ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 437

[FRL–5126–9]

RIN 2040–AB78

Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Centralized Waste Treatment Category

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: This proposed regulation would establish technology-based limits for the discharge of pollutants into navigable waters of the United States and into publicly-owned treatment works by existing and new facilities that receive industrial waste from off-site for treatment or recovery. This regulation will reduce the discharge of pollutants by at least 123 million pounds per year, reducing excursions of aquatic life and/or human health toxic effect levels in thirty waterbodies. As a result of consultation with stakeholders, the preamble solicits comments and data not only on issues raised by EPA, but also on those raised by State and local governments who will be implementing these regulations and by industry representatives who will be affected by them.

DATES: Comments on the proposal must be received by April 27, 1995.

In addition, EPA will conduct a workshop covering this rulemaking, in conjunction with a public hearing on the pretreatment standards portion of the rule. The workshop will be held on March 24, 1995, from 8:30 a.m. to 10:30 a.m. The public hearing will be conducted from 11 a.m. to 1 p.m.

ADDRESSES: Send comments on this proposal to Ms. Debra DiCianna, Engineering and Analysis Division (4303), 911 East Tower, U.S. EPA, 401 M Street SW, Washington, DC 20460. The public record is in the Water Docket located in the basement of the EPA Headquarters building, Room L102, 401 M Street SW, Washington, DC 20460, telephone number (202) 260–3027. The Docket staff requests that interested parties call for an appointment between the hours of 9 am and 3:30 pm, before visiting the docket. The EPA regulations at 40 CFR Part 2 provide that a reasonable fee may be charged for copying.

The workshop and public hearing covering the rulemaking will be held in the Lake Michigan Conference Room at the U.S. EPA Region V Building, 77 West Jackson Boulevard, Chicago, IL. Persons wishing to present formal comments at the public hearing should have a written copy for submittal.

FOR FURTHER INFORMATION CONTACT: For additional technical information contact Ms. Debra DiCianna at (202) 260–7141. Additional economic information may be obtained by contacting Ms. Susan M. Burris at (202) 260–5379. Background documents supporting the proposed regulations are described in the ''Background Documents'' section below. Many of the documents are also available from the Office of Water Resource Center, RC–4100, U.S. EPA, 401 M Street SW., Washington, DC 20460; telephone (202) 260–7786 for the voice mail publication request line.

SUPPLEMENTARY INFORMATION:

Overview

The preamble describes the definitions, acronyms, and abbreviations used in this notice; the background documents that support these proposed regulations; the legal authority of these rules; a summary of the proposal; background information; and the technical and economic methodologies used by the Agency to develop these regulations. This preamble also solicits comment and data on specific areas of interest.

Organization of This Document

Definitions, Acronyms, and Abbreviations

Administrator—The Administrator of the U.S. Environmental Protection Agency.

Agency—The U.S. Environmental Protection Agency.

Average monthly discharge limitation—The highest allowable average of ''daily discharges'' over a calendar month, calculated as the sum of all ''daily discharges'' measured during the calendar month divided by the number of ''daily discharges'' measured during the month.

BAT—The best available technology economically achievable, as described in Sec. 304(b)(2) of the CWA.

BCT—The best conventional pollutant control technology, as described in Sec. 304(b)(4) of the CWA.

BOD_5—Biochemical oxygen demand—Five Day. A measure of biochemical decomposition of organic matter in a water sample. It is determined by measuring the dissolved oxygen consumed by microorganisms to oxidize the organic contaminants in a water sample under standard laboratory conditions of five days and 70 °C. BOD_5 is not related to the oxygen requirements in chemical combustion.

BPT—The best practicable control technology currently available, as described in Sec. 304(b)(1) of the CWA.

Centralized waste treatment facility—Any facility that treats any hazardous or non-hazardous industrial wastes received from off-site by tanker truck, trailer/roll-off bins, drums, barge, or other forms of shipment. A ''centralized waste treatment facility'' includes (1) a facility that treats waste received from off-site exclusively and (2) a facility that

treats wastes generated on-site as well as waste received from off-site.

Centralized waste treatment wastewater—Water that comes in contact with wastes received from off-site for treatment or recovery or that comes in contact with the area in which the off-site wastes are received, stored or collected.

Clarifier—A treatment unit designed to remove suspended materials from wastewater—typically by sedimentation.

COD—Chemical oxygen demand. A bulk parameter that measures the oxygen-consuming capacity of refractory organic and inorganic matter present in water or wastewater. COD is expressed as the amount of oxygen consumed from a chemical oxidant in a specific test.

Commercial facility—Facilities that accept waste from off-site for treatment from facilities not under the same ownership as their facility.

Conventional pollutants—The pollutants identified in Sec. 304(a)(4) of the CWA and the regulations thereunder (biochemical oxygen demand (BOD_5), total suspended solids (TSS), oil and grease, fecal coliform, and pH).

CWA—Clean Water Act. The Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251 et seq.), as amended, inter alia, by the Clean Water Act of 1977 (Public Law 95–217) and the Water Quality Act of 1987 (Public Law 100–4). CWT—Centralized Waste Treatment.

Daily discharge—The discharge of a pollutant measured during any calendar day or any 24-hour period that reasonably represents a calendar day.

Direct discharger—A facility that discharges or may discharge treated or untreated pollutants into waters of the United States.

Effluent—Wastewater discharges.

Effluent limitation—Any restriction, including schedules of compliance, established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean. (CWA Sections 301(b) and 304(b).)

EIA—Economic Impact Analysis.

EPA—The U.S. Environmental Protection Agency.

Facility—A facility is all contiguous property owned, operated, leased or under the control of the same person. The contiguous property may be divided by public or private right-of-way.

Fuel Blending—The process of mixing organic waste for the purpose of generating a fuel for reuse.

Indirect discharger—A facility that discharges or may discharge pollutants into a publicly-owned treatment works.

LTA—Long-term average. For purposes of the effluent guidelines, average pollutant levels achieved over a period of time by a facility, subcategory, or technology option. LTAs were used in developing the limitations and standards in today's proposed regulation.

Metal-bearing wastes—Wastes that contain metal pollutants from manufacturing or processing facilities or other commercial operations. These wastes may include, but are not limited to, the following: process wastewater, process residuals such as tank bottoms or stills and process wastewater treatment residuals, such as treatment sludges.

Minimum level—The level at which an analytical system gives recognizable signals and an acceptable calibration point.

Mixed Commercial/Non-commercial facility—Facilities that accept some waste from off-site for treatment from facilities not under the same ownership, and some waste from off-site for treatment from facilities under the same ownership as their facility.

New Source—''New source'' is defined at 40 CFR 122.2 and 122.29.

Non-commercial facility—Facilities that accept waste from off-site for treatment only from facilities under the same ownership as their facility.

Non-conventional pollutants—Pollutants that are neither conventional pollutants nor priority pollutants listed at 40 CFR Section 401.

Non-detect value—A concentration-based measurement reported below the sample specific detection limit that can reliably be measured by the analytical method for the pollutant.

Non-water quality environmental impact—An environmental impact of a control or treatment technology, other than to surface waters.

NPDES—The National Pollutant Discharge Elimination System authorized under Sec. 402 of the CWA. NPDES requires permits for discharge of pollutants from any point source into waters of the United States.

NSPS—New Source Performance Standards.

OCPSF—Organic Chemicals, Plastics, and Synthetic Fibers Manufacturing Effluent Guideline.

Off-Site—''Off-site'' means outside the boundaries of a facility.

Oily Wastes—Wastes that contain oil and grease from manufacturing or processing facilities or other commercial operations. These wastes may include, but are not limited to, the following: spent lubricants, cleaning fluids, process wastewater, process residuals such as tank bottoms or stills and process wastewater treatment residuals, such as treatment sludges.

Oligopoly—A market structure with few competitors, in which each producer is aware of his competitors' actions and has a significant influence on market price and quantity.

On-site—''On-site'' means within the boundaries of a facility.

Organic-bearing Wastes—Wastes that contain organic pollutants from manufacturing or processing facilities or other commercial operations. These wastes may include, but are not limited to, process wastewater, process residuals such as tank bottoms or stills and process wastewater treatment residuals, such as treatment sludges.

Outfall—The mouth of conduit drains and other conduits from which a facility effluent discharges into receiving waters.

Pipeline—''Pipeline'' means an open or closed conduit used for the conveyance of material. A pipeline includes a channel, pipe, tube, trench or ditch.

Point source category—A category of sources of water pollutants.

Pollutant (to water)—Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, certain radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water.

POTW or POTWs—Publicly-owned treatment works, as defined at 40 CFR 403.3(0).

Pretreatment standard—A regulation that establishes industrial wastewater effluent quality required for discharge to a POTW. (CWA Section 307(b).)

Priority pollutants—The pollutants designated by EPA as priority in 40 CFR part 423, appendix A.

Process wastewater—''Process wastewater'' is defined at 40 CFR 122.2.

PSES—Pretreatment standards for existing sources of indirect discharges, under Sec. 307(b) of the CWA.

PSNS—Pretreatment standards for new sources of indirect discharges, under Sec. 307 (b) and (c) of the CWA.

RCRA—Resource Conservation and Recovery Act (PL 94–580) of 1976, as amended.

SIC—Standard Industrial Classification (SIC). A numerical categorization system used by the U.S. Department of Commerce to catalogue economic activity. SIC codes refer to the products, or group of products, produced or distributed, or to services

rendered by an operating establishment. SIC codes are used to group establishments by the economic activities in which they are engaged. SIC codes often denote a facility's primary, secondary, tertiary, etc. economic activities.

Small business—Businesses with annual sales revenues less than $6 million. This is the Small Business Administration definition of small business for SIC code 4953, Refuse Systems (13 CFR Ch.1, § 121.601).

Solidification—The addition of agents to convert liquid or semi-liquid hazardous waste to a solid before burial to reduce the leaching of the waste material and the possible migration of the waste or its constituent from the facility. The process is usually accompanied by stabilization.

Stabilization—A hazardous waste process that decreases the mobility of waste constituents by means other than solidification. Stabilization techniques include mixing the waste with sorbents such as fly ash to remove free liquids. For the purpose of this rule, chemical precipitation is not a technique for stabilization.

TSS—Total Suspended Solids. A measure of the amount of particulate matter that is suspended in a water sample. The measure is obtained by filtering a water sample of known volume. The particulate material retained on the filter is then dried and weighed.

Variability factor—The daily variability factor is the ratio of the estimated 99th percentile of the distribution of daily values divided by the expected value, median or mean, of the distribution of the daily data. The monthly variability factor is the estimated 95th percentile of the distribution of the monthly averages of the data divided by the expected value of the monthly averages.

Waste Receipt—Wastes received for treatment or recovery. Waters of the United States—The same meaning set forth in 40 CFR 122.2.

Zero discharge—No discharge of pollutants to waters of the United States or to a POTW. Also included in this definition are discharge of pollutants by way of evaporation, deep-well injection, off-site transfer, and land application.

Background Documents

The regulations proposed today are supported by several major documents. (1) EPA's technical conclusions concerning the wastewater regulations are detailed in the ''Development Document for Proposed Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry,'' hereafter referred to as the Technical Development Document (EPA–821–R–95–006). (2) Detailed documentation of the procedure and equations used for costing the technology options is included in the ''Detailed Costing Document for the Centralized Waste Treatment Industry,'' hereafter referred to as the Costing Document (EPA–821–R–95–002). (3) The Agency's economic analysis is found in the ''Economic Impact Analysis of Proposed Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry,'' hereafter called the Economic Impact Analysis (EPA–821–R–95–001). (4) The Agency's assessment of environmental benefits is detailed in the ''Environmental Assessment of Proposed Effluent Guidelines for the Centralized Waste Treatment Industry,'' hereafter called the Environmental Assessment (EPA–821–R–95–003). (5) An analysis of the incremental costs and pollutant removals for the effluent regulations is presented in ''Cost-Effectiveness Analysis of Proposed Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry,'' hereafter called the Cost-Effectiveness Analysis (EPA–821–R–95–004). (6) The methodology used for calculating limitations is discussed in the ''Statistical Support Document for Proposed Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry'' hereafter referred to as the Statistical Support Document (EPA–821–R–95–005).

Legal Authority

These regulations are being proposed under the authority of Sections 301, 304, 306, 307, 308, and 501 of the Clean Water Act, 33 U.S.C. Sections 1311, 1314, 1316, 1317, 1318, and 1361.

I. Summary and Scope of the Proposed Regulation

A. Background

Congress adopted the Clean Water Act (CWA) to ''restore and maintain the chemical, physical, and biological integrity of the Nation's waters.'' Section 101(a), 33 U.S.C. § 1251(a). To achieve this goal, the CWA prohibits the discharge of pollutants into navigable waters except in compliance with the statute. The Clean Water Act attacks the problem of water pollution on a number of different fronts. Its primary reliance, however, is on establishing restrictions on the types and amounts of pollutants discharged from various industrial, commercial, and public sources of wastewater.

Congress recognized that regulating only those sources that discharge effluent directly into the nation's waters would not be sufficient to achieve the CWA's goals. Consequently, the CWA requires EPA to promulgate nationally applicable pretreatment standards which restrict pollutant discharges for those who discharge wastewater indirectly through sewers flowing to publicly-owned treatment works (POTWs) (Section 307 (b) and (c), 33 U.S.C. § 1317 (b) & (c)). National pretreatment standards are established for those pollutants in wastewater from indirect dischargers which may pass through or interfere with POTW operations. Generally, pretreatment standards are designed to ensure that wastewater from direct and indirect industrial dischargers are subject to similar levels of treatment. In addition, POTWs are required to implement local treatment limits applicable to their industrial indirect dischargers to satisfy any local requirements (40 CFR 403.5).

Direct dischargers must comply with effluent limitations in National Pollutant Discharge Elimination System (''NPDES'') permits; indirect dischargers must comply with pretreatment standards. These limitations and standards are established by regulation for categories of industrial dischargers and are based on the degree of control that can be achieved using various levels of pollution control technology. In addition, pretreatment standards must be established for those pollutants which are not susceptible to treatment by POTWs or which would interfere with POTW operations (CWA Sections 301(b), 304(b), 306, 307 (b)–(d), 33 U.S.C. §§ 1311(b), 1314(b), 1316, and 1317 (b)–(d)).

Today's proposal represents the Agency's first attempt to develop national guidelines that establish effluent limitations and pretreatment standards for new and existing dischargers from the Centralized Waste Treatment Industry. EPA estimates that the regulation being proposed today would reduce the discharge of conventional, priority, and non-conventional pollutants by at least 123 million pounds per year. EPA performed an analysis of the water quality benefits that would be derived from this proposal and predicts that contributions by centralized waste treatment facilities to current excursions of aquatic life and/or human health toxic effect levels would be eliminated for twenty streams and reduced for ten others. EPA also projects through modeling that eleven of the seventeen POTWs expected to experience inhibition of treatment due to

centralized treatment facilities would no longer experience inhibition from these sources.

B. The Centralized Waste Treatment Industry

The adoption of the increased pollution control measures required by CWA and RCRA requirements had a number of ancillary effects, one of which has been the formation and development of a waste treatment industry. Several factors have contributed to the growth of this industry. Thus, for example, in order to comply with CWA discharge limits, categorical industries have installed new (or upgraded existing) wastewater treatment facilities in order to treat their process wastewater. But the wastewater treatment may produce a residual sludge which itself may require further treatment before disposal under EPA RCRA requirements. Furthermore, many industrial process by-products now are either RCRA listed or characteristic hazardous wastes which require special handling or treatment before disposal.

A manufacturing facility's options for managing these wastes include on-site treatment with its other wastes or sending them off-site. Because a large number of operations have chosen to send their wastes off-site, specialized facilities have developed whose sole commercial operations are the handling of wastewater treatment residuals and industrial process by-products. Moreover, some industrial operations also have chosen to accept wastes from off-site for treatment in their on-site facilities. Further, there are some commercial facilities to which wastes are piped for treatment. Other wastes go to landfills or incinerators for disposal.

The waste treatment industry includes facilities which receive both hazardous and non-hazardous industrial waste. These facilities receive a variety of wastes for treatment and recovery of waste components. Among these wastes are wastewater treatment sludges, process residuals, tank bottoms, off-spec products, and wastes generated from clean-up activities. Some facilities may also treat industrial process wastewater with these wastes.

In the early 1990's, this industry experienced a slow down because many existing facilities were designed to handle larger quantities than the market produced. Reduced economic activity generally in combination with pollution prevention measures resulted in a decrease in the amount of waste sent off-site for treatment. As a result, competition among facilities increased resulting in facilities operating below capacity and experiencing economic and financial difficulties. This may be changing at the present. Recently, participants in the March 1994 public meeting for this proposal stated that the industry is experiencing new growth due to increasing environmental regulations. The Agency solicits information and data on the current size of the industry and trends related to the growth or decline in need for the services provided by these facilities.

C. Scope

Today's proposal would establish discharge limitations and standards for discharges from those facilities which the rule defines as ''centralized waste treatment facilities.'' The facilities which are covered by this guideline include stand-alone waste treatment and recovery facilities which treat waste received from off-site. ''Centralized waste treatment facilities'' also include treatment systems which treat on-site generated process wastewater with wastes received from off-site. However, the rule does not apply to facilities which receive wastes from off-site by pipeline from the original source of waste generation.

Centralized waste treatment facilities include the following: (1) Commercial facilities that accept waste from off-site for treatment from facilities not under the same ownership as the treating facility; (2) non-commercial facilities that accept waste from off-site for treatment only from facilities under the same ownership (intra-company transfer); or (3) mixed commercial/non-commercial facilities that accept some waste from off-site for treatment from facilities not under the same ownership and some waste from facilities under the same ownership.

This summary section highlights the technology bases and other key aspects of the proposed rule. The technology descriptions in this section are presented in abbreviated form; more detailed descriptions are included in the Technical Development Document and Section V.E. Today's proposal presents the Agency's recommended regulatory approach as well as other options considered by EPA. The Agency's recommended approach for establishing discharge limitations is based on a detailed evaluation of the available data. As indicated below in the discussion of the specifics of the proposal, the Agency welcomes comment on all options and issues and encourages commenters to submit additional data during the comment period. Also, the Agency plans additional discussions with interested parties during the comment period to ensure that the Agency has the views of all parties and the best possible data upon which to base a decision for the final regulation. EPA's final regulation may be based upon any technologies, rationale or approaches that are a logical outgrowth of this proposal and public comments, including any options considered but not selected for today's proposed regulation.

In today's notice, EPA is proposing for the Centralized Waste Treatment Point Source Category effluent limitations guidelines and standards based on BPT, BCT, BAT, NSPS, PSES, and PSNS for new and existing facilities that are engaged in the treatment of industrial waste from off-site facilities.

The proposed regulation today applies to the following activities:

- Subcategory A: Discharges from operations which treat, or treat and recover metals from, metal-bearing waste received from off-site,
- Subcategory B: Discharges from operations which treat, or treat and recover oil from, oily waste received from off-site, and
- Subcategory C: Discharges from operations which treat, or treat and recover organics from, other organic-bearing waste received from off-site.

Facilities subject to the guidelines and standards would include facilities whose exclusive operation is the treatment of off-site generated industrial waste as well as industrial or manufacturing facilities that also accept waste from off-site for centralized treatment. A further discussion of the types of waste included in each subcategory is included in the Technical Development Document and Section III.B. of this notice.

The proposed effluent limitations guidelines and standards are intended to cover wastewater discharges resulting from treatment of, or recovery of components from, hazardous and non-hazardous industrial waste received from off-site facilities by tanker truck, trailer/roll-off bins, drums, barges, or other forms of shipment. Any discharges generated from the treatment of wastes received through an open or enclosed conduit (e.g., pipeline, channels, ditches, and trenches, etc.) from the original source of waste generation are not included in the regulation. However, discharges generated from the treatment of CWT wastes received by pipeline from a facility acting as an intermediate collection point for CWT wastes received from off-site *would* be subject to the proposed requirements. Based on information collected in the 1991 Waste Treatment Industry Questionnaire and discussions with operators of waste treatment facilities, EPA has concluded that facilities which

receive all their wastes through a pipeline or trench from the original source of waste generation are receiving continuous flows of process wastewater with relatively consistent pollutant profiles. In the case of these treatment facilities, the process wastewater flows in virtually all cases would be subject to categorical regulations if discharged from the original point of waste generation. However, these companies, instead of discharging to a surface water or POTW, discharge process wastewater to a ''centralized pipeline'' facility. EPA has concluded that the effluent limitations and pretreatment standards for centralized waste treatment facilities should *not* apply to such pipeline treatment facilities because their wastes differ fundamentally from those received at centralized waste treatment facilities. In large part, the waste streams received at centralized waste treatment facilities are more concentrated and variable, including sludges, tank bottoms, off-spec products, and process residuals. The limitations and standards developed for centralized waste treatment facilities, in turn, reflect the types of waste streams being treated and are necessarily different from those promulgated for discharges resulting from the treatment of process wastewater for categorical industries. However, this proposed pipeline exclusion would not apply to facilities which receive waste via conduit (i.e., pipeline, trenches, ditches, etc.) from facilities that are acting merely as waste collection centers that are not the original source of the waste generation.

In evaluating the current operation and performance of centralized waste treatment facilities, the Agency is concerned about the effective management of such highly-concentrated waste streams. Due to the variability of waste streams, the possibility exists for dilution to occur rather than effective treatment. Therefore, the Agency is proposing to require monitoring to demonstrate compliance with the limitations and standards for the regulated treatment subcategories The limitations and standards proposed today are based on treatment systems that optimize removals for homogeneous wastes. If a facility commingles different subcategories of CWT wastes before treatment or mixes CWT wastes with non-CWT waste streams before treatment, the facility must demonstrate that its treatment system achieves pollutant limits equivalent to the effluent limitations and standards that would be achieved if the CWT wastes were treated separately. (In addition, there may be circumstances where the mixing of off-site and on-site waste streams is necessary to prevent upset of treatment systems, such as with biological treatment for organic waste streams.) Equivalent treatment is demonstrated when Centralized Waste Treatment Industry pollutants of concern are (1) detectable at quantifiable levels prior to mixing, (2) are detected at quantifiable levels following mixing, and (3) the on-site treatment system is designed to treat the pollutants of concern in some manner other than incidental removals by partitioning to sludge or air. The Agency believes such an approach is necessary to ensure achievement of the pollutant discharge levels which the Agency has preliminarily determined may be obtained through proper treatment of the CWT wastes. In the absence of such a requirement to demonstrate achievable removals, facilities may merely dilute wastes with other waste streams to meet the required discharge levels.

The Agency also solicits comment on including a *de minimis* quantity or percentage of off-site receipts in comparison to the total facility flow for which facilities would not be considered in the scope of this regulation. According to comments received on the May 1994 proposed Effluent Guideline Plan (59 FR 25859), some manufacturing facilities may receive a few shipments of waste or off-spec products to be treated on-site with wastewater from on-site manufacturing processes, but these facilities do not actively accept large quantities of waste from off-site for the purpose of treatment and disposal. In the 1991 Waste Treatment Industry Questionnaire, no facilities were identified with intermittent shipments of waste, but the questionnaire mailing list was developed on the basis of a facility's regular business. Therefore, manufacturing facilities which do not accept off-site waste on a normal basis were not included in the mailing list. The EPA is requesting information on the amounts of waste received and the reasons the waste were accepted to determine if a *de minimis* quantity should be established to limit the applicability of this rulemaking. At present, no *de minimis* quantity has been established for this rulemaking. Facilities are included in the scope of this regulation regardless of the quantity received for treatment.

D. Proposed Limitations and Standards

1. Best Practicable Control Technology Currently Available (BPT)

The Agency is proposing to set BPT effluent limitations guidelines for all subcategories of the Centralized Waste Treatment Industry to control conventional, priority, and non-conventional pollutants in the waste treatment effluent. In the case of metal-bearing wastes that include cyanide streams, achievement of BPT limitations requires pretreatment for cyanide. Table I.D–1 is a summary of the technology basis for the proposed effluent limitations for each subcategory. L2,i1,xs36,r50,r150

Table I.D–1.—Technology Basis for BPT Effluent Limitations
subpart
basis

The pollutants controlled and the points of application vary for each subcategory and are described in Sections V.

2. Best Conventional Pollutant Control Technology (BCT)

The EPA is proposing BCT effluent limitations guidelines for Total Suspended Solids (TSS) and Oil and Grease for the Metals and Oils Subcategories of the Centralized Waste Treatment Industry. The EPA is also proposing to set BCT effluent limitations guidelines for biochemical oxygen demand (BOD_5) and total suspended solids (TSS) for the Organics Subcategory. The proposed BCT effluent limitations guidelines are equal to the proposed BPT limitations for conventional pollutants. The development of proposed BCT effluent limitations is further explained in Section V.

3. Best Available Technology Economically Achievable (BAT)

The Agency is proposing to set BAT effluent limitations guidelines for all subcategories of the Centralized Waste Treatment Industry. These proposed limitations are based on the technologies proposed for BPT. The pollutants controlled and the points of application vary for each subcategory and are described in Section V.

4. New Source Performance Standards (NSPS)

EPA is proposing to set NSPS equivalent to the proposed BPT/BCT/BAT effluent limitations for all subcategories of the Centralized Waste Treatment Industry. NSPS are discussed in more detail in Section V.

5. Pretreatment Standards for Existing Sources (PSES)

For pollutants that pass-through or otherwise interfere with POTWs, EPA is proposing to set PSES equivalent to the proposed BAT effluent limitations for all subcategories of the Centralized Waste Treatment Industry. PSES are further discussed in Section V.

6. Pretreatment Standards for New Sources (PSNS)

For pollutants that pass-through or otherwise interfere with POTWs, EPA is proposing to set PSNS equivalent to the proposed NSPS effluent limitations for all subcategories of the Centralized Waste Treatment Industry. PSNS are further discussed in Section V.

II. Background

A. Clean Water Act

1. Statutory Requirements of Regulation

As previously discussed, Section 301(a) of the CWA prohibits discharges of pollutants to navigable waters except in compliance with the statute. 33 U.S.C. 1311(a). Section 301(b) requires that direct dischargers comply with effluent limitations established by EPA for categories of industrial dischargers or in the case of certain categories of new dischargers, new source performance standards.

Section 307 requires indirect dischargers to comply with pretreatment standards and Section 306 requires compliance with new source performance standards.

These guidelines and standards are summarized below:

a. *Best practicable control technology currently available (BPT)—Sec. 304(b)(1) of the CWA.* In the guidelines, EPA defines BPT effluent limits for conventional, priority,[1] and non-conventional pollutants. In specifying BPT, EPA looks at a number of factors. EPA first considers the cost of achieving effluent reductions in relation to the effluent reduction benefits. The Agency next considers: the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the Agency deems appropriate. CWA § 304(b)(1)(B). Traditionally, EPA establishes BPT effluent limitations based on the average of the best performances of facilities within the industry of various ages, sizes, processes or other common characteristic. Where, however, existing performance is uniformly inadequate, EPA may require higher levels of control than currently in place in an industrial category if the Agency determines that the technology can be practically applied.

b. *Best conventional pollutant control technology (BCT)—Sec. 304(b)(4) of the CWA.* The 1977 amendments to the CWA required EPA to identify effluent reduction levels for conventional pollutants associated with BCT technology for discharges from existing industrial point sources. In addition to other factors specified in Section 304(b)(4)(B), the CWA requires that EPA establish BCT limitations after consideration of a two part ''cost-reasonableness'' test. EPA explained its methodology for the development of BCT limitations in July 1986 (51 FR 24974).

Section 304(a)(4) designates the following as conventional pollutants: biochemical oxygen demand (BOD_5), total suspended solids (TSS), fecal coliform, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease as an additional conventional pollutant on July 30, 1979 (44 FR 44501).

c. *Best available technology economically achievable (BAT)—Sec. 304(b)(2) of the CWA.* In general, BAT effluent limitations guidelines represent the best economically achievable performance of plants in the industrial subcategory or category. The factors considered in assessing BAT include the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the process employed, potential process changes, and non-water quality environmental impacts, including energy requirements. The Agency retains considerable discretion in assigning the weight to be accorded these factors. Unlike BPT limitations, BAT limitations may be based on effluent reductions attainable through changes in a facility's processes and operations. As with BPT, where existing performance is uniformly inadequate, BAT may require a higher level of performance than is currently being achieved based on technology transferred from a different subcategory or category. BAT may be based upon process changes or internal controls, even when these technologies are not common industry practice.

d. *New source performance standards (NSPS)—Sec. 306 of the CWA.* NSPS reflect effluent reductions that are achievable based on the best available demonstrated treatment technology. New facilities have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS should represent the most stringent controls attainable through the application of the best available control technology for all pollutants (i.e., conventional, nonconventional, and priority pollutants). In establishing NSPS, EPA is directed to take into consideration the cost of achieving the effluent reduction and any non-water quality environmental impacts and energy requirements.

e. *Pretreatment standards for existing sources (PSES)—Sec. 307(b) of the CWA.* PSES are designed to prevent the discharge of pollutants that pass-through, interfere-with, or are otherwise incompatible with the operation of publicly-owned treatment works (POTW). The CWA authorizes EPA to establish pretreatment standards for pollutants that pass-through POTWs or interfere with treatment processes or sludge disposal methods at POTWs. Pretreatment standards are technology-based and analogous to BAT effluent limitations guidelines.

The General Pretreatment Regulations, which set forth the framework for the implementation of categorical pretreatment standards, are found at 40 CFR Part 403. Those regulations contain a definition of pass-through that addresses localized rather than national instances of pass-through and establish pretreatment standards that apply to all non-domestic dischargers. See 52 FR 1586, January 14, 1987.

f. *Pretreatment standards for new sources (PSNS)—Sec. 307(b) of the CWA.* Like PSES, PSNS are designed to prevent the discharges of pollutants that pass-through, interfere-with, or are otherwise incompatible with the operation of POTWs. PSNS are to be issued at the same time as NSPS. New indirect dischargers have the opportunity to incorporate into their plants the best available demonstrated technologies. The Agency considers the same factors in promulgating PSNS as it considers in promulgating NSPS.

2. Section 304(m) Consent Decree

Section 304(m) of the Act, added by the Water Quality Act of 1987, requires EPA, before February 4, 1988, to

[1] In the initial stages of EPA CWA regulation, EPA efforts emphasized the achievement of BPT limitations for control of the ''classical'' pollutants (e.g., TSS, pH, BOB_5). However, nothing on the face of the statute explicitly restricted BPT limitation to such pollutants. Following passage of the Clean Water Act of 1977 with its requirement for points sources to achieve best available technology limitations to control discharges of toxic pollutants, EPA shifted its focus to address the listed priority pollutants under the guidelines program. BPT guidelines continue to include limitations to address all pollutants.

establish a schedule (1) for reviewing and revising existing guidelines and standards and (2) for promulgating effluent guidelines for categories of sources of priority or nonconventional pollutants for which effluent limitations and pretreatment standards had not previously been published. The statutory deadline for such guidelines is no later four years after February 4, 1987, for categories identified in the first published plan.

The Natural Resource Defense Council (NRDC) and Public Citizen, Inc. filed suit against the Agency, alleging violation of Section 304(m) and other statutory authorities requiring promulgation of effluent limitations guidelines, new source performance standards, new source performance standards and pretreatment standards. (*NRDC, et al.* v. *Reilly*, Civ. No. 89–2980 (D.D.C.). Under the terms of a consent decree dated January 31, 1992, which settled the litigation, EPA agreed, among other things, to propose and promulgate 20 new guidelines establishing BPT, BCT and BAT limitations and pretreatment standards, including guidelines and standards for CWT facilities.

B. Summary of Public Participation

During the data gathering activities that preceded development of the proposed rules, EPA met with representatives from the industry, the Hazardous Waste Treatment Council, the National Solid Waste Management Association, and the Natural Resources Defense Council. Because most of the facilities affected by this proposal are indirect dischargers, the Agency has made a concerted effort to consult with State and local entities that will be responsible for implementing this regulation. EPA has met with pretreatment coordinators from around the nation and presented our regulatory approach before the Association of Metropolitan Sewerage Authorities to solicit feedback on implementation issues. Today's proposal solicits comment on many of the issues raised by EPA's co-regulators.

On March 8, 1994, EPA sponsored a public meeting, where the Agency shared information about the content and the status of the proposed regulation. The meeting was announced in the Federal Register, agendas and meeting materials were distributed at the meeting. The public meeting also gave interested parties an opportunity to provide information, data, and ideas on key issues. EPA's intent in conducting the public meeting was to elicit input that would improve the quality of the proposed regulations.

At the public meeting, the Agency clarified that the public meeting would not replace the notice-and-comment process, nor would the meeting become a mechanism for a negotiated rulemaking. While EPA promised to accept information and data at the meeting and make good faith efforts to review all information and address all issues discussed at the meeting, EPA could not commit to fully assessing and incorporating all comments into the proposal. EPA will assess all comments and data received at the public meeting prior to promulgation.

C. The Land Disposal Restrictions Program

1. Introduction to RCRA Land Disposal Restrictions

The Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA), enacted on November 8, 1984, largely prohibit the land disposal of untreated hazardous wastes. Once a hazardous waste is prohibited from land disposal, the statute provides only two options for legal land disposal: meet the treatment standard for the waste prior to land disposal, or dispose of the waste in a land disposal unit that has been found to satisfy the statutory no migration test. A no migration unit is one from which there will be no migration of hazardous constituents for as long as the waste remains hazardous. RCRA Sections 3004 (d), (e), (g)(5). The treatment standards may be expressed as either constituent concentration levels or as specific methods of treatment. These standards must substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized. RCRA Section 3004(m)(1). For purposes of the restrictions, the RCRA program defines land disposal to include any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, or underground mine or cave.

2. BDAT and Land Disposal Restrictions Standards

EPA generated a set of hazardous waste treatability data to serve as the basis for land disposal restrictions standards. First, EPA identified Best Demonstrated Available Treatment Technology (BDAT) for each listed hazardous waste. BDAT was that treatment technology which EPA found to be the most effective for that waste and which was also readily available to generators and treaters. In some cases EPA designated as BDAT for a particular waste stream a treatment technology shown to have successfully treated a similar but more difficult to treat waste stream. This ensured that the land disposal restrictions standards for a listed waste stream were achievable since they always reflected the actual treatability of the waste itself or of a more refractory waste.

3. RCRA Phase 2 and the Centralized Waste Treatment Industry Effluent Guidelines

The RCRA Phase 2 final rule July 27, 1994, promulgated Universal Treatment Standards (UTS) for all constituents regulated by the RCRA Land Disposal Restrictions program. The UTS are a series of concentration levels for wastewater and nonwastewaters that provide a single treatment standard for each constituent regardless of the process generating it. Previously, many constituents were regulated with several numerical treatment standards depending on the identity of the original waste. Comments from generators and treaters supported the UTS as a means of simplifying compliance with LDR requirements by ensuring that only one treatment standard applies to any constituent in any waste residue.

While the UTS may not apply to those facilities addressed by the CWT effluent guidelines (due to the lack of land disposal), both involve many of the same wastewater and both are technology-based. Consequently, EPA is identifying the major differences between the development of the two rules.

4. General Differences in Approaches Between LDR UTS and Centralized Waste Treatment Industry Effluent Guidelines

Comparing the effluent guidelines proposed by today's rule for the Centralized Waste Treatment Industry with the UTS finalized in July 1994 shows that the RCRA and CWA approaches are similar in that both rules address many of the same waste streams and base treatment standards on many of the same wastewater treatment technologies. However, the two sets of treatment standards differ both in their format and in the numerical values set for each constituent.

The differences in format between effluent guidelines and LDR's are relatively straightforward. The effluent guidelines provide for several types of discharge (new vs. existing sources, pretreatment vs. direct discharge) while the LDR program makes no distinctions

among different types of land disposal. While the effluent guidelines address both monthly and daily limits, UTS only sets daily limits.

For many pollutants, there are differences in the numerical values of the limits. The differences result from the use of different legal criteria for developing the limits and resulting differences in the technical and economic criteria and data sets for establishing the respective limits. As described above, the LDR UTS establish a single numerical standard for each regulated pollutant parameter that applies to all waste streams.

The Clean Water Act pollutant specific numerical effluent limitations guidelines and standards (40 CFR Subchapter N) often differ not only from the LDR UTS but also from point-source category to point-source category (e.g., Electroplating, 40 CFR part 413; and Metal Finishing, 40 CFR part 433). The effluent guidelines limitations and standards are industry-specific, subcategory-specific, and technology-based. The numerical limits are typically based on different data sets that reflect the performance of specific waste water management and treatment practices. Differences in the limits reflect differences in the statutory factors that the Administrator is required to consider in developing technically and economically achievable limitations and standards—manufacturing products and processes (which for CWT facilities includes types of treatment or waste management services performed), raw materials, wastewater characteristics, treatability, facility size, geographic location, age of facility and equipment, non-water quality environmental impacts, and energy requirements.

Limits for CWT's are developed for individual industrial subcategories leaving the permit writer with the responsibility of assembling the ''building blocks'' into a discharge limit. There is, however, only one set of LDR standards, the Universal Treatment Standards (UTS) applying to all constituents regardless of the waste stream. While there is one set of standards for LDR rules, the limits are generally based on BDAT applied to the waste that is most difficult to treat.

A consequence of these differing approaches is that similar or identical waste streams are regulated at different levels. Several of the effluent guidelines discharge categories reflect pretreatment prior to discharge to POTW's where there is further treatment and are therefore not directly comparable to LDR wastewater standards. However, those categories that represent daily maximum standards for discharge of treated wastes are analogous to the LDR wastewater standards, and the numerical differences in these standards reflect differences in methodology as described above.

EPA's survey of CWT facilities identified no wastewater discharges which would be regulated under the CWT effluent limitations guidelines and standards and the Universal Treatment Standards. Because none of the 72 CWT discharging CWT facilities discharge wastewater effluent to land disposal units, the proposed regulations for the CWT Industry are not redundant requirements.

III. Description of the Industry

A. Centralized Waste Treatment Facilities

Presented below is a brief summary description of the Centralized Waste Treatment Industry for which EPA is today proposing guidelines.

Based upon responses to EPA's 1991 Waste Treatment Industry Questionnaire (see discussion below), the Agency estimates that there are approximately 85 centralized waste treatment facilities in 31 States of the type for which EPA is proposing limitations and standards. These include both stand-alone treatment facilities as well as facilities which treat their own process wastewater and treatment or process residuals as well as wastes received from off-site. The major concentration of centralized waste treatment facilities in the U.S. are found in the Midwest, Northeast, and Northwest regions, due to the proximity of the industries generating the wastes undergoing treatment.

As previously noted, centralized waste treatment facilities accept a variety of different wastes for treatment. Before these facilities accept a waste for treatment, the waste generally undergoes a rigorous screening for compatibility with other wastes being treated at the facility. Waste generators initially furnish the treatment facility with a sample of the waste stream to be treated. The sample is analyzed to characterize the level of pollutants in the sample and bench-scale treatability tests are performed to determine what treatment is necessary to treat the waste stream effectively. After all analysis and tests are performed, the treatment facility determines the cost for treating the waste stream. If the waste generator accepts the cost of treatment, shipments of the waste stream to the treatment facility will begin. For each truck load of waste received for treatment, the treatment facility collects a sample from the shipment and analyzes the sample to determine if it is similar to the initial sample tested. If the sample is similar, the shipment of waste will be treated. If the sample is not similar but falls within an allowable range as determined by the treatment facility, the treatment facility will reevaluate the estimated cost of treatment for the shipment. Then, the waste generator decides if the waste will remain at the treatment facility for treatment. If the sample is not similar and does not fall within an allowable range, the treatment facility will decline the shipment for treatment.

Treatment facilities and waste generators complete extensive amounts of paperwork during the waste acceptance process. Most of the paperwork is required by Federal, State, and local regulations. The amount of paperwork necessary for accepting a waste stream emphasizes the difficulty of operating Centralized Waste Treatment facilities.

In its information and data-gathering effort, EPA also looked at how these facilities handle wastes after they are accepted for treatment. Even though a waste must surmount a number of hurdles before being accepted for treatment at a facility, many facilities do not devote the same level of attention to the process of managing and treating wastes for optimal removals. Thus, EPA's data show that approximately half of the facilities in the industry 1) accept wastes for treatment in more than one of the waste categories (metal-bearing, oily or organic-bearing) being considered here or 2) operate other industrial processes that generate wastes at the same site. In most cases, the waste streams from these various sources are mixed prior to treatment or after minimal pretreatment.

The problems associated with the mixing of the different types of wastes and wastewater treated at centralized waste treatment facilities or mixing with other industrial wastewater and non-contaminated stormwater exacerbated the difficulty of evaluating adequate treatment performance. EPA concluded that mixing waste streams adversely affects pollutant removal in the discharge water. Rather than treating to remove pollutants, the facilities were diluting their streams to achieve required effluent levels. Therefore, EPA has concluded reasonable further progress to the goal of reducing discharges requires achievement of discharge levels associated with treatment of segregated wastestreams. Consequently, as explained above, the Agency is proposing to establish effluent limitations which reflect

achievable effluent reductions for unmixed wastes.

B. Waste Treatment Processes

As the Agency learned from data and information collected as a result of the 1991 Waste Treatment Industry Questionnaire, CWTs accept many types of hazardous and non-hazardous industrial waste for treatment in liquid or solid form. In 1989, approximately 1.1 billion gallons of industrial waste were accepted for treatment of which 53 percent were hazardous and 47 percent were non-hazardous.

1. Metal-Bearing Waste Treatment or Recovery

In 1989, 709 million gallons of metal-bearing wastes were accepted for treatment by 56 facilities. This metal-bearing waste comprised the largest portion of the waste treated by the Centralized Waste Treatment Industry. The typical treatment process used for metal-bearing wastes was precipitation with lime or caustic followed by filtration. The sludge generated was then landfilled in a RCRA Subtitle C or D landfill depending upon its content. A small fraction of facilities recovered metals from the waste using selective metals precipitation or electrolytic metals recovery processes. Most facilities that recovered metals did not generate a sludge that required disposal, instead, the sludges were sold for the metal content.

2. Oily Waste Treatment or Recovery

Approximately 223 million gallons of oily waste were accepted for treatment by 35 facilities in 1989. A wide range of oily wastes were accepted for treatment and the on-site treatment scheme was determined by the type of oily waste accepted. The oily waste accepted for treatment could typically be classified as either: (1) stable oil-water emulsions, such as coolants and lubricants; or (2) unstable oil-water emulsions, such as bilge water. Stable oil-water emulsions are more difficult to treat because the droplets of the dispersed phase are so small that separation of the oil and water phases by settling would occur very slowly or not at all and required a chemical process to break the emulsion to adequately treat the waste. From the data collected in the 1991 Waste Treatment Industry Questionnaire, chemical emulsion breaking processes were the most widely-used treatment technology at the 29 oil recovery facilities, and, therefore, EPA believes that these facilities primarily accept for treatment stable oil-water emulsions. The wastewater effluent resulting from the emulsion-breaking process was typically mixed with wastewater from other CWT subcategories or stormwater for further treatment prior to discharge. Six facilities did not operate oil recovery processes and used only dissolved air flotation (DAF), a technique used to separate oil and suspended solids from water by skimming, to treat the oily waste receipts. Consequently, EPA concluded that these facilities were receiving for treatment less stable oil-water emulsions that were amenable to gravity separation or dissolved air flotation, and did not require chemical emulsion breaking treatment processes. EPA's sampling program focused on facilities that treated the more concentrated and more difficult to treat stable oil-water emulsions as reported by waste manifest forms and facility records. In August 1994, EPA conducted additional sampling at an oily waste treatment facility to further characterize the types of oils accepted for treatment and the technologies used. The data has not been reviewed at the time of this proposal, but the data is included in the rulemaking record and will be evaluated prior to promulgation. EPA solicits comments with detailed information and data on the concentrations of pollutants and type of oily wastes accepted for treatment by these facilities so that EPA can develop a more thorough understanding of the facility operations. Any new information used to establish the basis for the final regulation will be made available for public comment.

3. Organic Waste Treatment or Recovery

In 1989, 22 facilities accepted 147 million gallons of organic wastewater for treatment. Most facilities with treatment on-site used some form of biological treatment to handle the wastewater. Most of the facilities in the Organics Subcategory have other industrial operations as well, and the CWT wastes are mixed with these wastewater prior to treatment. The relatively constant on-site wastewater can support the operation of conventional, continuous biological treatment processes, which otherwise could be upset by the variability of the off-site waste receipts.

IV. Summary of EPA Activities and Data Gathering Efforts

A. EPA's Initial Efforts to Develop a Guideline for the Waste Treatment Industry

In 1986, the Agency initiated a study of waste treatment facilities which receive waste from off-site for treatment, recovery, or disposal. The Agency looked at various segments of the waste management industry including centralized waste treatment facilities, landfills, incinerators, fuel blending operations, and waste solidification/stabilization processes (Preliminary Data Summary for the Hazardous Waste Treatment Industry, EPA 1989). EPA conducted a separate study of the Solvent Recycling Industry (Preliminary Data Summary for the Solvent Recycling Industry, EPA 1989).

Development of effluent limitations guidelines and standards for this industry began in 1989. EPA originally studied centralized waste treatment facilities, fuel blending operations and waste solidification/stabilization facilities. EPA has decided not to propose nationally applicable effluent limitations guidelines and standards for fuel blending and stabilization operations because, even though these operations are integral to a facility's waste management practices, wastewater generation and disposal practices are not similar to the operations of centralized waste treatment operations. Most fuel blending and stabilization processes are ''dry,'' i.e., they generate no wastewater. Therefore, EPA decided to limit this phase of the proposed rulemaking to the development of regulations for the Centralized Waste Treatment Industry.

B. Wastewater Sampling Program

In the sampling program for the Hazardous Waste Treatment Industry Study, twelve facilities were sampled to characterize the wastes received and the on-site treatment technology performance at incinerators, landfills, and hazardous waste treatment facilities. Since all of the facilities samples had more than one on-site operation, the data collected can not be used for this project because data were collected for mixed waste streams and the waste characteristics and treatment technology performance for the hazardous waste treatment facilities cannot be differentiated.

Between 1989 and 1993, EPA visited 26 of the 85 centralized waste treatment facilities. During each visit, EPA gathered information on waste receipts, waste and wastewater treatment, and disposal practices. Based on these data and the responses to the 1991 Waste Treatment Industry Questionnaire, EPA selected eight of the 26 facilities for the wastewater sampling program in order to collect data to characterize discharges and the performance of their treatment system. Using data supplied by the facilities, EPA applied four criteria in initially choosing which facilities to sample. The criteria were as follows:

whether the wastewater treatment system (1) was effective in removing pollutants; (2) treated wastes received from a variety of sources, (3) employed either novel treatment technologies or applied traditional treatment technologies in a novel manner, and (4) applied waste management practices that increased the effectiveness of the treatment unit. An additional facility was sampled to characterize the wastes received and treatment processes of a facility that treated only non-hazardous waste. From the data collected at the non-hazardous waste treatment facility, waste stream characteristics were similar to that of a facility that treats hazardous waste. The other 17 facilities visited were not sampled, because they did not meet these criteria.

During each sampling episode, facility influent and effluent streams were sampled. Samples were also taken at intermediate points to assess the performance of individual treatment units. This information is summarized in the Technical Development Document. In the first two sampling episodes, streams were analyzed for over 480 pollutants to identify the range of pollutants possible at these facilities. After the analytical data were reviewed for the first two sampling episodes, the number of pollutants analyzed were reduced to approximately 180 that were detected in the initial sampling efforts.

In 1994, an additional four facilities were visited that are not included in the 85 Centralized Waste Treatment facilities identified in 1989. These facilities were not in business at the time the questionnaire was mailed. These facilities specialized in the treatment of bilge waters and unstable oil-water mixtures. From these site visits, one facility was chosen to be sampled based on the on-site treatment and type of oily waste accepted for treatment. As previously discussed, the data has not been reviewed at the time of this proposal, but the data is included in the regulatory record and will be evaluated prior to promulgation.

1. Metal-Bearing Waste Treatment and Recovery Sampling

From the ten sampling episodes completed from 1989 to 1994, only six sampling episodes contained data which were used to characterize this subcategory's waste streams and treatment technology performance. All of the facilities used some form of precipitation for treatment of the metal-bearing waste streams. Only one facility was a direct discharger and was therefore designed to effectively treat the conventional pollutants important for this subcategory, TSS and Oil and Grease.

2. Oily Waste Treatment and Recovery Sampling

From the sampling data collected between 1989 and 1994, five sampling episodes contained data which are applicable to the treatment of oily wastes. Data for the remaining five sampling episodes could not be used because the facilities did not accept oily waste for treatment or recovery. Identification of facilities to be sampled was difficult because most facilities in the oily waste treatment subcategory had other centralized waste treatment processes on-site. Three of the four facilities had other on-site Centralized Waste Treatment processes. The oily wastewater after emulsion-breaking was commingled with other subcategory waste streams prior to further treatment of the oily waste stream. In all three cases most of the pollutants of concern that were detected prior to commingling were at a non-detect level after commingling. Therefore, dilution resulted from the mixing and no further treatment may have occurred. Data from the three facilities could be used only to characterize the untreated waste streams after emulsion-breaking. Data from one of the facilities could not be evaluated prior to this proposal but is included in the public record. Therefore, data from only one facility could be used to assess treatment performance at the facilities in this subcategory.

3. Organic Waste Treatment and Recovery Sampling

Similar to the case with the Oily Waste Subcategory, identification of facilities for assessing waste streams and treatment technology performance was difficult, because most organic waste treatment facilities had other industrial operations on-site. The centralized waste treatment waste streams were small in comparison to the overall site flow. Two facilities were identified and sampled which treated a significant portion of off-site generated organic waste streams. Data from one of the facilities could not be used when developing technology options for proposal because the treatment system performance was not optimal at the time of sampling, but data from this facility was used to characterize the raw waste streams.

Therefore, sampling data from one facility was used to determine the treatment technology basis for this subcategory.

C. 1991 Waste Treatment Industry Questionnaire (Census of the Industry)

Under the authority of Section 308 of the Clean Water Act, EPA sent a questionnaire in 1991 to 455 facilities that the Agency had identified as possible Centralized Waste Treatment facilities. Since the Centralized Waste Treatment Industry is not represented by a SIC code, identification of facilities was difficult. Directories of treatment facilities, Agency information, and telephone directories were used to identify the 455 facilities to which the questionnaires were mailed. The responses from 416 facilities indicated that 89 facilities treated, or recovered material from, industrial waste from off-site in 1989 and the remaining 327 facilities did not treat, or recover materials from, industrial waste from off-site. Out of the 89 facilities that received industrial waste from off-site for treatment, four facilities received all of the off-site waste via pipeline. For the reasons discussed previously, this proposed regulation does not cover waste transferred from the original source of generation by pipeline. Therefore, based on this data base, 85 facilities are currently in the scope of this regulation. The questionnaire specifically requested information on: (1) the type of wastes accepted for treatment; (2) the industrial waste management practices used; (3) the quantity, treatment, and disposal of wastewater generated during industrial waste management; (4) available analytical monitoring data on wastewater treatment; (5) the degree of co-treatment (treatment of centralized waste treatment wastewater with wastewater from other industrial operations at the facility); and (6) the extent of wastewater recycling and/or reuse at the facility. Information was also obtained through follow-up telephone calls and written requests for clarification of questionnaire responses. Information obtained by the 1991 Waste Treatment Industry Questionnaire is summarized in the Technical Development Document for today's proposed rule.

D. Detailed Monitoring Questionnaire (Follow-Up Questionnaire to a Subset of the Industry)

EPA also requested a subset of centralized waste treatment facilities to submit wastewater monitoring data in the form of individual data points rather than monthly aggregates. These wastewater monitoring data included information on pollutant concentrations and waste receipt data for a six week period. The waste receipt data were

collected to provide information about the types of wastes treated and the influent waste characteristics due to the absence of influent wastewater monitoring data. Data were requested from 19 facilities.

V. Development of Effluent Limitations Guidelines and Standards

A. Industry Subcategorization

1. Development of Current Subcategorization Scheme

For today's proposal, EPA considered whether a single set of effluent limitations and standards should be established for this industry or whether different limitations and standards were appropriate for subcategories within the industry. In its preliminary decision that subcategorization is required and in developing the subcategories set forth in this rulemaking, EPA took into account all the information it collected and developed with respect to the following factors: waste type received; treatment process; nature of wastewater generated; facility size, age, and location; non-water quality impact characteristics; and treatment technologies and costs. In this industry, a wide variety of wastes are treated at a typical facility. Facilities employ different waste treatment technologies tailored to the specific type of waste being treated in a given day.

EPA concluded a number of factors did not provide an appropriate basis for subcategorization. The Agency concluded that the age of a facility should not be a basis for subcategorization because many older facilities have unilaterally improved or modified their treatment process over time. Facility size is also not a useful basis for subcategorization for the Centralized Waste Treatment Industry because wastes can be treated to the same level regardless of the facility size. Likewise, facility location is not a good basis for subcategorization; no consistent differences in wastewater treatment performance or costs exist because of geographical location. Although non-water quality characteristics (solid waste and air emission effects) are of concern to EPA, these characteristics did not constitute a basis for subcategorization. Environmental impacts from solid waste disposal and from the transport of potentially hazardous wastewater are a result of individual facility practices and do not reflect a trend that pertains to different segments of the industry. Treatment costs do not appear to be a basis for subcategorization because costs will vary and are dependent on the following waste stream variables: flow rates, wastewater quality, and pollutant loadings. Therefore, treatment costs were not used as a factor in determining subcategories.

EPA identified only one factor with primary significance for subcategorizing the Centralized Waste Treatment Industry: the type of waste received for treatment or recovery. This factor encompasses many of the other subcategorization factors. The type of treatment processes used, nature of wastewater generated, solids generated, and potential air emissions directly correlate to the type of wastes received for treatment or recovery. Therefore, EPA has concluded that the type of waste received for treatment or recovery is the appropriate basis for subcategorization of this industry. EPA invites comment on whether the specific subcategories proposed today should be further subdivided into smaller subcategories or whether an alternative basis for categorization should be adopted.

2. Proposed Subcategories

Based on the type of wastes accepted for treatment or recovery, EPA has determined that there are three subcategories appropriate for the Centralized Waste Treatment Industry.

- Subcategory A: Facilities which treat, or treat and recover metal from, metal-bearing waste received from off-site,
- Subcategory B: Facilities which treat, or treat and recover oil from, oily waste received from off-site, and
- Subcategory C: Facilities which treat, or treat and recover organics from, other organic waste received from off-site.

a. *Discharges from metal-bearing waste treatment and recovery operations.* Metal-bearing wastes represent the largest volume of wastes treated at the facilities which are the subject of this guidelines development effort. Included within this subcategory are facilities which treat metal-bearing wastes received from off-site as well as facilities which recover metals from off-site metal-bearing waste streams. Currently, EPA has identified 56 facilities as treating metal-bearing wastes. A small percentage of these facilities recover metals from the wastes for sale in commerce or for return to industrial processes. EPA proposes to establish limitations and standards for those conventional, priority, and non-conventional pollutants discharged in this subcategory. Among the metal-bearing wastes typically treated at the facilities in this subcategory are, in some cases, highly-concentrated, complex cyanide waste streams. In the case of CWTs that treat complex cyanides, based on the results of its site visits and data sampling effort, EPA has initially concluded that without first achieving a given level of cyanide reduction prior to metals treatment, the presence of cyanide will interfere with subsequent metals treatment, thus jeopardizing achievement of attainable effluent metals removals.

b. *Discharges from oily waste treatment and recovery operations.* EPA identified 35 facilities that currently discharge wastewater from treatment and recovery operations for oily wastes. EPA proposes to regulate conventional, priority, and non-conventional pollutants in wastewater discharged from this subcategory.

c. *Discharges from organic waste treatment operations.* EPA identified 22 facilities that currently discharge wastewater from the treatment of organic wastes that are received at the facility from off-site for treatment. As explained previously, wastewater discharges from organic recovery process operations, such as solvent recovery, are not included within the scope of this regulation. EPA proposes to regulate the conventional, priority, and non-conventional pollutants wastewater discharges from this subcategory.

B. Characterization of Wastewater

This section describes current water use and wastewater characterization at the 85 centralized waste treatment facilities in the U.S. All waste treatment processes covered by this regulation typically involve the use of water; however, specifics for any facility depend on the facility's waste receipts and treatment processes.

1. Water and Sources of Wastewater

Approximately 2.0 billion gallons of wastewater are generated annually at centralized waste treatment facilities. It is difficult to determine the quantity of wastes attributable to different sources because generally facilities mix the wastewater prior to treatment. EPA has, as a general matter, however, identified the sources described below as contributing to wastewater discharges at centralized waste treatment operations that would be subject to the proposed effluent limitations and standards.

a. *Waste receipts.* Most of the waste received from customers comes in a liquid form and constitutes a large portion of the wastewater treated at a facility. Other wastewater sources include wastewater from contact with the waste at receipt or during subsequent handling.

b. *Solubilization water.* A portion of waste receipts are in a solid form. Water

may be added to the waste to render it treatable.

c. *Waste oil emulsion-breaking wastewater.* The emulsion breaking process separates difficult water-oil emulsions and generates a ''bottom'' or water phase. Approximately 99.2 million gallons of wastewater were generated from emulsion-breaking processes in 1989.

d. *Tanker truck/drum/roll-off box washes.* Water is used to clean the equipment used for transporting wastes. The amount of wastewater generated was difficult to assess because the wash water is normally added to the wastes or used as solubilization water.

e. *Equipment washes.* Water is used to clean waste treatment equipment during unit shut downs or in between batches of waste.

f. *Air pollution control scrubber blow-down.* Water or acidic or basic solution is used in air emission control scrubbers to control fumes from treatment tanks, storage tanks, and other treatment equipment.

g. *Laboratory-derived wastewater.* Water is used in on-site laboratories which characterize incoming waste streams and monitor on-site treatment performance.

h. *Contaminated stormwater.* This is stormwater which comes in direct contact with the waste or waste handling and treatment areas. (Stormwater which does not come into contact with the wastes would not be subject to today's proposed limitations and standards.)

2. Wastewater Discharge

Approximately 3 billion gallons of wastewater were discharged at Centralized Waste Treatment Industry operations in 1989. In general, the primary source of wastewater discharges from these facilities are: waste receipts, solubilization wastewater, tanker truck/drums/roll-off box washes, equipment washes, air pollution control scrubber blow-down, laboratory-derived wastewater, and contaminated stormwater. Centralized waste treatment facilities do not generate a ''process wastewater'' in the traditional sense of this term.[2] As a service industry, there is no manufacturing or commercial ''process'' which is generating water. Because there are no ''manufacturing processes'' or ''products'' for this industry, ''process'' wastewater for this industry will include any wastes received for treatment (''waste receipt'') as well as water which comes into contact with the waste received or waste processing area. The wastewater resulting from contact with the wastes or waste processing area is referred to by the short-hand term ''centralized waste treatment wastewater.''

The 85 facilities identified by the 1991 Waste Treatment Industry Questionnaire can also be characterized by their type of wastewater discharge. Sixteen facilities discharge wastewater directly into a receiving stream or body of water. Another 56 facilities discharge wastewater indirectly, i.e., discharge to a publicly-owned treatment works (POTW).

Thirteen facilities do not dispose of wastewater directly to surface waters or indirectly to POTWs. At these facilities, (1) wastewater is disposed of by alternate means such as on-site or off-site deep well injection or incineration (four facilities); (2) wastewater is sent off-site for treatment (six facilities); (3) the process does not generate wastewater (one facility); and (4) wastewater is evaporated (two facilities). One facility discharges wastewater directly as well as on-site deep well injection.

This regulation applies to direct and indirect discharges only.

3. Wastewater Characterization

The Agency's sampling program for this industry detected over 100 pollutants (conventional, priority, and non-conventional) in waste streams at treatable levels. The quantity of pollutants currently being discharged is difficult to assess due to the lack of monitoring data available from facilities for the list of pollutants identified from the Agency's sampling program prior to commingling of the wastewater with non-contaminated stormwater and other industrial wastewater before discharge. Methodologies were developed to estimate current performance for each subcategory by assessing performance of on-site treatment technologies, wastewater permit information, and monitoring data supplied in the 1991 Waste Treatment Industry Questionnaire and the Detailed Monitoring Questionnaire. For the Metals Subcategory, a ''non-process wastewater'' factor was used to quantify the amount of non-contaminated stormwater and other industrial process water in a facility's discharge. A facility's current discharge of treated Centralized Waste Treatment wastewater was calculated using the monitoring data supplied multiplied by the ''non-process wastewater'' factor. For the Oils Subcategory, present treatment schemes were studied. Most facilities mixed oily wastewater with other CWT or industrial wastewater or stormwater. This generally resulted in inadequate treatment of oily waste because the pollutants detected in oily wastewater were typically not detected in the untreated mixed streams due to dilution. Therefore, current performance was estimated at the point prior to mixing different types of wastewater. For the Organics Subcategory, current performance could not be estimated from the discharge monitoring data submitted by the facilities due to the presence of other industrial wastewater in the discharge. Current performance was estimated by projecting the removal of pollutants resulting from the technologies used on-site. The Agency is soliciting comments on the approaches used to calculate the current performance as well as requesting any monitoring data available before the addition of non-contaminated stormwater or other industrial wastewater.

C. Pollutants Not Regulated

EPA is not proposing effluent limitations or standards for all conventional, priority, and non-conventional pollutants in this proposed regulation. Among the reasons EPA may have decided not to propose effluent limitations for a pollutant are the following:

(a) The pollutant is deemed not present in Centralized Waste Treatment Industry wastewater, because it was not detected in the influent during the Agency's sampling/data gathering efforts with the use of analytical methods promulgated pursuant to Section 304(h) of the Clean Water Act or with other state-of-the-art methods.

(b) The pollutant is present only in trace amounts and is neither causing nor likely to cause toxic effects.

(c) The pollutant was detected in the effluent from only one or a small number of samples and the pollutant's presence could not be confirmed.

(d) The pollutant was effectively controlled by the technologies used as a basis for limitations on other pollutants, including those limitations proposed today, and therefore regulated by the limitations for the indicator pollutants or (e) Insufficient data are available to establish effluent limitations.

D. Available Technologies

The treatment technologies presently employed by the industry represent the range of wastewater treatment systems observed at categorical industrial operations. All 85 centralized waste treatment facilities operate wastewater

[2] Process wastewater is defined in 40 CFR 122.2 as ''any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, by-product, intermediate product, finished product, or waste product.''

treatment systems. The technologies used include physical-chemical treatment, biological treatment, and advanced wastewater treatment. Based on information obtained from the 1991 Waste Treatment Industry Questionnaire and site visits, EPA has concluded that a significant number of these treatment systems need to be upgraded to improve effectiveness and to remove additional pollutants.

Physical-chemical treatment technologies in use are:

- Precipitation/Filtration, which converts soluble metal salts to insoluble metal oxides which are then removed by filtration;
- Dissolved Air Flotation (DAF), which separates solid or liquid particles from a liquid phase by introducing air bubbles into the liquid phase. The bubbles attach to the particles and rise to the top of the mixture;
- Activated Carbon, which removes pollutants from wastewater by adsorbing them onto carbon particles;
- Multi-media/Sand Filtration, which removes solids from wastewater by passing it through a porous medium.

Biological treatment technologies in use are:

- Sequential Batch Reactor, which uses microorganisms to degrade organic material in a batch process;
- Activated Sludge, which uses microorganisms suspended in well-aerated wastewater to degrade organic material;
- PACT® System, a patented process in which powder activated carbon is added to an activated sludge system; and
- Coagulation/Flocculation, which is used to assist clarification of biological treatment effluent.

Advanced wastewater treatment technologies in use are:

- Ultrafiltration, which is used to remove organic pollutants from wastewater according to the organic molecule size; and
- Reverse osmosis, which relies on differences in dissolved solids concentrations to remove inorganic pollutants from wastewater.

The typical treatment sequence for a facility depends upon the type of waste accepted for treatment. Most facilities treating metal-bearing wastes use precipitation/filtration to remove metals. Those that treat oily wastes relied on dissolved air flotation largely to remove oil and grease, but this technology is typically ineffective in removing the metal pollutants that are in many cases also present in these wastewater. Aerobic batch processes and types of conventional activated sludge systems were the most widely-found treatment technology for the organic-bearing wastes.

E. Rationale for Selection of Proposed Regulations

To determine the technology basis and performance level for the proposed regulations, EPA developed a database consisting of daily effluent data collected from the Detailed Monitoring Questionnaire and the EPA Wastewater Sampling Program. This database is used to support the BPT, BCT, BAT, NSPS, PSES, and PSNS effluent limitations and standards proposed today.

1. BPT

a. Introduction. EPA today is proposing BPT effluent limitations for the three discharge subcategories for the Centralized Waste Treatment Industry. The BPT effluent limitations proposed today would control identified conventional, priority, and non-conventional pollutants when discharged from CWT facilities.

b. Rationale for BPT limitations by subcategory. As previously noted, the Centralized Waste Treatment Industry receives for treatment large quantities of concentrated hazardous and non-hazardous industrial waste which results in discharges of a significant quantity of pollutants. The EPA estimates that 176.8 million pounds per year of pollutants are currently being discharged directly or indirectly.

As previously discussed, Section 304(b)(1)(A) requires EPA to identify effluent reductions attainable through the application of ''best practicable control technology currently available for classes and categories of point sources.'' The Senate Report for the 1972 amendments to the CWA explained how EPA must establish BPT effluent reduction levels. Generally, EPA determines BPT effluent levels based upon the average of the best existing performances by plants of various sizes, ages, and unit processes within each industrial category or subcategory. In industrial categories where present practices are uniformly inadequate, however, EPA may determine that BPT requires higher levels of control than any currently in place if the technology to achieve those levels can be practicably applied. *A Legislative History of the Federal Water Pollution Control Act Amendments of 1972*, p. 1468.

In addition, CWA Section 304(b)(1)(B) requires a cost effectiveness assessment for BPT limitations. This inquiry does not limit EPA's broad discretion to adopt BPT limitations that are achievable with available technology *unless* the required additional reductions are ''wholly out of proportion to the costs of achieving such marginal level of reduction.'' *A Legislative History of the Water Pollution Control Act Amendments of 1972*, p. 170. Moreover, the inquiry does not require the Agency to quantify benefits in monetary terms. See e.g. *American Iron and Steel Institute* v. *EPA*, 526 F. 2d 1027 (3rd Cir., 1975).

In balancing costs against the benefits of effluent reduction, EPA considers the volume and nature of expected discharges after application of BPT, the general environmental effects of pollutants, and the cost and economic impacts of the required level of pollution control. In developing guidelines, the Act does not require or permit consideration of water quality problems attributable to particular point sources, or water quality improvements in particular bodies of water. Therefore, EPA has not considered these factors in developing the limitations being proposed today. See *Weyerhaeuser Company* v. *Costle*, 590 F. 2d 1011 (D.C. Cir. 1978).

EPA concluded that the wastewater treatment performance of the facilities it surveyed was, with very limited exceptions, uniformly poor. Under these circumstances, for each subcategory, EPA has preliminarily concluded that only one treatment system meets the statutory test for best practicable, currently available technology. EPA has determined that the performance of facilities which mix different types of highly concentrated CWT wastes with non-CWT waste streams or with stormwater are not providing BPT treatment. The mass of pollutants being discharged is unacceptably high, given the demonstrated removal capacity of treatment systems that the Agency reviewed. Thus, comparison of EPA sampling data and CWT industry-supplied monitoring information establishes that, in the case of metal-bearing waste streams, virtually all the facilities are discharging large total quantities of heavy metals. As measured by total suspended solids (TSS) levels following treatment, TSS concentrations are substantially in excess of levels observed at facilities in other industry categories employing the same treatment technology—10 to 20 times greater than observed for other point source categories.

In the case of oil discharges, most facilities are achieving low removal of oils and grease relative to the performance required for other point source categories. Further, facilities treating organic wastes, while successfully removing organic

pollutants through biological treatment, fail to remove metals associated with these organic wastes.

The poor pollutant removal performance observed generally for discharging CWT facilities is not unexpected. As pointed out previously, these facilities are treating highly concentrated wastes that, in many cases, are process residuals and sludges from other point source categories. EPA's review of permit limitations for the direct dischargers show that, in most cases, the dischargers are subject to ''best professional judgment'' concentration limitations which were developed from guidelines for facilities treating and discharging much more dilute waste streams. EPA has concluded that treatment performance in the industry is widely inadequate and that the mass of pollutants being discharged is unacceptably high, given the demonstrated removal capability of treatment operations that the Agency reviewed.

(i) Subcategory A—Metals Subcategory. The Agency is today proposing BPT limitations for the Metals Subcategory for 22 pollutants. EPA considered three regulatory options to reduce the discharge of pollutants by centralized waste treatment facilities. For a more detailed discussion of the basis for the limitations and technologies selected see the Technical Development Document.

The three currently available treatment systems for which the EPA assessed performance for the Metals Subcategory BPT are:

- Option 1—Chemical Precipitation, Liquid-Solid Separation, and Sludge Dewatering. Under Option 1, BPT limitations would be based upon chemical precipitation with a lime/caustic solution followed by some form of separation and sludge dewatering to control the discharge of pollutants in wastewater. The data reviewed for this option showed that settling/clarification followed by pressure filtration of sludge yields removals equivalent to pressure filtration. In some cases, BPT limitations would require the current treatment technologies in-place to be improved by use of increased quantities of treatment chemicals and additional monitoring of batch processes. For metals streams which contain concentrated cyanide complexes, BPT limitations under Option 1 are based on alkaline chlorination at specific operating conditions prior to metals treatment. As previously noted, without treatment of the cyanide streams prior to metals treatment, metals removal are significantly reduced.
- Option 2—Selective Metals Precipitation, Pressure Filtration, Secondary Precipitation, and Solid-Liquid Separation. The second option evaluated for BPT for centralized waste treatment facilities would be based on the use of numerous treatment tanks and personnel to handle incoming waste streams, and use of greater quantities of caustic in the treatment chemical mixture. (Caustic sludge is easier to recycle.) Option 2 is based on additional tanks and personnel to segregate incoming waste streams and to monitor the batch treatment processes to maximize the precipitation of specific metals in order to generate a metal-rich filter cake. The metal-rich filter cake could possibly be sold to metal smelters to incorporate into metal products. Like Option 1, for metals streams which contain concentrated cyanide complexes, under Option 2, BPT limitations are also based on alkaline chlorination at specific operating conditions prior to metals treatment.
- Option 3—Selective Metals Precipitation, Pressure Filtration, Secondary Precipitation, Solid-Liquid Separation, and Tertiary Precipitation. The technology basis for Option 3 is the same as Option 2 except an additional precipitation step at the end of treatment is added. For metals streams which contain concentrated cyanide complexes, like Options 1 and 2, for Option 3, alkaline chlorination at specific operating conditions would also be the basis for BPT limitations.

The Agency is proposing to adopt BPT effluent limitations based on Option 3 for the Metals Subcategory. These limitations were developed based on an engineering evaluation of the average of the best demonstrated methods to control the discharges of the regulated pollutants in this Subcategory.

EPA's decision to base BPT limitations on Option 3 treatment reflects primarily an evaluation of three factors: the degree of effluent reduction attainable, the total cost of the proposed treatment technologies in relation to the effluent reductions achieved, and potential non-water quality benefits. In assessing BPT, EPA considered the age, size, process, other engineering factors, and non-water quality impacts pertinent to the facilities treating wastes in this subcategory. No basis could be found for identifying different BPT limitations based on age, size, process or other engineering factors. Neither the age nor the size of the CWT facility will directly significantly affect either the character or treatability of the CWT wastes or the cost of treatment. Further, the treatment process and engineering aspects of the technologies considered have a relatively insignificant effect because in most cases they represent fine tuning or add-ons to treatment technology already in use. These factors consequently did not weigh heavily in the development of these guidelines. For a service industry whose service is wastewater treatment, the most pertinent factors for establishing the limitations are costs of treatment, the level of effluent reductions obtainable, and non-water quality effects.

Generally, for purposes of defining BPT effluent limitations, EPA looks at the performance of the best operated treatment system and calculates limitations from some level of average performance of these ''best'' facilities. For example, in the BPT limitations for the Organic Chemicals, Plastics, and Synthetic Fibers Point Source Category, EPA identified ''best'' facilities on a BOD performance criteria of achieving a 95 percent BOD removal or a BOD effluent level of 40 mg/l. 52 FR 42535 (November 5, 1987). For this industry, as previously explained, EPA concluded that treatment performance is, in virtually all cases, poor. Without separation of metal-bearing streams for selective precipitation, metal removal levels are uniformly inadequate across the industry. Consequently, BPT performance levels are based on data from the one well-operated system using selective metals precipitation that was sampled by EPA.

The demonstrated effluent reductions attainable through the Option 3 control technology represent the BPT performance attainable through the application of demonstrated treatment measures currently in operation in this industry. The Agency is proposing to adopt BPT limitations based on the removal performance of the Option 3 treatment system for the following reasons. First, these removals are demonstrated by a facility in this subcategory and can readily be applied to all facilities in the subcategory. The adoption of this level of control would represent a significant reduction in pollutants discharged into the environment.

Second, the Agency assessed the total cost of water pollution controls likely to be incurred for Option 3 in relation to the effluent reduction benefits and determined these costs were economically reasonable.

Third, adoption of these BPT limits could promote the non-water quality objectives of the CWA. Use of the Option 3 treatment regime—which generates a metal-rich filter cake that may be recovered and smelted—could reduce the quantity of waste which are being disposed of in landfills.

The Agency proposes to reject Option 1 because, as discussed above, EPA concluded that mixing disparate metal-bearing waste streams is not the best practicable treatment technology currently in operation for this subcategory of the industry. Consequently, effluent levels associated with this treatment option would not represent BPT performance levels. Option 2 was rejected, although similar to Option 3, because the greater removals obtained through addition of tertiary precipitation at Option 3 were obtained at a relatively insignificant increase in costs over Option 2.

See Section V.F. for further information regarding Monitoring to Demonstrate Compliance with the Regulation.

(ii). Subcategory B—Oils Subcategory. The Agency is today proposing BPT limitations for the Oils Subcategory for 33 pollutants. EPA identified four regulatory options for consideration in establishing BPT effluent reduction levels for this subcategory of the Centralized Waste Treatment Industry. For a more detailed discussion of the basis for the limitations and standards selected see the Technical Development Document.

The four technology options considered for the Oils Subcategory BPT are:

- Option 1—Emulsion-Breaking. Under Option 1, BPT limitations would be based on present performance of emulsion-breaking processes using acid and heat to separate oil-water emulsions. At present, most facilities have this technology in-place unless less stable oil-water mixtures are accepted for treatment. Stable oil-water emulsions require some emulsion-breaking treatment because gravity or flotation alone is inadequate to break down the oil/water stream.
- Option 2—Ultrafiltration. Under Option 2, BPT limitations would be based on the use of ultrafiltration for treatment of less concentrated, stable oily waste receipts or for the additional treatment of wastewater from the emulsion-breaking process.
- Option 3—Ultrafiltration, Carbon Adsorption, and Reverse Osmosis. The Option 3 BPT effluent limitations are based on the use of carbon adsorption and reverse osmosis in addition to the Option 2 technology. The reverse osmosis unit removes metal compounds found at significant levels for this subcategory. Inclusion of a carbon adsorption unit is necessary in order to protect the reverse osmosis unit by filtering out large particles which may damage the reverse osmosis unit or decrease membrane performance.
- Option 4—Ultrafiltration, Carbon Adsorption, Reverse Osmosis, and Carbon Adsorption. Option 4 is similar to Option 3 except for the additional carbon adsorption unit for final effluent polishing.

The Agency is proposing BPT effluent limitations for the Oily Waste Subcategory based on Option 3 as well as Option 2 treatment systems. EPA has preliminarily concluded that both options represent best practicable control technologies. The technologies are in-use in the industry and the data collected by the Agency show that the limitations are being achieved. In assessing BPT, EPA considered age, size, process, other engineering factors, and non-water quality impacts pertinent to the facilities treating wastes in this subcategory. No basis could be found for identifying different BPT limitations based on age, size, process or other engineering factors for the reasons previously discussed. For a service industry whose service is wastewater treatment, the pertinent factors here for establishing the limitations are costs of treatment, the level of effluent reductions obtainable, and non-water quality effects.

Among the options considered by the Agency, both Options 2 and 3 would provide for significant reductions in regulated pollutants discharged into the environment over current practice in the industry represented by Option 1. EPA is nonetheless, concerned about the cost of Option 3 because it is substantially more expensive than Option 2. However, EPA's economic assessment indicates, that Options 2 and 3 are economically reasonable.

As noted, the Agency is proposing Option 2 because it is a currently available and cost-effective treatment option. However, the BPT pollutant removal performance required for a number of specific pollutants (particularly oil and grease and metals) is less stringent than current BPT effluent limitations guidelines promulgated for other industries. EPA is concerned about the potential for encouraging off-site shipment of oily waste now being treated on-site if the limitations for this subcategory are significantly different from those other BPT effluent limitations currently in effect.

EPA is proposing both options for comment because the Agency is concerned that, while both Options 2 and 3 are proven treatment technologies currently available to this industry, the additional effluent reductions associated with Option 3 are very expensive. EPA has preliminarily concluded that, even though the cost of Option 3 is significantly greater than Option 2 (because of installation, operation, and maintenance of reverse osmosis equipment), the costs are not unreasonable, given other factors. EPA is asking for comment on whether the effluent reduction benefits of Option 3 outweigh the high cost of the additional removal obtained through reverse osmosis. The Agency is particularly interested in comments on the ancillary effects of the less stringent Option 2 limitations.

As previously discussed, the Agency will be re-estimating the current performance at facilities that treat oily waste based on comments received and information collected in the August 1994 sampling episode and re-calculating the cost and impacts of Options 2 and 3. The data from the August 1994 sampling episode is included in the record for this proposal, but was not incorporated into calculations because it was not received with sufficient time to review and incorporate.

The Agency proposes to reject Option 1, because the technology does not provide for adequate control of the regulated pollutants. The Agency also proposes to reject Option 4 because Option 4 treatment technology results in a lower level of pollutant reductions in comparison to Option 3. Theoretically, Option 4 should provide for the maximum reduction of pollutants discharged due to the addition of carbon adsorption units, but specific pollutant concentrations increase across the carbon adsorption unit according to the analytical data collected.

Even though, as previously explained, BPT limitations are generally defined by the average effluent reduction performance of the best existing treatment systems, here, as was the case with the BPT metal-bearing wastes limitations, the options being proposed as the basis for BPT effluent limitations are based upon the treatment performance at a single facility. EPA concluded that existing performance at the other facilities is uniformly inadequate because many facilities that will be subject to the limitations for the Oily Waste Subcategory now commingle the oily wastewater with other wastes prior to treatment. The Agency has determined that the practice of mixing waste streams before treatment results in inadequate removal of the regulated pollutants of concern for the Oils Subcategory. Oily wastewater contains significant levels of organic and metals compounds. If the oily wastewater is mixed with other CWT wastewater, these organic and metals compounds are often found at non-detectable levels

prior to treatment because the oily wastewater is effectively diluted by the other wastewater to the point that the compounds are no longer detectible. The treatment system on which the Options 2 through 4 effluent limitations are based was designed specifically for the treatment of segregated oily wastewater.

See Section V.F. for further information regarding Monitoring to Demonstrate Compliance with the Regulation.

(iii) Subcategory C—Organics Subcategory. The Agency is today proposing BPT limitations for the Organics Subcategory for 39 pollutants. EPA identified two regulatory options for consideration in establishing BPT effluent reduction levels for this subcategory of the Centralized Waste Treatment Industry. For a more detailed discussion of the basis for the limitations and technologies selected see the Technical Development Document.

The two technology options considered for the Organics Subcategory BPT are:

- Option 1—Equalization, Air-Stripping, Biological Treatment, and Multi-media Filtration. BPT Option 1 effluent limitations are based on the following treatment system: equalization, two air-strippers in series equipped with a carbon adsorption unit for control of air emissions, biological treatment in the form of a sequential batch reactor (which is operated on a batch basis,) and finally multi-media filtration units for control of solids.
- Option 2—Equalization, Air-Stripping, Biological Treatment, Multi-Filtration, and Carbon Adsorption. Option 2 is the same as Option 1 except for the addition of carbon adsorption units.

The Agency is proposing to adopt BPT effluent limitations based on the Option 1 technology for the Organics Subcategory. The demonstrated effluent reductions attainable through Option 1 control technology represent the best practicable performance attainable through the application of currently available treatment measures. EPA's decision to propose effluent limitations defined by the removal performance of the Option 1 treatment systems is based primarily on consideration of several factors: the effluent reductions attainable, the economic achievability of the option and non-water quality environmental benefits. Once again, the age and size of the facilities, processes and other engineering factors were not considered pertinent to establishment of BPT limitations for this subcategory.

The Agency is proposing to adopt BPT limitations based on the removal performance of the Option 1 treatment system for the following reasons. First, the cost of achieving the pollutant discharge levels associated with the Option 1 treatment system is reasonable. The annualized costs for treatment are low.

According to the data collected, the Option 1 treatment system provides a greater effluent pollutant reduction level than the more expensive Option 2. Theoretically, Option 2 should provide for the maximum reduction of pollutants discharged due to the addition of carbon adsorption units, but specific pollutants of concern increased across the carbon adsorption unit according to the analytical data collected. Due to the poor performance of carbon adsorption in EPA's database for this industry, Option 2 is rejected. The poor performance may be a result of pH fluctuations in the carbon adsorption unit resulting in the solubilization of metals. Similar trends have been found for all of the data collected on carbon adsorption units in this industry. The EPA is soliciting comments, additional information, and performance data on carbon adsorption units used within the industry.

The Agency used biological treatment performance data from the OCPSF regulation to establish direct discharge limitations for BOD_5 and TSS, because the facility from which Option 1 and 2 limitations were derived is an indirect discharger and the treatment system is not operated to optimize removal of conventional pollutants. EPA has concluded that the transfer of this data is appropriate given the absence of adequate treatment technology for these pollutants at the only otherwise well-operated BPT CWT facility. Given the treatment of similar wastes at both OCPSF and centralized waste treatment facilities, use of the data is warranted. Moreover, EPA has every reason to believe that the same treatment systems will perform similarly when treating the wastes in this subcategory.

Once again, the selected BPT option is based on the performance of a single facility. Many facilities that are treating wastes that will be subject to effluent limitations for the Organic-Bearing Waste Subcategory also operate other industrial processes that generate much larger amounts of wastewater than the quantity of off-site generated organic waste receipts. The off-site generated organic waste receipts are directly mixed with the wastewater from the other industrial processes for treatment. Therefore, identifying facilities to sample for limitations development was difficult because the waste receipts and treatment unit effectiveness could not be properly characterized for off-site generated waste. The treatment system for which Options 1 and 2 was based upon was one of the few facilities identified which treated organic waste receipts separately from other on-site industrial wastewater.

See Section V.F. for further information regarding Monitoring to Demonstrate Compliance with the Regulation.

2. BCT

In today's rule, EPA is proposing effluent limitations guidelines and standards equivalent to the BPT guidelines for the conventional pollutants covered under BPT. In developing BCT limits, EPA considered whether there are technologies that achieve greater removals of conventional pollutants than proposed for BPT, and whether those technologies are cost-reasonable according to the BCT Cost Test. In all three subcategories, EPA identified no technologies that can achieve greater removals of conventional pollutants than proposed for BPT that are also cost-reasonable under the BCT Cost Test, and accordingly EPA proposes BCT effluent limitations equal to the proposed BPT effluent limitations guidelines and standards.

EPA may also decide to adopt BPT effluent limitations based on treatment technologies less stringent than the Regulatory Options that are the basis for today's proposal. Consequently, EPA has also evaluated the cost-reasonableness of BCT limits if EPA were to adopt BPT limitations based on less stringent technologies. For all three categories, this assessment does not support the adoption of BCT limitations for conventional pollutants that are more stringent than BPT limitations based on a reduced level of treatment.

3. BAT

EPA today is proposing BAT effluent limitations for all subcategories of the Centralized Waste Treatment Industry based on the same technologies selected for BPT for each subcategory. The BAT effluent limitations proposed today would control identified priority and non-conventional pollutants discharged from facilities.

EPA has not identified any more stringent treatment technology option which it considered to represent BAT level of control applicable to facilities in this industry for the metals, oils, and organics subcategories, EPA identified an add-on treatment technology—carbon adsorption—that should have

further increased removals of pollutants of concern. However, as explained above, EPA's data show increases rather than decreases in concentrations of specific pollutants of concern.

In the case for the Oily Waste Subcategory, EPA is co-proposing two options for BAT: Options 2 and 3. EPA seeks comment on whether it should adopt BAT limitations based on Oils Option 3 or Oils Option 4 if the Agency decides to adopt Option 3 for BPT limitations for this Subcategory. Both the Options 3 and 4 treatment systems achieve increasingly greater levels of pollutant removal than Option 2. Both represent demonstrated technologies currently in use in the industry. However, the total costs for the industry over Option 2 are high. Given the statutory injunction for the Agency to develop BAT effluent limitations that reflect the best control measure economically achievable, EPA believes BAT limitations which reflect these more stringent effluent pollutant reduction levels may be appropriate. This is particularly true if the additional treatment results in significant reduction in pollutants discharged into the environment and thus reasonable further progress towards the goal of the Act—elimination of the discharge of pollutants to navigable waters. The Agency welcomes comment on this issue.

EPA's data show that the costs of both Option 3 and Option 4 ($8.4 million and $10.0 million, respectively) are significantly greater than Option 2 ($0.87 million). Nevertheless, the cost of per-pound removals, $0.38 and $0.44, respectively, are reasonable. In addition, both Options 3 and 4 are economically achievable because there would be not change in the industry profitability status as a result of the adoption of either Option. As stated earlier, the impact of limitations based on *either* Option 1, 2, 3, or 4 is a decrease in profitability for one direct discharger with increased profitability for three others. However, adoption of BAT limits based on Oil Option 3 would provide approximately 150,000 pounds of additional removals of pollutants over Option 2 while BAT limitations based on costlier Option 4 would remove fewer pollutants. In the circumstances, EPA has preliminarily determined that is should not adopt Option 4 as the basis for BAT limits if it decides to base BPT on Option 2.

As with BPT limitations, EPA is proposing to require monitoring for compliance with the limitations at a point after treatment but prior to combining the CWT process wastewater with other wastewater. Many facilities operate other processes and the addition of this wastewater to CWT wastewater may result in dilution due to the difference in concentration of waste streams. Also, if a facility discharges non-contaminated stormwater, the proposed regulation is requiring monitoring of the CWT discharge prior to the addition of non-contaminated stormwater.

As with BPT, monitoring for compliance with the regulation for the Total Cyanide limitation at facilities in the Metals Subcategory which treat concentrated cyanide-bearing metal waste is after cyanide pretreatment and prior to metal treatment. This ensures that cyanide will not interfere with metals treatment.

See Section V.F. for further information regarding Monitoring to Demonstrate Compliance with the Regulation.

4. New Source Performance Standards

As previously noted, under Section 306 of the Act, new industrial direct dischargers must comply with standards which reflect the greatest degree of effluent reduction achievable through application of the best available demonstrated control technologies. Congress envisioned that new treatment systems could meet tighter controls than existing sources because of the opportunity to incorporate the most efficient processes and treatment systems into plant design. Therefore, Congress directed EPA to consider the best demonstrated process changes, in-plant controls, operating methods and end-of-pipe treatment technologies that reduce pollution to the maximum extent feasible.

EPA is proposing NSPS that would control the same conventional, priority, and non-conventional pollutants proposed for control by the BPT effluent limitations. The technologies used to control pollutants at existing facilities are fully applicable to new facilities. Furthermore, EPA has not identified any technologies or combinations of technologies that are demonstrated for new sources that are different from those used to establish BPT/BCT/BAT for existing sources. Therefore, EPA is establishing NSPS subcategories similar to the subcategories for existing facilities and proposing NSPS limitations that are identical to those proposed for BPT/BCT/BAT. Again, the Agency is requesting comments to provide information and data on other treatment systems that may be pertinent to the development of standards for this industry.

EPA is specifically considering whether it should adopt NSPS for the Oil Subcategory which reflect either Option 3 or Option 4 treatment technologies. EPA does not believe there would be any barriers to entry in this industry associated with adoption of Option 3 or 4. One currently operating facility has demonstrated the performance of these control technologies—EPA is assessing whether or not to adopt NSPS for the Oil Subcategory that reflects this more stringent level of control. EPA is soliciting comments on this issue.

See Section V.F. for further information regarding Monitoring to Demonstrate Compliance with the Regulation.

5. Pretreatment Standards for Existing Sources

Indirect dischargers in the Centralized Waste Treatment Industry, like the direct dischargers, accept for treatment wastes containing many priority and non-conventional pollutants. As in the case of direct dischargers, indirect dischargers may be expected to discharge many of these pollutants to POTWs at significant mass and concentration levels. EPA estimates that indirect dischargers annually discharge approximately 85 million pounds of pollutants.

Section 307(b) requires EPA to promulgate pretreatment standards to prevent pass-through of pollutants from POTWs to waters of the U.S. or to prevent pollutants from interfering with the operation of POTWs. EPA is establishing PSES for this industry to prevent pass-through of the same pollutants controlled by BAT from POTWs to waters of the U.S.

a. *Pass-through analysis.* Before proposing pretreatment standards, the Agency examines whether the pollutants discharged by the industry pass through a POTW or interfere with the POTW operation or sludge disposal practices. In determining whether pollutants pass through a POTW, the Agency compares the percentage of a pollutant removed by POTWs with the percentage of the pollutant removed by discharging facilities applying BAT. A pollutant is deemed to pass through the POTW when the average percentage removed nationwide by well-operated POTWs (those meeting secondary treatment requirements) is less than the percentage removed by facilities complying with BAT effluent limitations guidelines for that pollutant.

This approach to the definition of pass-through satisfies two competing objectives set by Congress: (1) That standards for indirect dischargers be equivalent to standards for direct dischargers and (2) that the treatment

capability and performance of the POTW be recognized and taken into account in regulating the discharge of pollutants from indirect dischargers. Rather than compare the mass or concentration of pollutants discharged by the POTW with the mass or concentration of pollutants discharged by a BAT facility, EPA compares the percentage of the pollutants removed by the plant with the POTW removal. EPA takes this approach because a comparison of mass or concentration of pollutants in a POTW effluent with pollutants in a BAT facility's effluent would not take into account the mass of pollutants discharged to the POTW from non-industrial sources nor the dilution of the pollutants in the POTW effluent to lower concentrations from the addition of large amounts of non-industrial wastewater. The volatile override test is the last step in determining is a pollutant will ''pass-through.'' If a pollutant has a Henry's Law Constant greater than 2.4×10^{-5} atm-m^3/mole, or 10^{-3}mg/m^3/mg/m^3, it is determined to ''pass-through'' and will be regulated by PSES regardless of the percent removal data.

For past effluent guidelines, a study of 50 well-operated POTWs was used for the pass-through analysis. Because the data collected for evaluating POTW removals included influent levels of pollutants that were close to the detection limit, the POTW data were edited to eliminate influent levels less than 10 times the minimum level and the corresponding effluent values, except in the cases where none of the influent concentrations exceeded 10 times the minimum level. In the latter case, where no influent data exceeded 10 times the minimum level, the data were edited to eliminate influent values less than 20 μg/l and the corresponding effluent values. These editing rules were used to allow for the possibility that low POTW removal simply reflected the low influent levels.

EPA then averaged the remaining influent data and also averaged the remaining effluent data from the 50 POTW database. The percent removals achieved for each pollutant was determined from these averaged influent and effluent levels. This percent removal was then compared to the percent removal for the BAT option treatment technology. Due to the large number of pollutants applicable for this industry, additional data from the Risk Reduction Engineering Laboratory (RREL) database was used to augment the POTW database for the pollutants for which the 50 POTW Study did not cover. Based on this analysis, 78 of the 87 pollutants regulated under Regulatory Option 1 (the combinations of Metals Option 3, Oils Option 2, and Organics Option 1) and 51 of the 87 pollutants regulated under Regulatory Option 2 (the combinations of Metals Option 3, Oils Option 3, and Organics Option 1) for BAT passed through POTWs and are proposed for regulation for PSES. The pollutants determined not to ''pass-through'' are listed in Table V.E–1.

TABLE V.E–1.—POLLUTANTS THAT DO NOT PASS-THROUGH POTWS FOR THE CENTRALIZED WASTE TREATMENT INDUSTRY

Subcategory	Pollutant
Metals subcategory ...	Barium.
Oils Subcategory—Option 2.	Nickel, Zinc, Tripropyleneglycol Methyl Ether.
Organics Subcategory.	Phenol, 2-Propanone, Lead, Pyridine, Zinc.

b. *Options considered.* The Agency today is proposing to establish pretreatment standards for existing sources (PSES) based on the same technologies as proposed for BPT and BAT for 78 of the 87 priority and non-conventional pollutants regulated under BAT for Regulatory Option 1 (the combinations of Metals Option 3, Oils Option 2, and Organics Option 1) and 81 of the 87 priority pollutants regulated under BAT for Regulatory Option 2 (the combinations of Metals Option 3, Oils Option 3, and Organics Option 1) . These standards would apply to existing facilities in all subcategories of the Centralized Waste Treatment Industry that discharge wastewater to publicly-owned treatment works (POTWs). These limitations were developed based on the same technologies as proposed today for BPT/BAT, as applicable to each of the affected subcategories. PSES set at these points would prevent pass-through of pollutants, help control sludge contamination and reduce air emissions.

EPA estimated the cost and economic impact of installing BPT/BAT PSES technologies at the indirect discharging facilities. The total estimated annualized cost in 1993 for all the subcategories is approximately $22.9 million (if PSES is Oils Option 3) and approximately $2.78 million (if PSES is Oils Option 2). EPA concluded the cost of installation of these control technologies, in the case of metal-bearing and organic-bearing waste streams, is clearly economically achievable. EPA's assessment shows none of the indirect discharging facilities in these subcategories go from a profitable to unprofitable status as a result of the installation of the necessary technology.

EPA is asking for comment on whether it should adopt Oils Option 3 as PSES for this subcategory, given that annual costs are approximately ten times greater than Option 2. EPA is particularly interested in comments on whether Option 3 is economically achievable, given the EPA economic assessment showing that despite its high cost, it results only in a slight increase in the number of facilities going from a profitable to unprofitable status. In the case of Oils Option 2, four of 31 indirect dischargers would go from a profitable to unprofitable status and for Option 3, six would experience a change from a profitable to unprofitable status. Additional information is provided in the Economic Impact Analysis.

The Agency considered the age, size, processes, other engineering factors, and non-water quality environmental impacts pertinent to facilities in developing PSES. The Agency did not identify any basis for establishing different PSES limitations based on age, size, processes, or other engineering factors. As previously explained for BPT, adoption of standards based on the proposed technologies for metal-bearing wastes and organic-bearing wastes would have important non-water quality effects. The metals standards should reduce landfill disposal of metals treatment residuals and the organic waste streams would reduce volatilization of organic compounds.

c. *Monitoring to Demonstrate Compliance with the Regulation.* See Section V.F.

6. Pretreatment Standards for New Sources

Section 307(c) of the Act requires EPA to promulgate pretreatment standards for new sources (PSNS) at the same time it promulgates new source performance standards (NSPS). New indirect discharging facilities, like new direct discharging facilities, have the opportunity to incorporate the best available demonstrated technologies, including process changes, in-facility controls, and end-of-pipe treatment technologies.

As set forth in Section VIII.E.4(a) of this preamble, EPA determined that a broad range of pollutants discharged by Centralized Waste Treatment Industry facilities pass-through POTWs. The same technologies discussed previously for BAT, NSPS, and PSES are available as the basis for PSNS.

EPA is proposing that pretreatment standards for new sources be set equal to NSPS for priority and non-

conventional pollutants for all subcategories. The Agency is proposing to establish PSNS for the same priority and non-conventional pollutants as are being proposed for NSPS. In addition, given the potential for dilution and the consequent impracticality of monitoring at the point of discharge, EPA is again proposing that monitoring to demonstrate compliance with these standards be required immediately following treatment of the regulated streams.

EPA considered the cost of the proposed PSNS technology for new facilities. EPA concluded that such costs are not so great as to present a barrier to entry, as demonstrated by the fact that currently operating facilities are using these technologies. Again, EPA is requesting comment on whether it should adopt PSNS for the Oily Waste Subcategory that reflects effluent reduction levels achievable through either Option 3 or Option 4 treatment systems. The Agency considered energy requirements and other non-water quality environmental impacts and found no basis for any different standards than the selected PSNS.

F. Monitoring To Demonstrate Compliance With the Regulation

The effluent limitations EPA is proposing today apply *only* to discharges resulting from treatment of the subcategory wastes and not to mixtures of subcategory wastes with other wastes or mixtures of different subcategory wastes. In addition, these effluent limitations do not apply to discharges from the treatment of subcategory wastes that are mixed prior to or after treatment with other wastewater streams prior to discharge. EPA has concluded that it is impractical and infeasible to set limits for the pollutants proposed to be regulated in this category at the point of discharge for mixed waste streams, given the potential for mixing to avoid achievement of the required effluent reductions.

Thus, many facilities in this industry may operate other processes which generate wastes requiring treatment and may add these wastes to CWT wastes before treatment and discharge. This may result in dilution rather than required treatment of CWT wastes due to the difference in concentration of waste streams. In addition, if a facility discharges its non-contaminated stormwater, implementation of this proposal requires a facility to monitor the CWT discharge prior to the addition of non-contaminated stormwater. Similarly, for facilities which treat concentrated cyanide-bearing metal wastes, the limitations for Total Cyanide are based on cyanide levels that are demonstrated to be achieved after cyanide pretreatment and prior to metals precipitation. Separate pretreatment of cyanide in metal-bearing waste streams is necessary in order to ensure that cyanide will not interfere with metals treatment. Consequently, EPA has preliminarily determined that it will require compliance monitoring immediately following treatment of subcategory waste streams (e.g., metal-bearing, oily, or organic-bearing, as appropriate) unless the facility can demonstrate that it is achieving the required effluent reduction associated with separate treatment of the waste streams in a mixed waste treatment system. (See further discussion of this issue below at Section VIII.)

G. Determination of Long-Term Averages, Variability Factors, and Limitations for BPT

The proposed effluent limitations and standards in today's notice are based upon statistical procedures that estimate long-term averages and variability factors. The following sections describe the statistical methodology used to develop long-term averages, variability factors, and limitations for BPT. The limitations for BCT, BAT, NSPS, PSES, and PSNS are based upon the limitations for BPT for all pollutants.

The proposed limitations for pollutants for each option, as presented in today's notice, are provided as daily maximums and maximums for monthly averages. In most cases, the daily maximum limitation for a pollutant in an option is the product of the pollutant long-term average and the group daily variability factor. In most cases, the maximum for monthly average limitation for a pollutant for an option is the product of the pollutant long-term average and the group monthly variability factor. The procedures used to estimate the pollutant long-term averages and group variability factors are briefly described below. A more detailed explanation is provided in the statistical support document.

The long-term averages, variability factors, and limitations were based upon pollutant concentrations collected from two sources: EPA sampling episodes and the 1991 Detailed Monitoring Questionnaire. These data sources are described in Sections IV.B. and IV.D. (Data from the same facility but from different sources were analyzed as though each source provided information about a different facility.)

The long-term average for each pollutant was calculated for each facility by arithmetically averaging the pollutant concentrations. The pollutant long-term average for an option was the median of the long-term averages from selected facilities with the BPT technology basis for the option.

The daily variability factor for each pollutant at each facility is the ratio of the estimated 99th percentile of the distribution of the daily pollutant concentration values divided by the expected value, or mean, of the distribution of the daily values. The monthly variability factor for each pollutant at each facility is the estimated 95th percentile of the distribution of monthly averages of the daily concentration values divided by the expected value of the monthly averages. The number of measurements used to calculate the monthly averages corresponds to the number of days that the pollutant is assumed to be monitored during the month. For example, the volatile organic compounds are expected to be monitored once a week (which is approximately four times a month); therefore, the monthly variability factor was based upon the distribution of four-day averages. Certain pollutants such as BOD_5 are expected to be monitored daily; therefore, the monthly variability factor was based upon the distribution of 20-day averages (most facilities operate only on weekdays of which there are approximately 20 in each month). The assumed monitoring frequency of each pollutant is identified in Table V.G–1.

TABLE V.G–1.—MONITORING FREQUENCIES USED TO ESTIMATE MONTHLY VARIABILITY FACTORS

Assumed Daily Monitoring Frequency	
Aluminum	Manganese.
Antimony	Mercury.
Arsenic	Molybdenum.
Barium	Nickel.
BOD_5	Oil and Grease.
Cadmium	Silver.
Chromium	Tin.
Cobalt	Titanium.
Copper	TOC.
Iron	Total Cyanide.
Lead	TSS.
Magnesium	Zinc.
Assumed Weekly Monitoring Frequency	
Hexavalent Chromium	Methylene Chloride.
1,1,1,2-Tetrachloroethane	m-Xylene.
1,1,1-Trichloroethane	n-Decane.
1,1,2-Trichloroethane	n-Docosane.
1,1-Dichloroethane	n-Dodecane.

TABLE V.G–1.—MONITORING FREQUENCIES USED TO ESTIMATE MONTHLY VARIABILITY FACTORS—Continued

1,2,3-Trichloropropane	n-Eicosane.
1,2-Dibromoethane	n-Hexacosane.
1,2-Dichloroethane	n-Hexadecane.
trans-1,2-dichloroethene	n-Octadecane.
2,3-Dichloroaniline	n-Tetradecane.
2-Propanone	o&p-Xylene.
4-chloro-3-methyl phenol	o-Cresol.
4-Methyl-2-Pentanone	Phenol.
Acetophenone	Pyridine.
Benzene	p-Cresol.
Benzoic Acid	Tetrachloroethene.
Butanone	Tetrachloromethane.
Carbon Disulfide	Toluene.
Chloroform	Trichloroethene.
Diethyl ether	Tripropyleneglycol methyl ether.
Hexanoic Acid	
Ethylbenzene	Vinyl Chloride.

The variability factors for each option were developed for groups of pollutants in three steps. These steps are described here for the daily variability factors. Similar steps were used to develop monthly variability factors. The first step was to develop a daily variability factor for each pollutant at each facility by fitting a modified delta-lognormal distribution to the daily pollutant concentration values from each facility. (For monthly variability factors, the modified delta-lognormal distribution was fit to the monthly averages.) The second step was to develop one daily variability factor for each pollutant for each option by averaging the daily variability factors for the selected facilities with the technology basis for the option. The third step was to develop ''group'' daily variability factors for each option. Each group contained pollutants that were chemically similar. The daily variability factor for each group was the median of the daily variability factors obtained in the second step for the pollutants in the group and option. In some cases, none of the daily variability factors for the pollutants within a group could be estimated. In some of these cases, the daily variability factor for the group was transferred from the other groups in the option that used the same fraction in the chemical analysis. This transferred group daily variability factor was the median of the daily variability factors from the other groups. In the remaining cases where the group daily variability factors could not be estimated, the group daily variability factors were transferred from chemically similar pollutants or from other options within the subcategory. The development of daily and monthly variability factors is described further in the statistical support document.

Because EPA is assuming that some pollutants (BOD_5, TSS, oil and grease, metals, total cyanide, and TOC) will be monitored daily, the 20-day variability factors were based on the distribution of 20-day averages. If concentrations measured on consecutive days are positively correlated, then autocorrelation would have an effect on the 20-day variability factors (long-term averages are not affected by autocorrelation). However, the centralized waste treatment data used to calculate the 20-day variability factors were, in most cases, not consecutive daily measurements. Therefore, at this time, EPA does not have sufficient data to examine in detail and incorporate (if statistically significant) any autocorrelation between concentrations measured on adjacent days. Furthermore, EPA believes that autocorrelation may not be present in daily measurements from wastewater from this industry. Unlike other industries, where the industrial processes are expected to produce the same type of wastewater from one day to the next, the wastewater from Centralized Waste Treatment Industry is generated from treating wastes from different sources and industrial processes. The wastes treated on a given day will often be different than the waste treated on the following day. Because of this, autocorrelation would not be expected to be present in measurements of wastewater from the Centralized Waste Treatment Industry. In Section VIII.B.7, EPA requests additional wastewater monitoring data. EPA will use these data to further evaluate autocorrelation in the data for the pollutants that will be monitored daily.

H. Regulatory Implementation

1. Applicability

The regulation proposed today is just that—a proposed regulation. While today's proposal represents EPA's best judgment at this time, the effluent limitations and standards may still change based on additional information or data submitted by commenters or developed by the Agency. Consequently, the permit writer should consider the proposed limits in developing permit limits. Although the information provided in the Development Document may provide useful information and guidance to permit writers in determining best professional judgment permit limits, the permit writer will still need to justify any permit limits based on the conditions at the individual facility.

2. Upset and Bypass Provisions

A ''bypass'' is an intentional diversion of waste streams from any portion of a treatment facility. An ''upset'' is an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. EPA's regulations concerning bypasses and upsets are set forth at 40 CFR 122.41(m) and (n).

3. Variances and Modifications

The CWA requires application of the effluent limitations established pursuant to Section 301 or the pretreatment standards of Section 307 to all direct and indirect dischargers. However, the statute provides for the modification of these national requirements in a limited number of circumstances. Moreover, the Agency has established administrative mechanisms to provide an opportunity for relief from the application of national effluent limitations guidelines and pretreatment standards for categories of existing sources for priority, conventional and non-conventional pollutants.

a. *Fundamentally Different Factors Variances.* EPA will develop effluent limitations or standards different from the otherwise applicable requirements if an individual existing discharging facility is fundamentally different with respect to factors considered in establishing the limitation or standards applicable to the individual facility. Such a modification is known as a ''fundamentally different factors'' (FDF) variance.

Early on, EPA, by regulation, provided for FDF modifications from BPT effluent limitations, BAT limitations for priority and non-conventional pollutants and BCT limitation for conventional pollutants for direct dischargers. For indirect dischargers, EPA provided for FDF modifications from pretreatment standards for existing facilities. FDF variances for priority pollutants were challenged judicially and ultimately sustained by the Supreme Court. *Chemical Manufacturers Ass'n* v. *NRDC,* 479 U.S. 116 (1985).

Subsequently, in the Water Quality Act of 1987, Congress added new Section 301(n) of the Act explicitly to authorize modification of the otherwise applicable BAT effluent limitations or categorical pretreatment standards for existing sources if a facility is fundamentally different with respect to the factors specified in Section 304 (other than costs) from those considered by EPA in establishing the effluent limitations or pretreatment standard. Section 301(n) also defined the conditions under EPA may establish alternative requirements. Under Section 301(n), an application for approval of FDF variance must be based solely on 1) information submitted during the rulemaking raising the factors that are fundamentally different or 2) information the applicant did not have an opportunity to submit. The alternate limitation or standard must be no less stringent than justified by the difference and not result in markedly more adverse non-water quality environmental impacts than the national limitation or standard.

EPA regulations at 40 CFR Part 125 Subpart D, authorizing the Regional Administrators to establish alternative limitations and standards, further detail the substantive criteria used to evaluate FDF variance requests for existing direct dischargers. Thus, 40 CFR 125.31(d) identifies six factors (e.g., volume of process wastewater, age and size of a discharger's facility) that may be considered in determining if a facility is fundamentally different. The Agency must determine whether, on the basis of one or more of these factors, the facility in question is fundamentally different from the facilities and factors considered by the EPA in developing the nationally applicable effluent guidelines. The regulation also lists four other factors (e.g., infeasibility of installation within the time allowed or a discharger's ability to pay) that may not provide a basis for an FDF variance. In addition, under 40 CFR 125.31(b)(3), a request for limitations less stringent than the national limitation may be approved only if compliance with the national limitations would result in either (a) a removal cost wholly out of proportion to the removal cost considered during development of the national limitations, or (b) a non-water quality environmental impact (including energy requirements) fundamentally more adverse than the impact considered during development of the national limits. EPA regulations provide for an FDF variance for existing indirect discharger at 40 CFR 403.13. The conditions for approval of a request to modify applicable pretreatment standards and factors considered are the same as those for direct dischargers.

The legislative history of Section 301(n) underscores the necessity for the FDF variance applicant to establish eligibility for the variance. EPA's regulations at 40 CFR 125.32(b)(1) are explicit in imposing this burden upon the applicant. The applicant must show that the factors relating to the discharge controlled by the applicant's permit which are claimed to be fundamentally different are, in fact, fundamentally different from those factors considered by the EPA in establishing the applicable guidelines. The pretreatment regulation incorporate a similar requirement at 40 CFR 403.13(h)(9).

An FDF variance is not available to a new source subject to NSPS or PSES.

b. *Economic Variances.* Section 301(c) of the CWA authorizes a variance from the otherwise applicable BAT effluent guidelines for non-conventional pollutants due to economic factors. The request for a variance from effluent limitations developed from BAT guidelines must normally be filed by the discharger during the public notice period for the draft permit. Other filing time periods may apply, as specified in 40 CFR 122.21(l)(2). Specific guidance for this type of variance is available from EPA's Office of Wastewater Management.

c. *Water Quality Variances.* Section 301(g) of the CWA authorizes a variance from BAT effluent guidelines for certain nonconventional pollutants due to localized environmental factors. These pollutants include ammonia, chlorine, color, iron, and total phenols.

d. *Permit modifications.* Even after EPA (or an authorized State) has issued a final permit to a direct discharger, the permit may still be modified under certain conditions. (When a permit modification is under consideration, however, all other permit conditions remain in effect.) A permit modification may be triggered in several circumstances. These could include a regulatory inspection or information submitted by the permittee that reveals the need for modification. Any interested person may request modification of a permit modification be made. There are two classifications of modifications: major and minor. From a procedural standpoint, they differ primarily with respect to the public notice requirements. Major modifications require public notice while minor modifications do not. Virtually any modifications that results in less stringent conditions is treated as a major modification, with provisions for public notice and comment. Conditions that would necessitate a major modification of a permit are described in 40 CFR 122.62. Minor modifications are generally non-substantive changes. The conditions for minor modification are described in 40 CFR 122.63.

e. *Removal credits.* As described previously, many industrial facilities discharge large quantities of pollutants to POTWs where their wastewater mix with wastewater from other sources, domestic sewage from private residences and run-off from various sources prior to treatment and discharge by the POTW. Industrial discharges frequently contain pollutants that are generally not removed as effectively by treatment at the POTWs as by the industries themselves.

The introduction of pollutants to a POTW from industrial discharges may pose several problems. These include potential interference with the POTW's operation or pass-through of pollutants

if inadequately treated. As discussed, Congress, in Section 307(b) of the Act, directed EPA to establish pretreatment standards to prevent these potential problems. Congress also recognized that, in certain instances, POTWs could provide some or all of the treatment of an industrial user's wastewater that would be required pursuant to the pretreatment standard. Consequently, Congress established a discretionary program for POTWs to grant ''removal credits'' to their indirect dischargers. The credit, in the form of a less stringent pretreatment standard, allows an increased concentration of a pollutant in the flow from the indirect discharger's facility to the POTW.

Section 307(b) of the CWA establishes a three-part test for obtaining removal credit authority for a given pollutant. Removal credits may be authorized only if (1) the POTW ''removes all or any part of such toxic pollutant,'' (2) the POTW's ultimate discharge would ''not violate that effluent limitation, or standard which would be applicable to that toxic pollutant if it were discharged'' directly rather than through a POTW and (3) the POTW's discharge would ''not prevent sludge use and disposal by such [POTW] in accordance with Section [405]. . . .'' Section 307(b).

EPA has promulgated removal credit regulations in 40 CFR 403.7. The United States Court of Appeals for the Third Circuit has interpreted the statute to require EPA to promulgate comprehensive sewage sludge regulations before any removal credits could be authorized. *NRDC* v. *EPA*, 790 F.2d 289, 292 (3rd Cir. 1986) *cert. denied*. 479 U.S. 1084 (1987). Congress made this explicit in the Water Quality Act of 1987 which provided that EPA could not authorize any removal credits until it issued the sewage sludge use and disposal regulations required by Section 405(d)(2)(a)(ii).

Section 405 of the CWA requires EPA to promulgate regulations that establish standards for sewage sludge when used or disposed for various purposes. These standards must include sewage sludge management standards as well as numerical limits for pollutants that may be present in sewage sludge in concentrations which may adversely affect public health and the environment. Section 405 requires EPA to develop these standards in two phases. On November 25, 1992, EPA promulgated the Round One sewage sludge regulations establishing standards, including numerical pollutant limits, for the use or disposal of sewage sludge. 58 FR 9248. EPA established pollutant limits for ten metals when sewage sludge is applied to land, for three metals when it is disposed of on a surface disposal site and for seven metals and a total hydrocarbon operational standard, a surrogate for organic pollutant emissions, when sewage sludge is incinerated. These requirements are codified at 40 CFR Part 503.

The Phase One regulations partially fulfilled the Agency's commitment under the terms of a consent decree that settled a citizens suit to compel issuance of the sludge regulations. *Gearhart, et al.* v. *Reilly*, Civil No. 89–6266–JO (D. Ore). Under the terms of that decree, EPA must propose and take final action on the Round Two sewage sludge regulations by December 15, 2001.

At the same time EPA promulgated the Round One regulations, EPA also amended its pretreatment regulations to provide that removal credits would be available for certain pollutants regulated in the sewage sludge regulations. *See* 58 FR 9386. The amendments to Part 403 provide that removal credits may be made potentially available for the following pollutants:

(1) If a POTW applies its sewage sludge to the land for beneficial uses, disposes of it on surface disposal sites or incinerates it, removal credits may be available, depending on which use or disposal method is selected (so long as the POTW complies with the requirements in Part 503). When sewage sludge is applied to land, removal credits may be available for ten metals. When sewage sludge is disposed of on a surface disposal site, removal credits may be available for three metals. When the sewage sludge is incinerated, removal credits may be available for seven metals and for 57 organic pollutants. *See* 40 CFR 403.7(a)(3)(iv)(A).

(2) In addition, when sewage sludge is used on land or disposed of on a surface disposal site or incinerated, removal credits may also be available for additional pollutants so long as the concentration of the pollutant in sludge does not exceed a concentration level established in Part 403. When sewage sludge is applied to land, removal credits may be available for two additional metals and 14 organic pollutants. When the sewage sludge is disposed of on a surface disposal site, removal credits may be available for seven additional metals and 13 organic pollutants. When the sewage sludge is incinerated, removal credits may be available for three other metals. *See* 40 CFR 403.7(a)(3)(iv)(B).

(3) When a POTW disposes of its sewage sludge in a municipal solid waste landfill that meets the criteria of 40 CFR Part 258 (MSWLF), removal credits may be available for any pollutant in the POTW's sewage sludge. *See* 40 CFR 403.7(a)(3)(iv)(C). Thus, given compliance with the requirements of EPA's removal credit regulations,[3] following promulgation of the pretreatment standards being proposed here, removal credits may be authorized for any pollutant subject to pretreatment standards if the applying POTW disposes of its sewage sludge in a MSWLF that meets the requirements of 40 CFR Part 258. If the POTW uses or disposes of its sewage sludge by land application, surface disposal or incineration, removal credits may be available for the following metal pollutants (depending on the method of use or disposal): arsenic, cadmium, chromium, copper, iron, lead, mercury, molybdenum, nickel, selenium and zinc. Given compliance with Section 403.7, removal credits may be available for the following organic pollutants (depending on the method of use or disposal) if the POTW uses or disposes of its sewage sludge: benzene, 1,1-dichloroethane, 1,2-dibromoethane, ethylbenzene, methylene chloride, toluene, tetrachloroethene, 1,1,1-trichloroethane, 1,1,2-trichloroethane and trans-1,2-dichloroethene.

Some facilities may be interested in obtaining removal credit authorization for other pollutants being considered for regulation in this rulemaking for which removal credit authorization would not otherwise be available under Part 403. Under Sections 307(b) and 405 of the CWA, EPA may authorize removal credits only when EPA determines that, if removal credits are authorized, that the increased discharges of a pollutant to POTWs resulting from removal credits will not affect POTW sewage sludge use or disposal adversely. As discussed in the preamble to amendment to the Part 403 regulations (58 FR 9382–83), EPA has interpreted these sections to authorize removal credits for a pollutant only in one of two circumstances. Removal credits may be authorized for any categorical pollutant (1) for which EPA has established a numerical pollutant limit in Part 503; or (2) which EPA has determined will not threaten human health and the environment when used or disposed of in sewage sludge. The pollutants described in paragraphs (1)–(3) above

[3] Under Section 403.7, a POTW is authorized to give removal credits only under certain conditions. These include applying for, and obtaining, approval from the Regional Administrator (or Director of a State NPDES program with an approved pretreatment program), a showing of consistent pollutant removal and an approved pretreatment program. *See* 40 CFR 403.7(a)(3)(I), (ii) and (iii).

include all those pollutants that EPA either specifically regulated in Part 503 or evaluated for regulation and determined would not adversely affect sludge use and disposal.

Consequently, in the case of a pollutant for which EPA did not perform a risk assessment in developing the Phase One sewage sludge regulations, removal credit for pollutants will only be available when the Agency determines either a safe level for the pollutant in sewage sludge or that regulation of the pollutant is unnecessary to protect public health and the environment from the reasonably anticipated adverse effects of such a pollutant.[4] Therefore, any person seeking to add additional categorical pollutants to the list for which removal credits are now available would need to submit information to the Agency to support such a determination. The basis for such a determination may include information showing the absence of risks for the pollutant (generally established through an environmental pathway risk assessment such as EPA used for Phase One) or data establishing the pollutant's presence in sewage sludge at low levels relative to risk levels or both. Parties, however, may submit whatever information they conclude is sufficient to establish either the absence of any potential for harm from the presence of the pollutant in sewage sludge or data demonstrating a ''safe'' level for the pollutant in sludge. Following submission of such a demonstration, EPA will review the data and determine whether or not it should propose to amend the list of pollutants for which removal credits would be available.

EPA has already begun the process of evaluating a number of pollutants for adverse potential to human health and the environment when present in sewage sludge. In May, 1993, pursuant to the terms of the consent decree in the *Gearhart* case, the Agency notified the United States District Court for the District of Oregon that, based on the information then available at that time, it intended to propose 31 pollutants for regulation in the Round Two sewage sludge regulations. These are acetic acid (2,4-dichlorophenoxy), aluminum, antimony, asbestos, barium, beryllium, boron, butanone, carbon disulfide, cresol (p-), cyanides (soluble salts and complexes), dioxins/dibenzofurans (all monochloro to octochloro congeners), endsulfan-II, fluoride, manganese, methylene chloride, nitrate, nitrite, pentachloro-nitrobenzene, phenol, phthalate (bis-2-ethylhexyl), polychlorinated biphenyls (co-planar), propanone (2-), silver, thallium, tin, titanium, toluene, trichlorophenoxyacetic acid (2, 4, 5-), trichlorphenoxypropionic acid ([2—(2, 4, 5-)], and vanadium.

The Round Two regulations are not scheduled for proposal until December, 1999 and promulgation in December 2001. However, given the necessary factual showing, as detailed above, EPA could conclude before the contemplated proposal and promulgation dates that regulation of some of these pollutants is not necessary. In those circumstances, EPA could propose that removal credits should be authorized for such pollutants before promulgation of the Round Two sewage sludge regulations. However, given the Agency's commitment to promulgation of effluent limitations and guidelines under court-supervised deadlines, it may not be possible to complete review of removal credit authorization requests by the time EPA must promulgate these guidelines and standards.

4. Relationship of Effluent Limitations to NPDES Permits and Monitoring Requirements

Effluent limitations act as a primary mechanism to control the discharges of pollutants to waters of the United States. These limitations are applied to individual facilities through NPDES permits issued by the EPA or authorized States under Section 402 of the Act.

The Agency has developed the limitations and standards for this proposed rule to cover the discharge of pollutants for this industrial category. In specific cases, the NPDES permitting authority may elect to establish technology-based permit limits for pollutants not covered by this proposed regulation. In addition, if State water quality standards or other provisions of State or Federal Law require limits on pollutants not covered by this regulation (or require more stringent limits on covered pollutants), the permitting authority must apply those limitations.

For determination of effluent limits where there are multiple categories and subcategories, the effluent guidelines are applied using a flow-weighted combination of the appropriate guideline for each category or subcategory. Where a facility treats a CWT waste stream and process wastewater from other industrial operations, the effluent guidelines would be applied by using a flow-weighted combination of the BPT/BAT/PSES limit for the CWT subcategory and the other industrial operations to derive the appropriate limitations. However, as stated above, if State water quality standards or other provisions of State or Federal Law require limits on pollutants not covered by this regulation (or require more stringent limits on covered pollutants), the permitting authority must apply those limitations regardless of the limitation derived using the flow-weighted combinations.

Working in conjunction with the effluent limitations are the monitoring conditions set out in a NPDES permit. An integral part of the monitoring conditions is the point at a facility must monitor to demonstrate compliance. The point at which a sample is collected can have a dramatic effect on the monitoring results for that facility. Therefore, it may be necessary to require internal monitoring points in order to assure compliance. Authority to address internal waste streams is provided in 40 CFR 122.44(I)(1)(iii) and 122.45(h). Today's proposed integrated rule establishes several internal monitoring points to ensure compliance with the effluent guideline limitations. Permit writers may establish additional internal monitoring points to the extent consistent with EPA's regulations.

5. Implementation for Facilities with Operations in Multiple Subcategories

According to the 1991 Waste Treatment Industry Questionnaire, thirty percent of facilities in the Centralized Waste Treatment Industry have been identified as accepting waste that is included in two or more of the subcategories being proposed for regulation here. In other words, the facilities actively accept a variety of waste types. This is not to be confused with the fact that metal-bearing waste streams may include low level organics or that oily wastes may include metals due to the origin of the waste stream accepted for treatment.

The limitations and standards EPA is today proposing are based on treatment of wastes that have not been commingled for treatment without the appropriate pretreatment. EPA's sampling program and other data in the record demonstrate that mixing of wastes before treatment does not provide appropriate pollutant removals but may merely mask the absence of removal through dilution. Consequently, the proposal required monitoring immediately following the treatment of the regulated waste stream to demonstrate compliance. Wastes

[4] In the Round One sewage sludge regulation, EPA concluded, on the basis of risk assessments, that certain pollutants (*see* Appendix G to Part 403) did not pose an unreasonable risk to human health and the environment and did not require the establishment of sewage sludge pollutant limits. As discussed above, so long as the concentration of these pollutants in sewage sludge are lower than a prescribed level, removal credits are authorized for such pollutants.

treated in the Centralized Waste Treatment Industry have been characterized as concentrated, difficult to treat wastewater, sludges, off-spec products, etc. and are often unlike waste streams found at other categorical industries. Therefore, special attention should be taken when facilities determine which waste streams are accepted for treatment.

If a facility accepts for treatment a mixture of waste types, it is still subject to limitations and standards (and monitoring to demonstrate compliance) that reflect the treatment performance achievable for the unmixed streams. In other words, if a facility accepts for treatment metal-bearing and oily waste, the facility must comply with the limitations and standards based on a treatment system which employs emulsion-breaking, ultrafiltration, and carbon adsorption to ''adequately treat'' the oily waste for the oils and organics constituents. Similarly, discharges from the metal-bearing stream must comply with the limitations and standards defined by a treatment system employing selective metals precipitation. Compliance with the limitations and standards must be demonstrated following treatment. EPA has concluded that if oily wastes that have not been pretreated are mixed with the metal-bearing waste stream for selective metals precipitation, the unit will not meet the required performance level for metals.

The effluent guideline would be applied by using a flow-weighted combination of BPT/BAT/PSES limitations for the subcategories of concern to derive the facility limit. The permit writer may establish limitations and standards based on separate treatment for each subcategory's operation.

Mixing of dissimilar waste streams may result in dilution of pollutants because the waste streams do not contain the same pollutants or may result in dilution of the stream to the point that pollutants are non-detectible. For waste streams which contain the same pollutants at similar concentration, pretreatment may not be necessary.

The Agency attempted to establish one set of limitations for facilities in all subcategories, but due to the fact that performances levels and the pollutants of concern are not the same for all subcategories, this task could not be done. The Agency solicits comment on its approach to multiple subcategory facilities. EPA is requesting commenters to supply additional data which they may have that would aid in characterizing the efficiency of waste treatment systems for facilities which commingle waste from multiple subcategories prior to treatment.

EPA considered and rejected another approach which did not require monitoring to demonstrate compliance with CWT limitations and standards in the case of facilities which mixed categorical waste streams with CWT wastes. Rather, for such facilities, permit writers would require the facility to identify the sources of the CWT wastestreams and then develop facility limits applying the combined waste stream formula, using the applicable guidelines and limitations for the CWT waste source. If CWT wastes were treated separately at such a facility, then the permit writer would just apply the CWT limitations and standards in developing the limits. EPA is asking for comment on whether to reconsider such an approach.

VI. Costs and Impacts of Regulatory Alternatives

A. Costs

The Agency estimated the cost for CWT facilities to achieve each of the effluent limitations and standards proposed today. These estimated costs are summarized in this section and discussed in more detail in the Technical Development Document. All cost estimates in this section are expressed in terms of 1993 dollars. The cost components reported in this section represent estimates of the investment cost of purchasing and installing equipment, the annual operating and maintenance costs associated with that equipment, additional costs for discharge monitoring, and costs for facilities to modify existing RCRA permits. In Sections VI.B., costs are expressed in terms of a different cost component, total annualized cost. The total annualized cost, which is used to estimate economic impacts, better describes the actual compliance cost that a company will incur, allowing for interest, depreciation, and taxes. A summary of the economic impact analysis for the proposed regulation is contained in Section VI.B. of today's notice. See also the economic impact analysis.

1. BPT Costs

The Agency estimated the cost of implementing the proposed BPT effluent limitations guidelines and standards by calculating the engineering costs of meeting the required effluent reductions for each direct discharging CWT. This facility-specific engineering cost assessment for BPT began with a review of present waste treatment technologies. For facilities without treatment technology in-place equivalent to the BPT technology, EPA estimated the cost to upgrade its treatment technology, to use additional treatment chemicals to achieve the new discharge standards, and to employ additional personnel, where applicable for the option. The only facilities given no cost for compliance were facilities with the treatment-in-place prescribed for that option. The Agency believes that this approach overestimates the costs to achieve the proposed BPT because many facilities can achieve BPT level discharges without using all of the components of the technology basis described in Section V.E. The Agency solicits comment on these costing assumptions. Table VI.A–1 summarizes, by subcategory, the capital expenditures and annual O&M costs for implementing BPT. Costs are presented for Regulatory Option 1 (the combination of Metals Option 3, Oils Option 2, and Organics Option 1) and Regulatory Option 2 (the combination of Metals Option 3, Oils Option 3, and Organics Option 1). The capital expenditures for the process change component of BPT are estimated to be $17.7 million with annual O&M costs of $14.3 million for Regulatory Option 1 and $20.6 million with annual O&M costs of $21.7 million for Regulatory Option 2.

TABLE VI.A–1.—COST OF IMPLEMENTING BPT REGULATIONS

[In millions of 1993 dollars]

Subcategory	No. of facilities [1]	Capital costs	Annual O&M costs
Metals Treatment and Recovery	12	15.4	10.5
Oils Treatment and Recovery—Regulatory Option 1	4	1.02	0.779
Oils Treatment and Recovery—Regulatory Option 2	4	3.84	8.15
Organics Treatment	6	1.32	3.06
Regulatory Option 1	16	17.7	14.3
Regulatory Option 2	16	20.6	21.7

[1] There are 16 direct dischargers. Because some direct dischargers include operations in more than one subcategory, the sum of the facilities with operations in any one subcategory exceeds the total number of facilities.

2. BCT/BAT Costs

The Agency estimated that there would be no cost of compliance for implementing BCT/BAT, because the technology is identical to BPT and the costs are included with BPT.

3. PSES Costs

The Agency estimated the cost for implementing PSES with the same assumptions and methodology used to estimate cost of implementing BAT. Table VI.A–2 summarizes, by subcategory, the capital expenditures and annual O&M costs for implementing PSES. Costs are presented for Regulatory Option 1 (the combination of Metals Option 3, Oils Option 2, and Organics Option 1) and Regulatory Option 2 (the combination of Metals Option 3, Oils Option 3, and Organics Option 1). The capital expenditures for the process change component of PSES are estimated to be $43.8 million with annual O&M costs of $26.8 million for Regulatory Option 1 and $52.6 million with annual O&M costs of $45.9 million for Regulatory Option 2.

TABLE VI.A–2.—COST OF IMPLEMENTING PSES REGULATIONS

[In millions of 1993 dollars]

Subcategory	No. of facilities[1]	Capital costs	Annual O&M costs
Metals Treatment and Recovery	44	28.5	23.0
Oils Treatment and Recovery—Regulatory Option 1	31	4.21	2.37
Oils Treatment and Recovery—Regulatory Option 2	31	13.0	21.5
Organics Treatment	16	11.1	1.41
Regulatory Option 1	56	43.8	26.8
Regulatory Option 2	56	52.6	45.9

[1] There are 16 direct dischargers. Because some direct dischargers include operations in more than one subcategory, the sum of the facilities with operations in any one subcategory exceeds the total number of facilities.

B. Pollutant Reductions

The Agency estimated the reduction in the mass of pollutants that would be discharged from CWT facilities after the implementation of the regulations being proposed today.

1. Conventional Pollutant Reductions

EPA has calculated how much adoption of the proposed BPT/BCT limitations would reduce the total quantity of conventional pollutants that are discharged. To do this, for each subcategory, the Agency developed an estimate of the long- term average loading (LTA) of BOD_5, TSS, and Oil and Grease that would be discharged after the implementation of BPT. Next, these BPT/BCT LTAs for BOD_5, TSS, and Oil and Grease were multiplied by 1989 wastewater flows for each direct discharging facility in the subcategory to calculate BPT/BCT mass discharge loadings for BOD_5, TSS, and Oil and Grease for each facility. The BPT/BCT mass discharge loadings were subtracted from the estimated current loadings to calculate the pollutant reductions for each facility. Each subcategory's BPT/BCT pollutant reduction was summed to estimate the total facility's pollutant reduction for those facilities treating wastes in multiple subcategories. Subcategory reductions, obviously, were obtained by summing individual subcategory results. The Agency estimates that the proposed regulations will reduce BOD_5 discharges by approximately 34.5 million pounds per year for Regulatory Option 1 (the combination of Metals Option 3, Oils Option 2, and Organics Option 1) and 36.9 million pounds per year for Regulatory Option 2 (the combination of Metals Option 3, Oils Option 3, and Organics Option 1); TSS discharges by approximately 30.3 million pounds per year for both Regulatory Options; and Oil and Grease discharges by approximately 52.4 million pounds per year for Regulatory Option 1 (the combination of Metals Option 3, Oils Option 2, and Organics Option 1) and 56.9 million pounds per year for Regulatory Option 2 (the combination of Metals Option 3, Oils Option 3, and Organics Option 1).

2. Priority and Nonconventional Pollutant Reductions

a. *Methodology.* Today's proposal, if promulgated, will also reduce discharges of priority and non-conventional pollutants. Applying the same methodology used to estimate conventional pollutant reductions attributable to application of BPT/BCT control technology, EPA has also estimated priority and non-conventional pollutant reductions for each facility by subcategory. Because EPA has proposed BAT limitations equivalent to BPT, there are obviously no further pollutant reductions associated with BAT limitations.

Current loadings were estimated by using data collected by the Agency in the field sampling program and from the questionnaire data supplied by the industry. For many facilities, data were not available for all pollutants of concern or without the addition of other non-CWT wastewater. Therefore, methodologies were developed to estimate current performance for each subcategory assessing performance of on-site treatment technologies, by using wastewater permit information and monitoring data supplied in the 1991 Waste Treatment Industry Questionnaire and the Detailed Monitoring Questionnaire as described in Section V.B.

b. *Direct Facility Discharges (BPT/BAT)* The estimated reductions in pollutants directly discharged in treated final effluent resulting from implementation of BPT/BAT are listed in Table VI.B–1. Pollutant reductions are presented for Regulatory Option 1 (the combination of Metals Option 3, Oils Option 2, and Organics Option 1) and Regulatory Option 2 (the combination of Metals Option 3, Oils Option 3, and Organics Option 1). The Agency estimates that proposed BPT/BAT regulations will reduce direct facility discharges of priority, and nonconventional pollutants by 5.0 million pounds per year for Regulatory Option 1 and 8.0 million pounds per year for Regulatory Option 2.

TABLE VI.B–1.—REDUCTION IN DIRECT DISCHARGE OF PRIORITY AND NONCONVENTIONAL POLLUTANTS AFTER IMPLEMENTATION OF BPT/BAT REGULATIONS

[Units=lbs/year]

Subcategory	Metal compounds	Organic compounds
Metals Treatment and Recovery	871,832	245,525
Oils Treatment and Recovery—Regulatory Option 1	294,543	556,627
Oils Treatment and Recovery—Regulatory Option 2	319,847	610,937
Organics Treatment	3,065,679	[1]0
Regulatory Option 1	4,232,054	802,153
Regulatory Option 2	7,617,580	1,413,091

[1] The organic compounds pollutant reduction for the Organics Subcategory was estimated to be 0, because all facilities had the treatment-in-place for removal of organic compounds.

c. *PSES Effluent Discharges to POTWs.* The estimated reductions in pollutants indirectly discharged to POTWs resulting from implementation of PSES are listed in Table VI.B–2. Pollutant reductions are presented for Regulatory Option 1 (the combination of Metals Option 3, Oils Option 2, and Organics Option 1) and Regulatory Option 2 (the combination of Metals Option 3, Oils Option 3, and Organics Option 1). The Agency estimates that proposed PSES regulations will reduce indirect facility discharge to POTWs by 6.5 million pounds per year for Regulatory Option 1 and 12 million pounds per year for Regulatory Option 2.

TABLE VI.B–2.—REDUCTION IN INDIRECT DISCHARGE OF PRIORITY AND NONCONVENTIONAL POLLUTANTS AFTER IMPLEMENTATION OF PSES REGULATIONS

[Units=lbs/year]

Subcategory	Metal compounds	Organic compounds
Metals Treatment and Recovery	428,040	120,545
Oils Treatment and Recovery—Regulatory Option 1	709,834	1,341,439
Oils Treatment and Recovery—Regulatory Option 2	771,668	1,474,708
Organics Treatment	415,812	3,521,560
Regulatory Option 1	1,553,686	4,983,544
Regulatory Option 2	2,741,166	9,979,812

C. Economic Impact Assessment

1. Introduction

EPA's economic impact assessment is set forth in a report titled ''Economic Impact Analysis of Proposed Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry'' (hereinafter ''EIA''). This report estimates the economic and financial effects of compliance with the proposed regulation in terms of facility and company profitability and assesses the economic effect of compliance on six regional markets. Community impacts and the effects on local communities and new centralized waste treatment (CWT) facilities are also presented. The EIA also includes a Regulatory Flexibility Analysis detailing the effects on small businesses for this industry.

As discussed previously, a total of 85 Centralized Waste Treatment facilities owned and operated by 57 companies are potentially subject to the proposed regulation. EPA has projected that 72 of these facilities will incur costs as a result of this regulation. The economic impact on each of the 72 direct and indirect dischargers was calculated based on the cost of compliance with the required effluent discharge levels for the appropriate subcategory. Impacts on direct dischargers were calculated for compliance with the proposed BPT/BCT/BAT; impacts on indirect dischargers were calculated for compliance with PSES.

Because two options are being proposed for the Oils Subcategory, EPA calculated the cost of compliance with each option. Regulatory Option 1 (the combination of Metals Option 3, Oils Option 2, and Organics Option 1) is estimated to have a total annualized cost of $49.1 million, and Regulatory Option 2 (the combination of Metals Option 3, Oils Option 3, and Organics Option 1) is estimated to have a total annualized cost of $76.8 million. In Table VI.C–1, the total annualized costs for BPT/BCT/BAT and PSES are presented in 1993 dollars.

TABLE VI.C–1.— TOTAL ANNUALIZED COSTS (10^6 $1993)

Option	BPT/BCT/BAT	PSES	Total
Option 1	14.2	34.9	49.1
Option 2	21.8	55.0	76.8

EPA also conducted an analysis of the cost-effectiveness of the alternative treatment technology options considered by the Agency. The results of this cost-effectiveness analysis are expressed in terms of the incremental costs per pound of toxic-equivalent removed. Toxic-equivalents weights are used to account for the differences in toxicity among the pollutants removed. The number of pounds of a pollutant removed by each option is multiplied by a toxic weighting factor. The toxic weighting factor is derived using ambient water quality criteria and toxicity values. The toxic weighting factors are standardized by relating them to copper. Cost-effectiveness is calculated as the ratio of incremental annualized costs of an option to the incremental pounds-equivalent removed by that option. The report, ''Cost-Effectiveness of Proposed Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry'' (hereinafter, ''Cost-Effectiveness Report''), is included in the record of this rulemaking.

The Agency recognizes that its data base, which represents conditions in 1989, may not precisely reflect current conditions in the industry today. EPA recognizes that the questionnaire data were obtained several years ago and thus may not precisely mirror present conditions at every facilities. Nevertheless, EPA concluded that the data provide a sound and reasonable basis for assessing the overall ability of the industry to achieve compliance with the regulations. The purpose of the impact analysis is to characterize the impact of the proposed regulation for the industry as a whole and for major groupings within the industry.

2. Baseline Industry Analysis

Of the 85 Centralized Waste Treatment facilities, 53 facilities are strictly commercial, accepting waste generated by other for treatment and management for a fee. Fourteen facilities are non-commercial, ''captive'' facilities that accept waste from off-site for treatment exclusively from facilities under the same ownership. The remaining 16 are mixed commercial/non-commercial facilities. They manage their own company's wastes and accept some waste from other sources for a fee. For the purposes of this analysis, 15 mixed commercial/non-commercial facilities have been included with the commercial facilities because a majority of their operations are commercial. The one remaining mixed commercial/non-commercial facility has been included with the non-commercial facilities because most of the operations are non-commercial.

The companies that own CWT facilities range from large, multi-facility manufacturing companies to small companies that own only a single facility (see Table VI.C–2). Of these 57 companies, 13 are small businesses (i.e., companies with less than $6 million in annual revenues). For the commercial facilities, the ability of companies to continue to support unprofitable operations will depend on company size, as well as baseline financial status.

The baseline economic analysis (presented in Table VI.C–2) evaluated each facility's financial operating condition prior to incurring compliance costs for this regulation. In 1989, about 20 percent of the commercial CWT facilities were unprofitable. Several others were only marginally profitable. The industry had expanded capacity during the 1980s, but since the late 1980s, there has been a reduction in demand for these services perhaps due to pollution prevention efforts by industrial waste generators. EPA staff learned in conversations with personnel at a number of these facilities that, while some of these facilities were now profitable, most of the remaining unprofitable facilities were still in operation three years after the questionnaire. The continued operation of such a large share of unprofitable facilities in the industry raises a significant issue. It suggests that the traditional tools of economic analysis used to project potential closures in an industry due to the costs of compliance may not accurately predict real world behavior in a market where owners have historically demonstrated a willingness to continue operating unprofitable facilities.

TABLE VI.C–2.—BASELINE CONDITIONS IN THE CWT INDUSTRY

Discharge status	Number of CWT Facilities by Commercial and Discharge Status Commercial			
	Profit >0	Profit <0	Non-commercial	Total
Direct	5	2	9	16
Indirect	35	15	6	56
Zero	8	5	0	13
Total	48	22	15	85

COMPANIES OWNING CWT FACILITIES

	Number of companies	Number of facilities
Small Companies (sales < $6 million)	13	13
All Other Companies (sales > $6 million)	44	72

LIKELIHOOD OF COMPANY BANKRUPTCY [a]

	Small companies	All other companies	Total
Likely	1	5	6
Indeterminate	3	13	16
Unlikely	8	18	26
	12	36	48

Several reasons may explain why unprofitable facilities remain in operation rather than being closed by their owners. First, most facilities are regulated under RCRA. Closure of a RCRA facility requires that the site undergo RCRA clean-up procedure prior to closure, which would entail expensive long-term monitoring and possibly clean-up of the site. According to information received from facilities, owners may find it less costly to keep unprofitable facilities in operation rather than incurring the costs of RCRA closure. Second, many facilities stay in business hoping that new environmental regulation, such as the upcoming RCRA Phase 3 rule, may

create more business for facilities. Finally, some facilities perform a service for the rest of their company, such as generating a metal-rich sludge which may be incorporated into the parent companies smelting processes.

For these reasons and because of the captive nature of many facilities, company-level impacts are a more appropriate indicator of economic achievability, as they measure the decision making process of companies and the resources available to achieve compliance. Facility-level changes in revenues where applicable and costs are computed as inputs to the company level analysis.

3. Economic Impact Methodology

Standard economic and financial analysis methods are used to assess the economic effects of the proposed regulation. These methods incorporate an integrated view of Centralized Waste Treatment facilities, the companies that own these facilities, the markets the facilities serve, and the communities where they are located.

Faced with increased costs of the proposed regulation, owners of CWT facilities have three choices: (1) Comply with the guidelines and incur the costs, (2) if a facility has operations in more than one subcategory, close the most affected operation, or (3) close the facility. Conventional economic reasoning argues that companies will make their decision based on an assessment of the benefits and costs of the facility to the company.

For commercial CWT facilities, the cost and benefits are readily observable—benefits to the company are the total revenues received; costs to the company include the payments made to the factors of production (labor, materials, etc.) plus the opportunity costs of self-owned resources (e.g., the land and capital equipment). As previously discussed, the cost associated with closure of a RCRA facility have caused facilities to remain open even when experiencing economic and financial difficulties.

For captive facilities, there is no quantifiable measure of benefits to the company of having the capacity to manage the wastes in a facility owned by the company because there is no easily defined relationship between the wastes and the products that generate the wastes. Clearly, however, companies do weigh the benefits and costs of operating a CWT facility, and the benefits in this case may include lower expected future liability costs, more control over the costs and scheduling of treatment, and certainty that treatment capacity exists for their wastes.

According to conversations with captive facilities, most are in business solely for the purpose of lower liability costs associated with the self-management of hazardous wastes.

Changes in the costs of treatment in CWT facilities may be expected to result in an increase in the price of services, which will feed back to the revenue side of commercial facilities. Overall, as long as generators have alternatives to commercial treatment (e.g., on site treatment, pollution prevention) the quantity of services traded may be expected to fall as a result of the guidelines and standards. But for some services, such as cyanide treatment or treatment of concentrated metals sludges, there are no other alternatives to commercial treatment.

Changes in the economic conditions in the CWT industry may impact the viability of the companies that own CWTs. Specifically, some companies that are already marginal or that operate a single unprofitable facility may go out of business either by simply liquidating their assets, or by declaring bankruptcy.

Finally, the communities where the CWT facilities are located may be impacted. Obviously, if facilities cut back operations, employment and income may fall sending ripple effects throughout the local community. On the other hand, there may be increased employment associated with operating the pollution controls associated with the regulation resulting in increased community employment and income. At the same time, for the communities in which CWTs are located, water quality may be expected to improve.

4. Application of the Market Analysis

For the market analysis, EPA characterized each facility individually based on the quantity of each type of waste treatment service they provide, their revenues and costs, employment, market share for each type of service provided, ownership, releases, and location in terms of the community where they are located and the regional market they serve. Six regional markets are defined.

Costs of CWT facilities include both those that vary with the quantity of CWT services provided (variable costs) and those whose value is fixed. Per-gallon variable costs are assumed constant to the capacity output rate. Revenues from CWT operations are estimated by multiplying the market price of the CWT service by the quantity of waste treated in the CWT service. Most CWT facilities also have revenues from other sources, which are treated as exogenous.

The demand for CWT services is characterized based on the responsiveness of quantity demanded to price. CWT services are intermediate goods demanded because they are inputs to production of other goods and services. The sensitivity of quantity demanded to price for an intermediate good depends on the demand characteristics (elasticity) of the good or service it is used to produce, the share of manufacturing costs represented by CWT costs, and the availability of substitutes for CWT services. The elasticity of demand for manufactured products varies widely. CWT services costs as a share of manufacturing costs is generally quite small. Substitutes for CWT services include other types of off-site waste management such as underground injection, on-site treatment, or pollution prevention. Overall, the change in quantity demanded for CWT services is assumed to be approximately proportional to any price change (e.g., a one percent increase in the price of a CWT service is expected to reduce the quantity demanded for the service by about one percent).

The markets for CWT services are regional. This market characterization is based on responses to the questionnaire and is consistent with the theory of economic geography. Within each market, there are a relatively small number of suppliers and a relatively large number of demanders. Thus the market structure is treated as being imperfectly competitive. This implies that the competition each facility faces is limited to facilities in its region so that all suppliers have a degree of market power.

This characterization of facilities, companies and markets is incorporated in a model that takes the engineering estimates of the costs of compliance with the effluent limitations guidelines and standards and projects impacts on facilities, companies, markets and communities. Each CWT faced with higher costs of providing CWT services may find it economical to reduce the quantity of waste it treats. This decision is simultaneously modeled for all facilities within a regional market, to develop consistent estimates of the facility and market impacts. Changes in the quantity of CWT services offered result in changes in the inputs used to produce these services (most importantly, labor).

For commercial facilities, the EIA thus projects changes in employment at CWT facilities. Changes in facility revenues and costs result in changes in the revenues and costs of the companies owning the facilities, and thus changes

in company profits. Increased borrowing and changes in the assets owned by the companies, together with changes in profits, result in changes in overall company financial health. The EIA projects changes in the likelihood of company bankruptcy as a result of the effluent limitations guidelines and standards. These effects are separately calculated for small businesses. Changes in employment are specified by location to determine the community impacts.

For non-commercial facilities, financial viability was determined on a company level. This is because the non-commercial facilities are generally cost centers for their companies. They do not explicitly receive revenues for their services. They exist to perform a service for the rest of the company and are not expected to be ''profitable'' as a unit. These facilities are included in the market analysis because prices charged for their commercial operations may change. Companies with some commercial operations will raise prices to cover the variable costs of the treatment and help pay for some of their fixed costs (e.g. underwrite the company waste treatment costs). Thus, no change in the quantity of CWT wastes treated are projected for non-commercial aspect of these facilities nor are market effects analyzed for the products of the parent company, since the share of waste treatment costs in the marketed products are minimal.

5. Results of the Economic Impact Analysis

Results may be reported at the facility, company, market, or community level. All facilities are either direct or indirect dischargers. Most companies own either facilities that are direct dischargers or indirect dischargers, although two companies own both direct and indirect discharging facilities. Market level impacts are the combined result of both types of dischargers simultaneously complying with the regulation. Because markets for CWT services combine facilities that are direct dischargers and facilities that are indirect dischargers, it is not possible to break the market-level impacts into impacts of BPT/BCT/BAT as distinguished from impacts of PSES. Community-level impacts are also reported based on the combined impacts of BPT/BCT/BAT and PSES. Company-level impacts are reported separately for BPT/BCT/BAT and PSES.

The impacts of complying with BAT controls under Regulatory Options 1 and 2 for the 57 companies operating CWT facilities are shown in Table VI.C–3 (for companies owning facilities that discharge directly) and Table VI.C–4 (for companies owning facilities that discharge indirectly).

TABLE VI.C—3.—IMPACTS OF THE BPT/BCT/BAT REGULATORY OPTIONS [a]

Company impacts of compliance with BPT/BCT/BAT regulatory options	Likelihood of bankruptcy					
	Option 1			Option 2		
	Small companies	Others	Total	Small companies	Others	Total
Likely	0	1	1	0	1	1
Indeterminate	0	2	2	0	2	2
Unlikely	0	11	11	0	11	11

[a] Two companies own both direct and indirect dischargers. Company-level impacts combine the effects of complying with BPT/BCT/BAT and PSES controls. These two companies appear in both tables.

TABLE VI.C–4.—IMPACTS OF THE PSES REGULATORY OPTIONS [a]

Company impacts of compliance with the PSES regulatory options	Likelihood of bankruptcy					
	Option 1			Option 2		
	Small companies	Others	Total	Small companies	Others	Total
Likely	4	5	9	2	6	8
Indeterminate	2	10	12	0	10	10
Unlikely	5	13	18	9	12	27

[a] Two companies own both direct and indirect dischargers. Company-level impacts combine the effects of complying with BPT/BCT/BAT and PSES controls. These two companies appear in both tables.

6. Market Impacts of EPA Regulatory Options

The markets for CWT services are regional. Within each region, markets for overall types of treatment such as metal recovery or metal treatment may be further subdivided into smaller markets on the basis of the per-gallon cost of treatment. The price changes and quantity changes projected at the regional and service level with each option are combined into an overall national value for the CWT services. In all cases, EPA's assessment projects that the prices of these services will increase and utilization of service will fall. Thus, EPA would expect, if the limitations and standards are promulgated as proposed, a reduction in the absolute quantity of wastes commercially treated in addition, of course, to the improvement in treatment. These market-level adjustments in the quantity of wastes that are treated are reflected in the reduction in the quantity of services provided by individual commercial CWTs. In some cases, with less waste being managed by these facilities, it is possible that some commercial facilities could close. If demanders of waste management services are assumed to have fewer substitutes for CWT services than assumed here, then prices would increase more than projected here, quantities would fall less and the facility and company level impacts (discussed below) would be smaller.

Under Option 1, price increases range from 3 to 35 percent, while quantities of waste treated decrease by between 3 percent and 20 percent. Under Option 2, price increases range from 3 to 42 percent, while quantity decreases range from 3 percent to 65 percent. The larger price increases occur in the Oils

Recovery and Oils Treatment Markets. These higher price increases occur because of the poor treatment operations currently in place (only one facility in the Oils Recovery treats the wastewater generated from the oil recovery process). Price increases may occur in this market because the present market has inadequate treatment for the wastes generated.

Significant price increases have potential effects on the users of CWT services. In order to account for impacts on the users of CWT services, EPA estimated the consumer surplus share of dead weight loss of the proposed regulation to be $6.8 million 1993 dollars for Regulatory Option 1 (the combination of Metals Option 3, Oils Option 2, and Organics Option 1) and $13.4 million 1993 dollars for Regulatory Option 2 (the combination of Metals Option 3, Oils Option 3, and Organics Option 1). These costs are not additive to the direct implementation costs of the proposed regulation due to differences in the technique for calculating the consumer surplus costs. But the costs indicate the burden is not excessive in the context of the rule.

7. Impacts of BPT/BCT/BAT

Complying with the BPT/BCT/BAT effluent limitations guidelines and standards will increase the cost of treating CWT wastes at affected direct dischargers. This in turn will reduce the number of facilities providing CWT services, resulting in an increase in the market price of the treatment services and a decrease in use of CWT services. EPA projects that changes in the prices of CWT services, combined with facility-specific changes in the costs of treatment and the quantities of waste treated, will result in changes in facility costs and revenues from services sold. These changes result in changes in the revenues and costs of companies owning CWT facilities. In addition, changes in the liabilities and assets of companies owning CWT facilities result from the borrowing and purchasing of capital equipment associated with complying with the regulation. Thus, overall company viability may change as a result of complying with the effluent limitations guidelines and standards. The Agency conducted an analysis using a multi-discriminant function called the Z-score, which combines several financial ratios, to estimate changes in the likelihood of company bankruptcy that result from compliance with the guidelines and standards. As shown in Table VI.C–3, one company owning a direct discharger is predicted to be likely to become bankrupt under both Regulatory Options 1 and 2. However, this company was also predicted to be bankrupt at baseline (see Table VI.C–2), so the Regulatory Options for BPT/BCT/BAT do not have an incremental adverse effect on the viability of companies owning direct dischargers.

8. Impacts of PSES

Complying with the PSES standards will increase the cost of treating CWT wastes at affected indirect dischargers. This in turn will reduce the supply of CWT services, resulting in an increase in the market price and a decrease in use of CWT services. Changes in the prices of CWT services, combined with facility-specific changes in the costs of treatment and the quantities of waste treated, result in changes in facility costs and revenues from services sold. These changes result in changes in the revenues and costs of companies owning CWT facilities. In addition, changes in the liabilities and assets of companies owning CWT facilities result from the borrowing and purchases of capital equipment associated with complying with the regulation. Thus, overall company viability may change as a result of complying with the effluent limitations guidelines and standards. As with BPT/BCT/BAT, the Agency used the Z-score to estimate changes in the likelihood of company bankruptcy that result from compliance with the guidelines and standards. As shown in Table VI.C–4, EPA projects that nine companies owning indirect dischargers will likely become bankrupt under Regulatory Option 1, and eight companies owning indirect dischargers are likely to become bankrupt under Regulatory Option 2. At baseline, EPA analysis shows that five companies owning indirect dischargers are bankrupt. Thus, the PSES controls are predicted to result in only an incremental impact on company viability.

With the PSES controls under Regulatory Option 1, four additional companies owning indirect dischargers are predicted to become bankrupt. Under Regulatory Option 2, three additional companies owning indirect dischargers are predicted to become bankrupt. Although the costs are higher in general under Regulatory Option 2, the data show that the companies owning indirect dischargers that incur these higher costs are better able to withstand the impacts.

To the extent that predicted bankruptcies result in closure of CWT facilities, the cost of such closure are attributable to this action. EPA has not calculated the cost of closure for the treatment operations although for RCRA-permitted facilities, under some circumstances, such costs may be significant. The EPA solicits comment on the probability for closure of such facilities impacted by the proposed regulation and the costs associated with closure of the treatment operations.

9. Community Impacts of the Regulatory Options

Overall, the communities in which CWT facilities are located are expected to experience fairly small, and generally positive, increases in employment as a result of the Regulatory Options. In addition to the negative employment changes estimated for facilities becoming unprofitable under Options 1 and 2, employment increases may occur in some facilities due to the operational changes related to the new regulations or due to the increase in volume of waste treated. These changes in employment may be positive for CWT facilities made better off by the regulation (for example, those who sell more services), or they may be negative for facilities becoming less profitable but not moving from profitable to unprofitable. Nationwide, facilities becoming unprofitable reduce their employment by 44 employees under Regulatory Option 1 and by 52 employees under Regulatory Option 2. Combined with market-related increases and decreases in employment at other facilities, the total market-related reduction in employment under Regulatory Option 1 is estimated to be 378 employees. Under Regulatory Option 2, the national market-related reduction employees is estimated to be 501 employees.

These decreases in employment result from market adjustments to the proposed regulations must be compared to the employment increases estimated to be required for operation and maintenance of the controls. A large percentage of the costs estimated for facilities is attributed to the high annual operating and maintenance costs. The Agency estimates that the proper handling and treatment of the concentrated wastes will require additional personnel and tanks to segregate and monitor the wastes being treated. Therefore, under Regulatory Option 1, the labor requirements of the controls are estimated to be 710 employees. Under Regulatory Option 2, the labor requirements are estimated to be 735 employees. Overall, employment is projected to increase by 333 employees under Regulatory Option 1 and by 234 employees under Regulatory Option 2. Thus, we expect community-level impacts to be small and generally positive.

10. Foreign Trade Impacts

The EIA does not project any foreign trade impacts as a result of the effluent limitations guidelines and standards. Although most of the affected CWT facilities treat waste that is considered hazardous under RCRA, international trade in CWT services for treatment of hazardous wastes is virtually nonexistent.

11. Regulatory Flexibility Analysis

The Agency performed an initial regulatory flexibility analysis to assess the relative severity of impacts on small entities, specifically small companies, owning CWT facilities. Small companies are defined as those having sales less than $6 million, which is the Small Business Administration definition of a small business for SIC code 4953, Refuse Systems. This is the SIC code that most CWTs listed in their questionnaire responses. Thirteen of the 84 facilities not owned by the Federal Government are small companies according to this definition. One facility is owned by the Federal Government. To determine whether the impacts on small companies are ''significant,'' EPA used the following criteria:

(1) Annual compliance costs increase total costs of production for small entities for the relevant process or product by more than 5 percent.

(2) Compliance costs as a percentage of sales for small entities are at least 10 percent higher than compliance costs as a percentage of sales for large entities.

(3) The requirements of the regulation are likely to result in closures of small entities.

Six of the thirteen small companies are estimated to have compliance costs exceeding 5 percent of baseline CWT costs. Larger companies, however, have both a higher absolute number and a higher percentage of companies incurring compliance costs that exceed 5 percent of baseline CWT costs. Thus, small businesses are affected less than other facilities.

The median value for the ratio of compliance costs to sales for small companies is very small: 0.6 percent. However, the median value for larger companies is even smaller: less than 0.001 percent. Thus, the ratio for small companies is more than 10 percent higher than the ratio for larger companies. While this suggests that small companies are more affected in comparison to the larger companies, the overall level of impact is very low for all size categories.

The analysis does not estimate facility closures, but it does assess the impact of the Regulatory Options on the likelihood of company bankruptcy. As shown in Tables VI.C–3 and VI.C–4, three of four additional companies predicted to become ''likely'' to incur bankruptcy under Regulatory Option 1 are small. Of the three additional companies becoming likely to incur bankruptcy as a result of Option 2, one is small. Thus, under Regulatory Option 1, small businesses incur relatively larger impacts according to this measure, but under Regulatory Option 2, small businesses do not incur relatively larger impacts.

Overall, while companies in all size categories are affected, small companies may experience impacts that are somewhat greater relative to those incurred by larger companies.

The Agency considered less stringent control options for each subcategory. However, given the concentrated and difficult-to-treat wastes handled at CWT facilities, the Agency does not believe a less stringent level of control is BPT/BCT/BAT. From discussions with permit writers for CWT facilities, under the present treatment standards, many instances of water contamination and odor releases occur because of Centralized Waste Treatment facilities as well as contamination of sludge at POTWs. In comparison to other promulgated effluent guidelines, this industry has some of the most concentrated and toxic waste streams. Therefore, a stringent level of control is deemed necessary.

12. Cost-Effectiveness Analysis

For each of the Regulatory Options, cost-effectiveness is calculated as the ratio of the incremental annual costs in 1981 dollars to the incremental pounds-equivalent of pollutants removed. The estimated pounds-equivalent removed were calculated by weighting the number of pounds of each pollutant by the relative toxic weighting factor for each pollutant. The use of pounds-equivalent gives correspondingly more weight to more highly toxic pollutants. Thus, for a given expenditure and pounds of pollutants removed, the cost per pound-equivalent removed would be lower when more highly toxic pollutants are removed than when less toxic pollutants are removed. The analysis employed toxic weighting factors for weighting different pollutants according to their relative toxicity.[5] Table VI.C–5 and Table VI.C–6 show the Total Cost-Effectiveness for each subcategory option for BPT/BAT and PSES, respectively.

TABLE VI.C–5.—BPT/BAT COST EFFECTIVENESS ANALYSIS

Option	Total costs ($1981)	Total removals (lb. eq.)	Cost-effectiveness ($/lb. eq.)	Incremental cost-effectiveness ($/lb. eq.)
Metals Subcategory				
1	2,278,827	1,085,922	5.54	
2	8,541,863	1,142,279	51.52	111.13
3	8,840,764	1,148,324	61.79	49.45
Oils Subcategory				
1	0	0	0	.....
2	628,228	113,500	5.54	5.54
3[a]	6,143,622	119,256	51.52	958.19

[5] Further, EPA's toxic weighting factors do not provide environmental ''credit'' for removal of certain regulated pollutants. Thus, for example, the toxic weighting factors do not account for removals of the conventional pollutant, oil and grease. Consequently, a comparison of the difference in cost-effectiveness associated with oil subcategory Regulatory Options 1 and 2 does not account for the significantly greater removals of oil and grease achieved through Regulatory Option 2 treatment technology.

TABLE VI.C–5.—BPT/BAT COST EFFECTIVENESS ANALYSIS—CONTINUED

Option	Total costs ($1981)	Total removals (lb. eq.)	Cost-effectiveness ($/lb. eq.)	Incremental cost-effectiveness ($/lb. eq.)
4	7,262,456	117,540	61.79	−652.04
Organics Subcategory				
1	293,131	843,908	0.35	
2	2,280,094	25,585	89.12	−2.43

[a] Due to the use of pounds equivalent for the Cost-Effectiveness Analysis, the pollutant removals do not include the incremental Oil & Grease removal of 1,308,503 lb/year for Oils Option 3. The incremental cost associated with the removal of Oil and Grease ($0.39/pound removed) is commensurate with other effluent limitations guidelines and standards, such as the $9.77/pound of TSS and Oils and Grease promulgated for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (EPA 821–R–93–003).

TABLE VI.C–6.—PSES COST EFFECTIVENESS ANALYSIS

Option	Total costs ($1981)	Total removals (lb.eq.)	Cost effectiveness ($/lb.eq.)	Incremental cost effectiveness ($/lb.eq.)
Metals Subcategory				
1	2,410,819	156,945	15.36	.....
2	17,790,208	164,492	108.15	2,037.92
3	18,676,537	165,056	113.15	1,569.66
Oils Subcategory				
1	0	0	.....	.....
2	2,021,483	146,606	13.79	13.79
3[b]	16,570,113	148,780	111.37	6,692.49
4	19,864,864	148,264	133.98	−6,376.47
Organics Subcategory				
1	1,837,897	47,409	38.77	.....
2	3,722,098	41,227	90.28	−304.83

D. Water Quality Analyses

The water quality benefits of controlling discharges from CWTs to surface waters and POTWs were evaluated in national analyses of direct and indirect dischargers. CWT effluents contain priority, nonconventional, and conventional pollutants. Discharge of these pollutants into freshwater and estuarine ecosystems may alter aquatic habitats, affect aquatic life, and adversely impact human health. Many of these pollutants are either human carcinogens, human systemic toxicants, or aquatic life toxicants. In addition, many of these pollutants are persistent and bioaccumulate in aquatic organisms. These pollutants can also affect POTW operations and cause POTW sludge contamination. Four direct CWT wastewater dischargers and eight POTWs receiving wastewater from 13 indirect CWT dischargers are currently impairing receiving stream water quality (i.e., are listed on EPA's 304(l) short list of impaired water bodies). In addition, seven cases of impairment of POTW operations have also been documented. (All 66 pollutants proposed for regulation have at least one toxic effect (human health carcinogen and/or systemic toxicant or aquatic toxicant)).

Discharge of conventional pollutants such as TSS, Oil & Grease, and BOD^5 can have adverse effects on human health and environment. For example, habitat degradation can result from increased suspended particulate matter that reduces light penetration and, thus, primary productivity, or from accumulation of sludge particles that alters benthic spawning grounds and feeding habitats. Oil & Grease can have lethal effect on fish, by coating surface of gills causing asphyxia, or depleting oxygen levels due to excessive biological oxygen demand, or by reducing stream reaeration because of surface film. Oil and grease can also have detrimental effects on waterfowl by destroying the buoyancy and insulation of their feathers. Bioaccumulation of oil substances can cause human health problems including tainting of fish and bioaccumulation of carcinogenic polycyclic aromatic compounds. High BOD^5 levels can also deplete of oxygen levels resulting in mortality or other adverse effects on fish. But the effects of conventional pollutants and pollutant parameters, such as TOC and COD, are not calculated when modelling the effect of the proposed regulation on the water quality of receiving streams and POTW operations. The Agency solicits comment on possible approaches for calculating the effect of conventional pollutants and pollutant parameters, such as TOC and COD, on the water quality of receiving streams and POTW operations in terms of inhibition or sludge contamination.

The effects of direct wastewater dischargers of toxic pollutants (excluding conventional pollutants and pollutant parameters) on receiving stream water quality are evaluated at current and proposed BPT/BAT treatment levels for today's proposed rule. The potential impacts of indirect wastewater dischargers on POTWs in terms of inhibition of POTW operation, contamination of sludge and the effects of POTWs effluents on receiving stream water quality are also evaluated at current discharge levels and proposed PSES levels. Water quality models are used to project pollutant in-stream concentrations based on estimated releases at current and proposed treatment levels; the in-stream concentrations are then compared to EPA-published water quality criteria or to documented toxic effect levels where EPA water quality criteria are not available for certain pollutants. POTW models are used to estimate potential POTW inhibition and sludge contamination.

The effects on receiving stream water quality for 15 direct and 45 indirect CWT facilities discharging up to 113 pollutants to 15 receiving streams and 33 POTWs respectively, are evaluated. These analyses are first performed on subcategory-specific basis for the three CWT subcategories (i.e., metals, oils, and organics subcategories). The subcategory-specific analyses, however, consider only impacts of discharges from individual subcategories, and therefore, underestimate overall water quality impacts for facilities with multiple subcategory operations. Over 40% of facilities in the Centralized Waste Treatment Industry have operations in multiple subcategories. In order to evaluate overall benefits of the proposed BPT/BAT/PSES proposed options for pollutants (excluding conventional pollutants and pollutant parameters), the water quality and POTW analyses are also performed for multiple subcategory combinations, as appropriate for individual facilities.

The subcategory-specific modeling results for pollutants (excluding conventional and pollutant parameters) show that the proposed BPT/BAT/PSES limitations reduce current excursions of chronic aquatic life and/or human health criteria or toxic effect levels as follows: (1) for the Metals Subcategory from 19 receiving streams to four streams; (2) for the Oils Subcategory from seven receiving streams to one stream for both co-proposed options; and (3) for the Organics Subcategory from 14 receiving streams to five streams. For the multiple subcategory combinations (as applicable to individual facilities), the modeling shows current excursions of chronic aquatic life and/or human health criteria or toxic effect levels projected for 30 receiving streams reduced to ten receiving streams for both co-proposed regulatory options.

The potential impacts of 45 indirect dischargers, which discharge up to 113 pollutants (excluding conventional pollutant and pollutant parameters) into 33 POTWs are also evaluated in terms of inhibition of POTW operations and contamination of sludge. Both, the subcategory-specific analyses for these three CWT subcategories (i.e., metals, oils, and organics subcategories), and for the multiple subcategory combinations, as appropriate for individual facilities, are performed. The subcategory-specific modeling results show the proposed PSES reduce and/or eliminate current potential POTW inhibition and sludge contamination problems as follows: (1) in the Metals Subcategory from 9 POTWs with potential inhibition problems to two POTWs, and from 11 POTWs with potential sludge contamination problems to one POTW; and (2) in the Oils Subcategory from ten POTWs with potential inhibition problems to three POTWs and from one POTW with potential sludge contamination problem to none for both co-proposed options. No potential POTW inhibition or sludge contamination problems are projected for the Organics Subcategory at any level. For the multiple subcategory combinations, the modeling shows the proposed PSES to reduce current POTW inhibition problems projected for 17 POTWs to six POTWs, and potential current sludge contamination problems projected for 13 POTWs to one POTW.

The POTW inhibition and sludge values used in this analysis are not, in general, regulatory values. They are based upon engineering and health estimates contained in guidance or guidelines published by EPA and other sources. Thus, EPA generally is not basing its regulatory approach for proposed pretreatment discharge levels upon the finding that some pollutants interfere with POTWs by impairing their treatment effectiveness or causing them to violate applicable limits for their chosen disposal methods. (Rather, the proposed discharge limits are based upon a determination of pass through as explained earlier in preamble). However, the values used in this analysis help indicate the potential benefits for POTW operations and sludge disposal that may result from the compliance with proposed pretreatment discharge levels.

E. Non-Water Quality Environmental Impacts

The elimination or reduction of one form of pollution may create or aggravate other environmental problems. Therefore, Sections 304(b) and 306 of the Act call for EPA to consider non- water quality environmental impacts of effluent limitations guidelines and standards. Accordingly, EPA has considered the effect of these regulations on air pollution, solid waste generation, and energy consumption.

1. Air Pollution

CWT facilities generate wastewater that contain significant concentrations of organic compounds, some of which are also on the list of Hazardous Air Pollutants (HAP) in title 3 of the Clean Air Act Amendments (CAAA) of 1990. These wastewater typically pass-through a series of collection and treatment units that are open to the atmosphere and allow wastewater containing organic compounds to contact ambient air. Atmospheric exposure of the organic-containing wastewater may result in significant volatilization of both volatile organic compounds (VOC), which contribute to the formation of ambient ozone, and HAP from the wastewater.

VOC and HAP are emitted from wastewater beginning at the point where the wastewater first contacts ambient air. Thus, VOC and HAP from wastewater may be of concern immediately as the wastewater is discharged from the process unit. Emissions occur from wastewater collection units such as process drains, manholes, trenches, sumps, junction boxes, and from wastewater treatment units such as screens, settling basins, and equalization basins, biological aeration basins, air or steam strippers lacking air emission control devices, and any other units where the wastewater is in contact with the air.

Today's proposed regulations for the Organics Subcategory are based on the use of air stripping equipped with a carbon adsorption air emission control device for controlling volatile organic compounds. For the Metals and Oils Subcategories, where low levels of volatile organic compounds were detected, treatment technologies are equipped air scrubbers to control emissions.

No adverse air impacts are expected to occur due to the proposed regulations. Based on raw wastewater loading estimates, air emissions of volatile pollutants would decrease by 2.0 million pounds per year due to the

use of air stripping equipped with carbon adsorption air emission control devices. The proposed regulation, however, does not require air stripping equipped with carbon adsorption air emission control devices or any specific technology, but only establishes the amount of pollutant that can be discharged to navigable waters.

2. Solid Waste

Solid waste would be generated due to the following technologies, if implemented to meet proposed regulations, selective metals precipitation, ultrafiltration, reverse osmosis, carbon adsorption, and air stripping. The solid wastes generated due to the implementation of the technologies discussed above were costed for off-site disposal. These costs were included in the economic evaluation of the proposed technologies.

The filter cake from selective metals precipitation will generally contain metal-bearing waste. Even though the filter cake generated from selective metals precipitation may be recycled due to its high metal content, the EPA developed costs for disposal of the filter cake in Subtitle C and D landfills. EPA would expect that some portion of the metal-rich filter cake will be recycled. EPA estimates that 39 million pounds of filter cake will be generated annually by 56 facilities.

Reverse osmosis of oily streams results in the generation of a concentrated residual stream. The concentrate contains oily and metal-bearing wastes. The EPA estimates that 58 million gallons of reverse osmosis concentrate will be generated annually by 35 facilities.

Ultrafiltration of oily streams results in the generation of a concentrated residual stream which contain oily and organic waste. The EPA estimates that 4.1 million gallons of ultrafiltration concentrate will be generated annually by 35 facilities.

Granular activated carbon adsorption treatment of waste results in the generation of exhausted or spent activated carbon. Approximately 1.6 million pounds of activated carbon will be exhausted or spent annually by 35 facilities. The activated carbon may be regenerated on-site or off-site by vendors. The EPA costed regeneration of the spent activated carbon by off-site vendors.

Air stripping of waste streams results in the generation of contaminated off-gas, which requires the application of an air pollutant control device such as a catalytic oxidizer. When the catalytic oxidizer becomes deactivated, the spent catalyst must be replaced. Approximately 168.5 pounds annually of spent catalytic oxidizer are used.

3. Energy Requirements

EPA estimates that the attainment of BPT, BCT, BAT, NSPS, PSES, and PSNS will increase energy consumption by a small increment over present industry use. The main energy requirement in today's proposed rule is for the operation of ultrafiltration units. Ultrafiltration units operate at high pressures to separate the waste stream. The ultrafiltration unit would require 9.4 million kilowatthours per year. Energy requirements will also increase due to reverse osmosis and liquid filtration units. Reverse osmosis and liquid filtrations units would require approximately 4.1 and 4.9 million kilowatthours per year, respectively. Overall, an increase of 22.0 million kilowatthours per year would be required for the proposed regulation which equates to 40 barrels of oil per day. The United States currently consumes 19 million barrels of oil per day.

VII. Administrative Requirements

A. Docket and Public Record

The public record for this rulemaking is available for public review at EPA Headquarters, 401 M Street SW., Washington, DC 20460 in the Office of Water Docket, Room L102 (in the basement of Waterside Mall). The Docket is staffed by an EPA contractor, Labat-Anderson, Inc., and interested parties are encouraged to call for an appointment. The telephone number for the Water Docket is (202) 260–3027. The EPA information regulation (40 CFR Part 2) provides that a reasonable fee may be charged for photocopying.

EPA notes that many documents in the record supporting these proposed rules have been claimed as confidential business information and, therefore, are not included in the record that is available to the public in the Water Docket. To support the rulemaking, EPA is presenting certain information in aggregated form or is masking facility identities to preserve confidentiality claims. Further, the Agency has withheld from disclosure some data not claimed as confidential business information because release of this information could indirectly reveal information claimed to be confidential.

B. Clean Water Act Procedural Requirements

As required by the Clean Water Act, EPA will conduct a public hearing on the pretreatment standards portion of the proposed rule. The public hearing will be conducted on March 24, 1995, from 8:30 a.m. to 10:30 a.m. in the Lake Michigan Conference Room at the U.S. EPA Region V Building, 77 West Jackson Boulevard, Chicago, IL.

C. Executive Order 12866

Under Executive Order 12866, [58 FR 51735 (October 4, 1993)] the Agency must determine whether the regulatory action is ''significant'' and therefore subject to OMB review and the requirements of the Executive Order. The Order defines ''significant regulatory action'' as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is a ''significant regulatory action'' because it may adversely affect a sector of the economy. As such this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

EPA has concluded that costs on the economy of this proposed rule will be less than $100 million annually, and it has not prepared an RIA.

D. Executive Order 12875

In developing the proposed CWT effluent limitations guidelines and standards, EPA has already invested substantial time in discussions with permit writers, the affected industries and environmental groups. As previously noted, in March of this year, EPA held a public meeting, attended by industry, states, and local permitting authorities to discuss its efforts. The Agency also has had discussions concerning the regulation at the 1994 Pretreatment Coordinators Workshop attended by state and local permitting authorities, various industrial trade association meetings, and effluent guideline task force meetings.

On October 26, 1993, President Clinton issued Executive Order No. 12875, ''Enhancing the Intergovernmental Partnership.'' This order is intended to reduce the imposition of unfunded mandates upon State, local and tribal governments. The order requires Federal agencies like EPA that impose unfunded mandates upon such governments through regulation either (1) to assure that the Federal government provides the necessary funds for compliance or (2) to describe the extent of the Agency's prior consultations with affected units of governments and the nature of their concerns. The order calls for intergovernmental consultation to begin as early as possible in the regulatory development process, preferably before the publication of the notice of proposed rulemaking. Consultation may continue after publication but must occur prior to the formal promulgation of the regulatory action containing the proposed mandate.

The rulemaking process to develop the CWT limitations guidelines and standards antedates the issuance of E.O. 12875 by a number of years as explained above. To meet its obligations under E.O. 12875, following publication of the regulation, EPA plans extensive outreach efforts to state and local governments. EPA will develop estimates of the upfront and recurring costs likely incurred by State, local or tribal governments in complying with the proposal, if adopted.

E. Regulatory Flexibility Act

The Regulatory Flexibility Act, 5 U.S.C. 601 et. seq., requires EPA and other agencies to prepare an initial regulatory flexibility analysis for regulations that have a significant impact on a substantial number of small entities. EPA projects that today's proposed rule, if promulgated, could affect small businesses. The initial regulatory flexibility analysis for these proposed rules is incorporated into the economic impact analysis and is discussed in Section VI.A. Briefly, the small entity analysis estimates the economic impacts of the new requirements on small companies and describes the potential disparate impacts between the groups of large and Centralized Waste Treatment facilities. The analysis also presents the Agency's consideration of alternatives that might minimize the impacts on small entities.

The reasons why EPA is proposing this rule are presented in Section II. The legal basis for today's rule is presented in Legal Authority. The number of small entities and the approach for defining small entities are summarized in Section VI.A. and the economic effects on small entities detailed in the economic impact analysis report for this rulemaking. This assessment has led the Agency to conclude that small businesses are not disproportionately impacted by the proposed rule. Reporting and other compliance requirements are summarized in Sections VI. and VII. and detailed in the technical development document. While the Agency has not identified any duplicative, overlapping, or conflicting Federal rules, a discussion of other related rulemakings is presented in Section II.

F. Paperwork Reduction Act

The proposed effluent guidelines and standards contain no information collection activities and, therefore, no information collection request (ICR) has been submitted to the Office of Management and Budget (OMB) for review and approval under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq.

VIII. Solicitation of Data and Comments

A. Introduction and General Solicitation

EPA invites and encourages public participation in this rulemaking. The Agency asks that comments address any perceived deficiencies in the record of this proposal and that suggested revisions or corrections be supported by data.

The Agency invites all parties to coordinate their data collection activities with EPA to facilitate mutually beneficial and cost-effective data submissions. EPA is interested in participating in study plans, data collection and documentation. Please refer to the **FOR FURTHER INFORMATION** section at the beginning of this preamble for technical contacts at EPA.

B. Specific Data and Comment Solicitations

EPA has solicited comments and data on many individual topics throughout this preamble. The Agency incorporates each and every such solicitation here, and reiterates its interest in receiving data and comments on the issues addressed by those solicitations. In addition, EPA particularly requests comments and data on the following issues:

1. Applicability of Regulation for Facilities Which Mix Centralized Waste Treatment Waste Streams With Other Industrial Waste Prior to Treatment or After Minimal Treatment

The Agency is asking for comment on whether the guidelines and standards should apply to categorical facilities which receive limited quantities of CWT waste streams for treatment. The Agency considered two approaches for this proposal.

The first approach EPA considered would have limited the applicability of the guidelines and standards to facilities which treat only the defined CWT wastes without any mixing of wastes with other categorical wastes. EPA, however, has rejected this approach for the proposal because of concern that this would create a loophole. If CWT wastes could be mixed with other wastes for treatment and escape regulation as CWT wastes, there exists significant possibility that economically achievable reduction of CWT pollutant discharge levels will not be met. The Agency believes that if the guidelines and standards do not apply to CWT wastes mixed with other waste streams there is significant potential for blending waste streams to avoid otherwise required effluent reduction levels.

Under the approach EPA is proposing, CWT wastes that are mixed with other categorical waste streams or other waste streams will be subject to CWT effluent limitations and standards. Even under this second approach, however, there exists significant potential to avoid achieving CWT effluent reduction levels by mixing wastes. Therefore, in order to ensure that facilities mixing CWT wastes and non-CWT waste streams actually treat the CWT wastes, the Agency is also proposing to require separate monitoring for compliance with CWT standards or limitations waste streams (or alternatively, a demonstration that treatment of mixed CWT wastes and other waste streams achieves the required pollutant reductions). (See discussion below.) In the absence of a requirement for separate monitoring for compliance of CWT waste streams, promulgation of the CWT guideline could have the perverse result of, in fact, *discouraging* centralized treatment by encouraging categorical facilities to accept CWT waste streams that are diluted with other waste streams before treatment. The result would be no treatment for the CWT wastes and no achievement of effluent reduction obtainable at facilities treating only CWT wastes. The Agency is asking for comment on this approach.

2. Monitoring To Demonstrate Compliance With CWT Limitations and Standards

EPA is today proposing to require each CWT facility that discharges wastewater resulting from the treatment of CWT wastes to monitor to demonstrate compliance with

applicable subcategory limitations and standards.

As discussed above, commingling of disparate waste streams may, in many cases, allow achievement of discharge limits without any real reduction in the quantity of discharges of certain pollutants. In fact, EPA has data that show that CWT facilities which commingle subcategory waste do not achieve the reductions in pollutant discharges that separate treatment yields. One facility at which EPA sampled mixes oily wastewater after chemical emulsion breaking with metal-bearing wastewater. EPA measured the oily wastewater after emulsion breaking and before mixing with the other subcategory wastes and found measurable levels of regulated organic compounds. Samples of the mixed wastewater showed non-detectable levels of the organic compounds. The treatment for mixed wastewater included no treatment for organics removal. Thus, this facility clearly provides no reduction in organic pollutant discharges other than that provided by chemical emulsion breaking of the surface oil. Separate treatment of oily wastes would, however, remove significant quantities of organic pollutants. EPA has preliminarily concluded that the reduced removals that may be associated with the mixing of waste streams is inconsistent with the requirements of the Act. EPA, consequently, as previously discussed, is requiring that the CWT demonstrate to the POTW or permitting authority that it is achieving removal of regulated pollutants that are equivalent to that which would be obtained if the wastes are treated separately.

EPA's proposal today does not require separate treatment of CWT and non-CWT wastewater. Rather, EPA requires monitoring or other data establishing that the required effluent levels are met. The Agency has concluded, however, that separate treatment is economically achievable and the Agency has concluded that mixing waste will not achieve the pollutant reduction associated with best available technology. Consequently, as explained above, EPA is proposing to require monitoring for compliance at a point immediately following treatment of the CWT waste stream. In the case of facilities that mix CWT wastes with other wastes (or mix different subcategories of CWT waste streams) for treatment, EPA has proposed to require a facility to demonstrate that treatment processes employed result in reduction in the quantity of pollutants discharged that is equivalent to that achieved by separate treatment.

The Agency has concluded it has the authority to adopt such a requirement. Under the Clean Water Act, effluent limitations must ensure the achievement of the discharge levels associated with BPT/BCT/BAT technology. The data collected by the Agency establishes that today's proposed BPT/BCT/BAT limitations and standards are available at a cost not incommensurate with the expected effluent reduction and no more stringent limitations are economically achievable. Without a requirement to demonstrate compliance with the limitations and standards, EPA cannot ensure that the limitations and standards will be met.

3. Estimation of Industry Size

From the information obtained from the 1991 Waste Treatment Industry Questionnaire, EPA estimates that there are 85 facilities in the Centralized Waste Treatment Industry. Permit writers and industry representatives believe this is an underestimation of the present industry size. EPA's estimation of The industry size is based on data provided from questionnaire mailed to facilities that EPA identified using information available to it in 1989. As stated earlier, facilities names were gathered from various sources, because no SIC code exists for the industry. Therefore, there may have been CWT facilities not included on the questionnaire mailing list. EPA solicits information on the number, name, and location of facilities within the industry.

4. Exclusion of Pipeline Centralized Waste Treatment Facilities From Scope of Rule

The Agency proposes to exclude from this regulation facilities which receive all waste from off-site by pipeline from the source of waste generation.[6] Based on the information gathered in the 1991 Waste Treatment Industry Questionnaire, such facilities are fundamentally different from those that are the subject of today's proposal. These pipeline facilities receive steady flows of relatively consistent pollutant profiles from facilities that in most cases are subject to categorical regulations. By contrast, centralized waste treatment facilities receive concentrated wastes with highly variable pollutant content, such as sludges, tank bottoms, off-spec products, and process residuals. Permit writers should use the building block approach in conjunction with the appropriate guidelines for the facilities discharging to the pipeline facility to derive the appropriate BPJ effluent limitations for these facilities. The Agency solicits comment on excluding such facilities from this scope of this rule as well as comment on this approach to permitting pipeline facilities.

5. De minimis Level for Scope of Regulation

According to comments received from the May 1994 Effluent Guidelines Plan (59 FR 25859), the EPA should consider establishing a *de minimis* level for the scope of the regulations due to possible management practices at manufacturing facilities. Manufacturers may receive small quantities of waste from off-site to treat in a wastewater treatment system due to a site's ability to handle the waste properly in comparison to the site at which the waste is generated. Information collected from the 1991 Waste Treatment Industry Questionnaire was not designed to collect this information due to the method of creating the mailing list. EPA solicits additional data to determine if a *de minimis* level should be established and information on the appropriate level.

6. Characterization of Waste Received by Oils Subcategory Facilities

In the EPA sampling program for the Oils Subcategory, the EPA focused on facilities which treat concentrated, stable oil-water emulsions which are difficult to treat, because the majority of facilities identified in 1989 with on-site treatment accepted this type of waste. EPA requests information on the type of oily waste (stable, unstable, etc.) accepted for treatment by facilities in the Oils Subcategory as well as the constituents found in the waste.

7. Methodology for Estimating Current Performance

Many facilities in the Centralized Waste Treatment Industry commingle waste receipts from off-site with other on-site generated wastewater, such as non-contaminated stormwater and other industrial wastewater, prior to discharging. This mixing of waste may occur prior to or after treatment of the waste receipts. Because the commingling occurs prior to the discharge point, monitoring data collected by facilities at the discharge point cannot be used to estimate the current treatment performance of certain

[6] However, a facility which receives wastes by pipeline from a facility which receives off-site wastes by truck, barge, etc. but does not treat the wastes is still a CWT facility. The interposition of an intermediate collection agent between generators of CWT waste and a CWT treatment facility does not convert the treatment facility into a non-CWT facility.

centralized waste treatment operations. Under the approach EPA is proposing, in the case of the introduction of stormwater after treatment but before discharge, the allowable discharges from such a facility would be based on the guideline limitations and standards before the introduction of the stormwater. In the case of the stormwater or other wastes introduced *before* treatment, as discussed previously, the EPA used several methods to estimate current industry performance. EPA solicits comment on the methodologies used to estimate current discharge performance. EPA also requests discharge monitoring data from facilities prior to commingling the Centralized Waste Treatment wastewater with other sources of wastewater. These data will be used to assess current discharge performance and to statistically analyze the autocorrelation of concentrations measured on consecutive days (See Section V.G. for an explanation of autocorrelation). Before submitting discharge monitoring data, please contact Debra DiCianna at (202) 260–7141 to ensure that the data provided include information to support its use for calculating current performance and possible limitations.

8. Implementation of Regulation for Multiple Subcategory Facilities

Forty percent of the facilities in the Centralized Waste Treatment Industry receive flows that fall within two or more of the proposed subcategories for this industry. Since waste receipts in this industry are concentrated and difficult to treat, the Agency believes that the defined levels of effluent reductions will not be met if waste receipts from different categories are treated in a single treatment system. EPA has concluded that separate pretreatment steps are necessary in order to treat the waste receipts adequately for its constituents prior to commingling the wastes. For example, if oily wastes and metal-bearing wastes are mixed, selective metals precipitation will not remove certain constituents (i.e. n-decane, oil and grease) which would be removed if the oily waste is pretreated before precipitation. As discussed above, the approach which EPA has proposed would require monitoring to demonstrate compliance after oily waste treatment and after metal-bearing treatment. The EPA solicits comment on other approaches for implementing the proposal in order to address the problem of discharges from treatment of mixed subcategory wastes. EPA also requests data on the performance of treatment systems which are designed to treat waste that may be characterized in more than one subcategory.

9. Applicability of Guideline to POTWs Treating CWT Wastes

EPA is soliciting comment today also on how to treat wastes received for treatment at a POTW by tanker truck, trailer/roll-off bins or barges or other forms of shipment. EPA is aware that there are several POTWs receiving wastes for treatment that are not discharged to the POTW through sewers or pipes. EPA welcomes additional information and data on the subject.

The CWA provides that pretreatment standards apply to all discharges which pass through or interfere with POTW operations and all POTWs must comply with effluent limitations based on secondary treatment requirements and any more stringent limitations, including those necessary to meet water quality standards, treatment standards, or schedules of compliance established pursuant to any other Federal law or regulation. CWA Sections 301(a)(1) and 307(b). Under RCRA, under certain conditions, a POTW may accept hazardous waste for treatment. A POTW is deemed to have a permit for treatment of hazardous waste if, among other things, the POTW complies with the conditions of its NPDES permit and certain RCRA regulatory requirements (e.g., use of the RCRA manifest system, maintaining certain records). In addition, the waste must meet ''all Federal State, and local pretreatment requirements which would be applicable to the waste if it were being discharged into the POTW through a sewer, pipe or similar conveyance.'' 40 CFR 270.61(c)(4). Under this provision, therefore, EPA has concluded that a POTW cannot accept wastes for treatment via any form of shipment which are RCRA hazardous wastes unless these wastes comply with pretreatment requirements in today's guideline. Moreover, it is EPA's view that whether the CWT wastes are hazardous or non-hazardous, the pretreatment standard would apply to the CWT wastes. As proposed today, the pretreatment standards apply to the introduction of a pollutant to a POTW irrespective of the mechanism for introducing that pollutant to the POTW.

EPA is soliciting comment on how widespread is the practice of POTW treatment of wastes received from off-site via any form of shipment as well as its tentative conclusion that today's proposal would apply to such wastes.

10. Treatment of Incidental Organic Pollutants Detected in the Metals Subcategory

During the EPA sampling program, EPA collected analytical data on the presence of organic pollutants in the Metals Subcategory. Various organic pollutants were detected at low concentrations in the untreated CWT wastewater. EPA sampled treatment technologies to control the discharge of organic pollutants. In most circumstances, the organic pollutants detected at low concentrations in the treatment facility influent were found at non-detectable levels prior to any treatment for the organic pollutants. Because the initial concentrations of organic pollutants were very low, the addition of treatment chemicals and other sources of CWT wastewater caused the concentrations to become lower and thereby non-detectable. As previously discussed, EPA sampled carbon adsorption units to use as add-on technologies for the removal of organic compounds, but treatment performance for carbon adsorption units was found to be uniformly poor throughout the industry. EPA solicits comment on the necessity of control on low level organic pollutants for the Metals subcategory and technologies appropriate for the control of low level organics as well as analytical data to characterize the performance of such treatment technologies.

11. Additional Technologies for the Control of Concentrated Cyanide-Bearing Wastes

The BPT effluent limitations and standards for the pretreatment control of cyanide in the Metals Subcategory is based on the use of alkaline chlorination at specific operating conditions which enable the destruction of concentrated cyanide complexes. Two additional treatment technologies were sampled in the process of developing the proposed regulation. Performance by one treatment technology was uniformly inadequate for the treatment of concentrated cyanide waste. The additional treatment technology sampled performed well in the treatment of concentrated cyanide complexes, but is propriatary information. EPA solicits information on additional treatment technologies applicable to the treatment of concentrated cyanide complexes that are commercially available.

12. Probability and Cost of RCRA-Permitted Facilities Undergoing Closure

The Agency has predicted that a few companies may undergo bankruptcy as

a result of the proposed rulemaking. The predicted bankruptcies may result in closure of CWT facilities and the cost of such closure is attributable to this action. For RCRA permitted facilities, the cost of such closure may be significant. EPA solicits comment on the probability of closure of such facilities impacted by the proposed regulation and the costs associated with closure of the treatment operations.

13. Assessing the Effects of Conventional Pollutants

A large portion of the pollutant reductions for the proposed regulation are for conventional pollutants, especially oil and grease. Due the present methodology for the environmental assessment, the impacts of conventional pollutants are not taken into account for the proposed regulation. The Agency solicits comment on possible approaches for assessing the effect of conventional pollutants and pollutant parameters, such as TOC and COD, on the water quality of receiving streams and POTW operations in terms of inhibition and sludge contamination.

List of Subjects in 40 CFR Part 437

Environmental protection, Hazardous waste, Waste treatment and disposal, Water pollution control.

Dated: December 15, 1994.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is proposed to be amended by adding part 437 as follows:

PART 437—THE CENTRALIZED WASTE TREATMENT INDUSTRY POINT SOURCE CATEGORY

General Provisions

Subpart A—Metals Treatment and Recovery Subcategory

Subpart B—Oils Treatment and Recovery Subcategory

Subpart C—Organics Treatment or Recovery Subcategory

Authority: 33 U.S.C. 1311, 1314, 1316, 1317, and 1361.

General Provisions

§ 437.1 General definitions.

In addition to the definitions set forth in 40 CFR part 401, the following definitions apply to this part:

(a) *Centralized waste treatment facility*—Any facility that treats any hazardous or non-hazardous industrial wastes received from off-site by tanker truck, trailer/roll-off bins, drums, barge, or other forms of shipment. A ''centralized waste treatment facility'' includes: A facility that treats waste received from off-site exclusively; and a facility that treats wastes generated on-site as well as waste received from off-site.

(b) *Centralized waste treatment wastewater*—Water that comes in contact with wastes received from off-site for treatment or recovery or that comes in contact with the area in which the off-site wastes are received, stored or collected.

(c) *Conventional pollutants*—The pollutants identified in section 304(a)(4) of the CWA and the regulations thereunder (biochemical oxygen demand (BOD_5), total suspended solids (TSS), oil and grease, pH, and fecal coliform).

(d) *Facility*—A facility is all contiguous property owned, operated, leased or under the control of the same person. The contiguous property may be divided by public or private right-of-way.

(e) *Metal-bearing wastes*—Wastes that contain metal pollutants from manufacturing or processing facilities or other commercial operations. These wastes may include, but are not limited to, the following: process wastewater, process residuals such as tank bottoms or stills and process wastewater treatment residuals, such as treatment sludges.

(f) *New source*—''New source'' is defined at 40 CFR 122.2 and 122.29.

(g) *Non-conventional pollutants*—Pollutants that are neither conventional pollutants nor priority pollutants.

(h) *Off-site*—''Off-site'' means outside the boundaries of a facility.

(i) *Oily wastes*—Wastes that contain oil and grease from manufacturing or processing facilities or other commercial operations. These wastes may include, but are not limited to, the following: spent lubricants, cleaning fluids, process wastewater, process residuals such as tank bottoms or stills and process wastewater treatment residuals, such as treatment sludges.

(j) *On-site*—''On-site'' means within the boundaries of a facility.

(k) *Organic wastes*—Wastes that contain organic pollutants from manufacturing or processing facilities or other commercial operations. These wastes may include, but are not limited to, process wastewater, process residuals such as tank bottoms or stills and process wastewater treatment residuals, such as treatment sludges.

(l) *Pipeline*—''Pipeline'' means an open or closed conduit used for the conveyance of material. A pipeline includes a channel, pipe, tube, trench or ditch.

(m) *POTW*—Publicly-owned treatment works as defined at 40 CFR 403.3 (o).

(n) *Priority pollutants*—The pollutants designated by EPA as priority in 40 CFR part 423, appendix A.

(o) *Process wastewater*—''Process wastewater'' is defined at 40 CFR 122.2.

§ 437.2 Applicability.

(a) Notwithstanding anything to the contrary in subchapter N of this chapter, the provisions of this part are applicable to that portion of wastewater discharges from a centralized waste treatment facility that result from the treatment or recovery of metals, oil, and organics from metal-bearing wastes, oily wastes and organic-bearing wastes received from off-site. The provisions of this Part are also applicable to that portion of wastewater discharge from a CWT facility contact water. The provisions of this part do not apply to that portion of wastewater discharges from a CWT facility that results from the treatment of wastes that are generated on-site which are subject to other applicable provisions of Subchapter N of this chapter.

(b) The provisions of this part do not apply to wastewater discharges at a centralized waste treatment facility that result from the following treatment operations: thermal destruction, incineration, stabilization, solidification, the blending of fuel and recycling of solvents from hazardous and non-hazardous industrial wastes received from off-site.

(c) The provisions of this part do not apply to discharges from a centralized waste treatment facility that result from the treatment or recovery of wastes received by pipeline from a facility that generates the waste.

§ 437.3 Monitoring requirements.

The following monitoring requirements apply to this part:

(a) The ''monthly average'' regulatory values shall be the basis for the monthly average effluent limitations in direct discharge permits and pretreatment standards. Compliance with the monthly average discharge limit is required regardless of the number of samples analyzed and averaged.

(b) Any centralized waste treatment facility that discharges wastewater that results from the treatment of metal-bearing waste, oily waste, or organic-bearing waste must monitor as follows:

(1) A centralized waste treatment facility must monitor to demonstrate compliance with applicable Subcategory A, B, or C limitations or standards.

(2) When a Centralized Waste Treatment facility: is subject to effluent limitations, new source performance standards or pretreatment standards in more than one Subpart of this Part (or any other Part of Subchapter N of this chapter), and (after treatment) mixes waste whose wastewater treatment discharges are subject to more than one Subpart of this Part (or any other Part of Subchapter N of this chapter), the owner or operator of the Centralized Waste Treatment facility must monitor for compliance with the limitations for each Subpart of this Part after treatment and before mixing of the waste for discharge with any other Subpart wastes, process wastewater subject to another effluent limitation or standard in Subchapter N of this chapter, or stormwater. A Centralized Waste Treatment facility is not required to monitor for compliance after treatment and before mixing of Subpart wastes that are mixed with other wastes for treatment and discharge if the following condition is met. The owner or operator of the Centralized Waste Treatment facility must demonstrate to the POTW or permitting authority that the Centralized Waste Treatment facility treating and discharging effluent from the mixture of wastes is capable of achieving the effluent limitation or standard for each Subpart.

(3) When a Centralized Waste Treatment facility: is subject to effluent limitations, new source performance standards or pretreatment standards in more than one Subpart of this Part (or any other Part of Subchapter N of this chapter), and (prior to treatment) mixes waste whose wastewater treatment discharges are subject to more than one Subpart of this Part (or any other Part of Subchapter N), the owner or operator of the Centralized Waste Treatment facility must demonstrate to the POTW or permitting authority that the Centralized Waste Treatment facility treating and discharging effluent from the mixture of wastes is capable of achieving the effluent limitation or standard for each Subpart.

(4) A centralized waste treatment facility must monitor for cyanide after cyanide treatment and before dilution with other waste streams. Periodic analysis for cyanide is not required for a centralized waste treatment facility in the metal-bearing waste subcategory when the following condition is met: The owner or operator of the facility certifies in writing to the POTW or permit issuing authority that the centralized waste treatment system is not treating wastes that contain more than 68 mg/l of Total Cyanide.

Subpart A—Metals Treatment and Recovery Subcategory

§ 437.10 Applicability; description of the Metals Subcategory.

The provisions of this subpart are applicable to that portion of wastewater discharges from a centralized waste treatment facility that result from the treatment of, or recovery of metals from, metal-bearing waste received from off-site and CWT facility contact water.

§ 437.11 Specialized definitions.

The general definitions, abbreviations, and methods of analysis set forth in 40 CFR part 401 and § 437.01 shall apply to this subpart.

§ 437.12 Effluent limitations representing the degree of effluent reduction attainable by the application of best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the effluent limitations listed in the following table representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT). These limitations apply to the pretreatment of metal-bearing waste which contain cyanide and the metals treatment effluent.

IN-FACILITY BPT LIMITATIONS FOR CYANIDE PRETREATMENT.—METALS SUBCATEGORY (MG/L)

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
Total Cyanide	350	130

BPT EFFLUENT LIMITATIONS—METALS SUBCATEGORY (mg/l)

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
Conventional Pollutants:		
Oil and Grease	45	11
TSS	55	18
Priority and Non-Conventional Pollutants:		
Aluminum	0.72	0.16
Antimony	0.14	0.031
Arsenic	0.076	0.017
Barium	0.14	0.032
Cadmium	0.73	0.16
Chromium	0.77	0.17

BPT EFFLUENT LIMITATIONS—METALS SUBCATEGORY (mg/l)—Continued

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
Cobalt	0.73	0.16
Copper	1.0	0.23
Hexavalent Chromium	0.14	0.077
Iron	2.4	0.54
Lead	0.37	0.082
Magnesium	9.9	2.2
Manganese	0.18	0.039
Mercury	0.013	0.0030
Nickel	5.4	1.2
Silver	0.028	0.0063
Tin	0.20	0.044
Titanium	0.021	0.0047
Total Cyanide	4.4	1.2
Zinc	1.2	0.27

§ 437.13 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). The limitations for TSS and Oil and Grease shall be the same as those specified in § 437.12 for the best practicable control technology currently available (BPT).

§ 437.14 Effluent limitations representing the degree of effluent reduction attainable by the application of best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT). The limitations shall be the same as those specified in § 437.12 for the best practicable control technology currently available (BPT) for the priority and non-conventional pollutants listed.

§ 437.15 New source performance standards (NSPS).

Any new source subject to this subpart must achieve new source performance standards (NSPS). These limitations apply to the metals treatment effluent. The limitations shall be the same as those specified in § 437.12 for the best practicable control technology currently available (BPT).

§ 437.16 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart that introduces pollutants into a publicly-owned treatment works (or any source that introduces hazardous or non-hazardous waste into a POTW from off-site by tanker truck, trailer/roll-off bins, drums, barge or other form of shipment) must: Comply with 40 CFR part 403; and achieve the following pretreatment standards for existing sources (PSES).

IN-FACILITY PRETREATMENT STANDARDS FOR CYANIDE PRETREATMENT.—METALS SUBCATEGORY (mg/l)

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
Total Cyanide	350	130

PRETREATMENT STANDARDS.—METALS SUBCATEGORY (mg/l)

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
Aluminum	0.72	0.16
Antimony	0.14	0.031
Arsenic	0.076	0.017
Cadmium	0.73	0.16
Chromium	0.77	0.17
Cobalt	0.73	0.16
Copper	1.0	0.23
Hexavalent Chromium	0.14	0.077
Iron	2.4	0.54
Lead	0.37	0.082
Magnesium	9.9	2.2
Manganese	0.18	0.039
Mercury	0.013	0.0030
Nickel	5.4	1.2
Silver	0.028	0.0063
Tin	0.20	0.044
Titanium	0.021	0.0047
Total Cyanide	4.4	1.2
Zinc	1.2	0.27

§ 437.17 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart that introduces pollutants into a publicly-owned treatment works (or any new source that introduces hazardous or non-hazardous waste into a POTW from off-site by tanker truck, trailer/roll-off bins, drums, barge or other form of shipment) must: Comply with 40 CFR part 403; and achieve the pretreatment standards for new sources (PSNS). The limitations shall be the same as those specified in § 437.16 for the pretreatment standards for existing sources (PSES).

Subpart B—Oils Treatment and Recovery Subcategory

§ 437.20 Applicability; description of the Oils Subcategory.

The provisions of this subpart are applicable to that portion of wastewater discharges from a centralized waste treatment facility that result from the treatment of, or recovery of oils from, oily waste received from off-site and CWT facility contact water.

§ 437.21 Specialized definitions

The general definitions, abbreviations, and methods of analysis set forth in 40 CFR part 401 and § 437.01 shall apply to this subpart.

§ 437.22 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

BPT EFFLUENT LIMITATIONS.—OILS SUBCATEGORY (mg/l)

Pollutant or pollutant parameter	Option 2		Option 3	
	Maximum for any one day	Monthly average	Maximum for any one day	Monthly average
Conventional Pollutants:				
Oil and Grease	30,000	5,900	240	64

BPT EFFLUENT LIMITATIONS.—OILS SUBCATEGORY (mg/l)—Continued

Pollutant or pollutant parameter	Option 2		Option 3	
	Maximum for any one day	Monthly average	Maximum for any one day	Monthly average
TSS	24	8.2	4.0	1.4
Priority and Non-Conventional Pollutants:				
1,1,1-Trichloroethane	1.6	1.0	0.18	0.12
2-Propanone	41	22	130	44
4-Chloro-3-Methyl Phenol	5.2	4.4	0.96	0.54
Aluminum	2.3	0.57	0.085	0.038
Barium	0.10	0.026	0.0027	0.0012
Benzene	9.0	6.8	1.8	1.4
Butanone	3.7	2.0	13	4.3
Cadmium	1.5	0.37	0.0046	0.0020
Chromium	2.2	0.54	0.010	0.0045
Copper	2.0	0.50	0.016	0.0073
Ethylbenzene	1.1	0.86	0.085	0.066
Iron	75	19	0.40	0.18
Lead	5.0	1.2	0.076	0.034
Manganese	5.4	1.3	0.043	0.019
Methylene Chloride	3.9	2.0	2.2	0.91
m-Xylene	1.6	1.2	0.074	0.058
Nickel	120	29	2.2	0.99
n-Decane	0.18	0.096	0.19	0.067
n-Docosane	0.18	0.096	0.19	0.067
n-Dodecane	0.18	0.096	0.19	0.067
n-Eicosane	0.18	0.096	0.19	0.067
n-Hexacosane	0.18	0.096	0.19	0.067
n-Hexadecane	0.18	0.096	0.19	0.067
n-Octadecane	0.18	0.096	0.19	0.067
n-Tetradecane	0.18	0.096	0.19	0.067
o&p-Xylene	0.86	0.65	0.045	0.035
Tetrachloroethene	0.23	0.14	0.032	0.016
Tin	0.82	0.20	0.12	0.056
Toluene	17	13	1.8	1.4
Tripropyleneglycol Methyl Ether	280	150	160	57
Zinc	22	5.6	0.54	0.24

§ 437.23 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). The limitations for TSS and Oil and Grease shall be the same as those specified in § 437.22 for the best practicable control technology currently available (BPT).

§ 437.24 Effluent limitations representing the degree of effluent reduction attainable by the application of best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT). The limitations shall be the same as those specified in § 437.22 for the best practicable control technology currently available (BPT) for the priority and non-conventional pollutants listed.

§ 437.25 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS). These limitations apply to the oils treatment effluent. The limitations shall be the same as those specified in § 437.22 for the best practicable control technology currently available (BPT).

§ 437.26 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart that introduces pollutants into a publicly-owned treatment works (or any source that introduces hazardous or non-hazardous waste into a POTW from off-site by tanker truck, trailer/roll-off bins, drums, barge or other form of shipment) must: comply with 40 CFR part 403; and achieve the following pretreatment standards for existing sources (PSES).

PRETREATMENT STANDARDS.—OILS SUBCATEGORY (mg/l)

Pollutant or pollutant parameter	Option 2		Option 3	
	Maximum for any one day	Monthly average	Maximum for any one day	Monthly average
1,1,1-Trichloroethane	1.6	1.0	0.18	0.12
2-Propanone	41	22	130	44
4-Chloro-3-Methyl Phenol	5.2	4.4	0.96	0.54
Aluminum	2.3	0.57	0.085	0.038
Barium	0.10	0.026	0.0027	0.0012
Benzene	9.0	6.8	1.8	1.4
Butanone	3.7	2.0	13	4.3
Cadmium	1.5	0.37	0.0046	0.0020
Chromium	2.2	0.54	0.010	0.0045
Copper	2.0	0.50	0.016	0.0073
Ethylbenzene	1.1	0.86	0.085	0.066
Iron	75	19	0.40	0.18
Lead	5.0	1.2	0.076	0.034
Manganese	5.4	1.3	0.043	0.019
Methylene Chloride	3.9	2.0	2.2	0.91
m-Xylene	1.6	1.2	0.074	0.058
Nickel	NA	NA	2.2	0.99
n-Decane	0.18	0.096	0.19	0.067
n-Docosane	0.18	0.096	0.19	0.067
n-Dodecane	0.18	0.096	0.19	0.067
n-Eicosane	0.18	0.096	0.19	0.067
n-Hexacosane	0.18	0.096	0.19	0.067
n-Hexadecane	0.18	0.096	0.19	0.067
n-Octadecane	0.18	0.096	0.19	0.067
n-Tetradecane	0.18	0.096	0.19	0.067
o&p-Xylene	0.86	0.65	0.045	0.035
Tetrachloroethene	0.23	0.14	0.032	0.016
Tin	0.82	0.20	0.12	0.056
Toluene	17	13	1.8	1.4
Tripropyleneglycol Methyl Ether	NA	NA	160	57
Zinc	NA	NA	0.54	0.24

NA= No pretreatment standards are developed: pollutant was determined not to ''pass-through.''

§ 437.27 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart that introduces pollutants into a publicly-owned treatment works (or any new source that introduces hazardous or non-hazardous waste into a POTW from off-site by tanker truck, trailer/roll-off bins, drums, barge or other form of shipment) must: Comply with 40 CFR part 403; and achieve pretreatment standards for new sources (PSNS). The limitations shall be the same as those specified in § 437.26 of this subpart for the pretreatment standards for existing sources (PSES).

Subpart C—Organics Treatment or Recovery Subcategory

§ 437.30 Applicability; description of the Organics Subcategory.

The provisions of this subpart are applicable to that portion of wastewater discharges from a centralized waste treatment facility that result from the treatment of, or recovery of organics from, organic-bearing waste received from off-site and CWT facility contact water.

§ 437.31 Specialized definitions.

The general definitions, abbreviations, and methods of analysis set forth in 40 CFR part 401 and § 437.01 shall apply to this subpart.

§ 437.32 Effluent limitations representing the degree of effluent reduction attainable by the application of best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

BPT EFFLUENT LIMITATIONS.—ORGANICS SUBCATEGORY (mg/l)

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
Conventional Pollutants:		
BOD_5	163	53
Oil and Grease	13	4.9
TSS	216	61
Priority and Non-Conventional Pollutants:		
1,1,1,2-Tetrachloroethane	0.013	0.011
1,1,1-Trichloroethane	0.021	0.018
1,1,2-Trichloroethane	0.21	0.17
1,1-Dichloroethane	0.037	0.027
1,2,3-Trichloropropane	0.016	0.014
1,2-Dibromoethane	0.014	0.011
1,2-Dichloroethane	0.031	0.025
2,3-Dichloroaniline	0.17	0.14
Butanone	1.1	0.84
2-Propanone	1.6	1.3
4-Methyl-2-Pentanone	0.093	0.074
Acetophenone	0.048	0.022
Aluminum	1.3	0.75
Antimony	0.42	0.24
Barium	3.8	2.2
Benzene	0.014	0.011

BPT EFFLUENT LIMITATIONS.—ORGANICS SUBCATEGORY (mg/l)—Continued

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
Benzoic Acid	0.49	0.24
Carbon Disulfide	0.16	0.11
Chloroform	0.56	0.48
Diethyl Ether	0.070	0.056
Hexanoic Acid	0.51	0.25
Lead	0.16	0.095
Methylene Chloride	1.1	0.97
Molybdenum	0.98	0.57
m-Xylene	0.014	0.011
o-Cresol	0.051	0.025
Phenol	0.79	0.38
Pyridine	0.71	0.24
p-Cresol	0.098	0.040
Tetrachloroethene	0.73	0.53
Tetrachloromethane	0.013	0.011
Toluene	0.014	0.011
trans-1,2-dichloroethene	0.15	0.11
Trichloroethene	1.2	0.86
Vinyl Chloride	0.071	0.052
Zinc	0.43	0.25

§ 437.33 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). The limitations for BOD_5. TSS, and Oil and Grease shall be the same as those specified in § 437.32 of this subpart for the best practicable control technology currently available (BPT).

§ 437.34 Effluent limitations representing the degree of effluent reduction attainable by the application of best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT). The limitations shall be the same as those specified in § 437.32 for the best practicable control technology currently available (BPT) for the priority and non-conventional pollutants listed.

§ 437.35 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS). These limitations apply to the organics treatment effluent. The limitations shall be the same as those specified in § 437.32 for the best practicable control technology currently available (BPT).

§ 437.36 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart that introduces pollutants into a publicly-owned treatment works (or any source that introduces hazardous or non-hazardous waste into a POTW from off-site by tanker truck, trailer/roll-off bins, drums, barge or other form of shipment) must: comply with 40 CFR part 403; and achieve the following pretreatment standards for existing sources (PSES).

PRETREATMENT STANDARDS—ORGANICS SUBCATEGORY (mg/l)

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
1,1,1,2-Tetrachloroethane	0.013	0.011
1,1,1-Trichloroethane	0.021	0.018
1,1,2-Trichloroethane	0.21	0.17
1,1-Dichloroethene	0.037	0.027
1,2,3-Trichloropropane	0.016	0.014
1,2-Dibromoethane	0.014	0.011
1,2-Dichloroethane	0.031	0.025
2,3-Dichloroaniline	0.17	0.14

PRETREATMENT STANDARDS—ORGANICS SUBCATEGORY (mg/l)—Continued

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
4-Methyl-2-Pentanone	0.093	0.074
Acetophenone	0.048	0.022
Aluminum	1.3	0.75
Antimony	0.42	0.24
Barium	3.8	2.2
Benzene	0.014	0.011
Benzoic Acid	0.49	0.24
Butanone	1.1	0.84
Carbon Disulfide	0.16	0.11
Chloroform	0.56	0.48
Diethyl Ether	0.070	0.056
Hexanoic Acid	0.51	0.25
Methylene Chloride	1.1	0.97
Molybdenum	0.98	0.57
m-Xylene	0.014	0.011
o-Cresol	0.051	0.025
p-Cresol	0.098	0.040
Tetrachloroethene	0.73	0.53
Tetrachloromethane	0.013	0.011
Toluene	0.014	0.011
trans-1,2-dichloroethene	0.15	0.11
Trichloroethene	1.2	0.86
Vinyl Chloride	0.071	0.052

§ 437.37 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart that introduces pollutants into a publicly-owned treatment works (or any new source that introduces hazardous or non-hazardous waste into a POTW from off-site by tanker truck, trailer/roll-off bins, drums, barge or other form of shipment) must: comply with 40 CFR part 403; and achieve pretreatment standards for new sources (PSNS). The limitations shall be the same as those specified in § 437.36 for the pretreatment standards for existing sources (PSES).

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