United States Environmental Protection Agency
Office of Water (4303)
EPA 821-B-01-003
June 2001
Version 3.0

SMALL ENTITY COMPLIANCE GUIDE

Centralized Waste Treatment Effluent Limitations Guidelines and Pretreatment Standards (40 CFR 437)

(This Page Left Intentionally Blank)

DISCLAIMER

The Engineering and Analysis Division of EPA's Office of Water prepared this guide pursuant to section 212 of the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Public Law 104-121. EPA intends this guide to aid small regulated entities that are direct or indirect industrial dischargers in complying with recently published national regulations, "Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Centralized Waste Treatment Industry Point Source Category" (Federal Register, Vol. 65, No. 247, pages 81242 - 81313, December 22, 2000).

The discussion in this document is intended solely as guidance. This guide is not a regulation itself nor does not it substitute for any requirements under Clean Water Act or EPA's regulations. Thus, it does not impose legally-binding requirements on EPA, States, or the regulated community, and the general description provided here may not apply to a particular situation based upon the circumstances. This guide does not confer legal rights or impose legal obligations upon any member of the public.

Among other things, in the course of the guide, the document describes new and existing requirements with respect to industrial dischargers under the Clean Water Act and its implementing regulations at 40 CFR §§ 122, 123, 124 403 and chapter 1, subchapter N. A discharger's legal duty requires it to comply with the CWA and its implementing regulations. While EPA has made every effort to ensure the accuracy of the discussion in this guide, a discharger's obligations are determined, in the case of direct dischargers by the terms of their NPDES permit and EPA's regulations or in the case of indirect dischargers by permits or equivalent control mechanisms issued to POTW industrial users or by regulatory requirements. Nothing in this guide, of course, changes any statutory or regulatory requirement. In the event of a conflict between the discussion in this guide and any permit or regulation, the guide would not be controlling. EPA and local decision makers retain the discretion to adopt approaches on a case-by-case basis that differ from those described in this guidance where appropriate. However, in any civil or administrative action against a small business for violation of the effluent limitations guidelines, pretreatment standards or new source performance standards for the centralized waste treatment industry under 40 CFR Part 437, the content of this guide may be considered as evidence of the reasonableness or appropriateness of proposed fines, penalties or damages.

Mention of trade names or commercial products does not constitute endorsement or recommendation for their use.

EPA may decide to revise this guide without public notice to reflect changes in the Agency's approach to implementing effluent limitations guidelines, pretreatment standards, and new source performance standards for the centralized waste treatment industry**,** or to clarify and update text. To determine whether the Agency has revised this guide and/or to obtain copies, contact EPA's Small Business Ombudsman Office at (202)260-0490. You can also determine whether EPA has revised or supplemented the information in this guide by accessing the document at: www.epa.gov/ost/guide/cwti.html.

(This Page Left Intentionally Blank)

CHAPTER 1

INTRODUCTION

This document is published by the U.S. Environmental Protection Agency (EPA) as our official compliance guide for small entities, as required by the Small Business Regulatory Enforcement Fairness Act of 1996. Before you begin using this guide you should know that the rule for which EPA has prepared this guide was published on December 22, 2000. EPA is continually improving and upgrading its rules, policies, compliance programs and outreach efforts. You can determine whether EPA has revised or supplemented any of the rules or information provided in this guide by visiting www.epa.gov/ost/guide/cwti.html.

EPA published the regulation titled " Effluent Limitations Guidelines and Pretreatment Standards for the Centralized Waste Treatment Industry" (Federal Register, Volume 65, No. 247, pages 81242 - 81313) on December 22, 2000 under the authority of the Clean Water Act (CWA). EPA has prepared this small entity compliance guide because Section 212 of the Small Business Regulatory Enforcement Fairness Act of 1996, Public Law No. 104-121, requires EPA to prepare and publish such guides for any rule for which it has prepared a regulatory flexibility analysis under the Regulatory Flexibility Act, 5 U.S.C. § 601, et seq. EPA prepared a regulatory flexibility analysis of this rule and consequently also has developed this guide.

EPA designed this guide to help owners and operators of centralized waste treatment (CWT) facilities that are small entities – whether they are small businesses, small government jurisdictions or small non-profit organizations -- understand and comply with the CWT effluent guidelines limitations and pretreatment standards ("the rule"). EPA has focused this guide on what a small entity will need to know to comply with the regulation. Small entity is defined as (1) a small business with gross revenue under $6 million (based on Small Business Administration size standards); (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

1.1 Why is Proper Implementation Important?

Implementation of a regulation is obviously a critical component in achieving the desired objectives of the regulation. If this regulation is not effectively implemented, then expected reductions in pollutant discharges and the environmental benefits expected to be obtained from the reduced discharges may not occur. Furthermore, CWT facilities that do not properly implement the rule may not be able to comply with it and consequently may violate the CWA.

Effective implementation of this regulation will require the cooperation of the CWT facilities that are discharging their wastewater and the Federal, State and local authority that regulate discharges from these facilities. In discussions with permitting control authorities, many stressed the need for close communication with CWT facilities. Federal, State and local permit and control authorities need to have a thorough understanding of a CWT facility's operations to implement this rule properly. Likewise, CWT facilities must maintain close communication with the generators and sources of the wastes and wastewater treated at the CWT facility in order to accurately characterize and treat the incoming waste streams.

1.2 Who Should Use This Guide?

EPA developed this guide to aid small entities that are CWT facilities. CWT facilities treat or recover hazardous or non-hazardous industrial waste, wastewater, or used material from off-site. The entities that are subject to this rule include small entities that are CWT facilities that either discharge wastewater directly into surface water or that introduce wastewater into publicly owned treatment works.

Because the regulation establishes the same requirements for all affected facilities, this guide is helpful for both small and large businesses that are CWT facilities.

1.3 What Does This Guide Cover?

EPA designed this information to provide guidance on implementing effluent limitations guidelines and standards for the CWT industry. As part of this guidance, EPA included general information on effluent limitations guidelines and pretreatment standards (that is, what are they?) and specific information on those promulgated for the CWT industry. This guidance also enables the reader to determine whether a facility is a CWT and, thus, affected by this rule, what CWT wastewater discharges are subject to this rule, and what requirements a CWT facility may have to meet to comply with this rule.

1.4 How to Use this Guide

This guide contains 11 chapters and 1 appendix:

Chapter 2 provides basic information on effluent guidelines and pretreatment standards. EPA developed this chapter primarily for readers with little or no experience with effluent limitations or pretreatment standards.

Chapter 3 provides a general overview of the CWT industry and summarizes the CWT rule. This summary includes a description of the requirements of the CWT rule along with a compliance timetable.

Chapter 4 provides guidance on what type of facilities and operations must comply with this rule.

Chapter 5 provides information on determining what subcategories apply to a facility's operations.

Chapter 6 provides information on implementing the rule for facilities complying with a single subcategory only.

Chapter 7 provides information on implementing the rule for facilities complying with more than one CWT subcategory.

Chapter 8 provides information on establishing equivalent treatment for facilities complying with the multiple wastestream subcategory.

Chapter 9 includes information on the compliance assurance process. This chapter describes how EPA determines compliance and how violations may be corrected.

Chapter 10 presents questions frequently asked during the development of this rule and EPA's responses to those questions.

Chapter 11 provides a list of resources for additional help in complying with the regulation.

Appendix A presents the final limitations and standards for the CWT regulation.

How Do I Obtain a Complete Copy of the Rule?

You may obtain a complete copy of this rule at 65 *Fed. Reg.* 81242 (December 22, 2000) or by visiting www.epa.gov/ost/guide/cwti.html.

(This Page Left Intentionally Blank)

CHAPTER 2

OVERVIEW OF EFFLUENT LIMITATIONS GUIDELINES AND PRETREATMENT STANDARDS

EPA is providing basic information in this chapter on effluent limitations guidelines and pretreatment standards (ELGs). EPA has simplified the information presented so as to make it useful to individuals with little or no experience with ELGs. You will find addition information on ELGs in the preamble of the CWT rule.

2.1 What Are Effluent Limitations Guidelines and Pretreatment Standards?

Effluent limitations guidelines and pretreatment standards are restrictions which may apply to wastewater discharges from CWT facilities. The Clean Water Act (CWA) prohibits the discharge of pollutants into navigable waters except as otherwise authorized by the statute. It establishes restrictions on the types and amounts of pollutants discharged from various industrial, commercial, and public sources of wastewater. Among these are restrictions on the direct discharge of effluent, i.e. wastewater, into navigable waters ("effluent limitations") and restrictions on the indirect discharge of pollutants to navigable waters ("pretreatment standards") through their introduction publicly owned treatment works (which, in turn, discharge to navigable waters).

These effluent limitations and pretreatment standards do not prevent CWT facilities from discharging wastewater. However, they impose a requirement, or limit, on the concentration of pollutants a CWT may discharge, regardless of its location in the United States or the condition of the receiving water. ELGs are not water quality or health based requirements. Rather, as required by the CWA, EPA bases ELGs on the performance of wastewater treatment technologies applied to CWT wastestreams. ELGs represent the greatest pollutant reductions economically achievable for the CWT industry.

CWT facilities are not the only facilities that may be subject to effluent limitations guidelines and pretreatment standards. EPA develops ELGs on an industry-by-industry basis and has developed effluent guidelines limitations and pretreatment standards for over 55 categories of industries. Therefore, a facility which is required to meet the restrictions established by this rule may also be required to meet the restrictions for another rule if it also performs industrial operations in another regulated industrial category.

Effluent limitations and pretreament standards represent different sets of restrictions. As noted above, effluent limitations apply to direct dischargers and pretreatment standards apply to indirect dischargers. Finally, as mentioned above, ELGs are minimum requirements. The permit writer or control authority may establish additional or tighter restrictions (based on site-specific local POTW pretreatment ordinance limits, water quality standards, and other authority) than

those established by this rule. Therefore, discharge requirements may be more restrictive than the ELGs, but not less restrictive than the ELGs.

2.2 Direct Dischargers and Effluent Guidelines

A *direct discharger* is a facility that discharges pollutants directly to waters of the U.S. such as a river or stream. If a CWT facility is a direct discharger, it is required to have a permit to discharge wastewater -- an NPDES permit. NPDES permits are drafted by "Permitting Authorities" and contain *effluent limitations.*

> A CWT facility discharging wastewater directly to waters of the U.S., the construction of which commenced after August 28, 2000 is considered a *new source*.

For CWT direct discharging facilities, EPA has established four overall sets of limits which may apply. These are referred to as BPT, BCT, BAT, or NSPS. These acronyms stand for Best Practicable Control Technology Currently Available, Best Conventional Pollutant Control Technology, Best Available Technology Economically Achievable, and New Source Performance Standards, respectively. Existing direct discharging CWT facilities are required to comply with BPT for conventional pollutants[1] (BOD_5, TSS, oil and grease, pH) and BAT for all other regulated pollutants. New source direct dischargers must comply with NSPS for all regulated pollutants. The BPT, BCT, BAT, and NSPS limits are listed in Appendix A.

> BPT - Best Practicable Control Technology, Economically Achievable.
> BAT - Best Available Control Technology, Economically Achievable.
> BCT - Best Conventional Control Technology, Economically Achieveable.
> NSPS - New Source Performance Standards.
> PSNS - Pretreatment Standards for New Sources.
> PSES - Pretreatment Standards for Existing Sources.

2.3 Indirect Dischargers and Pretreatment Standards

An *indirect discharger* is a facility that discharges pollutants to surface water indirectly by introducing pollutants into a publically owned treatment works (POTW). POTWs are often referred to as municipal wastewater treatment plants. If a CWT facility discharges wastewater to a sewer, then it is an indirect discharger. It is also an indirect discharger if it trucks or sends its wastewater to a POTW by barge or rail. Permits for indirect dischargers are drafted by "Control Authorities" and contain *pretreatment standards.*

> In this guide and the CWT rule and preamble, EPA refers to the POTW or the state collectively as the "control authority."

[1]Conventional pollutants also include fecal coliform, but EPA has not regulated fecal coliform in the CWT rule.

A CWT facility discharging wastewater to a POTW, the construction of which commenced after August 28, 2000 is considered a *new source*.

For CWT indirect discharging facilities, EPA has established two overall sets of pretreatment standards which may apply. These are referred to as PSES and PSNS. These acronyms stand for Pretreatment Standards for Existing Sources and Pretreatment Standards for New Sources. Existing indirect dischargers must comply with PSES. New sources that are indirect dischargers must comply with PSNS. PSES and PSNS do not contain restrictions for conventional pollutants because POTWs are generally designed to treat these parameters effectively. PSES and PSNS are listed in Appendix B.

2.4 Zero or Alternative Dischargers and ELGs

Some CWT facilities do not discharge process wastewater into waters of the U.S. or a POTW. These facilities are referred to as *zero or alternative dischargers*. Zero or alternative discharging CWT facilities dispose of their process wastewater through evaporation, land application, deep well injection, or off-site transfer to a facility other than a POTW. These facilities do not have to meet the restrictions established by this rule (these facilities may have to meet restrictions established under other acts or rules, such as the Clean Air Act or RCRA). However, if a CWT transfers its process wastewater off-site directly to a POTW, then the CWT standards would continue to apply to that wastewater (this would not be true if the CWT wastewater is sent off-site to another CWT). If a zero or alternative discharging CWT facility alters its disposal method and becomes a direct or indirect discharger, then it will be required to comply with the applicable CWT restrictions. A CWT facility which is currently a direct or indirect discharging facility and alters its wastewater disposal method to become a zero or alternative discharger would no longer be regulated under this rule.

In the remainder of this document, EPA refers to control mechanism or permit to discharge to a POTW collectively as the "control mechanism."

(This Page Left Intentionally Blank)

CHAPTER 3

THE CWT INDUSTRY AND THE CWT RULE

This chapter provides a general overview of the CWT industry and the CWT rule. It also includes general information on the requirements of the CWT rule. EPA developed this chapter primarily for readers unfamiliar with this industry or this rule. Interested parties may obtain additional information from the preamble or the technical development document for the rule.

3.1 What Is A CWT Facility?

A CWT facility is one that accepts for treatment and / or recovery used industrial materials generated off-site (at another location). These used materials may be hazardous, non-hazardous, solid, or liquid. A CWT facility may be a stand alone operation (i.e., centralized waste treatment is the only operation at that site) or it may be operated in conjunction with other industrial operations (such as production of chemicals).

CWT facilities do not fall into a single description. Some treat used materials or wastes from a few generating facilities while others treat wastes from hundreds of generators. Some treat non-hazardous wastes exclusively while others treat hazardous and non-hazardous wastes. Some primarily treat concentrated wastes while others primarily treat dilute wastes. Some primarily perform wastewater treatment or materials recovery and recycling, while others perform both.

> Treatment means any method, technique, or process designed to change the physical, chemical or biological character or composition of any metal-bearing, oily, or organic waste so as to neutralize such wastes, to render such wastes amenable to discharge or to recover energy or recover metal, oil, or organic content from the wastes.

EPA estimates there are 223 centralized waste treatment facilities in 38 states. The major concentration of centralized waste treatment facilities is in EPA Region 4, 5 and 6 due to the proximity of the industries generating the wastes undergoing treatment. The vast majority of CWT facilities are indirect dischargers. Fewer than 10% are direct dischargers. The average volume of wastewater discharged on an annual basis by an indirect discharging CWT facility is 9.3 million gallons while a direct discharging CWT facility averages 38 million gallons / year. EPA estimates that sixty-three small companies own discharging facilities that are subject to the requirements of this rule.

> In this document, wastes are defined as aqueous, non-aqueous, and solid waste, wastewater, and / or used material. Waste receipts are those wastes that CWT facilties receive from off-site for the purpose of treatment. Waste receipts *do not* include those wastes generated at the CWT as part of its regular operation.

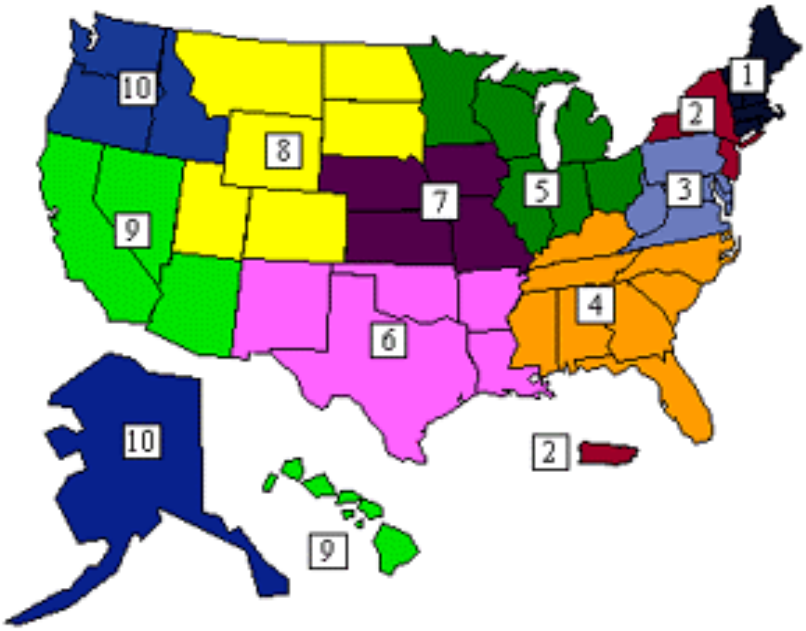


Figure 3-1EPA Regions

3.2 What is the CWT Rule and What Does It Require?

The CWT rule contains effluent limitations guidelines and standards for the CWT industry. These are numerical restrictions that may be applied to the discharge of wastewaters from CWT facilities to waters of the U.S. or the introduction of wastewater from a CWT facility into a POTW. The CWT rule requires facilities that are subject to this rule to meet these discharge requirements.

EPA developed different effluent limitations and standards for the CWT operations depending on the type of waste received by the CWT. There are four types, or subcategories, of waste (oily, metals, and organics wastes and a fourth, a mixture of any of the three previously listed waste types). The subcategories are as follows :

Chapter 5 provides guidance on determining the applicable subcategories.

- Subcategory A: Facilities that treat or recover metal from metal-bearing waste, wastewater, or used material received from off-site;
- Subcategory B: Facilities that treat or recover oil from oily waste, wastewater, or used material received from off-site;
- Subcategory C: Facilities that treat or recover organics from organic waste, wastewater, or used material received from off-site; and
- Subcategory D: Facilities that treat or recover some combination of metal-bearing, oily, or organic waste, wastewater, or used material received from off-site.

Chapter 8 provides more information on demonstrating equivalent treatment.

CWT facilities that fall within multiple subcategories (A, B, or C) may elect to comply with each set of restrictions separately or those established for Subcategory D. If a facility elects to comply with the Subcategory D limitations, the CWT rule requires the facility to demonstrate equivalent treatment.

3.3 What Treatment Technologies Were Used to Establish the CWT Limitations and Pretreatment Standards?

EPA based the effluent limitations for existing CWT facilities on the following technologies:

Table 3-1 Technology Basis for the Final CWT Limitations for Existing Facilities

Subpart	Name of Subcategory	Technology Basis
A	Metal-Bearing Waste Treatment and Recovery (metals)	Batch Precipitation, Liquid-Solid Separation, Secondary Precipitation, Clarification, and Sand Filtration For Metal-Bearing Waste Which Includes Concentrated Cyanide Streams: Alkaline Chlorination in a two step process
B	Used / Waste Oil Treatment and Recovery (oils)	Emulsion Breaking / Gravity Separation, Secondary Gravity Separation and Dissolved Air Flotation
C	Organic Waste Treatment (organic)	Equalization and Biological Treatment

EPA based the pretreatment standards for the metals[1] and organics subcategories on the same technologies as those listed in Table 3-1. For the oils subcategory, however, the technology basis for the pretreatment standards is emulsion breaking / gravity separation and dissolved air flotation.

The technology basis for the effluent limitations and standards for new CWT facilities for the oils and organics subcategories are the same as those listed in Table 1. For new CWT metals facilities, however, the technology basis for the limitations is selective metals precipitation, liquid-solid separation, secondary precipitation, liquid-solid separation, tertiary precipitation, and liquid-solid separation.

The CWT rule only establishes numerical restrictions on a CWT facility's discharge. It does not establish monitoring frequencies nor does it require that a particular technology be used. A CWT facility may use any technology it deems appropriate as long as its discharges are not in excess of those established in the rule.

The CWT rule *does not* require a specific treatment technology.

[1]The treatment technology basis for PSES for the metals subcategory does not include sand filtration

3.4 What CWT Discharges Are Subject to This Rule?

The wastewater discharges covered by this rule include some or all discharges related to materials received from off-site (waste receipts) and on-site CWT wastewater generated as a result of CWT operations. Examples of off-site waste receipts include metal finishing rinse waters and sludges, used oils, and leachate or groundwater cleanup. On-site CWT wastewater include: solubilization wastewater, emulsion breaking/gravity separation wastewater, used oil processing wastewater, treatment equipment washes, transport washes (tanker truck, drum, and roll-off boxes), laboratory-derived wastewater, air pollution control wastewater, landfill wastewater from on-site landfills, and contaminated storm water.

Discharges of non-contaminated stormwater are not subject to this rule and should not be mixed with discharges subject to this rule prior to complete treatment of covered wastewaters.

See Chapter 14 of the technical development document for a detailed description of stormwater (contaminated and non-contaminated) and wastewaters subject to this rule.

3.5 Compliance Timetable

As described above, the CWT rule requires facilities subject to the rule to comply with the applicable set(s) of effluent limitations or standards. The following table summarizes these requirements and the required compliance dates.

Table 3-2 Compliance Times for CWT Facilities

Type of CWT Facility[1]	Requirement	Deadline
Existing Direct Discharger	Comply with BPT (conventional pollutants) and BAT (other regulated pollutants)	when your federal or state NPDES permit is re-issued
New Direct Discharger	Comply with NSPS	when you begin discharging
Existing Indirect Discharger	Comply with PSES	December 22, 2003
New Indirect Discharger	Comply with PSNS	when you begin discharging

[1] A new discharger is a CWT facility that commences construction after August 28, 2000

3.6 How Does This Regulation Relate to Other Federal, State, and Local Requirements?

Effluent limitations and standards act as a primary mechanism to control the concentration of pollutants discharged into waters of the United States. These effluent limitations and standards are applied to individual facilities through NPDES permits or control mechanisms developed by POTWs or authorized States under Section 402 of the CWA and local pretreatment programs under Section 307 of the CWA.

A CWT facility may be required to comply with more stringent limits than those contained in the CWT rule, pursuant to (1) federal or state statutes or rules or (2) local ordinances. For example, certain POTWs are required by federal regulations to develop local limits to protect against pass-through and interference. This means the control authority must develop local limits that protect the treatment plant from pollutants that may upset the plant, pass-through the plant untreated (or inadequately treated), may endanger the well being of workers, or would inhibit sludge management practices. These local limits may be more stringent than the CWT pretreatment standards.

In addition to CWT requirements, other federal, state, or local requirements may also apply to a CWT facility. These may include, but are not limited to, other NPDES program and general pretreatment requirements (CWA), waste tracking requirements (RCRA, EPCRA), waste management planning requirements (RCRA), spill prevention, reporting and emergency response requirements (SPCC, EPCRA), and maximum achievable control technology (MACT) requirements (CAA). In general, the CWT rule will not impact these other requirements.

3.7 What Steps Do I Need to Take to Comply With This Rule?

1. A CWT facility should determine if its operations are subject to the CWT rule. Chapter 4 describes the applicability of the CWT rule to various CWT operations.

2. If a facility is subject to the CWT rule, it should determine what subcategory its wastes may be classified into. Chapter 5 provides guidance on classifying wastes.

3. If a CWT facility accepts wastes in more than one subcategory, it must decide to comply with each applicable set of limitations or standards separately or to comply with the applicable set of multiple wastestream subcategory effluent limitations or standards. If the facility chooses the later, it will be required to demonstrate equivalent treatment (See Chapter 8).

4. A CWT facility must determine if its treatment system will allow it to meet the required discharge restrictions. If not, it will be required to alter its operation or treatment system prior to the compliance date to achieve the discharge restrictions.

5. If a CWT facility is an indirect discharger, it must also comply with the general pretreatment reporting requirements which includes submission of a baseline monitoring report within 180 days of the effective date of the CWT rule, or July 21, 2001. This baseline monitoring report

The effective date of the CWT rule is January 22, 2000.

The CWT rule *does not* require a BMR; the general pretreatment regulations do. BMRs for existing indirect discharging CWTs are due on July 21, 2001.

(BMR) must include results of sampling and analysis identifying the concentration of all regulated pollutants in its discharges. Additional information on this requirement can be found in 40 CFR § 403.12(b).

You can obtain 40 CFR § 403.12 through EPA's web site: www.epa.gov

3.8 What Compliance Monitoring Is Required by the CWT Rule?

The CWT rule does not establish monitoring frequency requirements. Monitoring frequencies are found in other sections of the CWA regulations. For example, §403.12(e) requires industrial users (IUs) subject to categorical pretreatment standards, such as the CWT regulations, to self-monitor and report at least twice per year. Additionally, pursuant to 40 CFR 403, POTWs, or control authorities, have developed industrial pretreatment programs (IPPs). IPPs generally contain guidelines for determining monitoring frequencies. Permitting and control authorities look towards these rules, IPPs, and guidelines to determine monitoring frequencies. They also consider the individual characteristics of a site, such as compliance history of the facility and other relevant factors.

CHAPTER 4

APPLICABILITY

This chapter provides guidance on the types of facilities and CWT operations that must comply with this rule. It is only a summary. The preamble to the rule contains detailed information on many of these operations.

4.1 Regulated and Non-Regulated CWT Activities

The CWT rule applies to all wastewater discharges to a receiving stream or to a POTW from a facility defined by the rule as a CWT facility unless specifically excluded. As previously noted, the rule does not establish different requirements for CWT that are small entities. The rule defines a CWT facility as "any facility that treats and/or recovers or recycles any hazardous or non-hazardous industrial waste, hazardous or non-hazardous industrial wastewater, and/or used material from off-site." The following table provides a general summary of regulated and non-regulated CWT activities.

See also Section V of the preamble and Chapter 3 of the Development Document.

Table 4-1 Examples of Regulated and Non-Regulated CWT Operations

Centralized Waste Treatment Activity	Regulated by this rule	Not Regulated by this rule
Those performed at federally owned facilities	all federally owned CWT operations	none
POTWs	none	all
Thermal drying of POTW biosolids	none	all
Sanitary wastes or toilet wastes	none	all
Food processing wastes	none	all

Table 4-1 Examples of Regulated and Non-Regulated CWT Operations

Centralized Waste Treatment Activity	Regulated by this rule	Not Regulated by this rule
Manufacturing facilities	those that accept off-site wastes for treatment and / or recovery that are not generated in a manufacturing process subject to the same limitations / standards as on-site generated waste and that the permit writer determines are not similar to, and compatible with treatment of, the on-site waste	all others
Product stewardship	those that accept waste materials from use of their products that are not similar to, and compatible with, treatment of waste generated on-site	those that accept back their unused products, shipping and storage containers with product residues, and off-specification products
Pipeline materials	materials received via pipeline from waste consolidators or commingled with other covered CWT wastewaters	all other piped materials and POTWs
Recycle / recovery activities	all unless specifically excluded elsewhere	
Traditional solvent recovery	none	all
Fuel blenders	those that generate a wastewater	“Dry” operations
Scrap metals recyclers	none	all
Silver recovery	only included where wastewater generated from these activities is commingled with other covered wastes	all others
Used oil filters & oily absorbent recycling	those that generate a wastewater	“Dry” operations
High Temperature Metals Recovery (HTMR)	those that generate a wastewater	“Dry” operations
Used glycol recovery	all	none
Re-refining	all	none
Solids, soils, and sludges	those activities which generate a wastewater unless specifically excluded	“dry” operations
Stabilization / Solidification	those that generate a wastewater	“Dry” operations
Transfer stations and recycling centers	none	all

Table 4-1 Examples of Regulated and Non-Regulated CWT Operations

Centralized Waste Treatment Activity	Regulated by this rule	Not Regulated by this rule
Incineration activities	only included when the wastewater generated from these activities is received from off-site and commingled with other covered wastewater	all others
Transportation and/or transportation equipment cleaning	only included where wastewater generated from these activities is commingled with other covered waters	all others
Landfills	only included where wastewater generated from these activities is commingled with other covered waters	all others
Grease trap/interceptor wastes	those which contain petroleum based oils	those which contain animal or vegetable fats/oils
Marine generated wastes	off-loaded and subsequently sent to a CWT facility at a separate location and commingled with other covered wastewater	all others
Waste, wastewater or used material re-use	those activities not listed in the next column or excluded elsewhere	not covered if the wastewater is accepted for use in place of potable water or if materials are accepted in place of virgin treatment chemicals.
Treatability, research and development, or analytical activities	only included where wastewater generated from these activities is commingled with other covered waters	all others

(This Page Left Intentionally Blank)

CHAPTER 5

DETERMINING THE APPLICABLE SUBCATEGORIES

This chapter provides guidance on determining the applicable CWT subcategories for wastes accepted at a CWT facility. EPA developed this chapter to provide guidance to CWT facilities. EPA is aware that many CWT facilities may classify their wastes differently. The CWT rule does not require CWT facilities, control authorities, or permitting authorities to use this subcategorization process. EPA has provided it only as guidance.

> CWT facilities accept a wide variety of materials, such as oils and acids. Although many of these materials are processed and reused, for purposes of this guidance and the rule, the material is collectively referred to as 'waste.'

5.1 Waste Acceptance Procedures

In absence of the CWT rule, CWT facilities have already established waste acceptance procedures. The CWT rule does not establish waste acceptance procedures. However, in EPA's view, these procedures are critical in determining the applicable CWT subcategories and in conducting adequate treatment or recovery, and in ensuring the wastes accepted conform to a faciliy's discharge permit or control mechanism. Certainly, all CWT facilities should, at a minimum, collect adequate information from the generator on the type of waste received since this is the minimum information required by CWT facilities to effectively treat off-site wastes. Consequently, EPA has included information on waste acceptance procedures as the first step in its guidance for determining subcategories. The following paragraphs describe the waste acceptance procedures generally performed at most CWT facilities.

Before a CWT facility accepts a wastestream for treatment, the CWT facility typically performs a pre-approval review of the proposed wastestream. This pre-approval process may include screening the waste for treatability and compatibility with both other wastes being treated and the treatment system. The waste generator initially furnishes the CWT facility information concerning the level of pollutants in the wastestream. Bench-scale treatability tests are typically performed to determine what treatment is necessary for effective removal. At this point, the CWT facility decides whether to approve the wastestream for acceptance. If the wastestream is approved, each load received by the CWT facility is typically sampled to ensure that it is consistent with the initially approved wastestream. If the sample is similar, the shipment of waste is accepted for treatment. If the sample is dissimilar, but falls within an allowable range as determined by the CWT facility, the CWT facility will reevaluate acceptance. This reevaluation may include additional testing. Once the reevaluation is completed, the generator is contacted to discuss the discrepancy and reach a resolution. Please note that the level of screening is based on the source of the waste and the processes used. Figure 5-1 below is an example of a waste profile form.

ANYFIRM ANYTOWN, USA (555) 555-1212	GENERATOR'S WASTE MATERIAL PROFILE SHEET ___ NEW ___ AMENDMENT	PROFILE NUMBER _____

GENERATOR		BROKER OR SALESPERSON	
Name		Name	
Address		Address	
Technical Contact	Phone	Contact	Phone
Shipping Contact	Phone	**TRANSPORTER**	
Business Contact	Phone	Name	
EPA ID #		Address	
		Contact	Phone
		EPA ID #	

WASTE DESCRIPTION

Applicable Manufacturing Category (if any): _____

CHEMICAL & PHYSICAL STATE

__ Liquid	__ Multilayered	Odor
__ Semi-liquid	__ Bilayered	TSS
__ Solid	__ Single Phase	Color
pH		Flash Point
__ # 2	__ 8-10	% Bottoms Sediment
__ 2-4	__ 10-12	% Debris
__ 4-6	__ $12	% Ash
__ 6-8	__ N/A	Specific Gravity

PROCESS DESCRIPTION

(Describe process generating waste stream. Include a list of virgin materials and their Material Safety Data Sheets.)

CHEMICAL CONSTITUENTS		METALS (PPM)	
Petroleum Phase	Aqueous Phase	Arsenic	Magnesium
		Cadmium	Mercury
		Chromium	Nickel
		Copper	Tin
		Lead	Zinc
OTHER CONSTITUENTS		**SHIPPING INFORMATION**	
% Oil (or ppm Oil)		RCRA Code	
		Shipping Method	
		Volume (gallons)	

Figure 5-1 Sample Waste Acceptance Form

Furthermore, CWT facilities and waste generators complete extensive amounts of paperwork during the waste acceptance process. The amount of paperwork necessary for accepting a waste stream emphasizes the difficulty of operating CWT facilities.

Finally, EPA emphasizes that while the CWT rule does not require waste segregation, CWT facilities should encourage their waste generators to segregate their wastestreams (i.e., keep metal bearing wastes separate from organic-bearing wastes). This will help CWT facilities comply with the CWT rule and more effectively utilize their treatment technologies.

The CWT rule does not require waste segregation. EPA recognizes that commingling wastes can be beneficial in certain cases.

5.2 Initial Subcategory Determination for Existing CWT Facilities

Based on information provided by CWT facilities during the development of the CWT rule, EPA has developed guidance for determining subcategorization. This guidance, which consists of three basic steps, is illustrated in Figure 5-2 below. For many CWT facilities, however, steps 1 and 2 will be sufficient to determine into which subcategory the wastes treated at its facility should be classified. Step 3 would only be necessary if the first two steps are inconclusive. This guidance will help facilities classify their incoming wastes into the metals, oils, or organics subcategory. A facility that accepts waste in more than one of these subcategories may also be classified as "mixed". This is detailed in Chapter 7.

Figure 5-2 Subcategory Determination Procedure

5.2.1 *Step 1: Waste Receipt Data Collection*

The first step in EPA's recommended subcategory determination procedure is to collect information on the incoming waste receipts. This data is usually collected at the point where the shipment is received by the CWT facility. Most (if not all) CWT facilities are already performing this step. EPA believes that the paperwork and analyses currently performed at CWT facilities as part of their waste acceptance procedures provide CWT facilities with sufficient information to complete this step. Figure 5-1 shows an example of a waste acceptance form typical of those used at existing CWT facilities.

5.2.2 *Step 2: Compare Waste Receipt Information to Waste Receipt Classification Table*

In Step 2, the CWT facility should review data collected from its waste receipts for a period of one year. The CWT facility should use common sense to determine which subcategory the waste falls into. To assist the CWT facility, it may use the waste classification table (Table 5-1) to classify

each of its waste receipts for that one year period into Subcategory A (Metals), B (Oils), or C (Organics).

If the CWT facility receives the wastes listed in the waste classification table, the subcategory determination may be made solely from this information. For purposes of this rule, the CWT facility need not determine the percentage of each type of waste within a subcategory or between subcategories. The CWT facility only need to determine what subcategory the wastes fall into: one or multiple subcategories. When subcategory determination is complete, the facility may refer to Chapter 6 for implementing the rule if only one subcategory applies or Chapter 7 if more than one subcategory applies.

Table 5-1 Waste Receipt Classification

Metals Subcategory	- spent electroplating baths and / or sludges - metal finishing rinse water and sludges - chromate wastes - air pollution control blow down water and sludges - spent anodizing solutions - incineration wastewaters - waste liquid mercury - cyanide-containing wastes - waste acids and bases with or without metals - cleaning, rinsing, and surface preparation solutions from electroplating or phosphating operations - vibratory deburring wastewater - alkaline and acid solutions used to clean metal parts or equipment
Oils Subcategory	- used oils - oil-water emulsions or mixtures - lubricants - coolants - contaminated groundwater clean-up from petroleum sources - used petroleum products - oil spill clean-up - bilge water - rinse / wash waters from petroleum sources - interceptor wastes - off-specification fuels - underground storage remediation waste - tank clean-out from petroleum or oily sources - non-contact used glycols - aqueous and oil mixtures from parts cleaning operations - wastewater from oil bearing paint washes
Organics Subcategory	- landfill leachate - contaminated groundwater clean-up from non-petroleum sources - solvent-bearing wastes - off-specification organic product - still bottoms - byproduct waste glycol - wastewater from paint washes - wastewater from adhesives and / or epoxies formulation - wastewater from organic chemical product operations - tank clean-out from organic, non-petroleum sources

This classification is not inclusive of all possible wastestreams. It is simply a guidance of the typical wastestreams in each subcategory.

5.2.3 *Step 3: Waste Characterization Using Numerical Criteria*

For wastestreams that are from non-specific sources or not listed in the waste receipt classification table, the facility should additionally complete Step 3. In Step 3, the facility should use data collected during the waste acceptance procedures to classify the waste into the appropriate subcategory. EPA recommends the CWT facility apply the following hierarchy:

1). If the waste receipt contains oil and grease at or in excess of 100 mg/L, the waste receipt should be classified in the oils subcategory;

2). If the waste receipt contains oil and grease <100 mg/L, and has any of the pollutants listed below in concentrations in excess of the values listed below, the waste receipt should be classified in the metals subcategory.

cadmium	0.2 mg/L
chromium	8.9 mg/L
copper	4.9 mg/L
nickel	37.5 mg/L

3). If the waste receipt contains oil and grease < 100 mg/L and does not have concentrations of cadmium, chromium, copper, or nickel above any of the values listed above, the waste receipt should be classified in the organics subcategory.

At this point, the CWT facility has determined the applicable subcategories and should refer to Chapter 6 for implementing the rule if only one subcategory applies or Chapter 7 if more than one subcategory applies.

5.3 Follow-Up Subcategory Determination Procedures

Once the CWT facility's initial subcategory determination (oils, metals, organics, or mixed) has been made, the facility will not need to repeat this determination process where its wastestreams remain consistent. This includes accepting a new wastestream that is within the CWT facility's current subcategory. However, if a CWT facility alters its operation to accept wastes from a subcategory outside its permit (or to no longer accept waste from a subcategory), the facility should notify the appropriate permitting or control authority and the subcategory determination should be re-visited. EPA notes that current permit and pretreatment regulations require notification to the permitting or control authority when significant changes occur. EPA also recommends that a facility revisit its subcategory determination whenever the permit or control mechanism is re-issued, though this would not necessarily require complete characterization of a subsequent year's waste receipts if there is no indication that the make-up of the CWT facility's receipts had significantly changed.

5.4 Subcategory Determination Procedures for New CWT Facilities

New CWT facilities should estimate the percentage of waste receipts expected in each subcategory. Alternatively, the facility could compare the treatment technologies being installed to the treatment technologies selected as the basis for the limitations or standards for each subcategory. After the initial year of operation, the permit writer or control authority should reassess the facility's subcategory determination and follow the procedure outlined for the initial determination for existing facilities. Because of the variable nature of waste receipts at CWT facilities, EPA recommends issuance of short-term permits or control mechanisms for new CWT facilities.

5.5 On-Site Wastewater Subcategory Determination

The sections above explain how an entity might approach classifying its off-site wastestreams. For other on-site generated wastewater sources such as those described in Chapter 4 (for example, contaminated stormwater, emulsion breaking wastewater, solubilization wastewater), wastewater generated in support of, or as the result of, activities associated with each subcategory should be classified in that subcategory. For facilities that are classified in a single subcategory, this step is unnecessary as the facilities should generally classify on-site wastewater in that subcategory.

For facilities that are classified in more than one subcategory, and do not elect to comply with the multiple wastestream subcategory limits, the facilities should apportion the on-site generated wastewater to the appropriate subcategory. Certain waste streams may be associated with more than one subcategory such as stormwater, equipment/area washdown, air pollution control wastewater, etc. For these wastewater sources, the volume generated should be apportioned to each associated subcategory. For example, for contaminated stormwater, the volume can be apportioned based on the proportion of the surface area associated with operations in each subcategory. Equipment/area washdown may be assigned to a subcategory based on the volume of waste treated in each subcategory. Alternatively, permitting or control authorities may assign the on-site wastestreams to a subcategory based on the appropriateness of the selected subcategory treatment technologies. **EPA notes that this is only necessary for multiple subcategory facilities which elect not to comply with the Multiple Wastestream Subcategory limitations or standards.**

5.6 Examples

5.6.1 *Example 1*

A CWT facility has been operating for ten years and services 30 customers. This facility is located around auto manufacturers and mainly accepts metal finishing rinsewaters. Over the past two years the facility has also accepted used oils for recovery. It also accepts wastewaters from some customers that are unknown in origin, but which usually have oil and grease levels about 100 mg/L. This facility generates emulsion breaking/gravity separation wastewater and equipment cleaning wastewater. It also collects and discharges rainwater collected on its property, but all of the CWT facility's activities occur inside a building.

This facility may wish to review first all of its incoming waste receipts from the past year to ensure that the wastes listed above are the only wastes accepted for treatment. It may then compare its wastestreams to the waste receipt classification table. The waste classification table indicates that the metal finishing rinsewaters are classified in the metals subcategory and the used oils are classified in the oils subcategory. The wastes of non-specific origin can not be classified using the waste classification table, so this facility should utilize Step 3 for these wastes. The facility notes that these wastes usually have oil and grease levels in excess of 100 mg / L. Therefore, based on the hierarchy established for Step 3, these non-specific wastes are also classified in the oils subcategory. Therefore, this facility is both a metals and an oils subcategory facility.

This facility also discharges on-site generated wastewaters – emulsion breaking wastewater and stormwater. The facility must determine if the discharge of these on-site wastewaters is subject to the CWT rule (that is, defined as "CWT process wastewaters"). As described in Chapter 3, emulsion breaking wastewaters are subject to this rule. Stormwater, however, may or may not be subject to this rule. Based on the information provided, since the stormwater is collected outside the building, and there are no operations whatsoever outside, this stormwater is most likely *non-contact stormwater* and not a CWT process wastewater subject to this rule. Necessarily, if the non-contact stormwater is introduced prior to the monitoring location, the limits would be adjusted using the combined wastestream formula or building block approach to account for the stormwater. If the facility maintains a waste handling area outside the building and this stormwater comes in contact with this waste handling area, it is *contact stormwater* and is CWT process wastewater subject to this rule.

If this facility elects to comply with the mixed waste subcategory, it does not need to classify these on-site CWT process wastewaters. If, however, the facility elects to comply with the limitations or standards for the metals and oils subcategory separately, it will be additionally required to classify the on–site CWT process wastewaters into the metals or oils subcategory. Clearly, the emulsion breaking wastewater and any wastewater associated with cleaning the treatment equipment for these wastewaters will be classified in the oils subcategory. Likewise, any wastewater associated with cleaning the treatment equipment for the metals subcategory wastes will be classified in the metals subcategory. If the stormwater is contact stormwater and the facility collects the contact stormwater from dedicated areas of the facility for each subcategory, then these wastewaters would be classified accordingly. If these contact stormwaters are not collected from dedicated areas, the

Non-contact stormwater is not CWT process wastewater and does not need to be classified into a subcategory.

facility could sample the wastewater to determine the level of oil and grease. If these levels exceed 100 mg/L, then these wastewaters will be classified in the oils subcategory. The facility may use other methods as long as they can demonstrate to the permitting or control authority that these on-site wastewaters receive adequate treatment.

5.6.2 *Example 2:*

The following is a waste receipt log for a single day for a CWT facility:

Table 5-2 Sample Waste Receipt Log

Customer	Waste Type	oil and grease (mg/L)	Chromium (mg/L)	nickel (mg/L)	Volatile Organic Compounds (VOCs) (ug/L)
1	used oil	40,000	10	15	40
2	lubricants	50,000	2	50	non-detect
3	oily wastewater	250	non-detect	non-detect	20
4	leachate	20	12	39	100
5	metal finishing waste	15	200	1500	non-detect
6	bilge water	99	5	7	25
7	electroplating waste	150	100	3000	non-detect

This facility would only need to complete Step 2 to determine the waste receipt classification for this day's waste receipts. All of the waste types are listed in the waste classification table. Used oils, lubricants, oily wastewater, and bilge water are all in the oils subcategory. Leachate is in the organics subcategory, and metal finishing and electroplating wastes are in the metals subcategory. This facility would not complete Step 3 since the waste receipt table *generally* takes precedence over the numerical criteria hierarchy. Notice, however, that if the wastewater from customer 6 was an unknown waste type, this facility would need to complete Step 3. Using this step, the wastewater from customer 6 would be classified in the organics subcategory. This is a different subcategory than was established using Step 2.

CHAPTER 6

SINGLE SUBCATEGORY FACILITIES

Chapter 6 provides guidance to aid small entities in determining what CWT subcategories may apply to their CWT discharges. Many CWT facilities are subject to discharge limits for a single subcategory only. This chapter describes how CWT facilities that accept waste in only one CWT subcategory may comply with the CWT rule.

6.1 How Will the Permitting or Control Authority Establish My Limitations or Standards?

An adequate waste management program is an important ingredient of a successful wastewater treatment system at CWT facilities. The permitting or control authority should confirm the CWT facility's single subcategory determination by looking at a sampling of the waste receipts at the CWT facility. The permitting or control authority will then establish the appropriate discharge limitations or standards. Available guidance in calculating NPDES categorical limitations for direct discharge facilities can be found in the U.S. EPA NPDES Permit Writers' Manual (December 1996, EPA-833-B-96-003). Sources of information used for calculating Federal pretreatment standards for indirect discharge facilities include 40 CFR Part 403.6, the Guidance Manual for the Use of Production-Based Pretreatment Standards and the Combined Waste Stream Formula (September 1985) (CWF Guidance), and EPA's Industrial User Permitting Guidance Manual (September 1989).

6.2 What Compliance Options Do Facilities That Accept Wastes in a Single Subcategory Have?

CWT facilities that are subject to effluent limitations and standards for more than one subcategory have a choice of either complying with limitations or standards determined for each applicable subcategory or complying with a single set of limitations and standards for multiple wastestreams. A single subcategory facility does not have a similar option and must comply with the limitations or pretreatment standards for the applicable subcategory (i.e. a metals subcategory must comply with the limitations (or standards) for the metals subcategory, etc.)

6.3 How Will the Permitting or Control Authority Incorporate the Cyanide Limit in the Metals Subcategory?

Whenever a CWT facility accepts a waste stream that contains more than 136 mg / L of total cyanide, the CWT regulation requires that the CWT facility monitor for cyanide when the wastewater exits the cyanide destruction process rather than after mixing with other process wastewater. Alternatively, under the regulations, the facility may monitor for compliance after mixing if the permitting or control authority adjusts the cyanide limitations (or standards) using the "building block approach" or "combined waste stream formula," assuming the cyanide

limitations do not fall below the minimum analytical detection limit. For further information on the "building block approach" or "combined waste stream formula", see Section 14 of Development Document for Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry – Final, (EPA 821-R-00-020, referred to herein as TDD) and the CWF Guidance referred to in 6.1 above.

CHAPTER 7

MULTIPLE SUBCATEGORY FACILITIES

EPA estimates that many facilities in the CWT industry accept wastes in two or more subcategories (a combination of wastes in Subcategory A, B or C). This chapter describes how CWT facilities that accept wastes in more than one subcategory may comply with the CWT rule.

A multiple subcategory facility accepts wastes in more than one CWT subcategory. It is different from the case in which metal-bearing waste streams may include low-level organic pollutants or that oily wastes may include low level metal pollutants due to the origin of the waste stream accepted for treatment.

7.1 What Steps Should I Take To Help Ensure Compliance with My Limitations or Standards?

An adequate waste management program is an important ingredient of a successful wastewater treatment system at CWT facilities. The first step in such a system is identification and segregation of wastestreams. By identifying and segregating waste streams in different subcategories to the extent possible, a CWT facility is more likely to ensure obtaining optimal mass removals of pollutants from industrial wastes. Next, the CWT facility should employ treatment technologies designed and operated to optimally treat all off-site wastes received, as appropriate. For example, biological treatment is inefficient for treating concentrated metals waste streams like those found in the metals subcategory or wastestreams with oil and grease compositions and concentrations like those found in the oils subcategory. In fact, concentrated metals streams and high levels of oil and grease compromise the ability of biological treatment systems to function. Likewise, emulsion breaking/gravity separation, and/or dissolved air flotation is typically insufficient for treating concentrated metals wastewaters or wastewaters containing organic pollutants which solubilize readily in water. Finally, chemical precipitation is insufficient for treating organic wastes and waste streams with high oil and grease concentrations. This step is only required for facilities that elect to make an equivalent treatment determination.

Once the CWT facility is segregating its wastestreams and has appropriate treatment technologies in place for all off-site wastes received, as appropriate, the CWT facility should make sure it is operating its treatment technologies optimally.

Finally, simply employing appropriate technologies may not ensure compliance with the regulations. It is equally important that the CWT facility operate these treatment technologies effectively.

7.2 What Compliance Options Do Facilities Have if they Accept Wastes from More Than One Subcategory?

Multiple subcategory facilities may comply with this rule in one of two ways. Facilities may:

1. elect to comply with the effluent limitations or standards for each applicable subcategory directly following treatment (before commingling with different subcategory wastes); or
2. certify equivalent treatment and comply with one of the four sets of limitations or standards for the mixed waste subcategory (Subcategory D). Each of these options is discussed further below.

The choice of compliance is up to the CWT facility. The percentage of waste in a particular subcategory is irrelevant to the compliance method selected by the CWT facility.

7.2.1 Comply with Limitations or Standards for Subcategory A, B or C

If a multi-subcategory CWT facility elects to comply with each applicable subcategories limitations or standards individually, the CWT facility must monitor for compliance with each subcategory's effluent limitations or standards prior to commingling wastestreams from different subcategories. For example, a CWT facility may accept metal finishing rinsewaters and used oils for treatment and recovery. In this case, the CWT facility must treat / recover the metal finishing rinsewaters and monitor for compliance with the metals subcategory limitations (or standards) and treat / recovery the used oil and monitor for compliance with the oils subcategory limitations (or standards). In other words, the example facility must monitor in two separate locations for the two different sets of subcategory limitations (or standards).

This option can be beneficial in the case of CWT facilities that have separate treatment systems for their incoming waste receipts, for facilities that only accept a small amount of waste in one subcategory, or facilities that do not want to complete the paperwork required to demonstrate equivalent treatment. However, compliance monitoring costs for this option will be more expensive since it requires monitoring at more than one sample point.

> Multiple subcategory CWT facilities that comply with each subcategory's limitations separately do not have to demonstrate equivalent treatment.

Figure 7-1 and the example 7-1 below illustrate this option.

Example 7-1

Facility A accepts wastes in all three CWT subcategories with separate subcategory treatment systems and has elected to comply with each set of pretreatment standards separately. This facility treats 20,000 L/day of metal-bearing wastes, 10,000 L/day of oily wastes, and 45,000, L/day of organic wastes and discharges to its local POTW.

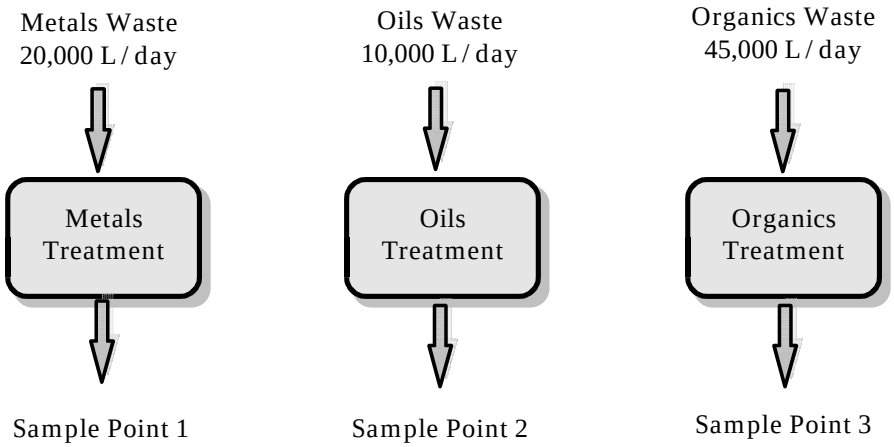


Figure 7-1 Facility Accepting Waste in All Three Subcategories With Treatment in Each

For this example, the control authority establishes monitoring points 1, 2, and 3. The control authority requires that the facility comply with the metals subcategory pretreatment standards at Sample Point 1, the oils subcategory pretreatment standards at Sample Point 2, and the organics subcategory pretreatment standards at Sample Point 3. Note that the specific analytes requiring compliance monitoring vary at each sampling point since the pollutants regulated vary among subcategories.

7.2.2 Comply with Limitations or Standards for Subcategory D

If a multi-subcategory CWT facility elects to comply with the limitations or standards for Subcategory D, then the permitting or control authority will establish a single monitoring point prior to discharge and apply the appropriate set of limitations or standards from Subcategory D. This option can be beneficial in the case of existing CWT facilities that have sequential treatment systems or to facilities that want to monitor at a single point. For example, if a CWT facility accepts wastes in both the metals and oils subcategory, the permitting or control authority establishes limits or standards for Subcategory D facilities that commingle wastes from Subcategories A and B. Examples 6-2 and 6-3 illustrate this approach. EPA notes that under this approach, the permitting or control authority must allow a multi-subcategory facility to commingle wastestreams prior to discharge. **Also, facilities that select this compliance method must first establish equivalent treatment as detailed in Chapter 8.**

Example 7-2

Facility B accepts wastes in all three CWT subcategories with separate subcategory treatment systems and has elected to comply with Subcategory D pretreatment standards at a combined outfall. This facility treats 20,000 L/day of metal-bearing wastes, 10,000 L/day of oily wastes, and 45,000 L/day of organic wastes and discharges to its local POTW.

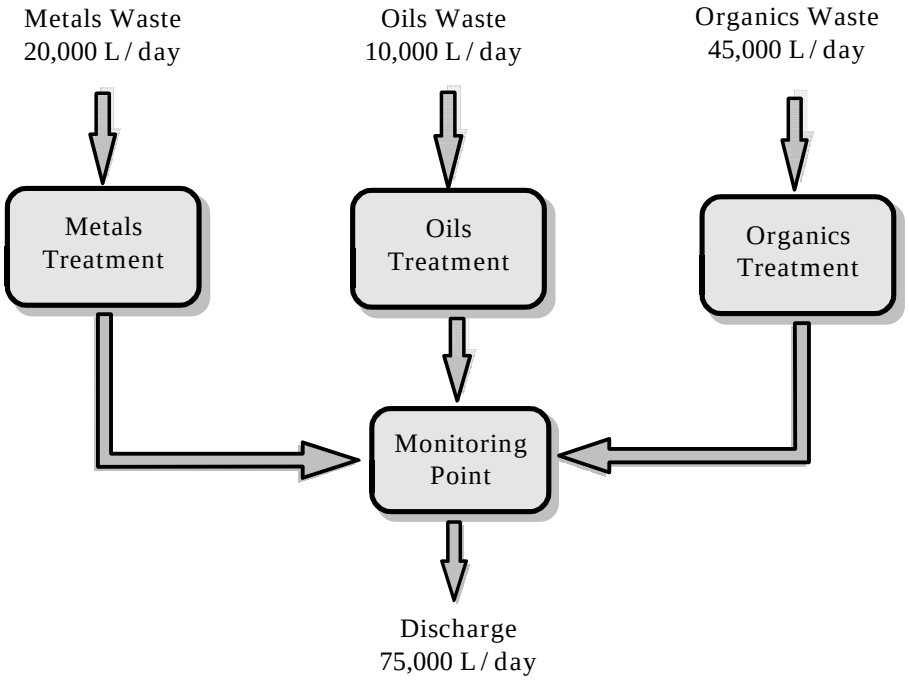


Figure 7-2 Facility Accepting Waste in All Three Subcategories With Treatment in Each and Combined Outfall

First, the CWT facility must demonstrate equivalent treatment for all three subcategories. The control authority then establishes a single monitoring point. The control authority requires the facility to comply with Subcategory D pretreatment standards for facilities which commingle wastes from Subcategory A, B, and C.

Facilities may only use this approach if they establish equivalent treatment.

Example 7-3

Facility C accepts waste in the oils and metals subcategory. The total volume of wastewater discharged to the local POTW is 100,000 liters per day. The facility segregates oils and metals waste receipts and first treats the oils waste receipts using two stage emulsion breaking/gravity separation and dissolved air flotation. The facility then commingles this wastewater with metal subcategory waste receipts and treats the combined wastestreams using primary and secondary chemical precipitation and solid/liquid separation followed by multimedia filtration.

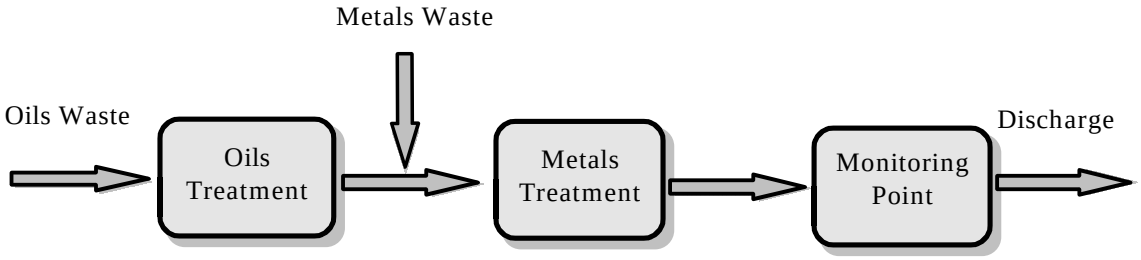


Figure 7-3 Facility Accepting Wastes in Multiple Subcategories and Treating Separately

First, the CWT facility must demonstrate equivalent treatment for the metals and the oils subcategory. Like example 7-2, the control authority then establishes a single monitoring point. This monitoring point follows the metals treatment. The control authority requires the facility to comply with Subcategory D pretreatment standards for facilities which commingle wastes from Subcategories A and B.

7.3 How Will the Permitting or Control Authority Incorporate the Cyanide Limit in the Metals Subcategory?

Whenever a CWT facility that is a small entity accepts a waste receipt that contains more than 136 mg/L of total cyanide, the CWT facility must monitor for cyanide when the wastewater exits the cyanide destruction process rather than after mixing with other process wastewater. Alternatively, the facility may monitor for compliance after mixing if permitting or control authority adjusts the cyanide limitations using the "building block approach" or "combined waste stream formula," assuming the cyanide limitations do not fall below the minimum analytical detection limit. For further information on the "building block approach" or "combined waste stream formula", see Section 14 of the TDD. Example 7-4 illustrates this approach.

Example 7-4

Facility C in example 7-3 also accepts concentrated cyanide baths.

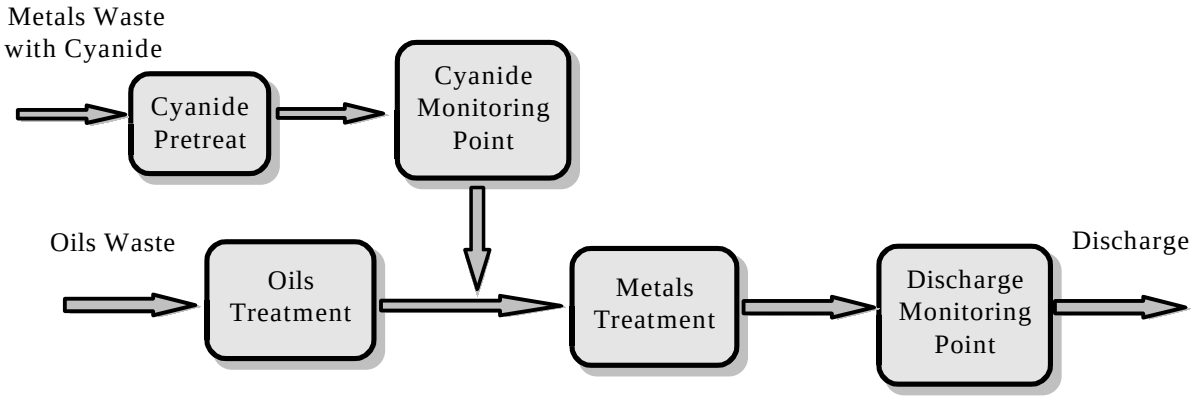


Figure 7-4 Facility Accepting Multiple Subcategory Wastes (including Cyanide) and Treating Separately

In addition to monitoring for compliance with the multiple wastestream subcategory pretreatment standards for a combination of metals and oils wastes, this facility would be required to monitor for compliance with cyanide pretreatment standards. Alternatively, the control authority may allow the facility to monitor for compliance with the cyanide pretreatment standards at the monitoring point at the point of discharge if the control authority adjusts the limit appropriately and that limit does not fall below the minimum analytical detection limit.

CHAPTER 8

EQUIVALENT TREATMENT DETERMINATION

As described in Chapter 7, a CWT facility that accepts wastes in more than one CWT subcategory may elect to comply with the appropriate set of limitations or standards for Subcategory D. A facility, however, may only elect to comply with the Subcategory D limitations or standards if it has established that it is providing "equivalent treatment." Providing equivalent treatment means that the facility is providing treatment for its mixed wastewater that is designed to ensure pollutant removal that are essentially the same as would be obtained from separate treatment of the different subcategory wastestreams. If a facility cannot establish equivalent treatment then it must comply with each applicable subcategory's limitations or standards individually. This chapter provides guidance to CWT facilities on how to establish equivalent treatment.

8.1 Introduction

Before a multi-subcategory CWT facility may elect to comply with effluent limitations or standards from Subcategory D, it must first demonstrate equivalent treatment for each applicable subcategory. The CWT rule defines equivalent treatment as "a wastewater treatment system that achieves comparable pollutant removals to the applicable treatment technology selected as the basis for the limits and standards." The permitting or control authority makes the equivalent treatment determination. The CWT facility needs to provide its permitting or control authority with the information and data needed to make this determination. The CWT rule defines three things a CWT facility must do to demonstrate equivalent treatment. The facility must:

1. submit an initial certification statement;
2. submit periodic certification statements; and
3. maintain on-site compliance paperwork.

Each of these requirements are discussed in more detail below.

8.2 Initial Certification Statement

8.2.1 What is an Initial Certification Statement?

The initial certification statement is a written submission from a CWT facility to the appropriate permitting authority certifying that its treatment train includes all applicable equivalent treatment systems. It must be signed by the responsible corporate officer as

The initial certification statement should be signed by the same person who signs the compliance status reports.

defined in 40 CFR 403.12(l) or 40 CFR 122.22. It should also be kept on file at the CWT facility as part of the required on-site compliance paperwork.

8.2.2 When Does the Facility Have to Submit the Initial Certification Statement?

The CWT facility must notify its permitting or control authority of its desire to be subject to Subcategory D limitations or standards by submitting an initial certification statement. Table 8-1 outlines when CWT facilities must submit an initial certification statement.

> EPA suggests that an indirect CWT facility planning to comply with the multiple wastestream subcategory standards notify its control authority of this intent and also state, based on its BMR submission, whether it can or cannot comply with the standards currently.

Table 8-1 Initial Certification Dates

Type of CWT Facility	Required Initial Certification Statement Date	Submission Must Be Made to:
Existing Direct Discharger	at the time of permit renewal or modification	NPDES permit writer
Existing Indirect Discharger	prior to December 22, 2003[1]	control authority
New Direct Discharger	at the time of submitting its application for permit	NPDES permit writer
New Indirect Discharger	at the time of submitting its application for an individual control mechanism	control authority

8.2.3 What Does a CWT Facility Have to Include in an Initial Certification Statement?

The CWT rule requires the initial certification to include three items:

1. A list and description of the subcategories of wastes accepted for treatment at the CWT facility;
2. A list and description of the treatment systems at the CWT facility and the conditions under which the treatment systems are operated for the subcategories of wastes accepted for treatment; and
3. Information and supporting data establishing that these treatment systems will achieve equivalent treatment.

The following sections provide guidance to small entities that are CWT facilities on how EPA envisions these materials should be submitted.

[1]Facilities need to submit the initial certification to their control authorities well in advance of this date to ensure multiple wastestream pretreatment standards are in effect by this date.

Item 1: *List and description of the subcategories of wastes accepted for treatment at the facility*

While not required, CWT facilities may use the guidance provided in Chapter 5 to aid in determining what subcategories of wastes are accepted for treatment / recovery at the facility. The list of wastes accepted for treatment at the facility may be general (i.e., landfill leachate, used oil, metal finishing wastewater) or may be more specific (i.e., broken down by RCRA codes or waste codes). Based on information collected by EPA during development of this rule, CWT facilities already collect this type of information as part of their waste acceptance procedures. Table 8-2 is an example of the type of information EPA envisions facilities submitting to document the wastes accepted for treatment at the facility.

Table 8-2 Types of Wastes Accepted at Acme CWT

oils subcategory	metals subcategory
used oil	spent electroplating sludges
lubricants	metal finishing rinse waters
coolants	waste acids or bases with metals
oil-water emulsions	
non-contact used glycols	

Item 2: *A list and description of the treatment systems at the facility and the conditions under which the treatment systems are operated for the subcategories of wastes accepted for treatment*

The facility should provide information on the treatment systems for each subcategory identified in Step 1 above. This should include a listing of each treatment technology step that will be used (not which is present at the facility) to treat the wastestreams. In EPA's view, this should include a flow diagram of each treatment system as well as a written discussion. This written discussion should include pertinent information on the operation of each treatment step such as the type of treatment chemicals included in a chemical precipitation step. Figure 8-1 is an example of the level of detail envisioned by EPA.

MEMORANDUM

July 1, 20XX

FROM: Jane Doe, Plant Supervisor, Acme CWT
TO: Pretreatment Coordinator, City POTW
SUBJECT: Equivalent Treatment Determination for CWT Regulation

The Acme CWT facility treats both oils and metals subcategory wastes. As illustrated below, some oily wastewater is sent directly to oil/water separation tanks where gravity oil/water separation occurs. Others do not separate efficiently using gravity alone and are transferred to the emulsion breaking tank where heat and/or treatment chemicals may be added to break the emulsions. The temperature and treatment chemicals vary depending on the emulsion being treated. Treatment chemicals may include polymer, sulfuric acid, and/or alum. The resulting wastewater from the oil/water separation phase is then treated by dissolved air flotation. The DAF system consists of a 3,000 gallon slow-mix tank, a DAF unit, chemical mix tanks, metering pumps for each chemical, and in-line mixers. The treatment chemicals added to the DAF vary depending on the wastewater being treated and may include polymer or caustic. The total detention time of the DAF system is 50 to 100 minutes. Wastewater from the DAF is then commingled with treated metals subcategory wastewater for final discharge.

Metals subcategory wastewaters are treated in a system which consists of primary and secondary metals precipitation. Primary precipitation treatment occurs in the primary treatment tanks where lime is added. The precipitation is carried out at ambient temperatures with pH ranging from 8 to 9.5. Caustic or waste sulfuric acid may also be added to maintain pH. Other chemicals such as sodium sulfide or potassium permanganate may also be added. The resulting wastewater is then sent to a clarifier. Following clarification, the wastewater is processed through a second precipitation step. Once again the precipitation is carried out at ambient temperatures and the pH varies depending on the specific metals being removed from the wastewater. Treatment chemicals may include caustic, sulfuric acid, lime, or ferric chloride. The resulting wastewater is then clarified and commingled with treated oils subcategory wastewater.

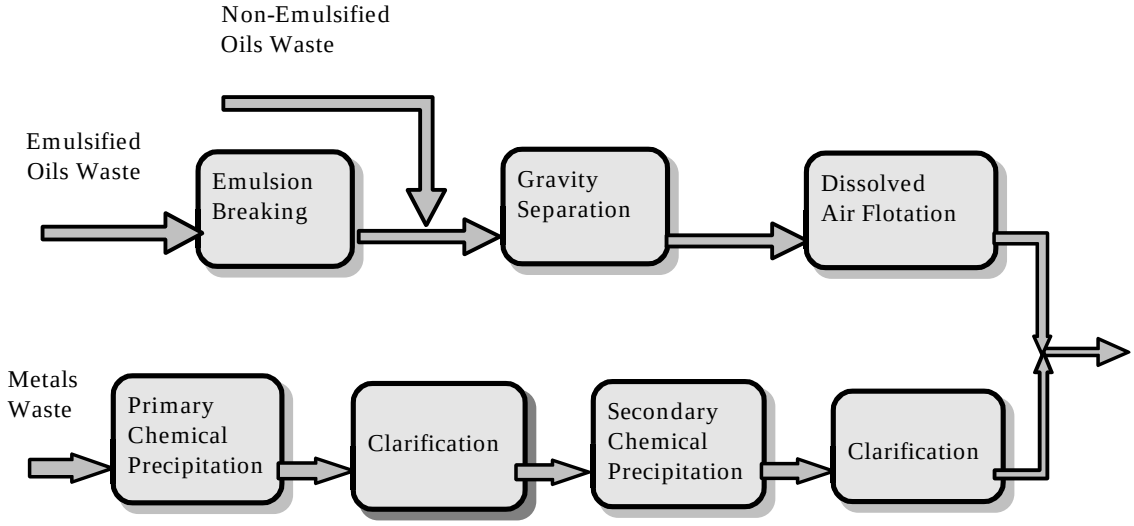


Figure 8-1 Sample Memorandum for Equivalent Treatment Determinations

***Item 3**: Information and supporting data establishing that these treatment systems will achieve equivalent treatment.*

The CWT rule defines equivalent treatment as a "wastewater treatment system that achieves comparable pollutant removals to the applicable technology selected as the basis for the limitations and pretreatment standards. Comparable removals may be demonstrated through references in technical and engineering treatises, journals or other literature, treatability tests, or self-monitoring data." The most common measurement of pollutant removals is percent removal which measures the amount of contaminant removed from the wastestream. Calculation of percent removals is discussed in more detail in Chapter 7 of the technical development document and is: $(MASS_{influent} - MASS_{effluent}) / MASS_{influent}$. EPA calculated the percent removals for each regulated pollutant using the data included for developing the limitations and standards in each subcategory. Tables 8-3 and 8-4 show these pollutant removals. CWT facilities can use the information in these tables to compare the pollutant removals achieved by their selected technologies to EPA's technology basis.

The treatment technologies selected as the basis for the limitations and pretreatment standards are listed in Table 3-1 in Chapter 3.

Table 8-3 Removal Efficiencies for *Indirect* Discharging CWT Treatment Systems

Oils Subcategory Pollutant Parameter	Oils Subcat. Existing Source Removal (%)	Oils Subcat. New Source Removal (%)	Metals Subcategory Pollutant Parameter	Metals Subcat. Existing & New Source Removal (%)	Organics Subcategory Pollutant Parameter	Organics Subcat. Existing & New Source Removal (%)
CLASSICALS			CLASSICALS		CLASSICALS	
Total Cyanide	64.38	64.38	Hexavalent Chromium	98.01	Total Cyanide	33.46
			Total Cyanide	99.30		
METALS			METALS		METALS	
Antimony	87.99	87.99	Antimony	94.30	Antimony	33.27
Arsenic	57.64	57.64	Arsenic	91.74	Cobalt	17.31
Barium	91.91	91.91	Cadmium	99.97	Copper	38.04
Cadmium	88.07	88.07	Chromium	99.91	Molybdenum	57.10
Chromium	80.54	86.24	Cobalt	98.47	Silicon	4.71
Cobalt	52.20	52.20	Copper	99.91	Strontium	59.51
Copper	91.09	90.02	Iridium	99.69	Zinc	60.51
Lead	92.64	88.26	Lead	99.95		
Mercury	77.43	77.43	Lithium	66.83	ORGANICS	
Molybdenum	53.73	53.73	Mercury	98.38	2-butanone	69.20
Nickel	41.24	41.24	Molybdenum	26.40	2-propanone	68.57
Selenium	36.94	36.94	Nickel	99.59	2,3-dichloroaniline	80.45
Silicon	54.16	54.16	Selenium	57.54	2,4,6-trichlorophenol	45.16

Table 8-3 Removal Efficiencies for *Indirect* Discharging CWT Treatment Systems

Oils Subcategory Pollutant Parameter	Oils Subcat. Existing Source Removal (%)	Oils Subcat. New Source Removal (%)	Metals Subcategory Pollutant Parameter	Metals Subcat. Existing & New Source Removal (%)	Organics Subcategory Pollutant Parameter	Organics Subcat. Existing & New Source Removal (%)
Strontium	50.68	50.68	Silicon	98.58	Acetophenone	92.44
Tin	90.77	90.77	Silver	99.62	Aniline	92.88
Titanium	89.99	89.99	Strontium	95.89	Benzoic Acid	94.29
Zinc	80.33	83.48	Tin	99.94	n,n-Dimethylformamide	89.26
			Titanium	99.84	o-Cresol	98.39
ORGANICS			Vanadium	99.46	p-Cresol	85.38
2-Butanone	15.41	15.41	Yttrium	95.39	Pentachlorophenol	23.19
4-chloro-3-methylphenol*	-	27.48	Zinc	99.93	Phenol	87.08
Acenapthene	96.75	96.75	Zirconium	42.13	Pyridine	61.69
Alpha-terpineol	94.77	94.77				
Anthracene	97.07	96.67	ORGANICS			
Benzo (a) anthracene	94.38	95.69	2-Butanone	74.72		
Benzoic acid	6.54	19.32	2-Propanone	65.62		
Bis(2-	93.22	93.66	Benzoic Acid	82.99		
Butyl benzyl phthalate	92.19	92.19	n,n-Dimethylformamide	54.81		
Carbazole	81.09	81.09	Pyridine	48.49		
Chrysene	96.93	97.22				
Diethyl phthalate	77.01	63.97				
Fluoranthene	96.24	95.21				
Fluorene	95.32	92.86				
n-Decane	97.36	94.98				
n-Docosane	97.25	96.87				
n-Dodecane	94.14	96.50				
n-Eicosane	95.88	95.54				
n-Hexadecane	97.38	96.53				
n-Octadecane	97.32	97.20				
n-Tetradecane	97.26	96.85				
o-cresol*	-	21.08				
p-cresol*	-	34.88				
Phenol	53.68	14.88				
Pyrene	97.10	97.63				
Pyridine	21.45	21.45				

* Not applicable for Existing Sources

Table 8-4 Removal Efficiencies for *Direct* Discharging CWT Treatment Systems

Oils Subcategory Pollutant Parameter	Oils Subcat. Existing & New Source Removal (%)	Metals Subcategory Pollutant Parameter	Metals Subcat. Existing Source Removal (%)	Metals Subcategory Pollutant Parameter	Metals Subcat. New Source Removal (%)	Organics Subcategory Pollutant Parameter	Organics Subcat. Existing & New Source Removal (%)
CLASSICALS		CLASSICALS		CLASSICALS		CLASSICALS	
Total Cyanide	64.38	Hexavalent Chromium	98.01	TSS	99.97	Total Cyanide	33.46
		Total Cyanide	99.30				
				METALS			
METALS		METALS		Antimony	99.76	METALS	
Antimony	87.99	Antimony	94.30	Arsenic	99.87	Antimony	33.27
Arsenic	57.64	Arsenic	91.74	Cadmium	99.98	Cobalt	17.31
Barium	91.91	Cadmium	99.97	Chromium	99.98	Copper	38.04
Cadmium	88.07	Chromium	99.91	Cobalt	99.76	Molybdenum	57.10
Chromium	86.24	Cobalt	98.47	Copper	100.00	Silicon	4.71
Cobalt	52.20	Copper	99.91	Lead	99.79	Strontium	59.51
Copper	90.02	Iridium	99.69	Mercury	99.89	Zinc	60.51
Lead	88.26	Lead	99.95	Molybdenum	40.11		
Mercury	77.43	Lithium	66.83	Nickel	99.86	ORGANICS	
Molybdenum	53.73	Mercury	98.38	Selenium	94.33	2-butanone	69.20
Nickel	41.24	Molybdenum	26.40	Silver	99.61	2-propanone	68.57
Selenium	36.94	Nickel	99.59	Tin	99.89	2,3-dichloroaniline	80.45
Silicon	54.16	Selenium	57.54	Titanium	99.78	2,4,6-trichlorophenol	45.16
Strontium	50.68	Silicon	98.58	Vanadium	98.95	Acetophenone	92.44
Tin	90.77	Silver	99.62	Zinc	99.99	Aniline	92.88
Titanium	89.99	Strontium	95.89			Benzoic Acid	94.29
Zinc	83.48	Tin	99.94			n,n-Dimethylformamide	89.26
		Titanium	99.84			o-Cresol	98.39
ORGANICS		Vanadium	99.46			p-Cresol	85.38
2-Butanone	15.41	Yttrium	95.39			Pentachlorophenol	23.19
4-chloro-3-methylphenol*	27.48	Zinc	99.93			Phenol	87.08
Acenapthene	96.75	Zirconium	42.13			Pyridine	61.69
Alpha-terpineol	94.77						
Anthracene	96.67	ORGANICS					
Benzo (a) anthracene	95.69	2-Butanone	74.72				
Benzoic acid	19.32	2-Propanone	65.62				
Bis(2-ethylhexyl) phthalate	93.66	Benzoic Acid	82.99				
Butyl benzyl phthalate	92.19	n,n-Dimethylformamide	54.81				
Carbazole	81.09	Pyridine	48.49				
Chrysene	97.22						
Diethyl phthalate	63.97						
Fluoranthene	95.21						
Fluorene	92.86						
n-Decane	94.98						
n-Docosane	96.87						
n-Dodecane	96.50						
n-Eicosane	95.54						
n-Hexadecane	96.53						
n-Octadecane	97.20						
n-Tetradecane	96.85						
o-cresol*	21.08						

Table 8-4 Removal Efficiencies for *Direct* Discharging CWT Treatment Systems

Oils Subcategory Pollutant Parameter	Oils Subcat. Existing & New Source Removal (%)	Metals Subcategory Pollutant Parameter	Metals Subcat. Existing Source Removal (%)	Metals Subcategory Pollutant Parameter	Metals Subcat. New Source Removal (%)	Organics Subcategory Pollutant Parameter	Organics Subcat. Existing & New Source Removal (%)
p-cresol*	34.88						
Phenol	14.88						
Pyrene	97.63						
Pyridine	21.45						

For the Acme CWT facility described in Figure 8-1 above, the facility could simply state that it uses the same treatment technologies selected as the basis for the limitations and standards for the oils and metals subcategory, and has therefore demonstrated equivalent treatment. However, a CWT facility does not need to use the treatment systems selected as the basis of the limitations and standards to demonstrate equivalent treatment. As defined, equivalent treatment may be demonstrated through literature studies, treatability tests, or self-monitoring data, or a combination of these. Each of these are discussed further below.

An evaluation of equivalent treatment should focus on effective treatment of each subcategory's wastes in the treatment train. The goal is not to evaluate combined wastestreams from different subcategories.

EPA included this requirement so that pollutant reductions would be through treatment rather than dilution.

Demonstrate equivalent treatment through literature

Effective treatment technologies can be identified through a variety of sources including technical literature, treatability databases, and treatment vendors. Treatability testing on similar wastewaters may provide clues on how to effectively treat a particular wastewater. Treatment technology vendors should have information on the capabilities of their treatment systems. A CWT facility may use information from any of these sources, if available, to demonstrate that a particular treatment system will achieve comparable removals to EPA's model technologies. This option may be particularly useful if a facility has actual removal data for a particular technology for some regulated pollutants and not others, but can demonstrate through literature sources that the pollutants should be treated in a similar manner.

The National Risk Management Research Laboratory's (NRMRL) Treatability Database can be accessed on-line: www.epa.gov/tdbnrmrl

Demonstrate equivalent treatment through treatability tests

Literature sources are a good method for evaluating various treatment technologies, but treatability tests may also be required to demonstrate that a particular technology has comparable removals to the model technologies selected as the basis for the rule. For example, a facility may have literature information that carbon adsorption is effective for the removal of n-dodecane, but

does not have information on n-decane. Because these chemicals have similar structures, one would expect them to behave similarly. However, a treatability test would provide the CWT facility with the additional data which confirm the equivalent treatment demonstration.

Many CWT facilities already perform treatability tests to obtain optimum pollutant removals and identify alternative treatment schemes. A treatability test may also allow a facility to identify surrogate parameters that may be used on an on-going basis to demonstrate equivalent treatment.

When conducting a treatability test, facilities may only test the individual treatment unit operations. However, if a facility intends to implement an entire treatment train, testing the entire train may reveal important information about how the wastewater characteristics change with each treatment step. Testing the wastewater through the entire treatment train can help troubleshoot the system and determine whether pretreatment steps are adequate to prevent malfunctioning of other unit operations in the treatment train.

It is not always necessary to treat a large volume of wastewater in treatability tests, and often valuable information can be acquired from smaller scale tests. Treatability tests are typically categorized based on size as bench-, pilot- and full-scale test. A bench scale test is typically used to screen treatment technologies or determine initial design and operating parameters, and is typically conducted on one gallon or less of wastewater. Bench scale tests use laboratory equipment (for example, beakers, hot plates, and stirring rods) and may be conducted on synthetic wastewater (that is, distilled water spiked with a known concentration of contaminants). A bench scale test requires less cost and effort because of the smaller volume of wastewater tested and the basic equipment used. In addition, a bench scale treatability test may involve less sophisticated sampling and analysis, and may use indicator parameters or visual appearance of the wastewater instead of laboratory analysis to gauge test results.

A pilot scale test is conducted on actual wastewater, and is typically used to optimize design and operating parameters and to troubleshoot treatment problems before constructing a full-scale treatment system. Actual wastewater may contain surfactants, chelates, or impurities that may interfere with treatment. The test is generally intermediate in size. Pilot scale tests typically use smaller and simpler equipment than would be found in a full scale system, such as buckets and drums instead of treatment tanks. These systems may also use temporary equipment that can be disposed of after the test instead of permanently installed.

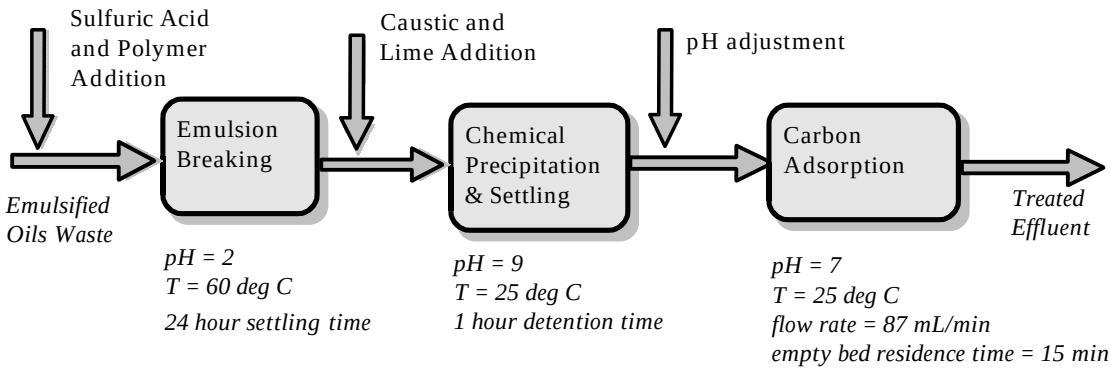
A full scale treatability test is conducted on actual wastewater using the actual size and type of equipment to be used for routine treatment.

If a CWT facility elects to demonstrate equivalent treatment through treatability tests, it needs to submit a detailed description of its treatability tests as well as the results. The detailed description should include the type of treatability test and the parameters used for evaluation. Operating parameters and information on the wastes treated should also be submitted. Figure 8-2 is an example of a treatment test summary that may be submitted as part of an equivalent treatment demonstration. The example shows treatability tests using oils subcategory wastes.

Facility: _____ Location: _____

Date: _____ Prepared by: _____

Insert your optimal treatment train and operating parameters in the space provided below:



Technology	Pollutant	pH	Temp, deg. C	Treat Time	Constituent Concentration		Test % Rem	CWT BAT % Rem
					Influent (mg/L)	Effluent (mg/L)		
Emulsion breaking	n-decane	2	60	24 hr.	1,000	700	30.0	
	carbazole	2	60	24 hr.	2500	2000	20.0	
	fluoranthene	2	60	24 hr.	3,000	2,000	33.3	
	chromium	2	60	24 hr.	230	150	34.8	
Single stage precipitation	chromium	9	25	1 hour	150	1	99.3	
Carbon	n-decane	7	25	15 min	700	10	98.6	
	carbazole	7	25	15 min	2000	20	99.0	
	fluoranthene	7	25	15 min	2000	40	98.6	

Figure 8-2 Sample Treatment Test Summary

For the parameters listed, this information indicates that the treatment systems evaluated achieve comparable removals to the treatment systems selected as the basis for the CWT limitations and pretreatment standards. Alternatively, if a treatment technology only removes 30 percent of a parameter, but that parameter is removed to below its detection limit or to the required discharge limits or standards, this would also demonstrate comparable removals.

Self Monitoring Data

The CWT facility may also provide the permitting or control authority with self-monitoring data to establish equivalent treatment. This is essentially the same as conducting a full-scale treatability test discussed above. It is important to remember that this self-monitoring data must demonstrate equivalent treatment for each individual subcategory and should not include commingled wastewater from different subcategories or non-CWT wastewater such as stormwater. The information submitted should be similar to that submitted for treatability tests and should include a summary table similar to Table 8-3. Self-monitoring data from the treatment system as employed on actual waste receipts is the most fool-proof method for demonstrating equivalent treatment.

8.3 Periodic Certification Statement

8.3.1 What Is a Periodic Certification Statement?

The periodic certification statement is a written submission to the permitting or control authority that certifies the facility is operating its treatment systems to provide equivalent treatment as set forth in its initial certification. In the event that the facility has modified its treatment systems, it must also include a justification to allow modification of the practices listed in its initial certification. The rule provides that the statement must be signed by the appropriate manager in charge of overall operations at the site to ensure that information provided is true, accurate, and complete to the best of his / her knowledge. Again, this manager should be the same person who signs compliance status reports required by 40 CFR 403.12(l) or 40 CFR 122.22. The periodic certification statements should also be kept on file at the facility as part of the required on-site compliance paperwork.

8.3.2 When Does a CWT Facility Have to File the Periodic Certification Statement?

The CWT rule requires the CWT facility to submit a periodic certification statement once per year. The permit writer or control authority should determine the required month of submission of the periodic certification statement and include this in the facility's discharge permit or control mechanism.

8.3.3 What Information Should Be Included in the Periodic Certification Statement?

If the information contained in the initial certification statement is still applicable, including information on the subcategory type for wastes accepted for treatment, a facility shall simply state that in a letter to the permit writer or control authority, and the letter shall constitute the periodic statement. However, if the facility has modified its treatment system or the subcategories of wastes accepted for treatment, it shall submit the revised information in a manner similar to the initial certification. In EPA's view, a modification is a change in treatment technology or a major change in operation. A CWT facility accepting different types of wastes within the same subcategory previously identified is not a major modification. EPA understands that CWT facilities may change operating parameters as needed depending on the waste being treated. In EPA's view, a major change in operating parameters (such as pH, temperature, etc.) is one that is not listed in the original certification that may reduce the effectiveness of the treatment. Similarly, a change in the treatment technology is any significant technology change that may reduce the effectiveness of the overall treatment system. For example, it would not include the addition of a mixer to an existing

technology, but would include removing / changing an entire treatment step in a treatment train. An example of a periodic certification statement in shown in Figure 8-3.

ACME CWT
1234 Main Street
Anytown, VA 12345

March 1, 20XX

Anytown POTW
1 Main Street
Anytown, VA 12345

Dear Sir / Madam:

Please be advised that our facility located at 1234 Main Street still accepts wastes in both the CWT oils and metals subcategories. The information in our original certification remains the same except that we now occasionally add a polymer to the DAF system. This has not reduced the effectiveness of the system.

Please feel free to contact me at (703) 555-5555 if you have any questions or comments about this additional treatment chemical.

Sincerely,

John Doe

John Doe
President

Figure 8-3 Sample Periodic Certification Statement

8.4 On-Site Compliance Paperwork:

8.4.1 What Materials Must Be Included with the On-site Paperwork?

The CWT rule requires the following materials be included as part of the on-site paperwork:

1. A general list and description of the subcategory wastes being accepted for treatment / recovery at the facility;
2. A list and description of the treatment systems at the facility and the conditions under which the treatment systems are operated for the subcategories of wastes accepted for treatment;
3. Information and supporting data establishing that these treatment systems will achieve equivalent treatment.
4. A description of the procedures it follows to ensure that its treatment systems are well operated and maintained; and
5. An explanation of why the procedures it has adopted will ensure its treatment system are well-operated and maintained.

The first three items are included in the initial certification and periodic certification statements. Therefore, the CWT facility should keep these certifications on file. Items 4 and 5 are discussed in more detail below.

Treatment System Operation and Maintenance

CWT facilities that comply with Subcategory D limitations or standards must also choose a method to demonstrate that their treatment system(s) are well operated and maintained. This method should be stated and the rationale for choosing it should be discussed in the on-site compliance paperwork, such as an environmental management system (EMS).

Proper operation and maintenance of a system includes a qualified person to operate the system, use of correct treatment chemicals in appropriate quantities, and operation of the system within stated design parameters (for example, temperature and pressure). Basically, the CWT facility should keep records of its operating parameters for its treatment systems. Based on information EPA collected during the development of this rule, most CWT facilities already maintain these records on-site. For example, the CWT facility should keep records on the amount and type of chemicals added to each step of its treatment systems. The facility should also document flow rates and recycle rates on a regular basis (or whenever possible). Additionally, facilities operating systems that require periodic maintenance (such as multimedia filters or carbon adsorption systems) should keep records on this aspect of treatment system operation. Alternatively, a facility could also monitor for specific parameters or a surrogate parameter. For example, a facility may operate dissolved air flotation. The method for demonstrating that the dissolved air flotation system is well operated can be as simple as maintaining records on the temperature and pH, the chemicals added (including quantity), the duration of treatment, recycle ratio, and physical characteristics of the wastewater before and after dissolved air flotation. Conversely, the facility could monitor for selected parameters for the purpose of demonstrating effective treatment. This could include any pollutant or a combination of pollutants. A CWT

facility should work with its permitting or control authority to determine whether its current EMS or alternative method for demonstrating that its treatment system(s) are well operated and maintained

EPA notes that permitting or control authorities may inspect the CWT facility at any time to confirm that the listed practices are being employed, that the treatment system is well operated and maintained, and that the necessary paperwork provides sufficient justification for any modifications.

8.5 Additional Considerations Permitting and Control Authorities May Use in Confirming Equivalent Treatment Determinations

Permitting and control authorities will evaluate and review certification statements and on-site compliance paperwork from CWT facilities for conformity with the rule requirements. Factors that may influence their decisions include previous experience with the CWT facility, the CWT facility management's commitment to program implementation, and the thoroughness and accuracy of the supporting documentation.

One area subject to interpretation is the determination of treatment system equivalency. When reviewing treatment system performance data, the permitting or control authority will likely review the source of data, the time period during which it was collected, and the type of data collected.

CHAPTER 9

COMPLIANCE ASSURANCE PROCESS

This chapter explains how EPA will determine compliance with the CWT rule, what happens if you or EPA discovers noncompliance, and the legal status of this guide.

9.1 How Will EPA Determine Compliance With the CWT Rule

EPA uses several approaches to monitor compliance with its environmental regulations, including methods initiated by EPA and by facilities.

A. Compliance Monitoring – Each discharge permit or individual control mechanism includes compliance monitoring requirements. These requirements typically specify the frequency of monitoring required as well as the individual parameters to be monitored and their respective discharge limits. Most permits (or control mechanisms) include limits for the daily maximum and the monthly average. The compliance monitoring must demonstrate that the discharge complies with both.

B. Reporting – The permitting or control authority will monitor reports submitted by the facility including discharge monitoring reports and periodic certification statements. These are the key means by which your compliance will be evaluated.

C. Inspections – Permitting authorities, control authorities, or EPA may conduct periodic inspections at facilities subject to this regulation. Inspections may be initiated by disclosures, random selection, or a variety of other targeting methods. Inspections may be used to evaluate operations, records, or other information at the facility. This will be an important component in assuring equivalent treatment at facilities which have elected this option.

D. Self Disclosure – The CWT facility has the primary responsibility for ensuring that its wastewater discharge complies continuously with its numerical discharge requirements and, if applicable, its equivalent treatment demonstration. EPA encourages CWT facilities to take advantage of EPA's self disclosure policies or small business policy.

9.2 If I Discover a Violation, How Can I Work with EPA to Correct It?

EPA encourages self-disclosure of violations and has implemented two policies to meet this goal. These policies meet the objectives of Section 223 of the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), which provides for the reduction, and, under some appropriate circumstances, the complete waiver of civil penalties for certain environmental violations. The policies are:

- Small Business Policy – The "Policy on Compliance Incentives for Small Businesses" applies to companies with 100 or fewer employees and provides penalty waivers or penalty reductions as incentives to participate in an on-site compliance assistance program and to conduct self-audits to discover and correct violations.

- Audit Policy – The "Incentives for Self-Policing: Disclosure, Correction, and Prevention of Violations" policy applies to businesses of all sizes that meet the applicability criteria and promptly disclose and correct violations.

9.3 If EPA Discovers a Violation, What Might EPA's Response Be?

To maximize compliance, EPA implements a balanced program of compliance assistance, compliance incentives, and traditional law enforcement. EPA knows that CWT facilities owned by small businesses that must comply with complicated new statutes or rules often want to do the right thing, but may lack the requisite resources. Compliance assistance information and technical advise helps small businesses to understand and meet their environmental obligations. Compliance incentives, such as our Small Business Policy, encourage persons to voluntarily discover, disclose, and correct violations before they're identified by the government. EPA's strong law enforcement program protects all of us by targeting persons who neither comply nor cooperate to address their problems.

EPA uses a variety of methods to determine whether businesses are complying, including inspecting facilities, reviewing records and reports, and responding to citizen complaints. If we learn a person is violating the law, EPA (or State, if the program is delegated) may file an enforcement action seeking penalties of up to $27,500 per violation, per day. The proposed penalty in a given case will depend on many factors, including the number, length, and severity of the violations, the economic benefit obtained by the violator, and its ability to pay. EPA has policies in place to ensure penalties are calculated fairly. These policies are available to the public. In addition, any company with a violation has the right to contest EPA's allegations and proposed penalty before an impartial judge or jury.

In summary, EPA recognizes that we can achieve the greatest possible protection by encouraging small businesses to work with us to discover, disclose, and correct violations. That's why we've issued self-disclosure, small business, and small community policies to eliminate or reduce penalties for small and large entities which cooperate with EPA to address compliance problems. In addition, we've established compliance assistance centers to serve over a million

small businesses. For more information on these and other EPA programs for small business, please contact EPA's Small Business Ombudsman, Karen Brown, at (202) 260-1390 or e-mail at brown.karen@epa.gov.

9.4 What is the Legal Status of This Guide?

A judge may review a compliance or implementation guide in determining what penalty is appropriate and reasonable, although the content of the guide cannot otherwise by reviewed by the court.

In this Compliance Guide, we have tried to make clear what you must do to comply with the applicable law and regulation. This is the minimum required by SBREFA. You'll notice, however, that here and there we have also included suggestions for alternative approaches that may make compliance easier and possibly even reduce costs. We hope you find this presentation of regulatory requirements useful and the additional information helpful in reaching and maintaining compliance.

(This Page Left Intentionally Blank)

CHAPTER 10

QUESTIONS AND ANSWERS

This chapter provides questions commonly asked during development of this rule and EPA's responses This information may serve to answer many questions which small entities may have about the CWT rule.

10.1 General

Q1. How many facilities are covered under the scope of this rule? How many discharge wastewater?

A1. EPA estimates there are 223 centralized waste treatment facilities in the U.S., 165 of which discharge wastewater.

Q2. My facility is a CWT, but it does not discharge wastewater. All wastewaters are shipped off-site to another CWT. Do I need to meet the CWT discharge requirements prior to shipping the wastewater off-site?

A2. The CWT rule applies to CWT facilities that discharge wastewater to surface waters or to POTWs. This facility does neither and is not required to meet the CWT discharge requirements before shipping the wastewater to another CWT.

Q3. Does the CWT rule include a de minimis exemption?

A3. No, the CWT rule does not include a de minimis exemption.

10.2 Applicability

Q1. My facility accepts wastes from off-site, but we are not a treatment facility. RCRA classifies us as a recycling facility. Are we subject to the CWT rule?

A1. The CWT rule is not limited to facilities that perform treatment only. In general, wastewater discharges from facilities that accept wastes from off-site for recycling are subject to the CWT rule. However, wastewater discharges from some *specific* recycling activities (such as solvent recovery) are not subject to the rule. Therefore, a recycler should consult the applicability section of the rule for more information on its specific recycling activity. If information is not included on its specific recycling activity, then its discharges associated with these acetifies are subject to this rule.

Q2. My facility only treats and discharges non-hazardous wastes. Is it subject to the CWT rule?

A2. The CWT rule applies to both hazardous and non-hazardous wastes. It does not differentiate based on the RCRA status of the wastes accepted for treatment.

Q3. My facility discharges wastewaters generated in the treatment of solid wastes received from off-site. Since the off-site wastes are not liquid, is the wastewater generated subject to the CWT rule?

A3. The CWT rule applies to wastewater discharges associated with the treatment and/or recovery of solid wastes, wastewater and used materials received from off-site.

Q4. My local POTW is my biggest competitor. Are POTWs subject to the CWT rule?

A4. POTWs are not CWT facilities and are not subject to the CWT rule. However, wastes that are hauled, piped or shipped by rail to POTWs must comply with applicable pretreatment standards and requirements, including categorical standards.

Q5. I only accept non-industrial wastes (that is, sanitary wastes) from off-site. Am I a CWT facility?

A5. No, the CWT rule only applies to discharges of industrial wastewaters. EPA does not consider sanitary wastewater to be industrial.

Q6. Are scrap metal yards and municipal waste transfer stations considered CWT facilities?

A6. No, scrap metal yards and municipal waste transfer stations are not subject to the CWT rule.

Q7. Is there a SIC Code which identifies the CWT industry?

A7. There is no SIC Code for the CWT industry. However, many CWT facilities have identified themselves with the SIC code for "Refuse systems," 4953.

10.3 Pollutants Selected for Regulation

Q1. My facility's permit does not currently limit all of the pollutants regulated in this rule. How did you select the regulated pollutants?

A1. EPA did not restrict its list of pollutants considered for regulation to the list of pollutants limited in current permits. EPA examined data from influent wastewater samples collected at many CWT facilities to determine the list of pollutants considered for regulation. Chapter 6 of the technical development document provides information on the methodology EPA used to establish the pollutants considered for regulation and Chapter 7 of the technical

development document details EPA's decisions on which of these pollutants were selected for regulation.

Q2. I discharge to a POTW and the regulated pollutants do not cause problems with my POTW. Why do I have to monitor for these pollutants?

A2. The objective of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." In order to achieve this objective, the CWA establishes as a national goal the elimination of the discharge of *all* pollutants into the nation's waters. Congress mandated EPA to establish pretreatment standards that are equivalent to standards for direct dischargers. These limitations for direct dischargers are based on effluent reductions that can be achieved by best available technology economically achievable (BAT)). However, Congress further mandated that EPA consider and recognize the treatment capability and performance of the POTW in controlling discharges for indirect dischargers. Consequently, EPA evaluated which pollutants to regulate for indirect dischargers by comparing removals of the pollutants regulated for direct dischargers with POTW removals to determine whether they "pass through" the POTW to surface waters. All pollutants regulated for indirect dischargers were determined to pass-through in EPA's assessment. This pass-through assessment is detailed further in Chapter 7 of the final technical development document and in the preamble to the final rule.

10.4 Subcategorization Procedure

Q1. Who is responsible for determining the proper subcategories? The CWT facility or the permit writer or control authority?

A1. EPA believes the CWT facility is in the best position to classify waste receipts into the proper subcategory. For indirect dischargers, this responsibility is even clearer, as categorical standards are self-implementing and do not depend necessarily on issuance of a permit.

Q2. My facility mainly accepts used oils. Occasionally, we also accept landfill leachate. The leachate represents no more than 5% of the volume of waste discharged when present. Based on your recommended subcategorization procedure, our facility would be classified as an oils and organics facility. However, since the leachate is only periodic and such a small percent of the wastewater discharged, can we simply classify ourselves as an oils facility?

A2. No, your facility is both an oils and an organics facility. During development of this rule, EPA considered an option for facilities that accept waste from different subcategories to round to the nearest five percent. The final rule did not include this option. EPA clearly

intends that the facility accurately account for all off-site wastes accepted – even if these off-site wastes are small in volume or represent a small percent of the wastewater discharged.

Q3. Are we required to use the subcategorization procedure outlined by EPA? For example, our facility accepts a waste that has high levels of zinc, low levels of other metals, and low levels of oil and grease. Using EPA's hierarchy, it would fall into the organics subcategory, but we believe it clearly belongs in the metals subcategory. Why do I have to classify it in the organics subcategory?

A3. First, EPA stresses that the criteria and information on subcategory determination are provided as guidance to permit writers, control authorities, and CWT facilities in properly classifying their wastes by subcategory. EPA expects that facilities will also apply common sense when using our suggested guides. Clearly, the waste described is a metals subcategory waste and should be classified as such. If it is not explicitly listed in the waste receipt classification table in Chapter 5, and the numerical hierarchy would otherwise classify this unusual waste as an organics waste, despite the high concentration of zinc, then the facility's judgment could override the classification procedure's output and classify this particular waste as needed.

Q4. We accept lubricants that sometimes contain nickel in concentrations in excess of the 37.5 mg/L listed in the waste hierarchy. Should this be classified as an oils waste, a metals waste or both?

A4. Using EPA's recommended subcategorization procedure, this waste would be classified in the oils subcategory. Lubricants are included in the waste receipt classification table as an oils subcategory waste. The subcategorization hierarchy (numerical criteria) should only be consulted if the waste is not listed in the waste receipt classification table in Chapter 5.

Q5. Does the CWT rule require documentation for determining the proper classification of wastes?

A5. The CWT rule does not require any documentation for determining the proper classification of wastes. However, permitting or control authorities may require such documentation. In EPA's view, however, most CWT facilities already collect and maintain sufficient information during their waste acceptance procedures to classify their waste receipts properly. In EPA's view, permitting or control authorities should only request additional documentation if a facility's waste acceptance procedures are inadequate. Inadequate support for classification could conceivably prevent a permitting or control authority from confirming which subcategories apply, at which point the permitting or control authority could choose to not issue a discharge permit.

Q6. I have been accepting used oils and coolants. I am now accepting bilge water. Do I need to repeat the determination?

A6. No, since bilge water is classified as an oils subcategory waste (see Table 5-1, Waste Receipt Classification), a new round of subcategorization is unnecessary.

10.5 Treatment

Q1. Does the CWT rule require facilities to use the model technologies?

A1. No, CWT facilities are not required to use the model technologies.

Q2. I installed the model technologies and still can't meet the required limits? What am I doing wrong?

A2. Installation of the model technology does not guarantee that you will be able to meet the discharge requirements. You must also optimize the operation of your system. In addition, many facilities improperly target the design and operation of their treatment systems to actual numerical limits. This does not ensure that the facility will be in compliance. Rather, a facility should target the design and operation of its system to the long-term averages. The long-term average for each limit is included in Appendix A. Unless there is a major upset of the system, this should ensure compliance with the discharge requirements.

Q3. How does this rule prevent the commingling of different types of wastestreams prior to receipt at the CWT. For example, waste is represented as oily waste, but metals have been mixed in during transport.

A3. As discussed in Chapter 5, waste generators initially furnish a CWT facility with a sample of the wastestream to be treated. The CWT analyzes this sample to characterize the level of pollutants in the sample and to determine what treatment is necessary. Then, generally, for each truck load of waste received for treatment from the generator, the CWT facility collects a sample and conducts "fingerprint" analysis to confirm it is similar to the initial sample tested. In this manner, the CWT facility should be aware if the waste generator is misrepresenting the wastestream characteristics. In the case of the example provided, the facility could decline to accept the wastestream (if it is unable to treat it effectively or if the wastestream is from a subcategory which would violate the facility's discharge permit).

10.6 Monitoring for Compliance

Q1. What monitoring frequency is required by the CWT rule?

A1. The CWT rule does not establish nationally-applicable monitoring frequency requirements, but rather, leaves the decision up to the permitting authority. The permitting or control authority is in the best position to gauge the facilities potential for violations and establish

monitoring frequencies accordingly. Permitting and control authorities generally use factors such as raw waste variability, wastewater flow volume, type of treatment, and compliance history, as well as self-developed IPPs to determine appropriate monitoring frequencies. Section 403.12(e) of the pretreatment regulations requires IUs subject to categorical pretreatment standards such as the CWT regulations to self-monitor and report at least twice per year.

Q2. Can a permitting or control authority reduce or waive sampling requirements for a particular pollutant after a history of sampling shows the pollutant to be absent?

A2. EPA has not established methods to waive sampling requirements for particular pollutants under the CWT rule. In general, EPA does not believe sampling requirements for specific pollutants should be waived entirely for the CWT industry because this industry accepts a wide variety of wastestreams that can vary considerably from one batch to the next.

However, direct dischargers (those with NPDES permits) that demonstrate their discharge is continually well within the limitations may have their monitoring frequency reduced. The requirements and procedures for this are described in detail in the EPA publication "Interim Guidance for Performance-Based Reduction of NPDES Permit Monitoring Frequencies" (EPA-833-B-96-001, April, 1996). In general, at least two years of monitoring data are needed and the modifications are made during the re-issuance of the permit. The modifications are made on a pollutant-by-pollutant basis.

For indirect dischargers, EPA has proposed regulatory and administrative changes that may reduce the burden on entities regulated under the National Pretreatment Program. These proposed changes are referred to as the Pretreatment Streamlining Proposal. One of the proposed changes is to allow control authorities to waive industrial user (IU) sampling for pollutants that have been determined not to be present.

Q3. Does a CWT facility (electing to comply with the multiple wastestream limitations or standards) that accepts cyanide have to monitor for cyanide immediately following cyanide pretreatment?

A3. The CWT rule requires a facility that accepts wastes containing cyanide in excess of 136 mg/L to monitor for cyanide after cyanide treatment and before commingling with other waste streams. However, the permitting or control authority may allow the facility to monitor after commingling with other waste streams if the permitting or control authority adjusts the limit (or standard) using the building block approach (or combined waste stream formula) and the adjusted limit (or standard) does not fall below the analytical minimum level.

Q4. What if a wastewater matrix causes interference with the analytical method (and therefore the detection limit is higher than the discharge limit)?

A4. The procedures outlined in EPA's Guidance on Evaluation, Resolution, and Documentation of Analytical Problems Associated with Compliance Monitoring (EPA 821-B-93-001) explain how to eliminate matrix or other interference with analysis.

10.7 Multiple Wastestream Subcategory

Q1. Can permitting or pretreatment authorities use the building block approach or combined waste stream formula to determine the discharge requirements for a facility in lieu of the multiple wastestream subcategory pretreatment standards?

A1. No, the building block approach and combined waste stream formula cannot be used to establish discharge requirements for facilities subject to more than one CWT subcategory. The facility must comply with each applicable subcategory's limitations or standards separately or with the applicable set of multiple wastestream subcategory limitations or standards.

Q2. Does a CWT facility need to know the percentage of wastes that would be in each of the subcategories if it elects to comply with the multiple wastestream subcategory limitations?

A2. No, the CWT facility need not know the percentage of wastes that would fall into each of the subcategories if it chooses to comply with the multiple wastestream subcategory limitations. The multiple wastestream subcategory limitations consist of the most stringent of the limitations from each subcategory for each pollutant.

10.8 Initial Certification Paperwork for Equivalent Treatment

Q1. Who receives the initial certification?

A1. The permitting or control authority receives the certification from CWT facilities that wish to comply with multiple wastestream limitations or standards.

Q2. Does a CWT facility have to use the model technology to establish equivalent treatment?

A2. No, facilities electing to comply with the multiple wastestream subcategory limitations or standards may use the model technology or any technology they can demonstrate will achieve comparable removals.

Q3. What data requirements are necessary to establish equivalent treatment? For example, to establish that my system achieves zinc removals equivalent to the model technology, how many samples must I collect?

A3. The final CWT rule defines equivalent treatment, but gives CWT facilities the latitude to

determine the appropriate manner in which to establish it. The rule does not specify a particular "number" of samples that must be collected and submitted. In fact, the final rule does not require CWT facilities to collect any samples. CWT facilities should work with their respective permit writer or control authority to determine an appropriate and reasonable manner to establish equivalent treatment for their particular circumstances.

Q4. When does the initial certification paperwork have to be completed?

A4. For existing indirect dischargers, the initial certification paperwork must be completed by or before the compliance deadline. For existing direct dischargers, new direct dischargers and new indirect dischargers, the initial certification must be completed by the time of permit or control mechanism issuance, re-issuance or renewal. EPA suggests that an indirect discharging CWT facility that plans to comply with the multiple wastestream subcategory pretreatment standards notify its control authority of this intent and also state, in their BMR submission, whether it can or cannot comply with theses standards currently.

Q5. Does the system have to be fully tested and operational at the time of the initial certification statement is submitted?

A5. No, the treatment system may be tested after the initial certification statement is submitted, but the system must be fully operational by the required date of compliance.

Q6. Do treatability tests require elaborate QA/QC procedures?

A6. No, the level of QA/QC conducted during EPA sampling is not necessary for facility treatability testing.

10.9 Periodic Certification Statement for Equivalent Treatment Certification

Q1. When is the periodic certification required?

A1. The periodic certification requirement begins after the facility has submitted its initial certification and is required once per year. The timing of submittal can be coordinated with the submittal of compliance paperwork required by the General Pretreatment Regulations or the NPDES regulations.

Q2. Does a facility need to monitor for the regulated pollutants when developing a relationship for surrogate parameters used to demonstrate that a treatment system is well-operated and maintained?

A2. The CWT rule does not require monitoring or the establishment of a surrogate parameter to demonstrate that a system is well-operated and maintained. However, if a facility chooses to use a surrogate parameter to demonstrate that a treatment system is well

operated and maintained, it should monitor for the specific regulated pollutant(s) to establish the relationship between the surrogate and the regulated pollutants.

Q3. In the periodic certification statement, the CWT rule requires the facility to provide information if it has modified its treatment system. What does EPA mean?

A3. In EPA's view, a modification is any significant change in the equipment, treatment chemicals, or operating procedures that could negatively affect the demonstrated removals. For example, if a facility has demonstrated equivalent treatment with a system that includes chemical precipitation and dissolved air flotation, and decides to eliminate the chemical precipitation step, this would be a modification that would require a re-demonstration assuming the applicable subcategories have not changed. However, switching chemical companies is an insignificant change.

Q4. Are CWT facilities required to submit monitoring data to the permitting or control authority that they collect to demonstrate that a treatment system is well-operated and maintained?

A4. No, such data should be kept with the facility's on-site compliance paperwork and must be available to the permitting or control authority as well as enforcement officials.

10.10 On-Site Compliance Paperwork for Equivalent Treatment Certification

Q1. For on-site compliance paperwork, may a facility cross-reference other records at the facility, or does a separate copy of those records need to exist in its CWT compliance file?

A1. Facilities may cross-reference records in other parts of the facility, but must be able to produce those records when requested by their permitting or control authority.

Q2. How is confidential business information (CBI) that is included as part of compliance paperwork (either initial or periodic certification or other on-site compliance paperwork) handled? What can a facility claim as CBI?

A2. The permitting or control authority is authorized to view CBI, but they must have procedures in place to protect CBI from unauthorized public access. Permitting and control authorities have to allow access to the public at least to the extent that the EPA confidentiality regulations allow public access. A facility cannot claim any effluent data or data associated with the "point of compliance" as confidential.

10.11 Costs

Q1. Is there any guidance on how much CWT facilities should spend on treatment of CWT wastewater?

A1. There is no guidance on the amount of money a facility should spend on wastewater treatment; it depends on a number of factors that the facility should consider in making a final compliance decision. These factors include the amount of wastewater treated, the characteristics of the wastewater being treated, treatment in place currently at the facility, the financial stability of the facility, and the market for waste treatment. For example, a facility may be able to treat a wastewater adequately using available technologies. However, if the amount of wastewater treated is very small, it may not be profitable for a facility to treat and discharge this wastewater to comply with this rule.

Q2. My facility cannot currently afford the upgrades to our treatment system that will be required to comply with this rule. Can we get a waiver of the requirements or an extension on the date of compliance?

A2. No, a CWT facility can not obtain a waiver (or FDF) based on financial constraints. If the facility is unable to comply with the regulation by the required date due to financial considerations, it should cease discharge by the compliance date.

Q3. Can EPA make any recommendations on financing additional wastewater treatment technologies for small businesses to comply with this rule?

A3. EPA has compiled a variety of sources to assist small businesses in applying for loans for pollution control. See http://www.epa.gov/smallbusiness/money.htm.

10.12 Baseline Monitoring Report

Q1. When is the baseline monitoring report due and to whom must it be submitted?

A1. For existing indirect dischargers, the baseline monitoring report is due on July 21, 2001. It is submitted to the control authority.

Q2. How many samples are required for the BMR?

A2. 40 CFR 403.12(b)(5)(iv) states, "The User shall take a minimum of one representative sample to compile the data necessary to comply with the requirements of this paragraph." The type of sample will depend on the nature of the pollutant as described in 40 CFR 403.12(b)(5)(iii), which states "a minimum of four(4) grab samples must be used for pH, cyanide, total phenols, oil and grease, sulfide, and volatile organics. For all other pollutants, 24-hour composite samples must be obtained through flow-proportional composite sampling techniques where feasible. The Control Authority may waive flow-proportional composite sampling for any Industrial User that demonstrates that flow-proportional sampling is infeasible. In such cases, samples may be obtained through time-proportional composite sampling techniques or through a minimum of four(4) grab samples where the User demonstrates that this will provide a representative sample of the

effluent being discharged." If the process produces a discharge that is a homogeneous batch, one grab sample may be taken.

10.13 RCRA Permits

Q1. Our facility has a Federal RCRA permit because we accept hazardous wastes. We cannot obtain a RCRA permit modification to alter our treatment system to meet the required pretreatment standards by the required date of compliance. How can we get an extension?

A1. Many CWT facilities with Federal RCRA permits are under the impression that if they modify their existing treatment system to comply with this regulation they will have to obtain a RCRA permit modification. This is incorrect. RCRA contains a wastewater treatment unit exemption from RCRA permit modification requirements for wastewater treatment units that are subject to NPDES or pretreatment requirements established under the CWA. Thus, CWT facilities with RCRA permits will not need to modify their RCRA permits as a result of this rule.

(This Page Left Intentionally Blank)

CHAPTER 11

WHERE TO GET ADDITIONAL HELP

This chapter presents additional sources of information, as well as EPA contacts, that may help small entities obtain additional information related to implementation of the CWT effluent guidelines limitations and standards for new and existing sources. Specifically, this chapter presents a list of selected federal programs. These lists also include information on how to reach EPA program personnel and how to access periodicals and directories.

11.1 Where Can I Get Copies of Document Related to the CWT Rule?

Copies of documents directly related to the CWT effluent guidelines and standards, such as the Technical Development Document (EPA-821-R-00-020), the Economic Analysis (EPA-821-R-00-024), the Cost Effectiveness Analysis (EPA-821-R-00-023), the Detailed Costing Document (EPA-821-R-00-021), and the Environmental Assessment Document (EPA-821-R-00-022) may be obtained from our web site at: www.epa.gov/ost/guide/cwti.html. You may also obtain copies of these documents by contacting the Office of Water Resource Center at (202) 260-7786 or by e-mail at: waterpubs@epamail.epa.gov or fax: (202) 260-0386.

11.2 Who Can Help Me at EPA with Specific Questions About the CWT Rule?

Questions specifically related to the effluent limitations guidelines and standards for the CWT industry should be directed to:

A. Ms. Jan Matuszko (technical questions)
Engineering and Analysis Division

Washington, DC
Tel: (202) 260-9126
Fax: (202) 260-7185
e-mail: matuszko.jan@epa.gov

B. Mr. Timothy Connor (technical questions)
Engineering and Analysis Division

Washington, DC
Tel: (202) 260-3164
Fax: (202) 260-7185

e-mail: connor.timothy@epa.gov

C. Dr. William Wheeler (economic questions)
Engineering and Analysis Division

Washington, DC
Tel: (202) 260-7905
Fax: (202) 260-7185
e-mail: wheeler.william@epa.gov

11.3 General Information

There are a number of web site resources for obtaining general information about the CWT rule, related programs, and general EPA policies. The following table identifies some of the main resources you may find helpful.

Table 11-1 General Resources Information

Resource	Web Address	Description
EPA web site	www.epa.gov	EPA's web site includes press releases, proposed and final EPA rules and regulations, and updates to this manual.
Engineering and Analysis Division website	www.epa.gov/ost/guide	Federal Register notices of proposed and final effluent limitations guidelines and standard rules, supplemental notices, pre-proposal documents, background information, draft industry questionnaires, public meeting notices, development documents and other supporting documents, updates to this manual, and related documents.
Federal Register Online via GPO Access	www.access.gpo.gov/su_docs/aces/aces140.html	Official Federal Register documents, including the published CWT regulation (December 22, 2000)
EPA Small Business Assistance Program (SBAP)	www.epa.gov/ttn/sbap	State and local SBAP contacts, SBAP materials, related web sites, meetings and conferences
EPA Office of Enforcement and Compliance Assurance: Policy on Compliance Incentives for Small Business	es.epa.gov/oeca/smbusi.html	Applicability of EPA's policy to promote environmental compliance among small businesses. Criteria for civil penalty mitigation.

Table 11-1 General Resources Information

Resource	Web Address	Description
EPA Office of Enforcement and Compliance Assurance: Audit Policy: Incentives for Self-Policing	es.epa.gov/oeca/auditpol.html	Applicability of EPA's policy to enhance protection of human health and the environment by encouraging regulated entities to voluntarily discover, and disclose and correct, violations of environmental requirements.

(This Page Left Intentionally Blank)

APPENDIX A

FINAL EFFLUENT LIMITATIONS AND STANDARDS FOR THE CWT INDUSTRY

This appendix presents the final effluent limitations and standards for the CWT industry. The limitations and standards are presented in tables starting on the next page. The limits are accompanied by the long-term averages that CWT facilities ought to use as the basis for design of their treatment systems. Note that the metals, oils, organics, and multiple wastestream subcategories are labeled Subcategories A, B, C, and D, respectively. Note also that the multiple wastestream effluent limitations and standards are presented for all possible subcategory combinations.

Table Appendix A-1. CWT design targets and BPT limitations by subcategory (mg/L)

Pollutant Parameters	CAS Registry Number	Metals - Subcategory A			Oils - Subcategory B			Organics - Subcategory C		
		Long-Term Average Design Targets	Limitations		Long-Term Average Design Targets	Limitations		Long-Term Average Design Targets	Limitations	
			Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum
CONVENTIONAL PARAMETERS*										
BOD_5	**C-003**							41.0	**163.**	**53.0**
Oil & Grease	**C-007**	34.3	**205.**	**50.2**	28.3	**127.**	**38.0**			
TSS	**C-009**	16.8	**60.0**	**31.0**	25.5	**74.1**	**30.6**	45.0	**216.**	**61.3**
METAL ANALYTES										
Antimony	**7440-36-0**	0.170	**0.249**	**0.206**	0.103	**0.237**	**0.141**	0.569	**0.928**	**0.679**
Arsenic	**7440-38-2**	0.0839	**0.162**	**0.104**	0.789	**2.95**	**1.33**			
Barium	**7440-39-3**				0.221	**0.427**	**0.281**			
Cadium	**7440-43-9**	0.0580	**0.474**	**0.0962**	0.00746	**0.0172**	**0.0102**			
Chromium	**7440-47-3**	1.67	**15.5**	**3.07**	0.183	**0.746**	**0.323**			
Cobalt	**7440-48-4**	0.115	**0.192**	**0.124**	7.42	**56.4**	**18.8**			
Copper	**7440-50-8**	0.744	**4.14**	**1.06**	0.157	**0.500**	**0.242**	0.704	**0.865**	**0.757**
Cyanide (in-plant)		136	**500**	**178**						
Lead	**7439-92-1**	0.177	**1.32**	**0.283**	0.0986	**0.350**	**0.160**			
Mercury	**7439-97-6**	0.000560	**0.00234**	**0.000739**	0.00309	**0.0172**	**0.00647**			
Molybdenum	**7439-98-7**				1.54	**3.50**	**2.09**	0.943	**1.01**	**0.965**
Nickel	**7440-02-0**	1.16	**3.95**	**1.45**						
Selenium	**7782-49-2**	0.280	**1.64**	**0.408**						
Silver	**7440-22-4**	0.0264	**0.120**	**0.0351**						
Tin	**7440-31-5**	0.0898	**0.409**	**0.120**	0.107	**0.335**	**0.165**			
Titanium	**7440-32-6**	0.0569	**0.0947**	**0.0618**	0.0217	**0.0510**	**0.0299**			
Vanadium	**7440-62-2**	0.0500	**0.218**	**0.0662**						
Zinc	**7440-66-6**	0.413	**2.87**	**0.641**	3.14	**8.26**	**4.50**	0.382	**0.497**	**0.420**
ORGANIC ANALYTES										
Acetone	**67-64-1**							2.06	**30.2**	**7.97**
Acetophenone	**98-86-2**							0.0359	**0.114**	**0.0562**
Aniline	**62-53-3**							0.0105	**0.0333**	**0.0164**
Bis(2-ethylhexyl) phthalate	**117-81-7**				0.0629	**0.215**	**0.101**			
Butanone	**78-93-3**							0.878	**4.81**	**1.85**
Butylbenzyl phthalate	**85-68-7**				0.0550	**0.188**	**0.0887**			
Carbazole	**86-74-8**				0.151	**0.598**	**0.276**			
o-Cresol	**95-48-7**							0.185	**1.92**	**0.561**
p-Cresol	**106-44-5**							0.0682	**0.698**	**0.205**
n-Decane	**124-18-5**				0.238	**0.948**	**0.437**			
2,3-Dichloroaniline	**608-27-5**							0.0230	**0.0731**	**0.0361**
Fluoranthene	**206-44-0**				0.0173	**0.0537**	**0.0268**			
n-Octadecane	**593-45-3**				0.203	**0.589**	**0.302**			
Phenol	**108-95-2**							0.362	**3.65**	**1.08**
Pyridine	**110-86-1**							0.116	**0.370**	**0.182**
2,4,6-Trichlorophenol	**88-06-2**							0.0858	**0.155**	**0.106**

* – The promulgated performance bounds for pH are 6-9 in standard units.

Table Appendix A-2. CWT design targets and BPT limitations for Subcategory D mixed wastestream combinations (mg/L)

Pollutant Parameters	CAS Registry Number	Metals, Oils, Organics (A, B, & C)			Metals, Oils (A & B)			Metals, Organics (A & C)			Oils, Organics (B & C)		
		Long-Term Average Design Targets	Limitations		Long-Term Average Design Targets	Limitations		Long-Term Average Design Targets	Limitations		Long-Term Average Design Targets	Limitations	
			Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum
CONVENTIONAL PARAMETERS*													
BOD_5	**C-003**	41.0	**163.**	**53.0**				41.0	**163.**	**53.0**	41.0	**163.**	**53.0**
Oil & Grease	**C-007**	28.3	**127.**	**38.0**	28.3	**127.**	**38.0**	34.3	**205.**	**50.2**	28.3	**127.**	**38.0**
TSS	**C-009**	25.5	**74.1**	**30.6**	25.5	**74.1**	**30.6**	16.8	**60.0**	**31.0**	25.5	**74.1**	**30.6**
METAL ANALYTES													
Antimony	**7440-36-0**	0.103	**0.237**	**0.141**	0.103	**0.237**	**0.141**	0.170	**0.249**	**0.206**	0.103	**0.237**	**0.141**
Arsenic	**7440-38-2**	0.0839	**0.162**	**0.104**	0.0839	**0.162**	**0.104**	0.0839	**0.162**	**0.104**	0.789	**2.95**	**1.33**
Barium	**7440-39-3**	0.221	**0.427**	**0.281**	0.221	**0.427**	**0.281**				0.221	**0.427**	**0.281**
Cadium	**7440-43-9**	0.00746	**0.0172**	**0.0102**	0.00746	**0.0172**	**0.0102**	0.0580	**0.474**	**0.0962**	0.00746	**0.0172**	**0.0102**
Chromium	**7440-47-3**	0.183	**0.746**	**0.323**	0.183	**0.746**	**0.323**	1.67	**15.5**	**3.07**	0.183	**0.746**	**0.323**
Cobalt	**7440-48-4**	0.115	**0.192**	**0.124**	0.115	**0.192**	**0.124**	0.115	**0.192**	**0.124**	7.42	**56.4**	**18.8**
Copper	**7440-50-8**	0.157	**0.500**	**0.242**	0.157	**0.500**	**0.242**	0.704	**0.865**	**0.757**	0.157	**0.500**	**0.242**
Cyanide (in-plant)		136	**500**	**178**	136	**500**	**178**	136	**500**	**178**			
Lead	**7439-92-1**	0.0986	**0.350**	**0.160**	0.0986	**0.350**	**0.160**	0.177	**1.32**	**0.283**	0.0986	**0.350**	**0.160**
Mercury	**7439-97-6**	0.000560	**0.00234**	**0.000739**	0.000560	**0.00234**	**0.000739**	0.000560	**0.00234**	**0.000739**	0.00309	**0.0172**	**0.00647**
Molybdenum	**7439-98-7**	0.943	**1.01**	**0.965**	1.54	**3.50**	**2.09**	0.943	**1.01**	**0.965**	0.943	**1.01**	**0.965**
Nickel	**7440-02-0**	1.16	**3.95**	**1.45**	1.16	**3.95**	**1.45**	1.16	**3.95**	**1.45**			
Selenium	**7782-49-2**	0.280	**1.64**	**0.408**	0.280	**1.64**	**0.408**	0.280	**1.64**	**0.408**			
Silver	**7440-22-4**	0.0264	**0.120**	**0.0351**	0.0264	**0.120**	**0.0351**	0.0264	**0.120**	**0.0351**			
Tin	**7440-31-5**	0.0898	**0.409**	**0.120**	0.0898	**0.409**	**0.120**	0.0898	**0.409**	**0.120**	0.107	**0.335**	**0.165**
Titanium	**7440-32-6**	0.0217	**0.0510**	**0.0299**	0.0217	**0.0510**	**0.0299**	0.0569	**0.0947**	**0.0618**	0.0217	**0.0510**	**0.0299**
Vanadium	**7440-62-2**	0.0500	**0.218**	**0.0662**	0.0500	**0.218**	**0.0662**	0.0500	**0.218**	**0.0662**			
Zinc	**7440-66-6**	0.382	**0.497**	**0.420**	0.413	**2.87**	**0.641**	0.382	**0.497**	**0.420**	0.382	**0.497**	**0.420**
ORGANIC ANALYTES													
Acetone	**67-64-1**	2.06	**30.2**	**7.97**				2.06	**30.2**	**7.97**	2.06	**30.2**	**7.97**
Acetophenone	**98-86-2**	0.0359	**0.114**	**0.0562**				0.0359	**0.114**	**0.0562**	0.0359	**0.114**	**0.0562**
Aniline	**62-53-3**	0.0105	**0.0333**	**0.0164**				0.0105	**0.0333**	**0.0164**	0.0105	**0.0333**	**0.0164**
Bis(2-ethylhexyl) phthalate	**117-81-7**	0.0629	**0.215**	**0.101**	0.0629	**0.215**	**0.101**				0.0629	**0.215**	**0.101**
Butanone	**78-93-3**	0.878	**4.81**	**1.85**				0.878	**4.81**	**1.85**	0.878	**4.81**	**1.85**
Butylbenzyl phthalate	**85-68-7**	0.0550	**0.188**	**0.0887**	0.0550	**0.188**	**0.0887**				0.0550	**0.188**	**0.0887**
Carbazole	**86-74-8**	0.151	**0.598**	**0.276**	0.151	**0.598**	**0.276**				0.151	**0.598**	**0.276**
o-Cresol	**95-48-7**	0.185	**1.92**	**0.561**				0.185	**1.92**	**0.561**	0.185	**1.92**	**0.561**
p-Cresol	**106-44-5**	0.0682	**0.698**	**0.205**				0.0682	**0.698**	**0.205**	0.0682	**0.698**	**0.205**
n-Decane	**124-18-5**	0.238	**0.948**	**0.437**	0.238	**0.948**	**0.437**				0.238	**0.948**	**0.437**
2,3-Dichloroaniline	**608-27-5**	0.0230	**0.0731**	**0.0361**				0.0230	**0.0731**	**0.0361**	0.0230	**0.0731**	**0.0361**
Fluoranthene	**206-44-0**	0.0173	**0.0537**	**0.0268**	0.0173	**0.0537**	**0.0268**				0.0173	**0.0537**	**0.0268**
n-Octadecane	**593-45-3**	0.203	**0.589**	**0.302**	0.203	**0.589**	**0.302**				0.203	**0.589**	**0.302**
Phenol	**108-95-2**	0.362	**3.65**	**1.08**				0.362	**3.65**	**1.08**	0.362	**3.65**	**1.08**
Pyridine	**110-86-1**	0.116	**0.370**	**0.182**				0.116	**0.370**	**0.182**	0.116	**0.370**	**0.182**
2,4,6-Trichlorophenol	**88-06-2**	0.0858	**0.155**	**0.106**				0.0858	**0.155**	**0.106**	0.0858	**0.155**	**0.106**

* – The promulgated performance bounds for pH are 6-9 in standard units.

Table Appendix A-3. CWT design targets and NSPS standards by subcategory (mg/L)

Pollutant Parameters	CAS Registry Number	Metals - Subcategory A			Oils - Subcategory B			Organics - Subcategory C		
		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards	
			Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum
CONVENTIONAL PARAMETERS*										
BOD_5	**C-003**							41.0	**163.**	**53.0**
Oil & Grease	**C-007**	34.3	**205.**	**50.2**	28.3	**127.**	**38.0**			
TSS	**C-009**	9.25	**29.6**	**11.3**	25.5	**74.1**	**30.6**	45.0	**216.**	**61.3**
METAL ANALYTES										
Antimony	**7440-36-0**	0.0213	**0.111**	**0.0312**	0.103	**0.237**	**0.141**	0.569	**0.928**	**0.679**
Arsenic	**7440-38-2**	0.0112	**0.0993**	**0.0199**	0.789	**2.95**	**1.33**			
Barium	**7440-39-3**				0.221	**0.427**	**0.281**			
Cadium	**7440-43-9**	0.0819	**0.782**	**0.163**	0.00746	**0.0172**	**0.0102**			
Chromium	**7440-47-3**	0.0398	**0.167**	**0.0522**	0.183	**0.746**	**0.323**			
Cobalt	**7440-48-4**	0.0574	**0.182**	**0.0703**	7.42	**56.4**	**18.8**			
Copper	**7440-50-8**	0.169	**0.659**	**0.216**	0.157	**0.500**	**0.242**	0.704	**0.865**	**0.757**
Cyanide (in-plant)		136	**500**	**178**						
Lead	**7439-92-1**	0.177	**1.32**	**0.283**	0.0986	**0.350**	**0.160**			
Mercury	**7439-97-6**	0.000201	**0.000641**	**0.000246**	0.00309	**0.0172**	**0.00647**			
Molybdenum	**7439-98-7**				1.54	**3.50**	**2.09**	0.943	**1.01**	**0.965**
Nickel	**7440-02-0**	0.255	**0.794**	**0.309**						
Selenium	**7782-49-2**	0.0563	**0.176**	**0.0698**						
Silver	**7440-22-4**	0.0100	**0.0318**	**0.0122**						
Tin	**7440-31-5**	0.0300	**0.0955**	**0.0367**	0.107	**0.335**	**0.165**			
Titanium	**7440-32-6**	0.00500	**0.0159**	**0.00612**	0.0217	**0.0510**	**0.0299**			
Vanadium	**7440-62-2**	0.0500	**0.0628**	**0.0518**						
Zinc	**7440-66-6**	0.206	**0.657**	**0.252**	3.14	**8.26**	**4.50**	0.382	**0.497**	**0.420**
ORGANIC ANALYTES										
Acetone	**67-64-1**							2.06	**30.2**	**7.97**
Acetophenone	**98-86-2**							0.0359	**0.114**	**0.0562**
Aniline	**62-53-3**							0.0105	**0.0333**	**0.0164**
Bis(2-ethylhexyl) phthalate	**117-81-7**				0.0629	**0.215**	**0.101**			
Butanone	**78-93-3**							0.878	**4.81**	**1.85**
Butylbenzyl phthalate	**85-68-7**				0.0550	**0.188**	**0.0887**			
Carbazole	**86-74-8**				0.151	**0.598**	**0.276**			
o-Cresol	**95-48-7**							0.185	**1.92**	**0.561**
p-Cresol	**106-44-5**							0.0682	**0.698**	**0.205**
n-Decane	**124-18-5**				0.238	**0.948**	**0.437**			
2,3-Dichloroaniline	**608-27-5**							0.0230	**0.0731**	**0.0361**
Fluoranthene	**206-44-0**				0.0173	**0.0537**	**0.0268**			
n-Octadecane	**593-45-3**				0.203	**0.589**	**0.302**			
Phenol	**108-95-2**							0.362	**3.65**	**1.08**
Pyridine	**110-86-1**							0.116	**0.370**	**0.182**
2,4,6-Trichlorophenol	**88-06-2**							0.0858	**0.155**	**0.106**

* – The promulgated performance bounds for pH are 6-9 in standard units.

Table Appendix A-4. CWT design targets and NSPS standards for Subcategory D mixed wastestream combinations (mg/L)

Pollutant Parameters	CAS Registry Number	Metals, Oils, Organics (A, B, & C)			Metals, Oils (A & B)			Metals, Organics (A & C)			Oils, Organics (B & C)		
		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards	
			Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum
CONVENTIONALS PARAMETERS*													
BOD_5	**C-003**	41.0	**163.**	**53.0**				41.0	**163.**	**53.0**	41.0	**163.**	**53.0**
Oil & Grease	**C-007**	28.3	**127.**	**38.0**	28.3	**127.**	**38.0**	34.3	**205.**	**50.2**	28.3	**127.**	**38.0**
TSS	**C-009**	9.25	**29.6**	**11.3**	9.25	**29.6**	**11.3**	9.25	**29.6**	**11.3**	25.5	**74.1**	**30.6**
METAL ANALYTES													
Antimony	**7440-36-0**	0.0213	**0.111**	**0.0312**	0.0213	**0.111**	**0.0312**	0.0213	**0.111**	**0.0312**	0.103	**0.237**	**0.141**
Arsenic	**7440-38-2**	0.0112	**0.0993**	**0.0199**	0.0112	**0.0993**	**0.0199**	0.0112	**0.0993**	**0.0199**	0.789	**2.95**	**1.33**
Barium	**7440-39-3**	0.221	**0.427**	**0.281**	0.221	**0.427**	**0.281**				0.221	**0.427**	**0.281**
Cadium	**7440-43-9**	0.00746	**0.0172**	**0.0102**	0.00746	**0.0172**	**0.0102**	0.0819	**0.782**	**0.163**	0.00746	**0.0172**	**0.0102**
Chromium	**7440-47-3**	0.0398	**0.167**	**0.0522**	0.0398	**0.167**	**0.0522**	0.0398	**0.167**	**0.0522**	0.183	**0.746**	**0.323**
Cobalt	**7440-48-4**	0.0574	**0.182**	**0.0703**	0.0574	**0.182**	**0.0703**	0.0574	**0.182**	**0.0703**	7.42	**56.4**	**18.8**
Copper	**7440-50-8**	0.169	**0.659**	**0.216**	0.169	**0.659**	**0.216**	0.169	**0.659**	**0.216**	0.157	**0.500**	**0.242**
Cyanide (in-plant)		136	**500**	**178**		**500**	**178**		**500**	**178**			
Lead	**7439-92-1**	0.0986	**0.350**	**0.160**	0.0986	**0.350**	**0.160**	0.177	**1.32**	**0.283**	0.0986	**0.350**	**0.160**
Mercury	**7439-97-6**	0.000201	**0.000641**	**0.000246**	0.000201	**0.000641**	**0.000246**	0.000201	**0.000641**	**0.000246**	0.00309	**0.0172**	**0.00647**
Molybdenum	**7439-98-7**	0.943	**1.01**	**0.965**	1.54	**3.50**	**2.09**	0.943	**1.01**	**0.965**	0.943	**1.01**	**0.965**
Nickel	**7440-02-0**	0.255	**0.794**	**0.309**	0.255	**0.794**	**0.309**	0.255	**0.794**	**0.309**			
Selenium	**7782-49-2**	0.0563	**0.176**	**0.0698**	0.0563	**0.176**	**0.0698**	0.0563	**0.176**	**0.0698**			
Silver	**7440-22-4**	0.0100	**0.0318**	**0.0122**	0.0100	**0.0318**	**0.0122**	0.0100	**0.0318**	**0.0122**			
Tin	**7440-31-5**	0.0300	**0.0955**	**0.0367**	0.0300	**0.0955**	**0.0367**	0.0300	**0.0955**	**0.0367**	0.107	**0.335**	**0.165**
Titanium	**7440-32-6**	0.00500	**0.0159**	**0.00612**	0.00500	**0.0159**	**0.00612**	0.00500	**0.0159**	**0.00612**	0.0217	**0.0510**	**0.0299**
Vanadium	**7440-62-2**	0.0500	**0.0628**	**0.0518**	0.0500	**0.0628**	**0.0518**	0.0500	**0.0628**	**0.0518**			
Zinc	**7440-66-6**	0.206	**0.657**	**0.252**	0.206	**0.657**	**0.252**	0.206	**0.657**	**0.252**	0.382	**0.497**	**0.420**
ORGANIC ANALYTES													
Acetone	**67-64-1**	2.06	**30.2**	**7.97**				2.06	**30.2**	**7.97**	2.06	**30.2**	**7.97**
Acetophenone	**98-86-2**	0.0359	**0.114**	**0.0562**				0.0359	**0.114**	**0.0562**	0.0359	**0.114**	**0.0562**
Aniline	**62-53-3**	0.0105	**0.0333**	**0.0164**				0.0105	**0.0333**	**0.0164**	0.0105	**0.0333**	**0.0164**
Bis(2-ethylhexyl) phthalate	**117-81-7**	0.0629	**0.215**	**0.101**	0.0629	**0.215**	**0.101**				0.0629	**0.215**	**0.101**
Butanone	**78-93-3**	0.878	**4.81**	**1.85**				0.878	**4.81**	**1.85**	0.878	**4.81**	**1.85**
Butylbenzyl phthalate	**85-68-7**	0.0550	**0.188**	**0.0887**	0.0550	**0.188**	**0.0887**				0.0550	**0.188**	**0.0887**
Carbazole	**86-74-8**	0.151	**0.598**	**0.276**	0.151	**0.598**	**0.276**				0.151	**0.598**	**0.276**
o-Cresol	**95-48-7**	0.185	**1.92**	**0.561**				0.185	**1.92**	**0.561**	0.185	**1.92**	**0.561**
p-Cresol	**106-44-5**	0.0682	**0.698**	**0.205**				0.0682	**0.698**	**0.205**	0.0682	**0.698**	**0.205**
n-Decane	**124-18-5**	0.238	**0.948**	**0.437**	0.238	**0.948**	**0.437**				0.238	**0.948**	**0.437**
2,3-Dichloroaniline	**608-27-5**	0.0230	**0.0731**	**0.0361**				0.0230	**0.0731**	**0.0361**	0.0230	**0.0731**	**0.0361**
Fluoranthene	**206-44-0**	0.0173	**0.0537**	**0.0268**	0.0173	**0.0537**	**0.0268**				0.0173	**0.0537**	**0.0268**
n-Octadecane	**593-45-3**	0.203	**0.589**	**0.302**	0.203	**0.589**	**0.302**				0.203	**0.589**	**0.302**
Phenol	**108-95-2**	0.362	**3.65**	**1.08**				0.362	**3.65**	**1.08**	0.362	**3.65**	**1.08**
Pyridine	**110-86-1**	0.116	**0.370**	**0.182**				0.116	**0.370**	**0.182**	0.116	**0.370**	**0.182**
2,4,6-Trichlorophenol	**88-06-2**	0.0858	**0.155**	**0.106**				0.0858	**0.155**	**0.106**	0.0858	**0.155**	**0.106**

* – The promulgated performance bounds for pH are 6-9 in standard units.

Table Appendix A-5. CWT design targets and PSES standards by subcategory (mg/L)

Pollutant Parameters	CAS Registry Number	Metals - Subcategory A			Oils - Subcategory B			Organics - Subcategory C		
		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards	
			Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum
METAL ANALYTES										
Antimony	7440-36-0	0.170	**0.249**	**0.206**	0.103	**0.237**	**0.141**			
Arsenic	7440-38-2	0.0839	**0.162**	**0.104**						
Barium	7440-39-3				0.221	**0.427**	**0.281**			
Cadium	7440-43-9	0.0580	**0.474**	**0.0962**						
Chromium	7440-47-3	1.67	**15.5**	**3.07**	0.323	**0.947**	**0.487**			
Cobalt	7440-48-4	0.115	**0.192**	**0.124**	7.42	**56.4**	**18.8**			
Copper	7440-50-8	0.744	**4.14**	**1.06**	0.257	**0.405**	**0.301**			
Cyanide (in-plant)		136	**500**	**178**						
Lead	7439-92-1	0.177	**1.32**	**0.283**	0.149	**0.222**	**0.172**			
Mercury	7439-97-6	0.000560	**0.00234**	**0.000739**						
Molybdenum	7439-98-7				1.54	**3.50**	**2.09**	0.943	**1.01**	**0.965**
Nickel	7440-02-0	1.16	**3.95**	**1.45**						
Selenium	7782-49-2	0.280	**1.64**	**0.408**						
Silver	7440-22-4	0.0264	**0.120**	**0.0351**						
Tin	7440-31-5	0.0898	**0.409**	**0.120**	0.107	**0.249**	**0.146**			
Titanium	7440-32-6	0.0569	**0.0947**	**0.0618**						
Vanadium	7440-62-2	0.0500	**0.218**	**0.0662**						
Zinc	7440-66-6	0.413	**2.87**	**0.641**	3.45	**6.95**	**4.46**			
ORGANIC ANALYTES										
Bis(2-ethylhexyl) phthalate	117-81-7				0.116	**0.267**	**0.158**			
Carbazole	86-74-8				0.151	**0.392**	**0.233**			
o-Cresol	95-48-7							0.185	**1.92**	**0.561**
p-Cresol	106-44-5							0.0682	**0.698**	**0.205**
n-Decane	124-18-5				2.37	**5.79**	**3.31**			
2,3-Dichloroaniline	608-27-5							0.0230	**0.0731**	**0.0361**
Fluoranthene	206-44-0				0.253	**0.787**	**0.393**			
n-Octadecane	593-45-3				0.793	**1.22**	**0.925**			
2,4,6-Trichlorophenol	88-06-2							0.0858	**0.155**	**0.106**

Table Appendix A-6. CWT design targets and PSES standards for Subcategory D mixed wastestream combinations (mg/L)

Pollutant Parameters	CAS Registry Number	Metals, Oils, Organics (A, B, & C)			Metals, Oils (A & B)			Metals, Organics (A & C)			Oils, Organics (B & C)		
		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards	
			Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum
METAL ANALYTES													
Antimony	**7440-36-0**	0.103	**0.237**	**0.141**	0.103	**0.237**	**0.141**	0.170	**0.249**	**0.206**	0.103	**0.237**	**0.141**
Arsenic	**7440-38-2**	0.0839	**0.162**	**0.104**	0.0839	**0.162**	**0.104**	0.0839	**0.162**	**0.104**			
Barium	**7440-39-3**	0.221	**0.427**	**0.281**	0.221	**0.427**	**0.281**				0.221	**0.427**	**0.281**
Cadium	**7440-43-9**	0.0580	**0.474**	**0.0962**	0.0580	**0.474**	**0.0962**	0.0580	**0.474**	**0.0962**			
Chromium	**7440-47-3**	0.323	**0.947**	**0.487**	0.323	**0.947**	**0.487**	1.67	**15.5**	**3.07**	0.323	**0.947**	**0.487**
Cobalt	**7440-48-4**	0.115	**0.192**	**0.124**	0.115	**0.192**	**0.124**	0.115	**0.192**	**0.124**	7.42	**56.4**	**18.8**
Copper	**7440-50-8**	0.257	**0.405**	**0.301**	0.257	**0.405**	**0.301**	0.744	**4.14**	**1.06**	0.257	**0.405**	**0.301**
Cyanide (in-plant)		136	**500**	**178**	136	**500**	**178**	136	**500**	**178**			
Lead	**7439-92-1**	0.149	**0.222**	**0.172**	0.149	**0.222**	**0.172**	0.177	**1.32**	**0.283**	0.149	**0.222**	**0.172**
Mercury	**7439-97-6**	0.000560	**0.00234**	**0.000739**	0.000560	**0.00234**	**0.000739**	0.000560	**0.00234**	**0.000739**			
Molybdenum	**7439-98-7**	0.943	**1.01**	**0.965**	1.54	**3.50**	**2.09**	0.943	**1.01**	**0.965**	0.943	**1.01**	**0.965**
Nickel	**7440-02-0**	1.16	**3.95**	**1.45**	1.16	**3.95**	**1.45**	1.16	**3.95**	**1.45**			
Selenium	**7782-49-2**	0.280	**1.64**	**0.408**	0.280	**1.64**	**0.408**	0.280	**1.64**	**0.408**			
Silver	**7440-22-4**	0.0264	**0.120**	**0.0351**	0.0264	**0.120**	**0.0351**	0.0264	**0.120**	**0.0351**			
Tin	**7440-31-5**	0.0898	**0.409**	**0.120**	0.0898	**0.409**	**0.120**	0.0898	**0.409**	**0.120**	0.107	**0.249**	**0.146**
Titanium	**7440-32-6**	0.0569	**0.0947**	**0.0618**	0.0569	**0.0947**	**0.0618**	0.0569	**0.0947**	**0.0618**			
Vanadium	**7440-62-2**	0.0500	**0.218**	**0.0662**	0.0500	**0.218**	**0.0662**	0.0500	**0.218**	**0.0662**			
Zinc	**7440-66-6**	0.413	**2.87**	**0.641**	0.413	**2.87**	**0.641**	0.413	**2.87**	**0.641**	3.45	**6.95**	**4.46**
ORGANIC ANALYTES													
Bis(2-ethylhexyl)phthalate	**117-81-7**	0.116	**0.267**	**0.158**	0.116	**0.267**	**0.158**				0.116	**0.267**	**0.158**
Carbazole	**86-74-8**	0.151	**0.392**	**0.233**	0.151	**0.392**	**0.233**				0.151	**0.392**	**0.233**
o-Cresol	**95-48-7**	0.185	**1.92**	**0.561**				0.185	**1.92**	**0.561**	0.185	**1.92**	**0.561**
p-Cresol	**106-44-5**	0.0682	**0.698**	**0.205**				0.0682	**0.698**	**0.205**	0.0682	**0.698**	**0.205**
n-Decane	**124-18-5**	2.37	**5.79**	**3.31**	2.37	**5.79**	**3.31**				2.37	**5.79**	**3.31**
2,3-Dichloroaniline	**608-27-5**	0.0230	**0.0731**	**0.0361**				0.0230	**0.0731**	**0.0361**	0.0230	**0.0731**	**0.0361**
Fluoranthene	**206-44-0**	0.253	**0.787**	**0.393**	0.253	**0.787**	**0.393**				0.253	**0.787**	**0.393**
n-Octadecane	**593-45-3**	0.793	**1.22**	**0.925**	0.793	**1.22**	**0.925**				0.793	**1.22**	**0.925**
2,4,6-Trichlorophenol	**88-06-2**	0.0858	**0.155**	**0.106**				0.0858	**0.155**	**0.106**	0.0858	**0.155**	**0.106**

Table Appendix A-7. CWT design targets and PSNS standards by subcategory (mg/L)

Pollutant Parameters	CAS Registry Number	Metals - Subcategory A			Oils - Subcategory B			Organics - Subcategory C		
		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards	
			Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum
METAL ANALYTES										
Antimony	**7440-36-0**	0.170	**0.249**	**0.206**	0.103	**0.237**	**0.141**			
Arsenic	**7440-38-2**	0.0839	**0.162**	**0.104**						
Barium	**7440-39-3**				0.221	**0.427**	**0.281**			
Cadium	**7440-43-9**	0.0580	**0.474**	**0.0962**						
Chromium	**7440-47-3**	1.67	**15.5**	**3.07**	0.183	**0.746**	**0.323**			
Cobalt	**7440-48-4**	0.115	**0.192**	**0.124**	7.42	**56.4**	**18.8**			
Copper	**7440-50-8**	0.744	**4.14**	**1.06**	0.157	**0.500**	**0.242**			
Cyanide (in-plant)		136	**500**	**178**						
Lead	**7439-92-1**	0.177	**1.32**	**0.283**	0.0986	**0.350**	**0.160**			
Mercury	**7439-97-6**	0.000560	**0.00234**	**0.000739**						
Molybdenum	**7439-98-7**				1.54	**3.50**	**2.09**	0.943	**1.01**	**0.965**
Nickel	**7440-02-0**	1.16	**3.95**	**1.45**						
Selenium	**7782-49-2**	0.280	**1.64**	**0.408**						
Silver	**7440-22-4**	0.0264	**0.120**	**0.0351**						
Tin	**7440-31-5**	0.0898	**0.409**	**0.120**	0.107	**0.335**	**0.165**			
Titanium	**7440-32-6**	0.0569	**0.0947**	**0.0618**						
Vanadium	**7440-62-2**	0.0500	**0.218**	**0.0662**						
Zinc	**7440-66-6**	0.413	**2.87**	**0.641**	3.14	**8.26**	**4.50**			
ORGANIC ANALYTES										
Bis(2-ethylhexyl)phthalate	**117-81-7**				0.0629	**0.215**	**0.101**			
Carbazole	**86-74-8**				0.151	**0.598**	**0.276**			
o-Cresol	**95-48-7**							0.185	**1.92**	**0.561**
p-Cresol	**106-44-5**							0.0682	**0.698**	**0.205**
n-Decane	**124-18-5**				0.238	**0.948**	**0.437**			
2,3-Dichloroaniline	**608-27-5**							0.0230	**0.0731**	**0.0361**
Fluoranthene	**206-44-0**				0.0173	**0.0537**	**0.0268**			
n-Octadecane	**593-45-3**				0.203	**0.589**	**0.302**			
2,4,6-Trichlorophenol	**88-06-2**							0.0858	**0.155**	**0.106**

Table Appendix A-8. CWT design targets and PSNS standards for Subcategory D mixed wastestream combinations (mg/L)

Pollutant Parameters	CAS Registry Number	Metals, Oils, Organics (A, B, & C)			Metals, Oils (A & B)			Metals, Organics (A & C)			Oils, Organics (B & C)		
		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards		Long-Term Average Design Targets	Standards	
			Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum		Daily Maximum	Monthly Average Maximum
METAL ANALYTES													
Antimony	**7440-36-0**	0.103	**0.237**	**0.141**	0.103	**0.237**	**0.141**	0.170	**0.249**	**0.206**	0.103	**0.237**	**0.141**
Arsenic	**7440-38-2**	0.0839	**0.162**	**0.104**	0.0839	**0.162**	**0.104**	0.0839	**0.162**	**0.104**			
Barium	**7440-39-3**	0.221	**0.427**	**0.281**	0.221	**0.427**	**0.281**				0.221	**0.427**	**0.281**
Cadium	**7440-43-9**	0.0580	**0.474**	**0.0962**	0.0580	**0.474**	**0.0962**	0.0580	**0.474**	**0.0962**			
Chromium	**7440-47-3**	0.183	**0.746**	**0.323**	0.183	**0.746**	**0.323**	1.67	**15.5**	**3.07**	0.183	**0.746**	**0.323**
Cobalt	**7440-48-4**	0.115	**0.192**	**0.124**	0.115	**0.192**	**0.124**	0.115	**0.192**	**0.124**	7.42	**56.4**	**18.8**
Copper	**7440-50-8**	0.157	**0.500**	**0.242**	0.157	**0.500**	**0.242**	0.744	**4.14**	**1.06**	0.157	**0.500**	**0.242**
Cyanide (in-plant)		136	**500**	**178**	136	**500**	**178**	136	**500**	**178**			
Lead	**7439-92-1**	0.0986	**0.350**	**0.160**	0.0986	**0.350**	**0.160**	0.177	**1.32**	**0.283**	0.0986	**0.350**	**0.160**
Mercury	**7439-97-6**	0.000560	**0.00234**	**0.000739**	0.000560	**0.00234**	**0.000739**	0.000560	**0.00234**	**0.000739**			
Molybdenum	**7439-98-7**	0.943	**1.01**	**0.965**	1.54	**3.50**	**2.09**	0.943	**1.01**	**0.965**	0.943	**1.01**	**0.965**
Nickel	**7440-02-0**	1.16	**3.95**	**1.45**	1.16	**3.95**	**1.45**	1.16	**3.95**	**1.45**			
Selenium	**7782-49-2**	0.280	**1.64**	**0.408**	0.280	**1.64**	**0.408**	0.280	**1.64**	**0.408**			
Silver	**7440-22-4**	0.0264	**0.120**	**0.0351**	0.0264	**0.120**	**0.0351**	0.0264	**0.120**	**0.0351**			
Tin	**7440-31-5**	0.0898	**0.409**	**0.120**	0.0898	**0.409**	**0.120**	0.0898	**0.409**	**0.120**	0.107	**0.335**	**0.165**
Titanium	**7440-32-6**	0.0569	**0.0947**	**0.0618**	0.0569	**0.0947**	**0.0618**	0.0569	**0.0947**	**0.0618**			
Vanadium	**7440-62-2**	0.0500	**0.218**	**0.0662**	0.0500	**0.218**	**0.0662**	0.0500	**0.218**	**0.0662**			
Zinc	**7440-66-6**	0.413	**2.87**	**0.641**	0.413	**2.87**	**0.641**	0.413	**2.87**	**0.641**	3.14	**8.26**	**4.50**
ORGANIC ANALYTES													
Bis(2-ethylhexyl)phthalate	**117-81-7**	0.0629	**0.215**	**0.101**	0.0629	**0.215**	**0.101**				0.0629	**0.215**	**0.101**
Carbazole	**86-74-8**	0.151	**0.598**	**0.276**	0.151	**0.598**	**0.276**				0.151	**0.598**	**0.276**
o-Cresol	**95-48-7**	0.185	**1.92**	**0.561**				0.185	**1.92**	**0.561**	0.185	**1.92**	**0.561**
p-Cresol	**106-44-5**	0.0682	**0.698**	**0.205**				0.0682	**0.698**	**0.205**	0.0682	**0.698**	**0.205**
n-Decane	**124-18-5**	0.238	**0.948**	**0.437**	0.238	**0.948**	**0.437**				0.238	**0.948**	**0.437**
2,3-Dichloroaniline	**608-27-5**	0.0230	**0.0731**	**0.0361**				0.0230	**0.0731**	**0.0361**	0.0230	**0.0731**	**0.0361**
Fluoranthene	**206-44-0**	0.0173	**0.0537**	**0.0268**	0.0173	**0.0537**	**0.0268**				0.0173	**0.0537**	**0.0268**
n-Octadecane	**593-45-3**	0.203	**0.589**	**0.302**	0.203	**0.589**	**0.302**				0.203	**0.589**	**0.302**
2,4,6-Trichlorophenol	**88-06-2**	0.0858	**0.155**	**0.106**				0.0858	**0.155**	**0.106**	0.0858	**0.155**	**0.106**