to properly develop a Pretreatment Program.

[Review information in the workbook.]



Using all the information, the POTW can then determine the need for local limits and establish individual user limitations, which are essential elements of the Pretreatment Program.



[Emphasize the key point.]



Now that the information is complete and the plan is developed, the POTW with legal authority needs to inspect and monitor the industrial facilities to insure compliance with the Pretreatment Program. That is the topic of the upcoming section.

INSPECTION OF INDUSTRIAL FACILITIES: 15 minutes



[Emphasize the key point.]

Preparation for Inspection



A diligent inspector will be fully prepared. A great deal of homework must be completed before an inspection ever occurs. Some of the important factors to consider before inspection are covered on this page and in Appendix I.

[Review information in the workbook.]



Now let's open to Appendix I and take a brief look at a typical inspection checklist.

[The information on Page 1 is self-explanatory.]

On Page 2, note that it is important to have prior knowledge of the facility's processes, including information relative to its categorical pretreatment status.

On Page 3, item 3 relates to whether a certification and TOMP implementation is done in lieu of monitoring wastewater discharges.

Item 4 and Items B and C demonstrate the level of detail required to properly assess and industrial user.

On Page 4, Item D requires knowledge of the facility's pretreatment operations. It would be helpful to have prior knowledge but details can be gathered during the facility inspection.

Item E requires knowledge of the industrial user's compliance status, which should be a matter of record unless the user is new.

On Pages 6 and 7, some of the information for Item F requires on-site inspection and verification. It also requires a detailed, careful inspection of the facility's operations and infrastructure.

Items G and H provide information related to the facility's preparedness to avoid unwanted discharges and to properly manage them should they accidentally occur.

On Page 9, Item I provides a check of the facility's recordkeeping. How well their records are managed may provide an insight into how seriously they view their pretreatment program obligations.

Item J refers to samples collected during the inspection.]

[Answer any questions as time permits.]

On-Site Assessment



Once you have done your homework and completed the pre-inspection items on your checklist, you will visit the facility and perform an on-site assessment.

[Review information in the workbook.]



You can see how these on-site assessment tasks relate directly to the information on your checklist.

Follow-Up Activities



Despite the best preparations and a thorough inspection, you may have to follow-up with the facility to collect missing data. Also, the on-site assessment data must be compiled into a report.

[Review information in the workbook.]



Besides this initial assessment, sampling of the facility's wastewater by the Control Authority may be required to verify and document the information provided by the Industrial User. That leads us to our next topic – Sampling.

SAMPLING: 15 minutes

Sampling Locations



An important step in any sampling program is to identify appropriate sampling locations. Where more than one sampling location is possible, care must be exercised to determine the best location to sample. Let's look at a few pointers that will help make that determination.

[Review information in the workbook.]



We had mentioned previously the problem of monitoring a categorical discharge that could not be sampled separately prior to being mixed with other non-categorical discharges. The Combined Wastestream Formula is the approach used to determine an alternative discharge concentration or mass loading in this situation. In theory this approach is not really complex; it basically just accounts for the dilution of the categorical discharge that occurred as a result of mixing with the non-categorical discharge prior to monitoring. A similar approach would also be required if two or more different categorical discharges were mixed prior to monitoring. However, in practice the approach can sometimes become challenging. Ultimately, the approach will define both a daily maximum discharge and a monthly average discharge that must be satisfied for compliance.

Sampling Frequency



How often should samples be taken? There is not a one-size-fits-all answer, but there are guidelines to help you determine the correct frequency for each Industrial User.

[Review information in the workbook.]



As with any situation, the resources generally get allocated to solve problems. Consequently, IUs who are consistently in compliance are less likely to be sampled more frequently than required by regulation; however, chronic violators are likely to get the most attention and would likely be subject to more frequent sampling than required.

Sampling Protocol



There are certain standards that can help to protect the POTW in case of civil action. Be sure to follow the guidelines in the reference manual listed in the workbook.



[Emphasize the key point.]

[Review information in the workbook.]

Elements of a Sampling and Analysis Plan



[Ask participants the following question. Allow them to share their answers. Write the answers on a flip chart, and remind participants to note the answers in their workbooks.]



What are some essential elements of a good sampling and analysis plan?

Ans: *[Possible answers could include:*

- ❖ *Sampling location*
- ❖ *Sampling day and time*
- ❖ *Sample parameters (chemicals to sample for)*
- ❖ *Analytical method for each parameter*
- ❖ *Required detection limits*
- ❖ *Sample containers*
- ❖ *Sample size*
- ❖ *Sample holding time before extraction and before analysis*
- ❖ *Sample identification protocol*
- ❖ *Number and type of Quality Control samples required*
- ❖ *Chain of custody protocol]*



When the Pretreatment Program has been established, it makes sense that the Control Authority must then make sure that it is followed. The Authority has the legal obligation, in fact, to enforce the program. The next unit examines enforcement implementation.

INSTRUCTOR GUIDE

[Have the participants review the Key Points on this page.]



Exercise for Unit 3 – Identifying and Monitoring Industrial Users

1. List three general steps to follow in completing an inspection of industrial facilities.
 - a. preparation
 - b. on-site assessment
 - c. follow-up activities

2. What are some essential elements of a good sampling and analysis plan?

Answers may vary. See pages 3-6 and 3-7 for elements including sampling locations, sampling frequency and sample protocol.

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INSTRUCTOR GUIDE

UNIT 4: 30 minutes



Display Slide 8—Unit 4: Enforcement Implementation.



At the end of this unit, you should be able to:

- List five elements for enforcement of industrial Pretreatment Programs.
- Explain what an Enforcement Response Plan is.
- List three enforcement mechanisms under the National Pretreatment Program.
- Explain why enforcement tracking is important.

INSTRUCTOR GUIDE

ENFORCEMENT RESPONSE PLAN: 10 minutes



An ERP, or Enforcement Response Plan, facilitates enforcement of the Pretreatment Regulations by the POTW.



[Emphasize the key point.]

Purpose of the Enforcement Response Plan (ERP)

[Review information in the workbook.]

Basic Elements of an ERP



You now know why the ERP is important; let's take a few minutes to provide an overview of an ERP.

[Review information in the workbook.]



[Emphasize the key point.]

Benefits of an ERP



[Ask participants the following question. Write any answers they share on the flipchart. Remind students to note the answers in their workbooks.]



What are some of the benefits of an Enforcement Response Plan? Consider benefits for the user and the POTW.

Ans: *[Various answers are possible. Be sure the participants state the following answers at minimum.]*

- ❖ *Establishes the enforcement responsibilities of each person involved in the Pretreatment Program*
- ❖ *Facilitates consistent enforcement of the regulations*
- ❖ *Gives Industrial Users prior knowledge of the consequences of any violations*
- ❖ *Fosters a partnership among local agencies to help identify violations]*

COMPLIANCE REVIEW OF INDUSTRIAL USER DATA/REPORTS: 10 minutes



A POTW must control Significant Industrial Users via self-monitoring, sampling, reporting, notification, and recordkeeping requirements. These requirements include an identification of the pollutants to be monitored, sampling location, sampling frequency, and sample type.



[Emphasize the key point.]

Reports Required by Pretreatment Regulations



Three types of periodic reports are submitted by Industrial Users. Let's review them now, and then we will discuss the Baseline Monitoring Reports, or BMRs, in more detail.

[Review information in the workbook.]



Refer to Appendix II for a brief look at a typical Baseline Monitoring Report.

The Baseline Monitoring Report is completed by the Industrial User. As you can see from the first couple pages, background information similar to that collected for a facility inspection is also required for a Baseline Monitoring Report. However, a Baseline Monitoring Report will generally also include monitoring data, assuming the facility is actually in operation. (Otherwise, estimated data are used until a wastestream is available for sampling.)

On Page 3, the analytes of interest may differ from those shown in this example.

On Page 4, information on the treatment facilities and on existing permit limitations are presented.

Finally, a certification statement is required to indicate if the facility is in compliance or if additional measures must be taken to bring the facility into compliance. The certification must be signed by an authorized representative of the facility.

Once submitted, the Baseline Monitoring Report becomes a good source of information for the Control Authority.



You can see that reviewing the Industrial User reports and data can be a time-consuming activity. However, it is a very important task.

Benefits of Reviewing Reports



[Ask participants the following question. Allow them to share answers. Write the answers on the flip chart, and remind participants to write the answers in their workbooks.]



What are some of the benefits to reviewing user reports?

Ans: *[Various answers are possible. Be sure that the participants identify the following benefits, at a minimum.]*

- ❖ *Monitors compliance of Industrial Users*
- ❖ *Monitors the magnitude of the Industrial User discharge on the POTW's performance*
- ❖ *Helps establish the cost of treating the Industrial User's discharge*
- ❖ *Facilitates the development of fair Industrial User fees]*

INSTRUCTOR GUIDE

ENFORCEMENT MECHANISMS: 10 minutes



As we discovered earlier, the regulations serve many purposes. The Industrial User is tasked with providing accurate data and complying with the regulations. However, as we discussed, it is the Control Authority that must ensure that the Industrial User is, indeed, providing accurate data and following the rules of the program. Therefore, it only makes sense that there must be some type of enforcement mechanism to allow the POTW to correct any non-compliance issues with the user.



[Emphasize the key point.]

[Review information in the workbook.]



Notice how the types of enforcement mechanisms get more serious, or escalate, as they progress. A repeat offender or a user with a severe non-compliance issue can expect to experience the higher penalties.

INSTRUCTOR GUIDE

[Have the participants review the Key Points on this page.]

[This page was intentionally left blank.]

INSTRUCTOR GUIDE

UNIT 5: 15 minutes



Display Slide 9—Unit 5: Recordkeeping and Reporting Requirements.



At the end of this unit, you should be able to:

- Explain the purpose of a Data Management System.
- Describe three elements of POTW reporting.
- Describe the guidelines for monitoring Industrial User Reporting.

INSTRUCTOR GUIDE

RECORDKEEPING: 5 minutes



Another time-consuming task is recordkeeping. Unfortunately, it is sometimes overlooked or underperformed. Good records are an important form of protection. Additionally, the historical data they provide is often used for budgeting, manpower, and environmental planning. Besides those tangible benefits, recordkeeping is a legal duty of the POTW.



[Emphasize the key point.]

Industrial User Records Maintained by POTWs

[Review information in the workbook.]



Can you think of any other records that are maintained at your facility?

Ans: *[Allow participants to share any additional information they might have.]*

POTW Records

[Review information in the workbook.]



Can you think of any other records that have been important at your plant?

Ans: *[Allow participants to share any additional information they might have.]*

DATA MANAGEMENT SYSTEM: 5 minutes

Functions of Data Management Systems



You have probably noticed how much information is required to be collected, analyzed, and stored for each Industrial User, as well as for the treatment plant itself. With so many industries in the program today, this amount of data could create a logjam of papers. But, technology has made it much easier for us to manipulate and store the data. There are various software programs available, and our focus here today is not on any individual program. But all data management systems share some valuable traits.

[Review information in the workbook.]

Confidentiality of User Data



Confidentiality is an important concern. So is public awareness. With that dichotomy in mind, EPA often needs to decide a claim of confidentiality as they weigh the Industrial User's right to private information about his business with the public's right to know what is happening to his or her wastewater and wastewater facility.

[Review information in the workbook.]

POTW REPORTING: 5 minutes

Annual Report



As with most business—public or private—an Annual Report is one type of communication device that summarizes the most important things that happen over the course of one fiscal or calendar year.



[Emphasize the key point.]

[Review information in the workbook.]

Public Notices



[Emphasize the key point.]

[Review information in the workbook.]



This concludes the final unit.

Today you have had the opportunity to review the history and purpose of the Pretreatment Program, as well as learn some of the basic elements of creating, monitoring, and reporting on a program. Are there any questions?

[Allow participants to ask questions. Answer them as fully as possible and take the necessary information from anyone with whom you need to communicate further.]



Thank you for your attention and participation at today's session. Good-bye.

INSTRUCTOR GUIDE

[Have the participants review the Key Points on this page.]

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

Industrial User Inspection Checklist

1. Industry Name: _____
2. Site Address(s): _____
3. Mailing Address: _____

4. Contact (1): _____
5. Title: _____
6. Telephone Number: _____
7. Contact (2): _____
8. Title: _____
9. Telephone Number: _____

Credentials presented to whom ? _____

Inspector(s)

<u>Name</u>	<u>Agency</u>	<u>Telephone Number</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

Inspection Date ____ / ____ / ____

Note: Complete sections A-E prior to onsite visit.

A. General Information

General Description of Processes and Products.

2a. Categorical Industry ? Yes ___ No ___

b. Category(s): _____

Subcategory(s): _____

Regulatory New Source Date ____ / ____ / ____

c. New Source ? Yes ___ No ___

d. List of categorical processes

e. List other operations producing wastewater.

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

3. Are any alternates to effluent monitoring conducted ?
(e.g., TTO/TOMP requirements)?

Yes ___ No ___

Describe: _____

4. Provide production rates for all processes subject to
production based standards.

<u>Process</u>	<u>Production Rate Used for calculating Limits</u>	<u>Production Rate for Last 12 Months</u>
----------------	--	---

_____	_____	_____
_____	_____	_____

5. Any anticipated changes in processes or production rates ?

Yes ___ No ___ Describe _____

B. SHIFT INFORMATION

1. No. of Employees Hours Work Days

Shift 1: _____	_____	_____
Shift 2: _____	_____	_____
Shift 3: _____	_____	_____
Total: _____	_____	_____

2. Is production seasonal ? Yes ___ No ___

Explain: _____

C. WASTEWATER DISCHARGES

1. Attach a block flow diagram of manufacturing process,
chemical storage area, and wastewater generated. Identify all
regulated, unregulated and dilution wastewater discharges.
Include sampling location, discharge flowrates and method of
disposal.* Note any changes and obtain a new diagram if necessary.

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

* Disposal Method

- CD - Continuous discharge to sanitary
- ND - Not discharged or disposed
- BD - Batch discharge to sanitary sewer
- HH - Hauled as hazardous waste
- OD - Other disposal - not to sanitary sewer
- HW - Hauled as nonhazardous waste

D. PRETREATMENT FACILITY

1. Pretreatment installed ? Yes ___ No ___
2. Attach a schematic of the pretreatment facility (include all units and sludge storage)
3. Briefly describe operation.

4. Describe sludge storage and disposal method.

5. Describe appearance of effluent at time of inspection.

E. CURRENT COMPLIANCE STATUS

1. Indicate compliance status with:

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

- a. effluent limits _____
- b. monitoring _____
- c. reporting _____
- 2. Describe existing enforcement actions (attach schedule)

- 3. What is current status of compliance with schedule ?

- 4. OTHER COMMENTS

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

F. SELF MONITORING

1. Does facility have sampling plan or protocol including use of 40 C.F.R. Part 136 techniques (obtain copy)?

Yes ___ No ___

2. Is sampling location (C.1) same as in control mechanism?

Yes ___ No ___

If no, explain _____

3. Is sampling location appropriate ? Yes ___ No ___

If no, explain _____

4. Are any parameters monitored by approved methods more frequently than required ?

Yes ___ No ___

If yes, are all results submitted to the Control Authority ?

Yes ___ No ___

5. Does facility resample and report within 30 days of discovering a violation ?

Yes ___ No ___

6. Are sampling records maintained on site ? Yes ___ No ___

For how long ? _____

7. a. How is flow measured ? _____

- b. Is measurement location appropriate ? Yes ___ No ___

- c. Is flow measurement device calibrated ?

Yes ___ No ___ N/A ___ How often ? _____

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

8. Is monitoring equipment (e.g. pH meter) calibrated ?

Yes ___ No ___ How often ? _____

9. Is sampling and analysis done in-house or by contract ?

10. Is QA/QC program for sampling and analysis adequate ?
(obtain copy of plan if available)

Yes ___ No ___ If no, explain _____

11. Describe any perceived deficiencies in the self-monitoring program.

G. Hazardous Material Management

1. Is IU aware of RCRA regulations ? Yes ___ No ___

2. Does facility generate any hazardous waste ?

Yes ___ No ___

If yes, indicate type and method of management on site and means of disposal on a separate sheet. Describe any spillage problems or any other releases that are observed.

3. Has facility notified POTW and EPA of any hazardous waste discharges to the sewer ?

Yes ___ No ___ N/A ___

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

H. SPILL PREVENTION

1. Does the IU have a spill prevention (SP) plan to address spills to the POTW ?

Yes ___ No ___ Unknown ___ N/A ___

2. Does the facility have spill notification procedures posted ?

Yes ___ No ___ Unknown ___ N/A ___

3a.

Has the facility had any spills or been responsible for slug loads ?

Yes ___ No ___ Unknown ___ N/A ___

3b.

If yes, was POTW notified ?

Yes ___ No ___ Unknown ___ N/A ___

4. Did the IU follow procedures outlined in the spill plan at the time of spills ?

Yes ___ No ___ Unknown ___ N/A ___

5. Were procedures effective in containing spill ?

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

Yes ___ No ___ Unknown ___ N/A ___

6. Is the facility keeping records of spill events ?

Yes ___ No ___ Unknown ___ N/A ___

7. Have there been any changes in spill procedures recently ?

Yes ___ No ___ Unknown ___ N/A ___

Describe: _____

8. General Comments: _____

(i.e. perceive deficiencies/violations/discrepancies)

I. FILE REVIEW (indicate Y (in file) or N (not in file))

1. Current IU control mechanism ? _____

2. Notices and correspondence with control authority including:

a. Self monitoring report transmittals ? _____

b. BMR if required ? _____

c. Other ? _____

3. Do sampling records include:

a. Date of sampling event ? _____

b. Time of sampling event ? _____

c. Name of sampling person and affiliation ? _____

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

- d. Sample collection method ? _____
 - e. Method of sample preservation ? _____
 - f. Description of sample location ? _____
 - g. Name of person conducting analysis ? _____
 - h. Date of analysis ? _____
 - i. Time of analysis ? _____
 - j. Sample analyses method ? _____
 - 4. Is type of sample as specified in control mechanism ? _____
 - 5. Are all parameters monitored at the required frequency ? Note any discrepancies in section K. _____
 - 6. Analytical results ? _____
 - 7a. Are all monitoring results sent to the Control Authority ? _____
 - b. Copies to POTW ? _____
 - 8. Appropriate production records for production based standards ? _____
 - 9. Documentation of flow rates and volumes ? _____
 - 10. Are records maintained at least 3 years ? _____
- J. SAMPLING
- 1. Were samples taken ? Yes ____ No ____
If yes, attach sample results.
 - 2. Describe sampling location, method & time.

APPENDIX I – INDUSTRIAL USER INSPECTION CHECKLIST

K. OTHER COMMENTS

Note any entry or other problems.

APPENDIX II – INDUSTRIAL BASELINE MONITORING REPORT

Industrial Baseline Monitoring Report

Please complete this form in as much detail as possible. Attach additional sheets if necessary.

Company Information

- A. Facility Name: _____
Mailing Address: _____

- B. Contact Representative: _____
Title: _____
Telephone Number: _____
- C. Number of Employees: _____ Number of Shifts: _____
- D. Start time for each shift: 1st shift: _____ a.m. _____ p.m.
2nd shift: _____ a.m. _____ p.m.
3rd shift: _____ a.m. _____ p.m.
- E. Operational days per week: _____

Nature of Operation

- A. List raw materials used: _____

- B. List chemicals used: _____

- C. Describe manufacturing conducted: _____

APPENDIX II – INDUSTRIAL BASELINE MONITORING REPORT

D. Attach sheet (s) describing each regulated process in detail

Wastewater Flow

A. Total plant flow in gallons per day (gpd):

Ave: _____ Max: _____

B. Individual process flows in gallons per day (gpd)

Regulated Process Ave Flow Rate (gpd) Max Flow Rate (gpd) Type of Discharge

<u>Regulated Process</u>	<u>Ave Flow Rate (gpd)</u>	<u>Max Flow Rate (gpd)</u>	<u>Type of Discharge</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Unregulated Process Ave Flow Rate (gpd) Max Flow Rate (gpd) Type of Discharge

<u>Unregulated Process</u>	<u>Ave Flow Rate (gpd)</u>	<u>Max Flow Rate (gpd)</u>	<u>Type of Discharge</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

C. Attach sheet (s) of schematic drawings of flow charts of each regulated and unregulated processes that generates wastewater. Include schematic drawings on location of treatment system and sampling location.

Nature and Concentration of Pollutants

A. Analysis of Regulated Flows

The Industrial User must perform sampling and analysis of the effluent from all regulated processes (after treatment, if applicable). Provide the analytical data for the regulated processes in the space provided below. Attach additional sheets if necessary. Only those pollutants specifically regulated by the applicable category need be reported.

APPENDIX II – INDUSTRIAL BASELINE MONITORING REPORT

Regulated Process: _____

Ag	Cd	CN`A	CN`T	Cr	Cu	Ni	Pb	Ph	Zn	TTO	
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	Ave
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	Mx

Sample Location: _____

Sample Type (Composites are required except where not feasible): _____

Number of Samples and Frequency Collected: _____

Analytical Method Used: _____

Analysis of Total Plant Flow (If Appropriate)

An Industrial User may sample and analyze the total plant flow and calculate an equivalent concentration limit using the combined wastestream formula if regulated process flows are mixed with other flows prior to treatment and/or sampling. Record the analytical results for all regulated pollutants below. Record the calculated concentration limits as well as the actual measured concentrations.

Ag	Cd	CN`A	CN`T	Cr	Cu	Ni	Pb	pH	Zn	TTO	
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	MEC*
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	AEC*
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	AMMC
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	AAAC*

Sample Location: _____

Sample Type: _____

Number of Samples and Frequency Collected: _____

Analytical Methods Used: _____

*MEC=> Maximum Equivalent Concentration (CWA)

*AEC=> Average Equivalent Concentration (CWA)

*AMMC=> Actual Measured Maximum Concentration

APPENDIX II – INDUSTRIAL BASELINE MONITORING REPORT

*AAAC=> Actual Measured Average

Wastewater Treatment

Briefly describe any and all wastewater treatment utilized. (Show treatment system location in relation to process flows on schematic drawing required by questions 3.c).

Environmental Control Permits

Describe all environmental control permits held by or for the facility:

Title of the Permit	Permit Number	Issuing Agency	Expiration Date

Compliance Certification

- A. Is the facility meeting applicable categorical pretreatment standards on a consistent basis?
Yes_____ No_____
- B. If no, do you require:
1. Additional operation and maintenance (O&M) to achieve compliance? Yes_____ No_____
 2. New or additional pretreatment facilities to achieve compliance? Yes_____ No_____

APPENDIX II – INDUSTRIAL BASELINE MONITORING REPORT

- C. If additional O&M or new or additional pretreatment will be required to meet categorical pretreatment standards on a consistent basis, attach a schedule on a separate sheet projecting increments of progress indicating dates for the commencement and completion of major events leading to compliance with the standard. Note: the final compliance date in this schedule shall not be later than the compliance date for the applicable pretreatment standard. Written progress reports are required within 15 days of the compliance dates specified in the compliance schedule.

Signatory Requirement

I certify under penalty of law that I have personally examined and am familiar with the information in this report and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in this report, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Authorized Representative Signature

Official Title

Date