ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 441

[FRL–5922–2]

RIN 2040–AB97

Effluent Limitations Guidelines and Pretreatment Standards for the Industrial Laundries Point Source Category

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: This proposed rule would limit the discharge of pollutants into waters of the United States and publicly owned treatment works (POTWs) from existing and new industrial laundries by establishing pretreatment standards for existing and new sources (PSES and PSNS, respectively). These standards are based on a determination of the degree to which pollutants pass through or interfere with POTWs; the best available technology economically achievable for PSES; and best available demonstrated control technology for PSNS. EPA estimates the proposed rule would cost approximately $139.4 million ($1997 pretax total social cost) annually (posttax compliance costs to affected facilities would be $93.9 million annually) while it reduces the discharge of toxic and nonconventional pollutants to POTWs by approximately 13 million pounds resulting in reduced discharges of 5 million pounds per year of such pollutants as well as significant amounts of other conventional pollutants per year to waters of the U.S. This proposed rule would also reduce the impacts of these discharges to aquatic life and human health and reduce potential interference with POTW operations. EPA is reserving effluent limitations guidelines for direct dischargers since EPA has identified no direct dischargers and has no means to evaluate performance to determine the appropriate level of control. If any such discharges were to occur, they would be subject to limitations set on a best professional judgement basis.

DATES: EPA must receive comments on the proposal by February 17, 1998.

EPA will conduct a public hearing on pretreatment standards on January 15, 1998 from 9am EST to 12 noon.

ADDRESSES: Submit comments in writing to W–97–14, Ms. Marta Jordan, Engineering and Analysis Division (4303), U.S. EPA, 401 M. St. SW, Washington, DC 20460. Please submit any references cited in your comments. EPA requests an original and three copies of your comments and enclosures (including references). Commenters who want EPA to acknowledge receipt of their comments should enclose a self-addressed, stamped envelope. No facsimiles (faxes) will be accepted. For additional information on how to submit electronic comments see **SUPPLEMENTARY INFORMATION** ''How to Submit Comments''.

The public record for this proposed rulemaking has been established under docket number W–97–14 and is located in the Water Docket, Room M2616, 401 M. St. SW, Washington, DC 20460. The record is available for inspection from 9:00 a.m. to 4:00 p.m., Monday through Friday, excluding legal holidays. For access to the docket materials call (202) 260–3027 to schedule an appointment. You may have to pay a reasonable fee for copying.

EPA will conduct a public hearing on pretreatment standards in EPA's Auditorium, Waterside Mall, 401 M. St. SW, Washington, DC. Persons wishing to present formal comments at the public hearing should have a written copy for submittal.

FOR FURTHER INFORMATION CONTACT: For technical information contact Ms. Marta E. Jordan at (202) 260–0817. For economic information contact Mr. George Denning at (202) 260–7374.

SUPPLEMENTARY INFORMATION:

Regulated Entities

This proposed rule would apply to industrial laundries. An industrial laundry is any facility that launders industrial textile items from off-site as a business activity (*i.e.*, launders industrial textile items for other business entities for a fee or through a cooperative arrangement). Either the industrial laundry facility or the off-site customer may own the industrial laundered textile items. This definition includes textile rental companies that perform laundering operations. For this proposed rule, laundering means washing with water, including water washing following dry cleaning. This proposed rule would not apply to laundering exclusively through dry cleaning. Industrial textile items include, but are not limited to, industrial: shop towels, printer towels/rags, furniture towels, rags, mops, mats, rugs, tool covers, fender covers, dust-control items, gloves, buffing pads, absorbents, uniforms, filters and clean room items. If any of these items otherwise considered to be industrial textile items are used only by hotels, hospitals, or restaurants, they are not industrial items and would not be covered by this rule.

Category	Examples of regulated entities
Industry	Facilities that launder industrial textile items from off-site as a business activity.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated by this proposed action. To determine whether your facility is regulated by this proposed action, you should carefully examine the Industrial Laundries Definition section of the proposed rule. If you have any questions regarding the applicability of this proposed action to a particular entity, consult the person(s) listed in the ''For Further Information Contact'' section of this proposed rule.

The proposed rule would not apply to discharges from: on-site laundering at industrial facilities, laundering of industrial textile items originating from the same business entity, and facilities that exclusively launder linen items, denim prewash items, new items (*i.e.*, items directly from textile manufacturers, not yet used for intended purpose), any other laundering of hospital, hotel, or restaurant items or any combination of these items. This proposed rule would apply to hotel, hospital, or restaurant laundering of industrial textile items from off-site industrial users, (*e.g.*, shop towels). In addition, this proposed rule would not apply to the discharges from oil-only treatment of mops.

By linen items, EPA means: sheets, pillow cases, blankets, bath towels and washcloths, hospital gowns and robes, tablecloths, napkins, tableskirts, kitchen textile items, continuous roll towels, laboratory coats, household laundry (such as clothes, but not industrial uniforms), executive wear, mattress pads, incontinence pads, and diapers. This list is meant to be all inclusive. By linen items, EPA does not mean to specify a particular type of fabric, but instead the types of items listed above.

For facilities covered under the Industrial Laundry definition, wastewater from all water washing operations would be covered, including the washing of linen items as long as these items do not constitute 100 percent of the items washed.

Exclusions

Under Pretreatment Standards for Existing Sources (PSES), EPA is proposing to exclude existing facilities that launder less than one million pounds of incoming laundry per calendar year and less than 255,000 pounds of shop and/or printer towels/rags per calendar year. EPA proposes this exclusion in order to eliminate unacceptable disproportionate adverse economic impacts on these smaller facilities. The excluded facilities would be disproportionately adversely affected relative to all facilities covered by this proposed rule, as discussed further below. If any excluded facility launders one million pounds or more of incoming laundry per calendar year or 255,000 pounds or more of shop and/or printer towels/rags per calendar year, it will no longer be excluded from the standards. All of the excluded facilities are small entities under the Small Business Administration (SBA) definition of small entity. The excluded facilities account for less than three percent of the pollutant removals from the waters of the U.S. than would occur if the proposed rule were implemented without the exclusion.

Under Pretreatment Standards for New Sources (PSNS), EPA is proposing no exclusion since the economic projections indicate that there would be no barrier to entry as a result of the proposed new source standards.

Supporting Documentation

The basis for this proposed rule is detailed in five documents, each of which is supported in turn by additional information and analyses in the rulemaking record. EPA's technical foundation for the regulation is presented in the Technical Development Document for Proposed Pretreatment Standards for Existing and New Sources for the Industrial Laundries Point Source Category. (Hereafter, ''Development Document''; EPA Report No. EPA–821–R–97–007). EPA's economic analysis is presented in the Economic Assessment for Proposed Pretreatment Standards for Existing and New Sources for the Industrial Laundries Point Source Category. (Hereafter, ''Economic Assessment''; EPA Report No. EPA–821–R–97–008) and the Cost-Effectiveness Analysis for Proposed Pretreatment Standards for Existing and New Sources for the Industrial Laundries Point Source Category (Hereafter, ''Cost-Effectiveness Analysis''; EPA Report No. EPA–821–R–97–005). EPA's statistical analysis is presented in the Statistical Support Document for Proposed Pretreatment Standards for Existing and New Sources for the Industrial Laundries Point Source Category. (Hereinafter, ''Statistical Support Document''; EPA Report No. EPA–821–R–97–006). EPA's environmental benefits analysis is presented in the Water Quality Benefits Analysis for Proposed Pretreatment Standards for Existing and New Sources for the Industrial Laundries Point Source Category. (Hereinafter, ''WQBA''; EPA Report No. EPA–821–R–97–009). These background documents are available from the Office of Water Resource Center, RC–4100, at the U.S. EPA, Washington, DC address shown above; telephone (202) 260–7786 for the voice mail publication request line.

How to Submit Comments

Comments may be filed electronically to Jordan.Marta@epamail.epa.gov. Electronic comments must be submitted as an ASCII or WordPerfect 6.1 file avoiding the use of special characters and any form of encryption. Electronic comments must be identified by the docket number W–97–14 and must be received by midnight of February 17, 1998. Electronic comments on this notice may be filed online at many Federal Depository Libraries. No confidential business information (CBI) should be sent via e-mail.

Protection of Confidential Business Information

EPA notes that many documents in the record supporting the proposed rule have been claimed as confidential business information (CBI) 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 CBI because release of this information could indirectly reveal information claimed to be confidential.

Some facility-specific data, claimed as CBI, are available to the company that submitted the information. To ensure that all CBI is protected in accordance with EPA regulations, any requests for company-specific data should be submitted to EPA on company letterhead and signed by a responsible official authorized to receive such data. The request must list the specific data requested and include the following statement, ''I certify that EPA is authorized to transfer confidential business information submitted by my company, and that I am authorized to receive it.''

Organization of this Document

I. Legal Authority

This regulation is being proposed under the authority of sections 301, 304, 306, 307, 308, and 501 of the Clean

Water Act (CWA), 33 U.S.C. sections 1311, 1314, 1316, 1317, 1318, and 1361.

II. Summary of Proposed Pretreatment Standards

EPA proposes to establish ''Pretreatment Standards for Existing Sources'' (PSES), and ''Pretreatment Standards for New Sources'' (PSNS). Under PSES, EPA is proposing pretreatment standards for the entire facility wastestream based on Chemical Precipitation treatment of the portion of facility wastewater generated by laundering the industrial items only (CP–IL). EPA's data shows that these standards can be met by treating only this portion of wastewater. EPA finds this option to be the best available technology economically achievable based on the data collected during development of the proposed rule. CP–IL also provides effective treatment to minimize/prevent pass through and interference at POTWs. Under PSNS, EPA is also proposing standards based on Chemical Precipitation treatment of the portion of facility wastewater generated only by laundering of the industrial items since it is the best available demonstrated technology for pretreatment and the costs are not projected to be a barrier to entry.

EPA is not developing effluent limitations guidelines and New Source Performance Standards for direct dischargers because EPA has identified no direct dischargers and there is no available information with which to accurately determine ''Best Available Technology Economically Achievable'' (BAT) or ''Best Available Demonstrated Control Technology'' (BADCT) performance for direct dischargers. Proposed limitations based on pretreatment control technologies would not likely represent best available technology or best available demonstrated technology for direct dischargers because the treatment technologies at existing industrial laundries that EPA evaluated were not designed for treatment prior to discharging directly to surface waters. The type or design (*i.e.*, size) of treatment would not represent BAT because in all cases facilities rely on additional treatment at POTWs. For the pollutants evaluated in this proposed rule, the POTW's biological treatment removes from 4%–99% depending on the pollutant. Because EPA has not identified any POTWs receiving a very large proportion of their load (70–100%) from an industrial laundry, a determination of direct discharge effluent limitations cannot be performed. Thus, EPA is reserving effluent limitations guidelines and standards for direct dischargers in this rulemaking.

This proposed rule would not apply to discharges from: on-site laundering at industrial facilities, laundering of industrial textile items originating from the same business entity, and facilities that exclusively launder linen items, denim prewash items, new items (*i.e.*, items directly from textile manufacturers, not yet used for intended purpose), any other laundering of hotel, hospital, or restaurant items or any combination of these items. This proposed rule would apply to hotel, hospital, or restaurant laundering of industrial textile items. In addition, this proposed rule would not apply to laundering exclusively through dry cleaning and the oil-only treatment of mops.

The rule also would not apply to certain small industrial laundries; see ''Regulated Entities'' discussion above, industrial laundries definition, and rule text below.

Pursuant to CWA section 307(b)(1), indirect dischargers are required to comply with pretreatment standards for existing sources by three years of the effective date of the final rule. For purposes of this rule, indirect dischargers must comply with this rule by three years after the date of publication of the final rule.

III. Background

A. Clean Water Act Statutory Requirements

The objective of the Clean Water Act (CWA) is to ''restore and maintain the chemical, physical, and biological integrity of the Nation's waters.'' CWA section 101(a). To assist in achieving this objective, EPA issues effluent limitation guidelines, pretreatment standards, and new source performance standards for industrial dischargers. These standards relevant to this rulemaking are summarized here:

1. Best Available Technology Economically Achievable (BAT)—Section 304(b)(2) of the CWA

BAT effluent limitations guidelines apply to direct dischargers of toxic and nonconventional pollutants. In general, they represent the best existing economically achievable performance of plants in the industrial subcategory or category. The factors considered in assessing BAT include the age of equipment and facilities involved, the process employed, potential process changes, non-water quality environmental impacts, including energy requirements, and such factors as the Administrator deems appropriate. EPA retains considerable discretion in assigning the weight to be accorded these factors. An additional statutory factor considered in setting BAT is economic achievability. Generally, the achievability is determined on the basis of total costs to the industrial subcategory and the rule's effect on the overall industry financial health. Where existing performance is uniformly inadequate, BAT may be 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.

2. New Source Performance Standards (NSPS)—Section 306 of the CWA

NSPS are based on the best available demonstrated control technology (BADCT) and apply to all pollutants (conventional, nonconventional, and toxic). New facilities have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. Under NSPS, EPA is to consider the best demonstrated process changes, in-plant controls, and end-of-process control and treatment technologies that reduce pollution to the maximum extent feasible. 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.

3. Pretreatment Standards for Existing Sources (PSES)—Section 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 (POTWs). 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.

4. Pretreatment Standards for New Sources (PSNS)—Section 307(b) of the CWA

Like PSES, PSNS are designed to prevent the discharges of pollutants that pass through, interfere with, or are incompatible with the operations of POTWs. 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.

5. Best Management Practices (BMPs)

Section 304(e) of the CWA gives the Administrator the authority to publish regulations, in addition to the effluent limitations guidelines and standards listed above, to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage that the Administrator determines may contribute significant amounts of pollutants. Some industrial laundry facilities have BMPs in place and these BMPs are further discussed in Sections III.B. and VI.C.1. below and in more detail in the Development Document.

6. CWA Section 304(m) Requirements

Section 304(m) of the CWA requires EPA to establish schedules for (I) reviewing and revising existing effluent limitations guidelines and standards and (ii) promulgating new effluent limitations. On January 2, 1990, EPA published an Effluent Guidelines Plan (55 FR 80), in which schedules were established for developing new and revised guidelines for several industry categories, including the industrial laundries point source category. Natural Resources Defense Council, Inc., challenged the Effluent Guidelines Plan in a suit filed in the U.S. District Court for the District of Columbia, (*NRDC et al* v. *Reilly,* Civ. No. 89–2980). On January 31, 1992 the Court entered a consent decree (the ''304(m) Decree''), which establishes schedules for, among other things, EPA's proposal and promulgation of effluent guidelines for a number of point source categories, including the industrial laundries point source category. The most recent Effluent Guidelines Plan Update was published in the **Federal Register** on February 26, 1997 (62 FR 8726). This plan requires, among other things, that EPA propose the Industrial Laundries Effluent Limitations Guidelines and Pretreatment Standards by September 1997 and take final action on the Guidelines and Standards by June 1999.

B. Pollution Prevention Act

The Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13101 *et seq.*, Pub. L. 101–508, November 5, 1990) ''declares it to be the national policy of the United States that pollution should be prevented or reduced whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or release into the environment should be employed only as a last resort * * *'' (Sec. 6602; 42 U.S.C. 13101(b)). In short, preventing pollution before it is created is preferable to trying to manage, treat or dispose of it after it is created. The PPA directs the Agency to, among other things, ''review regulations of the Agency prior and subsequent to their proposal to determine their effect on source reduction'' (Sec. 6604; 42 U.S.C. 13103(b)(2)). This effluent guideline was reviewed for its incorporation of pollution prevention.

According to the PPA, source reduction reduces the generation and release of hazardous substances, pollutants, wastes, contaminants or residuals at the source, usually within a process. The term source reduction ''include[s] equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training or inventory control. The term ''source reduction'' does not include any practice which alters the physical, chemical, or biological characteristics or the volume of a hazardous substance, pollutant, or contaminant through a process or activity which itself is not integral to or necessary for the production of a product or the providing of a service.'' 42 U.S.C. 13102(5). In effect, source reduction means reducing the amount of a pollutant that enters a waste stream or that is otherwise released into the environment prior to out-of-process recycling, treatment, or disposal.

EPA has undertaken several pollution prevention related activities involving the industrial laundries industry. Part of the efforts were Agency wide, including the Office of Research and Development (ORD) and EPA's Region 9, while other efforts were included as part of the engineering studies in the development of the proposed rule.

The Agency-wide efforts, called the Industrial Pollution Prevention Project (IP3), were multi-media and examined how industrial pollution prevention can be incorporated into EPA's regulatory framework and how the pollution prevention ethic can be promoted throughout industry, the public and government. A report summarizing the results of these efforts, entitled ''Summary Report of the Industrial Pollution Prevention Project (IP3),'' EPA–820-R–95–007, July 1995, included the results of two case studies involving industrial laundries. More detailed discussions of the two studies are contained in the individual reports, ''Pollution Prevention at Industrial Laundries: Assessment Observations and Waste Reduction Options,'' EPA–820-R–95–010, July 1995, and ''Pollution Prevention at Industrial Laundries: A Collaborative Approach in Southern California,'' EPA–820-R–95–012. These studies identified a number of ''best management practices'' (BMP's) and water and energy savings technologies as potential pollution prevention practices at industrial laundries.

Similarly, during the engineering study phase of the development of the proposed rule, a number of potential pollution prevention practices and technology applications were identified. Discussion of the pollution prevention technologies and practices and their uses with respect to this proposed rule are contained later in Section VI of this preamble and in the Development Document.

C. Industrial Laundries Definition

An industrial laundry is any facility that launders industrial textile items from off-site as a business activity (*i.e.*, launders industrial textile items for other business entities for a fee or through a cooperative arrangement). Either the industrial laundry facility or the off-site customer may own the industrial laundered textile items. This definition includes textile rental companies that perform laundering operations. For this proposed rule, laundering means washing with water, including water washing following dry cleaning. This proposed rule would not apply to laundering exclusively through dry cleaning. Industrial textile items include, but are not limited to industrial: shop towels, printer towels/rags, furniture towels, rags, mops, mats, rugs, tool covers, fender covers, dust-control items, gloves, buffing pads, absorbents, uniforms, filters and clean room garments. If any of these items are used by hotels, hospitals, or restaurants, they are not industrial items.

The proposed rule would not apply to discharges from: on-site laundering at industrial facilities, laundering of

industrial textile items originating from the same business entity, and facilities that exclusively launder linen items, denim prewash, new items (*i.e.* items directly from textile manufacturers, not yet used for intended purpose), any other laundering of hotel, hospital, or restaurant items or any combination of these items. This proposed rule would apply to hotel, hospital, or restaurant laundering of industrial textile items. In addition, this rule would not apply to discharges from the oil-only treatment of mops.

The focus of this rule is on industrial laundries that function independently of other industrial activities that generate wastewater. The reason EPA is excluding from applicability on-site laundries is that EPA believes it is more appropriate to address on-site laundry discharges at industrial facilities as part of the effluent from the facility as a whole, for several reasons. First, many such facilities commingle laundry wastewater with wastewater from other processes. Second, EPA anticipates that contaminants removed from laundered items can best be treated with process wastewater containing similar contaminants. EPA has already established effluent limitations guidelines and standards for 51 industries (see Development Document). These regulations generally apply to wastewater generated from these industries, including on-site laundering. For example, the OCPSF effluent guidelines control discharges from garment laundering at OCPSF facilities. For industries not yet covered by effluent limitations guidelines and standards, it makes sense to examine these industries and the wastewater treatment processes at these industrial facilities in the context of the entire industrial facility, not just the laundering portion of the facility. Addressing on-site laundering discharges along with other industrial discharges in an industry allows EPA to examine all of the production and processing equipment used by the industry, all of the discharges in an industry, all the potential wastewater treatment applicable to the industry, and all of the economic impacts of any such national regulation for the industrial subcategory as a whole. This is consistent with EPA's efforts to make common-sense regulatory decisions.

EPA has also considered concerns expressed by industrial launderers that by excluding on-site laundering of industrial items, EPA has created an incentive for businesses to switch from using industrial launderers covered by the rule to on-site laundering. EPA does not believe this will happen because the average increased price per pound of laundering as a result of the proposed rule ($0.003 per pound) is so small that the cost of buying the equipment and operating the equipment on-site (capital, operation and maintenance including labor, chemicals, water) to do on-site laundering rather than using industrial launderers would not be justified. Furthermore, an increase in pollutant loads at the facility may necessitate additional changes in the facility's NPDES permit if it is a direct discharger or its pretreatment permit issued by the local POTW if it is an indirect discharger. See Section 8 of the EA and Chapter 6 of the Development Document.

EPA also looked at the types of items that were water washed to determine if any specific items should be excluded from regulation. EPA reviewed the available data to determine differences in types of items laundered, and determined that wastewater characteristics of denim prewash items and linen items are significantly different from the wastewater characteristics of industrial items, based on a statistical comparison of untreated wastewater pollutant concentrations. The pollutant concentrations in wastewater from laundering denim prewash items and linen items are lower on average than industrial item wastewater concentrations. The available data indicate that the pollutant concentrations are lower for denim prewash items and linen items, and POTWs can adequately treat wastewater streams generated from these types of items. Therefore, EPA is excluding facilities discharging 100 percent denim prewash items and linen item wastewater from the scope of this proposed rule.

EPA is excluding new items from regulation since these items are laundered prior to being used for their intended purpose and therefore may not contain pollutants at concentrations that are incompatible with or interfere with POTWs.

The rule also would not apply to certain small facilities; see ''Regulated Entities'' discussion above and rule text below.

D. Summary of Public Participation

EPA encouraged full public participation in developing the proposed rule. During the data gathering activities that preceded development of the proposed rule, EPA met with industry trade associations, state and local governments, and industrial laundry and linen facilities. EPA has also participated in numerous industry talks and meetings. To further public participation on this rule, on March 4, 1997, EPA held a public meeting about the content and status of the proposed regulation. The meeting was announced in the **Federal Register** (62 FR 3849; January 27, 1997) and information packages were distributed at the meeting. The public meeting also gave interested parties an opportunity to provide information, data, and ideas or comments on key issues.

During the development of the proposed rule, EPA sent a screener questionnaire to assess the number of facilities that could potentially be considered industrial laundries, and followed this with a detailed questionnaire to a stratified random sample of the industry under authority of section 308 of the CWA. During the design of the detailed questionnaire, EPA met with industry trade associations to discuss EPA's plans to issue a questionnaire; and distributed several drafts of the questionnaire to both the industry trade associations and the Natural Resources Defense Council, Inc., for review and comment. The detailed questionnaire was subsequently completed, reviewed and approved by the Office of Management and Budget (OMB) and sent to industrial laundry facilities. Two trade associations, the Textile Rental Services Association of America (TRSA) and Uniform and Textile Service Association (UTSA) sent letters to OMB supporting EPA's data collection efforts, particularly the detailed questionnaire. EPA held workshops for the public on how to complete the detailed questionnaire.

EPA also sent a screener questionnaire to hotels, hospitals, and prisons to assess whether these facilities should be included in the scope of the industrial laundries regulation. Also, following receipt of the detailed questionnaire responses and as part of the technology performance data gathering effort, EPA requested detailed monitoring data from 37 facilities that had already received the detailed questionnaire so that data specific to these facilities could be evaluated as part of EPA's analyses.

IV. Description of the Industry

Industrial laundry facilities are located in all 50 states and all 10 EPA regions. By State, the largest number of industrial laundries are in California. By EPA Region, the largest concentration of industrial laundries is in Region V. Most of the industrial laundering facilities are in large urban areas. EPA estimates that there are 1,747 facilities nationwide.

Industrial laundries vary in size from one- or two-person facilities to large corporations that operate many facilities

with hundreds of employees nationwide. Annual laundry production per facility ranges from 44,100 to 32,620,000 pounds.

Facilities launder most items using water washing. Water washing involves washing items in water. Some facilities launder items using dry cleaning, which involves washing items in an organic solvent. Facilities that only dry clean (with solvent washing) are not covered by this proposed rule. Dry cleaning is not a water washing process and generates little, if any, wastewater, therefore EPA excluded this process from this proposed rule. The pollutants generated in the dry cleaning operation are recovered from the solvent through distillation and then disposed of off-site as a hazardous waste. Air emissions from dry cleaning may be controlled by EPA in Maximum Achievable Control Technology (MACT) standards issued under the Clean Air Act. In some cases, facilities combine the two processes to wash items that have large amounts of both water soluble and organic-solvent soluble soils. When water washing and dry cleaning are performed in series without drying the items between the solvent and water phases, the process is called dual-phase washing. The order in which these processes are performed depends on the solvent used, type of soil, and drying energy requirements. Typically, in dual-phase washing, the solvent wash occurs prior to the water wash; none of the facilities responding to the detailed questionnaire reported performing water washing followed by solvent wash. Facilities performing dual-phase washing of industrial items are covered by this proposed rule if they process industrial textile items.

At some facilities, dust mops are not water washed, but are cleaned and treated with heated oil instead of water. After cleaning, the oil is extracted from the mops, leaving them coated with the desired quantity of oil. Since the oil treatment of mops is not a water washing process and generates no wastewater, EPA excluded this process from this proposed regulation.

A more detailed description of the industry is included in the Industrial Laundries Development Document contained in the record for this proposed rule.

V. Summary of Data Gathering Efforts

EPA has collected data from various sources. EPA has collected industry-supplied data from industrial laundries through the screener questionnaires, detailed questionnaires and the detailed monitoring data requests. EPA has also collected data through site visits and sampling activities. EPA distributed a screener questionnaire in 1993 and a supplemental screener questionnaire in 1994 to develop the scope of the rule, identify the population of the industry, and select facilities to receive the more-detailed questionnaire. Also, in response to comments from industrial laundry and linen trade associations, EPA mailed 100 screener questionnaires in January 1995 to hospitals, hotels, and prisons, which potentially operate on-site laundries.

The industrial laundries industry detailed questionnaires were sent to a stratified random sample of facilities that were identified from two sources: Trade association mailing lists and information obtained from Dun & Bradstreet. These sources produced a list of 3,726 possible facilities generating industrial laundry wastewater. Based on responses to the screener questionnaires, EPA estimated there were 1,960 facilities generating industrial laundry wastewater.

To minimize the burden on the respondents to the trade association screener questionnaire, EPA chose to send detailed questionnaires to only a selected sample group of facilities. EPA grouped facilities by the type of items they laundered, their 1992 revenues, and the type of wastewater treatment they had in place. The Dun & Bradstreet detailed questionnaire (which was identical to the trade association detailed questionnaire in content) was based on groupings of Standard Industrial Classification codes of 7218 (industrial laundering) and 7213 (linen supply servicing). This technique is known as stratification of the population. Depending on the number of facilities within the strata, EPA either censused or chose a random sample of facilities within each strata. The chosen facilities were given survey weights based on a facility's probability of selection. If the stratum was censused, those facilities represent themselves only. Otherwise, the facility is given a survey weight that allows them to represent themselves and other facilities, within that stratum, that were not selected to receive a detailed questionnaire.

Of the 1,960 facilities generating industrial laundry wastewater, 255 received detailed questionnaires and were used to develop survey weights. After analyzing responses to the questionnaires, EPA chose to exclude facilities that launder 100% linen items. EPA was left with 193 complete responses representing 1,747 industrial laundry facilities nationwide. After examining economic impacts, EPA then decided to exclude existing facilities that launder less than one million pounds of incoming laundry per calendar year and less than 255,000 pounds of shop and/or printer towels/rags per calendar year. Therefore, EPA estimates the total number of facilities that currently would be subject to the standards in this proposed rule to be 1,606 facilities. All analyses of impacts of the rule are based on 193 questionnaire respondent facilities and then the survey weight is applied to develop national estimates for all facilities. See the Statistical Support Document for the Industrial Laundries Pretreatment Standards for additional information on the development of survey weights.

The responses to the detailed questionnaires provided EPA with detailed technical, economic, and financial information from industrial laundry and linen supply facilities. EPA used the information reported to develop an industry profile, characterize industry production and water use, develop pollutant loadings and reductions estimates, and develop compliance cost estimates.

In 1995, EPA mailed out 37 requests for detailed monitoring data to a selected group of industrial laundries. EPA identified this selected group of facilities because they indicated in their initial responses in the detailed questionnaires that they had available monitoring data that EPA determined might be useful in characterizing performance of certain treatment technologies. EPA has also collected data through site visits and sampling activities. EPA conducted more than 30 site visits between 1992 and 1997 to collect information about industrial laundry processes, water use practices, pollution prevention practices, wastewater treatment technologies, and waste disposal methods. EPA conducted eight sampling episodes to characterize industrial laundry wastewaters and to assess treatment technology effectiveness. A more detailed description of these data collection efforts can be found in Chapter 3 of the Industrial Laundries Development Document.

VI. Development of the Pretreatment Standards

A. Wastewater Characteristics

Industrial laundry facilities generate wastewater discharges from water washing industrial textile items. All of the facilities identified in the data gathering phase of this rulemaking were found to be indirect dischargers and discharge all laundry process wastewater to publicly owned treatment works.

The detailed questionnaires requested information on the types of analytes tested during wastewater sampling activities performed at the facilities in 1993. The facilities reported analytes in the following categories: oil and grease/total petroleum hydrocarbons (O&G/TPH), conventional pollutants, metals, organics, and pesticides.

Based on data collected through the detailed questionnaires and sampling and analysis of industry wastewater, EPA has determined that 67% of the total industry raw wastewater toxic pollutant loading is generated from laundering of shop and printer towels. Shop and printer towels represent 80% of the raw wastewater toxic pollutant loading from industrial laundry items.

B. Selection of Pollutant Parameters To Be Regulated

1. Pollutants Regulated

EPA collected data to determine the conventional, toxic/priority, and nonconventional pollutants present in industrial laundries wastewaters. EPA analyzed industrial laundries wastewater for 315 pollutants consisting of four conventional, 98 toxic or priority, and 213 nonconventional organic and metal pollutants, during the 1993–1996 industrial laundries sampling program. This section of the preamble discusses how EPA determined the pollutants to be regulated under the selected option. Other options have the same list of regulated pollutants, although EPA's rationale for regulating these pollutants varies depending on the option. This is discussed in Chapter 7 of the Development Document.

EPA reduced the list of 315 pollutants to 72 pollutants for further consideration for control using the following criteria: eliminating pollutants never detected in laundry wastewater, pollutants detected only a small percentage of the time in laundry wastewater (less than 10% of the time), pollutants detected in source water at concentrations similar to concentrations in laundry wastewater, pollutants analyzed for screening purposes, but not analyzed in a quantitative manner due to a lack of acceptable analytical methods, and pollutants likely to be adequately regulated on a case-by-case basis by POTWs using the current regulations on controlling pass through and interference. (See Development Document, Chapter 7).

For the selected option (CP-IL), the 72 pollutants were subsequently reduced to 59 pollutants by eliminating n-alkanes (11 separate pollutants), which make up part of TPH as measured by SGT-HEM, as well as two pollutants used as treatment chemicals (Aluminum and Iron). EPA also eliminated 31 pollutants from regulation because these pollutants are not removed by the treatment technology for the selected option or because these pollutants were present below treatable concentrations in wastewaters influent to the treatment system and therefore would not be substantially removed by the treatment technology. For purposes of this rule, EPA considers treatable concentrations to be greater than 10 times the method detection level. Based on these analyses, this left EPA with 28 pollutants under consideration for regulation.

Before proposing pretreatment standards, EPA examines whether the pollutants discharged by the industry pass through a POTW to waters of the U.S. or interfere with the POTW operation or sludge disposal practices. Generally, in determining whether pollutants pass through a POTW, EPA compares the percentage of the pollutant removed by well-operated POTWs achieving secondary treatment with the percentage of the pollutant removed by facilities meeting BAT effluent limitations. In this case, where only pretreatment standards are being considered, EPA compared the POTW removals with removals achieved by indirect dischargers using the candidate technology that satisfies the BAT factors. For specific pollutants, such as volatile organic compounds or highly biodegradable compounds, EPA may use other means to determine pass through. For volatile compounds, a volatile override test based on the Henry's Law Constant is used to determine pass through. If a pollutant has a Henry's Law Constant greater than 2.4 x 10–5 atm-m^3/mole, it is generally determined to pass through because it is assumed to be sufficiently volatile such that a significant portion of the compound would not be treated by the POTW. For highly biodegradable compounds, the pass through determination may be conducted using engineering modeling.

The primary source of POTW data was the Fate of Priority Pollutants in Publicly Owned Treatment Works (also known as the 50 POTW Study). Since the 50 POTW Study did not cover all the pollutants detected in industrial laundry wastewater, EPA used additional data from the Risk Reduction Engineering Laboratory (RREL) database. The RREL database EPA used included data relating to activated sludge and aerated lagoons reflecting POTW secondary treatment from domestic and industrial wastewater sources.

EPA eliminated three conventional pollutants (O&G, BOD, and TSS) from regulation without conducting the percent removal comparison because EPA believes POTWs adequately treat these parameters in the concentrations found in IL wastewaters. Thus, these parameters are deemed to not pass through. EPA conducted the pass through analysis on the remaining 25 pollutants.

For this proposed rule, the percent removal comparison between indirect dischargers using the candidate PSES-BAT technology and POTWs and the volatile override test were used to determine pass through. Since EPA has not identified any direct dischargers, EPA used PSES percent removals for evaluating pass through. EPA finds that a pollutant passes through when the average percentage removed nationwide by well-operated POTWs (those meeting secondary treatment requirements) is less than the percentage removed by facilities meeting candidate PSES standards for that pollutant.

EPA eliminated POTW and PSES data from the analysis where the influent levels for the pollutant were less than 10 times the method detection level because EPA reasoned that low removals may simply reflect low influent rather than ineffective treatment. For pollutants for which none of the POTW influent concentrations exceeded 10 times the method detection level, in order to conduct the analysis using the 50 POTW Study, EPA modified its editing criteria to eliminate data where the influent values were less than 20 µg/L or the method detection level. EPA selected 20 µg/L or the method detection level because for pollutants with low influent concentrations, *i.e.*, less than 20 µg/L or the method detection level, the effluent concentrations were consistently below the detection level and could not be precisely quantified.

EPA then averaged the remaining influent data and the remaining effluent data. The percent removals achieved for each pollutant were determined from these averaged influent and effluent levels. This percent removal was then compared to each of the PSES treatment technology options.

Of the 25 pollutants that were evaluated, 23 were found to pass through. A more detailed description of the results of the pass through analysis is provided in Chapter 7 of the Development Document.

The remaining 23 pollutants were reviewed in an attempt to streamline the control and compliance process. To do this, EPA determined whether certain pollutants could serve as ''indicator''

pollutants for others. Because many of the pollutants originate from similar sources and have similar treatability properties, setting standards for some ''indicator'' pollutants would effectively control a broader set of pollutants. Based on this analysis, EPA determined that setting limits for 11 pollutants would control the remaining 23 pollutants. The list of 11 pollutants is as follows: SGT-HEM, Copper, Lead, Zinc, Bis(2-Ethylhexyl) Phthalate, Ethylbenzene, Naphthalene, Tetrachloroethene, Toluene, m-Xylene and o&p-Xylene. The limitations for the Xylenes parameters contained in the proposed rule are based on data obtained from EPA sampling episodes using EPA Method 1624 and detailed monitoring questionnaires which reported EPA Method 624 which are contained in Part 136 but not identified for use in measuring Xylenes. A more detailed description of the selection of the regulated pollutants and the pollutants controlled by regulation of these pollutants is in Chapter 7 of the Development Document.

EPA is proposing to establish PSES and PSNS that would regulate SGT-HEM as an indicator pollutant controlling the discharge of toxic and nonconventional pollutants. Chemical precipitation technology has shown that the SGT-HEM limitation is a good indicator reflecting the correct operation of the control technology that results in removals of both organic and metal compounds. EPA is regulating SGT-HEM rather than total recoverable oil and grease since SGT-HEM more closely corresponds to the toxic portion of oil and grease in industrial laundry wastewaters, while POTWs can generally treat the other portions of oil and grease consisting of vegetable oils, animal fats, soaps, etc. Also, since petroleum-based oils degrade slowly at the POTWs, if sufficient quantities exist in the influent, it can pass through the treatment plant as discussed in Pretreatment of Industrial Wastes prepared by the Water Environment Federation, 1994. The SGT-HEM measurement used to develop the limitations is based on the proposed analytical method 1664 (Silica Gel Treated N-Hexane Extractable Material; ''SGT-HEM'') (61 FR 1730; January 23, 1996) and not on the current method contained in 40 CFR Part 136, which uses freon extraction. The data collected from the detailed monitoring questionnaires are based on the current Part 136 method of measuring TPH, while the EPA sampling data are based on the proposed Method 1664, which measures SGT-HEM. EPA proposes to regulate SGT-HEM based on calculating limitations with EPA sampling data only. EPA is soliciting comment or information on any additional data regarding the use of this analytical method.

EPA is also regulating SGT-HEM based on interference. Petroleum-based oils have a low rate of biodegradation at the POTWs. These oils tend to coat the biological organisms, preventing or reducing oxygen transfer and degradation of other organics as discussed in Pretreatment of Industrial Wastes prepared by the Water Environment Federation, 1994. Pretreatment coordinators have indicated that interference can be a problem at POTWs as discussed further in Section IX.G.

2. Pollutants Not Regulated

Tables 7–3,7–4, and 7–5 in Chapter 7 of the Development Document list the pollutants EPA proposes not to regulate and the bases for these decisions.

C. Available Treatment Technologies

1. Current Practice

Facilities in the detailed questionnaire reported having a range of wastewater treatment equipment from no treatment to well-operated Chemical Precipitation (CP) or Dissolved Air Flotation (DAF) systems. Many industrial laundry facilities currently have no treatment (approx. 87%). Although many facilities have no treatment, some facilities have reported that they have best management practices in place to limit pollution. Many laundries have adopted the practice of requiring incoming laundry to have no free liquids. Liquids may be removed through various mechanisms at the laundry or by the customer (e.g., hand wringing, mechanical wringing, or centrifuging).

EPA, based on responses to the detailed questionnaire, considered several technologies to develop standards for this industry. The major wastewater treatment technologies reported included: Chemical Emulsion Breaking (CEB), DAF, and CP. Other technologies reported included: screening, equalization, gravity settling, sludge dewatering, pH adjustment, ultrafiltration, centrifugation, filtration, oil/water separation, carbon adsorption, air stripping and vacuum degassing. In addition, facilities reported dry cleaning and steam tumbling as in-process treatment technologies to remove pollutants from items prior to water washing.

During the site visit and field sampling phase of the proposed rule development and as follow up to responses in the detailed questionnaires, EPA identified three major technologies for further evaluation. These major technologies, CEB, DAF and CP are described below.

CEB is used primarily to remove oil and grease, as well as other related pollutants, from process wastewater streams. CEB is effective in treating wastewater streams having stable oil-in-water emulsions. The treatment consists of lowering the pH of the wastewater to break the emulsions, and skimming the surface of the water to remove the floating substances.

DAF is used to remove suspended solids, oil, and some dissolved pollutants from process wastewater. DAF treatment involves coagulating and flocculating the solids and oil and grease and then floating the resulting floc to the surface using pressurized air injected into the unit and removing the floating material. Some DAF systems also have the means to remove material that settles to the bottom of the tank on a continuous basis.

CP is used to remove dissolved pollutants from process wastewater. Precipitation aids, such as lime, work by reacting with the cations (e.g., metals) and some anions to convert them into an insoluble form (e.g., metal hydroxides). The pH of the wastewater also affects how much pollutant mass is precipitated, as pollutants precipitate more efficiently at different pH ranges. Coagulation and flocculation aids are usually added to facilitate the formation of large agglomerated particles that settle more readily and can be removed from the bottom of the clarifiers.

In addition to these major technologies identified and described above, a number of controls that are common to or make up part of the treatment systems at many facilities include: screening, equalization, gravity settling and pH adjustment or neutralization.

Screening is often performed prior to subsequent treatment to remove grit and suspended solids that may potentially damage or clog process equipment located downstream.

Equalization controls fluctuations in flow and pollutant loadings in process wastewater prior to treatment to overcome operational problems that may result from the fluctuations, reduce the size and cost of the downstream treatment units, and improve the overall performance of these units.

Gravity settling is primarily used to remove suspended solids, including pollutants that are in insoluble particulate form such as metals from industrial laundry process wastewater.

Most facilities currently have gravity settling alone without chemical addition. The wastewater is typically collected in a catch basin where the water is detained for a period of time, allowing solids with a higher specific gravity to settle to the bottom of the tank and solids with a lower specific gravity to float to the surface. The effectiveness of the solids settling depends on the characteristics of the laundry wastewater, the length of time the wastewater is held in the catch basin and the regular maintenance of the basin, especially regular removal of the solids.

pH adjustment is used to increase treatment effectiveness—since many treatment technologies used in this industry are sensitive to pH fluctuations—and to meet discharge requirements.

Other wastewater treatment technologies identified as being used in this industry are carbon adsorption, air stripping with and without carbon adsorption, ultrafiltration, centrifugation, sludge dewatering, filtration, oil/water separation without chemical addition, and vacuum degassing.

- Carbon adsorption uses activated carbon to remove dissolved VOCs from process wastewater.
- Air stripping is normally performed in a countercurrent, packed tower, or tray tower column. The wastewater is introduced at the top of the column and allowed to flow downward through the packing material or trays. Air is simultaneously introduced at the bottom of the column and blows upward through the water stream. Volatile organics are stripped from the water stream, transferred to the air stream, and carried out of the top of the column with the air, preferably through activated carbon. The treated water is discharged out of the bottom of the column.
- Ultrafiltration uses semipermeable polymeric membranes to separate emulsified or colloidal materials suspended in the process wastewater stream by pressurizing the liquid so that it permeates the membrane.
- Centrifugation applies centrifugal forces to settle and separate higher density solids from process wastewater. Some facilities use centrifugation as a method to separate solids from wastewater; and centrifugation can be chemically enhanced to remove additional pollutants.
- Sludge dewatering processes remove water from sludge generated from the wastewater treatment process. Many industrial laundry facilities (31%), including some of those with only screening or gravity settling but no additional treatment, reported dewatering their sludge prior to disposal. The types of dewatering devices used in the industrial laundries industry include: plate and frame filters, rotary vacuum filters, and sludge dryers.
- Industrial laundries use bag and sand filters to remove solids from wastewater. Among the facilities visited or responding to the detailed questionnaire, filtration most common to this industry included bag filters and sand filters.
- Oil/water separation without chemical addition technology removes a separated oil layer. The oil layer can be removed by a skimming device or decanted from the wastewater.
- EPA sampled one facility using vacuum degassing. At this facility the vacuum degasser was intended to remove organic compounds.

EPA identified the following in-process treatment technologies that remove pollutants from industrial laundry items prior to water washing:

- Dry cleaning involves cleaning soiled items with an organic-based solvent that removes VOCs as well as organic pollutants (e.g., oil and grease). The pollutants generated in the dry cleaning operation are recovered from the solvent through distillation and then disposed of off-site as a hazardous waste.
- Steam tumbling involves agitating soiled items within a modified washer/extractor while steam is injected into the chamber. The tumbling items contact the steam, which removes the VOCs. The steam is condensed, and the pollutants are recovered through a phase separation and are then disposed of as a hazardous waste.

2. Technologies Rejected From Further Consideration

The technologies described above were those reported in the detailed questionnaire. EPA then determined that certain major technologies should be considered as best available in the industry and chose to sample these candidate technologies.

Based on the data EPA gathered and evaluated, EPA rejected the following technologies from further consideration: bag filtration, sand filtration, ultrafiltration, oil/water separation and vacuum degassing.

EPA removed sand and bag filtration from the list of technology options because data for both sand filtration and bag filtration showed poor removals of most pollutants.

EPA sampled one facility using ultrafiltration. Based on conversations with industrial laundries and corporate contacts, many laundry facilities that have tried ultrafiltration as wastewater treatment have reported problems with fouling, and solids building up in the unit requiring constant maintenance and/or inhibiting the performance of the unit. Some facilities have replaced ultrafiltration units with dissolved air flotation or chemical precipitation units. Therefore, EPA did not further consider ultrafiltration as a regulatory option.

EPA investigated oil/water separation as part of the data analysis. After some assessment, EPA determined that oil/water separation without chemical addition to lower the pH is not nearly as effective as CEB. EPA sampled one facility using CEB.

Vacuum degassing, which was sampled for the removal of organics, did not remove organic pollutants effectively. Therefore, EPA did not continue evaluating this technology as an option. See Chapter 9 of the Development Document.

D. Technology and Regulatory Options Considered

1. Initial Regulatory Options for PSES and PSNS

For the proposed rule, EPA initially developed the following regulatory options based on evaluating screener and detailed questionnaire data submitted by industry. In addition to using the major technologies described above (CEB, DAF, and CP), EPA considered regulatory options using stream splitting, a common practice at some facilities. Stream splitting provides a means of treating a portion of the total wastewater generated at industrial laundries. Stream splitting may be used to isolate and treat a stream with a higher pollutant load, while a stream with a lower load is either recycled and reused or discharged to the POTW without treatment. A divided trench and sump system is used to split process wastewater streams. Washer modification (dual valves) is also part of stream splitting.

The initial regulatory options included standards based on: Chemical Emulsion Breaking of wastewater from the washing of heavy industrial items only (CEB-heavy), Dissolved Air Flotation of wastewater from the washing of heavy industrial items only (DAF-heavy), Chemical Precipitation of wastewater from the washing of heavy industrial items only (CP-heavy), Dissolved Air Flotation of all wastewater (DAF-all), Chemical Precipitation of all wastewater (CP-all) and a Combined Option establishing limits based on using either DAF or CP of all wastewater (Combo-all). For the

''heavy'' options in this proposed rule, heavy is defined as wastewater from the laundering of shop towels, printer towels, fender covers, filters and mops. As part of the options listed above EPA also included gravity settling, screening, equalization, pH adjustment, sludge dewatering (for CP and DAF only), and the use of common pollution prevention practices (or best management practices).

Based on evaluation of the effluent concentration data from these site visits and sampling, some of the initial options were no longer pursued, or were further modified. The DAF-heavy and CP-heavy options were determined not to be appropriate because at some facilities the untreated waste streams for those items not considered to be heavy by the facility had higher concentrations of pollutants than the average treated effluent concentrations for the same pollutants. This problem, in part, was caused by the different mix of ''heavy'' items being laundered at the different facilities from which wastewater data were obtained. If sufficient treated effluent data could be obtained related to the laundering of the same set of ''heavy'' items, the heavy option may be a feasible alternative for the final rule. However, any option that would regulate only the wastewater from washing heavy industrial items would require an in-plant compliance monitoring location or a separate discharge point to the sewer after the treatment system which could increase the compliance burden on the control authority. In some cases where the end-of-pipe monitoring for some parameters was still required based on local limits, the costs of this option would increase due to the in-plant plus end-of-pipe monitoring. At the same time, EPA recognizes that targeting the rule to heavy items only could reduce costs to the regulated community by removing some facilities from the scope of the rule. Some facilities could also save money by segregating heavy items from other items and treating only the heavy items. The CEB-heavy option was determined not to be feasible due to less pollutant removals at higher costs than the DAF-heavy and CP-heavy options. See Chapters 9 and 10 of the Development Document. EPA solicits comments and data on the feasibility of either the DAF or CP heavy only options where the definition of heavy includes only the laundering of printer rags, shop towels, mops, fender covers and filters.

2. Modified Regulatory Options

EPA evaluated proposing pretreatment standards for the entire facility wastestream based on only a portion being treated, specifically only the portion of facility wastewater generated by laundering industrial items was costed for treatment by DAF and CP. The basis for costing partial treatment is that EPA's data shows these standards can be met by treating only the portion of wastewater from laundering industrial items. EPA called these options DAF–IL, CP–IL, Combo-IL and Combo-IL2Lim.

EPA evaluated the combo option in two scenarios. Under the first scenario (Combo-IL) either DAF or CP would form the basis of the standards by establishing one set of standards based on the less stringent of the two standards for each regulated pollutant for the two technologies. Having one set of such standards would allow some flexibility for facilities with either technology to meet the limitations. This option would base the standard for each parameter on the lesser performance between DAF and CP, and based on current data, remove less total pollutants.

Under the second combo scenario (Combo-IL2Lim), facilities with DAF in place as of the publication date of the proposal would have to comply with the standards based on DAF and all other facilities would have to comply with standards based on CP.

EPA additionally considered an organics control option, which involves the use of steam tumbling for treatment of shop and printer towels and mops for removal of organic pollutants.

EPA also considered proposing a no regulation option, but rejected it because the available discharge loadings data identified a number of pollutants that were estimated to pass through or have the potential to interfere with POTW operations.

Under Section 307(b) of the CWA, EPA is directed to establish pretreatment standards that prevent the discharge of pollutants to POTWs that interfere with, pass-through, or are otherwise incompatible with the operation of POTWs. EPA has interpreted the pass-through provision to mean that a pollutant ''passes through'' the POTW if the removal efficiency of an available pretreatment option is greater than the removal efficiency of the POTW. Based on available data, EPA believes that pretreatment technology is available to the industrial laundries industry that removes some pollutants with greater efficiency than is achieved by most POTWs.

Nonetheless, both the Small Business Regulatory Enforcement Fairness Act (SBREFA) panel, which is comprised of representatives from three federal agencies (EPA, the Small Business Administration, and the Office of Management and Budget), and small entity representatives recommended that EPA solicit comments on a no regulation option. EPA has the discretion under the CWA to decline to regulate an industrial subcategory based on lack of pollutant loadings, the small number of affected facilities, or other relevant factors, one of which could be a determination that there is no pass through or interference due to the pollutant discharges of the industry. The SBREFA Panel noted, among other things, that ''the total pollutant loadings (pre-regulation) are not as high for this industry as they were for most industries with effluent guidelines in place and that the regulatory options are not as cost-effective as those selected for most other effluent guidelines.'' In addition, EPA notes that if we did not use a toxic weighting factor for TPH (see Section VII.E below), the cost per pound equivalent removed of this rule relative to previous rules would be still higher.

As indirect dischargers, industrial laundries are subject to the general prohibitions in the pretreatment requirements and any additional pretreatment requirements set by local POTWs. Any pass-through or interference problems potentially caused by a laundry can be directly addressed by the POTW through the establishment of appropriate local limits. Some POTWs support the no regulation option because it provides them with the flexibility to design less stringent local pretreatment requirements that are appropriate to local conditions. Other POTWs prefer to have EPA establish uniform pretreatment standards because of the resources required to determine and enforce local limits on a case-by-case basis.

EPA solicits comments on the no regulation option and encourages commenters to support such arguments with information and data, particularly data on the loadings and the degree of pass through at POTWs. Further, EPA encourages commenters to explain how the no regulation option would be consistent with those requirements of sections 301, 304 and 307 of the CWA that require the control of pollutants discharged to POTWs that pass through or interfere with POTW operations.

Based on the above evaluations, EPA decided to evaluate the following options: organics control(OC), combo-IL, combo-IL2Lim, DAF–IL, and CP–IL.

E. Costs

EPA estimated the cost for industrial laundries to implement each of the

model technologies considered for the proposed standards. These estimated costs are summarized in this section and discussed in more detail in the Development Document. All cost estimates in this preamble are expressed in 1997 dollars. The cost components reported in this section represent estimates of the investment cost of purchasing and installing equipment, and the annual operating and maintenance costs associated with that equipment. In section VII, costs are expressed in terms of a different cost component, total annualized costs, which are used to estimate economic impacts. Annualized costs better describe the actual compliance costs that a facility/company would incur, allowing for interest, depreciation, and taxes. A summary of the economic impact analysis for the proposed regulation is contained in section VII of today's notice. See also the Economic Assessment.

EPA estimated the cost for implementing the candidate PSES by calculating the engineering costs of meeting the required effluent reductions for each industrial laundry facility. EPA used information from the 193 in-scope facilities responding to the questionnaire as the basis for the cost estimates calculated by the cost model for these facilities. Using statistically calculated facility weighting factors, EPA then extrapolated the results to the entire industrial laundries industry. The facility-specific engineering cost assessment for PSES began with a review of present wastewater treatment technologies at each facility. For facilities without treatment-in-place equivalent to the candidate PSES technology options, EPA estimated the cost to upgrade the facility's existing treatment technology or if none was in place install treatment to achieve the proposed discharge standards. EPA based these estimates on vendor quotes and engineering judgment. Facilities that had treatment in place equivalent to that option were costed for monitoring only. EPA believes that this approach overestimates the costs to achieve the candidate PSES standards because many facilities can achieve the standards without using all of the components of the technology basis or by treating wastewater from certain items only. For the current options, EPA assumed treating all wastewater except for wastewater from linen items, denim prewash items, and new items. EPA solicits comments on these costing assumptions. See Development Document for more details. The following table summarizes by option, the capital expenditures, the annual operating and maintenance costs, and the annual pretax cost for implementing PSES. Note that pretax costs are presented here, but are not used in determining economic achievability of the proposed rule on the industrial laundries industry. Rather, the posttax costs, the costs industry actually bears, are used to determine economic achievability (see Table VII.C.3.1). The annual costs in this table below also account for the ability of some facilities to haul wastewater at a lower cost than the cost of installing and operating the pollution control technology.

TABLE VI.E.1. COSTS OF IMPLEMENTING PSES REGULATIONS

[In millions of 1997 dollars]

Options	Capital costs	Annual operating and maintenance costs	Annual pretax cost
OC	290	35.0	65.7
CP–IL	470	86.6	136.4
DAF–IL	364	138.2	176.8
Combo-IL	440	98.5	145.1
Combo-IL2Lim	364–470	86.6–138.2	136.4–176.8

In addition to costs, EPA estimated the removals for industrial laundry facilities for the following technology options.

TABLE VI.E.2. REMOVALS FOR PSES OPTIONS

Option	Removals (lb-eq)
OC	5,278
CP–IL	407,358
DAF–IL	402,921
Combo-IL	402,253
Combo-IL2Lim	402,921–407,358

The estimated removals summarized in the table are discussed in more detail in the Development Document. The removals are based on the difference between each facility's current discharge load and each facility's discharge load after implementation of the proposed rule.

F. Rationale for Selection of PSES and PSNS

1. Existing Sources

After considering all of the technology options described above, and in light of the factors specified in section 304(b)(2)(B) of the CWA, EPA has tentatively selected Chemical Precipitation-IL (CP–IL) as the technology basis for the pretreatment standards for existing sources in the proposed rule. As discussed in more detail below, the proposed rule would exclude existing facilities laundering less than one million pounds of incoming laundry per calendar year and less than 255,000 pounds of shop and/or printer towels/rags per calendar year. However, these excluded facilities would still be subject to local pretreatment standards where appropriate. If any excluded facility launders one million pounds or more of incoming laundry or 255,000 pounds of shop and/or printer towels/rags per year, it will no longer be excluded from the standards. Further, once a facility is subject to the standards, even if the facility becomes ''small'' as defined by the rule's exclusion, it would still be subject to the rule. This is because once a facility has installed wastewater treatment to meet the requirements of the rule, it is technologically available and economically achievable for the facility to continue to comply with the standards.

The record establishes that this option is technically available. As discussed in more detail below, EPA also tentatively concludes that this option is economically achievable and represents the best performance that is economically achievable. Further, this option has acceptable non-water quality environmental impacts.

The specific standards proposed in this rule were derived based on a statistical analysis of the performance of

chemical precipitation in industrial laundries that are sufficiently similar to all facilities that are subject to the standards, as discussed below and in the Development Document. Although chemical precipitation is currently only used at 3 percent of industrial laundry facilities, chemical precipitation is a widely used technology in other industries such as the metal products and machinery industry, chemicals and allied products industry and centralized waste treatment industry.

Thus, although CP is only used at three percent of industrial laundry facilities, EPA is well within its authority to select it as BAT. BAT means not that the technology be in routine use, but rather that the technology must be available at a cost and at a time that the Administrator determines to be reasonable, and that the technology has been adequately demonstrated if not routinely applied. See *American Frozen Food Institute* v. *Train*, 539 F.2d 107, 132 (D.C. Cir. 1976), citing ''A Legislative History of the Water Pollution Control Act Amendments of 1972'' (Comm. Print 1973), at 1469–1470. See also *Kennecott* v. *United States EPA*, 780 F.2d 445, 448 (4th Cir. 1985). (The BAT standard reflects the intention of Congress to use the latest scientific research and technology in setting effluent limits, pushing industries toward the goal of zero discharge as quickly as possible. In setting BAT, EPA uses not the average plant, but the optimally operating plant—the pilot plant that acts as a beacon to show what is possible.); *Association of Pacific Fisheries* v. *EPA*, 615 F.2d 794, 816 (9th Cir. 1980) (BAT can be based on statistics from a single plant).

EPA has determined that the selected option for the industrial laundries category is economically achievable for the following reasons. EPA estimates that the proposed standards would cause 33 industrial laundry facility closures and a direct loss of 2,872 jobs from facility closure (although longer term, net direct losses are estimated to total only 470 as the market equilibrates). The number of incremental closures (33) is about 1.9 percent of in-scope industrial laundry facilities (1,747) and 2.1 percent of the (1600) facilities in the facility level analysis. The loss of jobs associated with these closures is about two percent (short-term) or 0.4 percent (longer term) of the category employment. EPA's bankruptcy analysis shows that 65 firms (of 681 total firms in the firm level analysis, or 9.5 percent) move into the bankruptcy likely category under the proposed standards (*i.e.*, they would have trouble obtaining the financing necessary to install the required pollution control equipment). In all cases, these are single-facility firms where EPA's closure analysis shows that the facility would still be financially viable (making money) after complying with the rule if financing could be obtained. In this industry in particular, where demand is relatively inelastic and facilities are geographically tied to their service areas, production is not easily shifted to another geographic area. Therefore, EPA predicts that these bankruptcies do not mean that the facilities will close down, but rather that they may be a target for acquisition by another entity that has better access to financing for pollution control equipment and continue to operate with all or nearly all employees. Based on this analysis, EPA finds the standards to be economically achievable as that term is used in the CWA.

EPA has concluded that application of the selected option is not economically achievable for the smallest industrial laundries that launder less than one million pounds of incoming laundry per calendar year and less than 255,000 pounds of shop and/or printer towels/rags per calendar year. If EPA were to require standards based on chemical precipitation, the closure rate among facilities with annual revenues less than $1 million, would be 28.9 percent, as compared to 4.4 percent for the category as a whole without the size exclusion. This economic impact is clearly disproportionate and EPA is exercising its discretion under sections 301 and 304 of the CWA to determine what is economically achievable to establish this exclusion.

Further, EPA believes that it is appropriate to establish this exclusion because it alleviates the harshest economic impact, facility closure, without excluding from the national standards a significant pollutant load. A chart illustrating what EPA found follows:

TABLE VI.F.1.1—CLOSURES AND REMOVALS WITH AND WITHOUT EXCLUSION

Option	Closures		Pollutant Removals (lb-eq) taking POTW removals into account	
	Without exclusion	With exclusion	Without exclusion	With exclusion
CP–IL	70	33	416,920	407,358

As the chart demonstrates, the exclusion would alleviate closures for the smallest facilities. EPA also notes that the excluded facilities account for less than three percent of the pollutant removals from the waters of the U.S. that would occur if the rule were implemented without the exclusion. Thus, the exclusion represents a reasonable approach to addressing the disproportionate adverse economic impacts of the rule consistent with the objectives and requirements of the CWA.

The Agency also evaluated higher thresholds reflecting up to 3 to 5 million pounds of total production and from 255,000 to 500,000 pounds of shop and/or printer towels. See Section X.A. for more discussion of the SBREFA panel findings. The Agency solicits comments on these alternative exclusions as well as the exclusion proposed today.

Finally, EPA has determined that the selected option has acceptable non-water quality environmental impacts discussed further in section IX, below and in chapter 14 of the Development Document.

EPA evaluated the organics control option as a low cost alternative, however, this technology was not effective in terms of pollutant removals and was rejected.

EPA, based on the data gathered to date, did not select DAF–IL because EPA's current data show that CP technology achieves slightly higher toxic pollutant removals. While, DAF is currently more prevalent in the industry than CP (EPA estimates that approximately eight percent of the industry are currently using DAF compared to approximately four percent using CP) EPA estimates that DAF is more costly to operate than CP on an annualized basis. DAF requires a smaller initial capital investment and

may be attractive to many facilities for this reason, however, EPA estimates that its lower capital costs are more than offset by higher operating and maintenance costs associated with the need to chemically condition the flotation residual sludges, making it more expensive than CP overall.

The Combo-IL option would base the standard for each parameter on the lesser performance between DAF and CP, and current data indicate that it would remove slightly fewer pounds of pollutants than if all facilities were required to meet standards based on CP only.

EPA also rejected the Combo-IL2Lim option because current data indicate that overall this option did not remove as many pollutants as the CP option and would cost more than the selected CP–IL option. See Chapters 9 and 12 of the Development Document. EPA solicits additional information and data on the costs and performance of both CP and DAF technologies used to treat wastewaters from laundering industrial textile items. Although EPA rejected the options based on DAF, the pollutant removals were similar enough for further consideration of the DAF and Combo options. If additional data and information provides support that DAF is generally comparable to CP in removing pollutants, EPA would consider for the final rule basing standards on either the less stringent of CP or DAF standards or on DAF for those facilities that already have it in place and on CP for all other facilities.

If the standards for the final rule are based on the Combo-IL2Lim option, the standards based on DAF technology would apply to those facilities with DAF in place as of the publication date of this proposal. Although EPA estimates that CP is cheaper to operate on an annualized basis than DAF (even for facilities that already have DAF installed), EPA's costing analysis for the Combo-IL and Combo-IL2Lim options assumed that some facilities that already have DAF installed would continue to operate it if given the choice because of constraints on financing. This is the explanation for the results in Table VI.E.1 that a less stringent regulatory option would apparently have higher compliance costs. EPA recognizes that while its cost estimates are based on simplifying assumptions that it believes to be correct on average, actual costs will vary from facility to facility, so that DAF may in fact be the cheaper technology for some facilities. This is particularly likely for facilities that already have DAF installed. In this case, the Combo-IL and Combo-IL2Lim options would be expected to entail lower national compliance costs than either the DAF–IL or the CP–IL options. EPA is soliciting information that may help it refine its estimates of the relative costs on a facility-by-facility basis of DAF and CP. Given that EPA's estimates that CP's removals are only slightly better than DAF, this could also be a factor in determining whether CP only, or both CP and DAF represent BAT and/or BADCT in addition to the other factors specified in Section III of this preamble.

2. New Sources

After considering all of the technology options described above, and in light of the factors specified in sections 306 and 307 of the CWA, EPA has selected CP–IL as the technology basis for the pretreatment standards for new sources in the proposed rule. As stated in Section III.A. of the preamble, PSNS are analogous to NSPS, which in turn are based on best available demonstrated control technology. New facilities have the opportunity to install the most efficient treatment technologies and under NSPS, EPA is to consider standards that will eliminate pollution to the maximum extent feasible. These PSNS are based on the performance of CP at one or more facilities using CP depending on the pollutant. Although CP is currently only used at three percent of industrial laundry facilities, CP is a widely used technology in other industries such as the metals products and machinery, chemicals and allied products, and centralized waste treatment industries. *See, e.g., American Iron and Steel Institute* v. *EPA*, 526 F.2d 1027, 1058 (3rd Cir. 1975) (By demonstration, it will be sufficient that there be one operating facility which demonstrates that the level can be achieved or that there is sufficient information and data from a relevant pilot plant or semi-work plant to provide the needed economic and technical justification for such new source).

EPA has determined that the proposed PSNS are economically achievable and present no barrier to entry. EPA has found that overall impacts from the proposed IL standards on new sources would not be any more severe than those on existing sources, since the costs faced by new sources generally will be the same as or less than those faced by existing sources. It is typically easier to incorporate pollution prevention technologies such as those identified in the Development Document in Chapter 8 & 10, and it is less expensive to incorporate pollution control equipment into the design at a new plant than it is to retrofit the same pollution control equipment in an existing plant because no demolition is required, and space constraints, which can add to costs if specifically designed equipment must be ordered, are not an issue in new construction. Because most new sources face either less or similar costs than existing sources, EPA has determined that PSNS requirements should not pose a barrier to entry on the basis of competitiveness for new facilities based on available data. EPA also has shown CP to be an economically achievable option for existing sources. Therefore, the same requirements for PSNS also should have an acceptable level of impact on new facilities.

EPA also examined whether there would be a barrier to entry for small new sources. EPA's analysis showed no closures of new sources at single-facility firms. See section VII.C.2.b of this preamble or the EA for more details. Thus, EPA proposes not to exclude these new sources based on a finding that it is economically achievable for these new sources to comply with the CP standards contained in the proposed rule. EPA solicits comments on its proposed finding that the proposed CP option is economically achievable and does not constitute a barrier to entry for new small sources and on its proposal not to include a small facility exclusion for PSNS. See also section VII.B. below.

G. Determination of Long-Term Averages (LTAs), Variability Factors, and Limitations for PSES and PSNS

Although chemical precipitation (CP) is widely used in other industries, CP only exists at an estimated three percent of industrial laundry facilities. EPA based the proposed standards on sampling data EPA gathered at one industrial laundry facility using CP and from data submitted by as many as four CP facilities (depending on the pollutant) in response to EPA's detailed monitoring questionnaire. Because effluent from even the best performers in an industry can reasonably be expected to vary both above and below the long-term average (LTA) concentration for a given pollutant, even when treatment systems are operating optimally, EPA calculates limitations and standards by multiplying LTAs by variability factors to insure that reasonable excursions from the LTAs do not result in violation of the CWA.

The proposed limitations, as presented in today's notice, are provided as daily maximums and monthly averages for SGT–HEM and daily maximums for all other regulated pollutants. Monitoring was assumed to occur four times per month for SGT–

HEM and one day per month for all other pollutants. Monitoring requirements are determined by the pretreatment control authority, but EPA has assumed a schedule that might be appropriate. However, EPA notes the high costs to facilities ($20,000–$23,000 annually) of monitoring at this frequency and requests comment on whether it should recommend a less frequent schedule to pretreatment control authorities.

The limitations for a pollutant are the product of the pollutant long-term average and the pollutant variability factor. The procedures used to estimate the pollutant LTAs and variability factors are briefly described below. A more detailed explanation is provided in the Statistical Support Document.

The LTA of a pollutant for each facility was calculated based on either an arithmetic average or the expected value of the distribution of the samples, depending on the number of total samples and the number of detected samples for that pollutant at that facility. The pollutant long-term average for a treatment technology was the median of the long-term averages from the facilities using CP.

EPA calculated variability factors by fitting a statistical distribution to the data. The distribution was based on an assumption that the furthest excursion from the LTA that a well operated plant using chemical precipitation could be expected to make on a daily basis was a point below which 99% of the data for that facility falls, under the assumed distribution. 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 of the distribution of the daily values. The pollutant variability factor for a treatment technology was the median of the pollutant variability factors from the facilities with that technology. The daily maximum limitation is a product of the pollutant long-term average and the pollutant variability factor.

The monthly maximum limitation is also calculated as the product of the pollutant long-term average and the pollutant variability factor, but the pollutant variability factor is based on the 95th percentile of the distribution of daily pollutant concentrations.

By accounting for these reasonable excursions above the LTA, EPA's use of variability factors results in standards that are generally well above the actual LTAs. Thus, if a facility operates its treatment system to meet the relevant LTA, EPA expects the plant to be able to meet the standards. Variability factors ensure that normal fluctuations in a facility's treatment are accounted for in the limitations.

As stated above, EPA rejected an option that would be based on one set of standards for facilities with DAF currently in place and another set of standards based on CP for all other facilities. Although EPA has rejected this option for the reasons stated in section VI.D above, EPA has also provided standards based on sampling data EPA gathered at two facilities using DAF and from data submitted in response to EPA's detailed monitoring questionnaire by as many as four facilities (depending on the pollutant) that were using DAF. These DAF standards are shown for comparative purposes below. EPA solicits comments on both the proposed CP and DAF standards and encourages commenters to substantiate their comments by submitting data.

TABLE VI.G.1—PRETREATMENT STANDARDS

Pollutant parameter	DAF		CP	
	Daily Maximum(mg/L)	Monthly Average (mg/L)	Daily Maximum (mg/L)	Monthly Average (mg/L)
Bis (2-Ethylhexyl) Phthalate	0.44	.....	0.13	.....
Ethylbenzene	0.73	.....	1.64	.....
Naphthalene	0.24	.....	0.23	.....
Tetrachloroethene	1.35	.....	1.71	.....
Toluene	5.63	.....	2.76	.....
m-Xylene	2.11	.....	1.33	.....
o&p-Xylene	0.98	.....	0.95	.....
Copper	1.83	.....	0.24	.....
Lead	0.52	.....	0.27	.....
Zinc	3.47	.....	0.61	.....
TPH (as measured by SGT–HEM)	42.9	21.3	27.5	15.4

EPA is proposing concentration-based limits. An alternative is mass-based limits calculated by multiplying the concentrations in the table above by the 75th percentile production normalized flow of 3.13 gallons per pound laundered. However, EPA found no relationship between gallons per pound laundered and items washed, total production or the amount of recycle/reuse. Because of this, even if operators were employing the appropriate level of control, it would be difficult to develop achievable mass limits.

Some stakeholders have advocated mass-based standards while others prefer concentration-based standards. POTWs generally prefer concentration-based standards because it is much easier for them to implement. Mass-based standards require information about flow and/or production both to set the standards and to enforce them, but have the added advantage of encouraging flow reduction. EPA solicits comments on this issue.

VII. Economic Analysis

A. Introduction

This section describes the capital investment and annualized costs of compliance with the proposed industrial laundries pretreatment standards and the potential impacts of these compliance costs on current and future facilities and firms in the industrial laundries industry. EPA's economic assessment is presented in detail in the Economic Assessment (EA) included in the rulemaking record. The EA estimates the economic effect of compliance costs on facilities, firms, employment, domestic and international markets, inflation, distribution, environmental justice and industrial laundries customers. EPA also has conducted an Initial Regulatory Flexibility Analysis (IRFA) under the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (),

which estimates effects on small entities, and a cost-effectiveness analysis of all evaluated options. Except where otherwise noted, only the results for the option used as the basis for the proposed rule are presented here. Impacts for other options are presented in Section C.3 below and in the EA.

B. Economic Impact Methodology

1. Introduction

This section (and, in more detail, the EA and record for the proposed rule) evaluates several measures of economic impacts that result from compliance costs. The analysis in the EA consists of eight major components: (1) an assessment of the number of facilities that could be affected by this rule; (2) an estimate of the annual aggregate cost for these facilities to comply with the rule using facility-level capital and operating and maintenance (O&M) costs; (3) an evaluation, using a financial model, of compliance cost impacts on facilities' cash flow (closure analysis); (4) an evaluation, using a financial model, of compliance cost impacts on the financial health of firms in the industry (firm failure analysis); (5) an evaluation of secondary impacts such as those on employment, markets, inflation, distribution, environmental justice and industrial laundry customers; (6) an assessment of the potential for impact on new sources (barrier to entry); (7) an analysis of the effects of compliance costs on small entities pursuant to the RFA as amended by; and (8) a cost-benefit analysis pursuant to E.O. 12866.

All costs are reported in this preamble in 1997 dollars, with the exception of cost-effectiveness results, which, by convention, are reported in 1981 dollars. The EA report presents all costs in 1993 dollars. In the EA, any costs not originally in the base year (1993) dollars have been inflated or deflated to 1993 dollars using the Engineering News Record Construction Cost Index, unless otherwise noted in that report (see the EA for details). This same cost index is used to further inflate costs to 1997 dollars for this preamble. Generally, other indices are used to inflate benefits to 1997 dollars, as cited in the EA. The primary source of data for the economic analysis is the *1994 Industrial Laundries Industry Detailed Questionnaire* (Section 308 Survey). Other sources include government data from the Bureau of the Census, industry trade journals, and several preliminary surveys of the industry, including the *1989 Preliminary Data Summary for Industrial Laundries*, the *1993 Industrial Laundries Industry Screener Questionnaire*, the *1994 Industrial Laundries Supplemental Screener Questionnaire*, and EPA's Development Document for this rulemaking.

2. Methodology Overview

Central to the EA is the cost annualization model, which uses facility-specific cost data and other inputs (discussed in Chapter 12 of the Development Document) to determine the annualized capital and operating and maintenance (O&M) costs of improved wastewater treatment. This model uses these costs along with an annual compliance monitoring cost with the industry-specific real cost of capital (discount rate) over a 16-year analytic time frame to generate the annual cost of compliance for the selected option, as well as the other options considered during the course of the proposal effort. EPA chose the 16-year time frame for analysis based on the depreciable life for equipment of this type, 15 years according to Internal Revenue Service (IRS) rules, plus approximately one year for purchasing and installing the equipment. As an alternative to installing wastewater treatment, facilities may choose, within many of the technology options considered, to have wastewater hauled offsite (a decision handled within the model, as discussed below). The model generates the annualized cost for each option (including the annual cost of hauling wastewater) for each facility in the survey, which is then used in the facility and firm analyses, discussed below.

In the facility analysis, EPA models the economic impacts of regulatory costs on individual industrial laundry facilities, irrespective of ownership. In this part of the analysis, the model uses the annualized costs of each option, compares them to the alternative annual wastewater hauling costs (where this alternative is available), and selects the lowest of the two.

EPA then reduces this resulting cost to take into account that portion of compliance costs that can be passed through to customers. Compliance costs are adjusted downward by a factor (the cost pass-through factor) that is calculated using EPA's model of the industrial laundries market. This model, which quantifies the price and quantity changes in the industrial laundries market due to the proposed rule, shows that the industry will be able to pass some portion of the compliance costs of the proposed rule through to their customers and calculates the percentage that can be passed through. The market model is a simultaneous equation for determining price and quantity using supply and demand curves for the industry that EPA developed based on data in the Section 308 Survey and U.S. Census Bureau economic data. EPA estimates, for this industry, that 32 percent of compliance costs can be passed through to customers. Although EPA believes that its cost pass-through projection is reasonable, an analysis in the EA shows that a zero-cost pass through assumption produces nearly identical closure analysis results.

EPA then converts the adjusted annual cost for each facility into a present value change in cash flow, which is subtracted from the estimated baseline present value of facility cash flow. Estimated baseline present value of facility cash flow is based on the average of three years of financial data from each facility in the Section 308 survey under an assumed no-growth scenario (*i.e.*, the annual cash flow, calculated as the 3-year average, is expected to remain the same over the 16-year period of analysis). If the change in present value of cash flow (which is derived from the adjusted annualized costs of compliance) causes a facility's estimated cash flow to change from positive in the baseline to zero or negative after implementing the requirements of the proposed rule over the 16-year period of analysis, EPA considers the facility likely to close (*i.e.*, liquidate) as a result of the regulation. This approach is somewhat different from methodologies used in other EAs and economic impact analysis for manufacturing industries, since salvage value is not considered in the closure analysis here. For a number of reasons, outlined in the EA (see Section 5 and Appendix C), EPA found that using salvage value in a closure analysis for this industry is not the best way for determining whether a facility would be liquidated. EPA found that baseline closures calculated using salvage value accounted for a large percentage (nearly 30 percent) of existing facilities. Furthermore, EPA found that many of these closures using salvage value were driven by current assets. EPA believes that firms would not be likely to liquidate on the basis of high current assets (cash on hand) relative to cash flow. EPA also believes that costs of liquidation could easily equal or exceed salvage value in low-asset service industries such as this one, unlike in the more highly capital-intensive manufacturing industries.

Note that facilities that reported negative cash flow over the 3-year period of the survey are considered baseline closures and are not considered affected by the rule for several reasons:

(1) Many of these facilities (50 non-excluded facilities) are nonindependent

facilities owned by multifacility firms. These facilities may be transferring production (laundering services at or near cost) from other facilities owned by the same parent company, or otherwise not expected to be self-supporting by the parent. EPA analyzes the parent firms of these facilities in the firm-level analysis and as long as the parent firm can afford to install and operate compliance equipment in these facilities, EPA assumes these facilities will close neither in the baseline nor postcompliance. (2) OMB guidance suggests that agencies develop a baseline that is ''the best assessment of the way the world would look absent from the proposed regulation. That assessment may consider a wide range of factors, including the likely evolution of the market * * *'' EPA's best assessment is that some facilities currently operating may not remain in business to install and operate the pollution control equipment. EPA cannot say for certain which facilities these may be, but can assert that those facilities that are currently considered not financially viable because their cash flow is zero or negative (among those not owned by multifacility firms—57 non-excluded facilities) are the likeliest facilities to close without ever installing and operating pollution control equipment. It is possible that a facility estimated to be a baseline closure may remain open, but the converse is also true—a facility projected to remain open until it is subject to the rule may actually close independently of the effects of the rule (both results might be equally possible). Thus, consistent with OMB guidance, EPA estimated postcompliance closures by counting closures that are projected to close solely due to the effect of the proposed rule.

In the firm failure analysis, EPA uses the adjusted annualized costs to compute a change in earnings, assets, liabilities, and working capital at the firm level (accounting for costs for multiple facilities, where applicable). These postcompliance financial figures are used in a computerized model of financial health on a firm-by-firm basis. The model uses an equation known as ''Altman's Z'', which was developed based on empirical data to characterize the financial health of firms. This equation calculates one number, based on the financial data, that can be compared to index numbers that define ''good'' financial health, ''indeterminate'' financial health, and ''poor'' financial health. All firms whose ''Altman's Z'' number changes such that the firm goes from a ''good'' or ''indeterminate'' baseline category to a ''poor'' postcompliance category are classified as likely to have significant difficulties raising the capital needed to comply with the proposed rule, which can indicate the likelihood of firm bankruptcy, or loss of financial independence.

As the panel noted, there is uncertainty associated with both the methodology for predicting facility and firm closures, and the figures used to make those projections, such as interest rate, assumption of the life of the pollution control equipment and compliance costs. One of the small entity representatives consulted during the outreach process specifically questioned several of EPA's costing assumptions, relating to interest rate, use life of equipment, and labor requirements to operate a treatment system. EPA recognizes the uncertainties associated with its analyses, and has performed sensitivity analyses in the EA that addresses some of these issues. EPA believes that its choice of methodology and input data is appropriate and results in a conservative calculation of costs and facility and firm closures, but solicits comments and data that would support more refined analyses for the final rule.

EPA also notes that a methodological concern has been raised regarding its facility closure analysis that relates to its use of cash flow as the appropriate measure of funds available to cover the compliance costs of the proposed rule. Cash flow is defined as income plus depreciation. It has been suggested that calculating a facility's costs without including depreciation fails to account for the future cost of replacing existing capital as it wears out, and thus underestimates long-term costs and overstates funds available for compliance. EPA, however, believes it is appropriate to include depreciation in the funds available for compliance because, while under standard accounting practices depreciation is deducted from gross revenue during the calculation of income, it does not represent an expenditure actually incurred in the current period but rather an amortization of costs incurred in a previous period. EPA requests comments on its use of cash flow as an appropriate measure of funds available for compliance.

In the employment analysis, EPA undertakes several types of analyses, all based in part on a type of analysis known as input-output analysis. These employment analyses include: (1) a national-level analysis for estimating employment gains and losses throughout the U.S. economy in all industry sectors using both compliance costs and employment losses driven by facility closures to determine a range of possible gross and net (losses minus gains) impacts at the national level; (2) a regional impact analysis using employment losses driven by facility closures (closure losses) to determine whether impacts on individual communities might be experienced; and (3) an analysis using EPA's estimate of market-determined production losses to derive an estimate of direct, net employment losses in the industrial laundries industry alone. This last analysis is undertaken to determine losses within the industrial laundries industry alone because while closure losses can be considered the immediate impact of the proposed rule on the industry, production-driven losses might be greater or less than closure losses over time, as equilibrium in the market is attained. Furthermore, closure losses do not account for the fact that some portion of production workers might transfer wholly or in part to operating pollution control equipment, thus some accounting for employment gains within the industry is necessary.

National-level analysis. EPA uses input-output analyses to determine the effects of the regulation using national-level employment and output multipliers. Input-output multipliers allow EPA to estimate the effect of a loss in output in the industrial laundries industry on the U.S. economy as a whole. Every loss in output in the industrial laundries industry results in employment losses in that industry. Additionally, these losses have repercussions throughout the rest of the economy, and the output and employment multipliers allow EPA to calculate the total losses in output and employment nationally using the output loss estimated for the industrial laundries industry alone. See Section Seven of the EA for more details.

Regional-level analysis. EPA also determines the impacts on regional-level employment, which is estimated using facility closures and employment at those closing facilities. These analyses are based on the use of Bureau of Economic Analysis RIMS II input-output regional (not national-level) multipliers, which allow EPA to determine employment impacts on other sectors of the regionally economy that depend on the industrial laundries industry. EPA uses the regional-loss estimates using the facility closure-driven estimates of employment losses to perform a community impact analysis, which investigates the potential for impacts on community unemployment rates based on the

immediate dislocation effects of facility closures. Firm failures are not considered in the job loss or community impact analyses because in all cases, these firms are single-facility firms whose facility is shown to be financially viable after complying with the rule. The impact of the proposed rule on these facilities thus might be the loss of their financial independence, as they would likely be purchased by a larger firm and continue to operate with all or nearly all employees. This is not always the case in all industries, but in this industry, facilities are geographically tied to their service areas and thus their production is not easily shifted to another geographic area. Furthermore, they are generally not asset-rich and are thus not suitable for acquisition for the purpose of selling off assets rather than for operation.

EPA conducts a regional analysis because even if net employment effects (losses minus gains) are relatively small on a national level, an employment loss might still have a substantial negative effect on an individual community (see the EA for more details).

Industry level analysis. Facility closure losses could overstate or understate employment losses strictly within the industrial laundries industry on a longer-term basis, since total longer-term employment losses are driven by production losses and employment losses from closures are driven by costs of compliance, and these two losses may not be equal. Therefore, EPA uses its market model to predict any reductions in production and the subsequent employment effects (production-driven effects) within the industrial laundries industry alone. This analysis also accounts for some gains within the industrial laundries industry due to a need for operators of pollution control equipment. This analysis also uses the national-level input-output multipliers to compute a direct loss of employment on the basis of output effects. EPA considers this employment loss the longer-term impact of the rule on the industrial laundries industry.

EPA investigates additional secondary impacts qualitatively and quantitatively. These impacts include impacts on domestic and international markets, impacts on substitutes for industrial laundry services, impacts on inflation, distributional impacts, and impacts on environmental justice. EPA also investigates the impact of the rule on domestic markets. The rule will affect domestic markets to the extent that excluded facilities can affect market share. EPA makes an assessment of the potential for effect on domestic market on the basis of pounds of laundry processed by excluded facilities to the total pounds processed by the industry.

EPA also looks at impacts on customers. The agency obtained IRS data on the major customer groups and summed total operating costs for their major customers. Under the worst-case assumption that all compliance costs would be borne by only 10 percent of these major customers, EPA conservatively determined a percentage by which total operating costs might increase due to the proposed rule. Additionally, EPA investigates the potential for any impacts on hotels, hospitals, prisons and other such establishments should they be accepting industrial items from off-site sources.

Another key analysis EPA performs is an analysis to determine impacts on new sources, which is primarily a ''barriers-to-entry analysis'' to determine whether the costs of the PSES would prevent a new source from entering the market. This analysis looks at whether new industrial laundries would be at a competitive disadvantage compared with existing sources. Market effects and barriers to entry associated with the small source exclusion also are qualitatively investigated.

Also, pursuant to E.O. 12866, EPA performs a cost-benefit analysis. This analysis looks at the social cost of the regulation measured as the pretax costs of compliance plus government administrative costs plus the costs of administering unemployment benefits. See Section IX of this preamble for more details of the benefits analysis.

C. Summary of Costs and Economic Impacts

1. Overview of the Economic Assessment Analyses

The EA focuses first on the costs and economic impacts of the proposed rule, using the best data and information available—that reported by industry in the Section 308 Survey data—as representative of the regulatory baseline. The analysis addresses costs and economic impacts of the pretreatment (PSES and PSNS) requirements for industrial laundries wastewater. As noted earlier, EPA has elected to reserve Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT), BAT, and NSPS requirements. Direct discharger requirements will be determined on a case-by-case basis under CWA section 402(a)(1).

2. Total Costs and Impacts of the Proposed Rule

This section presents the total costs and impacts of the standards in this proposed rule. EPA estimates that there are 1,747 industrial laundries facilities (given the items processed, the definition of an industrial laundry item in the proposed rule, and Section 308 Survey statistical weights). Of these, 141 facilities meet the definition of ''small'' under EPA's proposed designation of the small industrial laundries exclusion. This exclusion is defined as all facilities laundering less than one million pounds of incoming laundry per calendar year and less than 255,000 pounds of shop and/or printer towels/rags per calendar year. Of these excluded facilities, all meet the definition of ''small'' under Small Business Administration (SBA) Guidelines. There are 903 firms owning the 1,747 facilities. A total of 837 out of the 903 firms or 93 percent are ''small businesses'' according to SBA Guidelines (revenues less than $10.5 million per year). The analysis looks separately at single-facility firms (those firms where the firm and the facility are a single entity) and multifacility firms (firms that own more than one facility; generally, these firms are larger than single facility firms). There are a total of 830 single-facility firms out of 903 total firms in the industry (92 percent), the vast majority of which meet the SBA definition of small.

The total cost of the proposed rule is based on engineering cost estimates. To develop these estimates, EPA identified candidate end-of-pipe treatment technologies and grouped appropriate technologies into regulatory options. EPA then developed cost equations for capital and O&M costs for each of the technologies.

For each wastewater treatment technology, EPA developed a cost module. The following cost modules make up the selected CP option: screen, stream splitting, equalization, chemical precipitation, pH adjustment, sludge dewatering, building and monitoring. For further detail, see Chapter 12 of the Development Document.

Total costs of the proposed regulation are estimated to be $93.9 million (see Table VII.C.2.1).

TABLE VII.C.2.1.—COSTS OF PROPOSED PSES OPTION ($1997)

Option	Posttax Annual Costs ($ million)
PSES: CP–IL	$93.9

a. Impacts From Pretreatment Standards for Existing Sources (PSES)

EPA estimates that the proposed rule would result in 33 facilities (2.1 percent of all facilities in the facility-level analysis and 1.9 percent of all in-scope facilities) closing as a result of compliance costs. All are single-facility firms. EPA estimates total direct job loss of 2,872 full-time equivalents (1 FTE = 2,080 hours of labor) as a result of the facility closures projected under the proposed rule. The employment losses associated with closures overstate actual net losses to the industry, because some employment gains in the industry will occur (although the gains may not occur in the same geographic location or at the same time as the losses). These gains include operators of pollution control systems that might be hired by facilities and additional workers hired to expand some production at facilities located in market areas with facility closures (lost production from closures is estimated to exceed the amount of reductions required to meet market equilibrium conditions). EPA estimates the actual *net direct* losses in the industrial laundries industry would be 470 FTEs (0.36 percent of total industry employment), considerably less than the number of direct losses predicted solely on the basis of closures.

Additional to these closures, EPA predicts that the proposed regulatory option would affect the ability of 65 firms (all of which are single-facility firms) to raise the capital needed to purchase and install the pollution control equipment. This impact may result in the loss of financial freedom for these firms, up to and including the sale of the firms to larger multifacility firms. This impact does not mean that these firms will close; all these firms are viable at the facility level and are thus considered likely to be of interest to other firms for acquisition and operation.

EPA predicts employment impacts to the national-level economy on the basis of input-output analysis described above. Based on this analysis, which estimates both national employment losses stemming from increased output in the industrial laundries industry and offsetting gains stemming from increased output of pollution control equipment, the proposed option would result in a net loss of employment at the national level in all industry sectors of 582 to 5,534 FTEs, which is about 0.0005 to 0.005 percent of the U.S. labor force in 1997. Net output loss would be thus $100.7 million at most, which is about 0.001 percent of Gross Domestic Product in 1997. Thus EPA expects, at the national level, that the IL Standards would have negligible impact on U.S. employment and output.

EPA also investigated employment impacts in the industrial laundries industry alone. EPA determined that within the industrial laundries industry, many *nonclosing* facilities might actually experience gains in production (and thus gains in output and employment). This is because when facilities close, other nonclosing facilities in the local market area might expand production to take over a portion of the closing facility's production. Thus, while the proposed rule is estimated to produce a long-term net employment loss to the industrial laundries industry of 470 FTEs, this is less than the short-term direct employment and output losses that would be calculated on the basis of closures alone.

For the community-level analysis, under the conservative approach for estimating community employment impacts described above, EPA determined that most closures will result in a maximum change in a community's unemployment rate of 0.32 percent or less and EPA estimates no single community will sustain impact on its unemployment rate of greater than one percent.

EPA expects the proposed rule to have a minimal impact on international markets. Domestic markets might initially be slightly affected by the exclusion for very small facilities, since these facilities may not be subject to the same requirements; however, the number of these facilities, the small volume of their production relative to total industry production (0.7 percent), and the likelihood that they are not concentrated in any one market area, are expected to limit the effects of any competitive advantages they may have. EPA's economic analysis shows that there is a very slight increase in price ($0.003 per pound) and that customers are not very sensitive to price changes; therefore, dischargers subject to the proposed rule would be able to compete with those dischargers excluded from the proposed rule. Further, if any excluded facility annually launders more than one million pounds of laundry or more than 255,000 pounds of shop and/or printer towels/rags per calendar year, it will no longer be excluded from the standards. The small excluded facilities are also the most likely of any size group to exit the market regardless of the rule. Given these observations, it is likely that this group of existing sources would shrink in size over time, and any small market effects would be reduced. As discussed below in the Regulatory Flexibility Analysis section, EPA believes that the small impacts of the exclusion on markets are far outweighed by the benefits of reducing adverse economic impacts on the most vulnerable firms in the industry.

EPA also expects the proposed rule to have minimal impacts on inflation, insignificant distributional effects, and no major impacts on environmental justice. The rule also would have minimal impacts on industrial laundries customers. The price increase expected as a result of the proposed option is an average of $0.003 per pound, or 0.4 percent of current average price. Because this percentage increase is so small compared to even the modest rates of inflation currently experienced, it is unlikely that most customers would be able to distinguish this effect from the effect of inflation. If EPA assumes that only 10 percent of the customers in the major groups of customers absorb 100 percent of the cost of the rule, total compliance costs would increase customers' operating costs by an average of less than 0.02 percent. Therefore, EPA does not expect price increases to have a major impact on customers.

EPA also investigated the likelihood that customers might substitute disposable items for laundered items or begin operating on-site laundries. Both the substitution of disposable items for laundered items and the installation and operation of on-site laundries are associated with potential negative impacts on customers that might deter them from choosing these potential substitutes. Disposable items can be more expensive to use than laundered items, may not meet quality requirements (e.g., disposable printer towels tend to be linty) and are, in certain circumstances, regulated under other environmental statutes. Meanwhile because of the high initial costs to install equipment on-site and the small increase in price of industrial laundry services discussed earlier, on-site laundries could require years before any cost savings might be realized. Also, EPA's market model provides a means for estimating price increase and reduction in quantity demanded for industrial laundering services at the higher price. This analysis shows a very small decrease in production as a result the proposed rule, 0.3 percent of baseline production. Given the disincentives towards those substitutes indicated above, EPA does not expect the proposed rule to cause customers to substitute disposable items for laundered items or commence industrial laundering on-site for industrial laundries services in any major way.

The small reduction in production of 0.3 percent is more likely to occur from customers delaying cleaning (rather than weekly pickups of mats, for example, some might substitute biweekly pickups) or dropping certain rental items, such as uniforms used only for image purposes. This decline in production is negligible compared to the approximate 4 percent per year growth in revenues seen for the industry between 1990 and 1993, according to Section 308 data.

EPA also determined that impacts on hotels, hospitals, and prisons, which could be processing industrial laundry from offsite sources are likely to be negligible. First, EPA's survey of a subset of hotels, hospitals, and prisons turned up no facilities that were currently accepting industrial items from offsite sources. Second, EPA's survey shows that some of these sources could meet the definition of the small industrial laundry exclusion. Several process considerably less than 1 million pounds of laundry per year, thus it is possible that if any of these types of establishments do accept industrial items from offsite sources, some might be excluded from coverage on the basis of pounds laundered. Finally, if there were facilities large enough not to qualify for an exclusion, their major source of revenues are from their primary business, not from operating a laundry. Therefore, EPA expects that these facilities can afford to comply with the proposed limitations by offsite shipping of industrial laundry wastewater. Because EPA's data on these types of establishments is not exhaustive, however, the Agency solicits comment and additional data on this issue.

b. Impacts From Pretreatment Standards for New Sources (PSNS)

EPA investigated all options considered under PSES as potential PSNS options. EPA has tentatively selected the CP–IL option for both sets of proposed standards. This section presents EPA's assessment of impacts on new sources. EPA assesses impacts on new sources by determining whether the proposed rule would result in a barrier to entry into the market.

EPA has found that overall impacts from the proposed IL Standards on new sources would not be any more severe than those on existing sources, since the costs faced by new sources generally will be the same as or less than those faced by existing sources. It is typically less expensive to incorporate pollution control equipment into the design at a new plant than it is to retrofit the same pollution control equipment in an existing plant because no demolition is required, and space constraints, which can add to costs if specifically designed equipment must be ordered, are not an issue in new construction. Because most new sources and existing sources face similar costs, EPA has determined that PSNS requirements should not pose a barrier to entry on the basis of competitiveness for most new facilities. EPA also has shown CP–IL to be an economically achievable option, having an acceptable level of impact on existing sources. Therefore, the same requirements for PSNS also should have an acceptable level of impact on most new facilities.

EPA also examined whether there would be a barrier to entry for small new sources. EPA proposes not to exclude these new sources because it has found it to be economically achievable for these new sources to comply with the CP–IL standards contained in the proposed rule. Based on the Section 308 Survey data, EPA expects that new sources generally exceed the threshold size cutoff that EPA proposed for existing sources. EPA investigated facilities in the Section 308 Survey that indicated they were new or relatively new at the time of the survey. The number of new source facilities coming on line each year is extremely small. Over a three year period (1991, 1992, and 1993), according to Section 308 Survey data, laundry operations began only at about 80 facilities (and it is not absolutely clear from the data whether these facilities were actually new dischargers or were existing dischargers acquired in that year by a different firm). Over the 3-year period, this amounts to 27 new sources a year at most, or only 1.5 percent of existing facilities. Given the small level of growth in the industrial laundries industry, EPA believes that new sources are primarily replacing production from closing facilities that exit the market.

Of these facilities identified as new or relatively new facilities, EPA determined that the average revenues of this group exceeded $4 million per year, and the amount of laundry processed averaged over 5 million pounds per year. Only 24 facilities out of 80 total newer facilities (weighted), or 30 percent, would meet the size threshold for the exclusion applicable to existing sources. On a yearly basis (given that 24 facilities started up over the 3 years of the survey) EPA estimates that up to 8 facilities of the size that would meet an exclusion similar to that for existing sources might be started up each year. Overall, in the group of 80 facilities, only 6 facilities (weighted) were identified as postcompliance closures (based on a closure by one surveyed nonindependent facility). No single-facility firm would close postcompliance. EPA is less concerned about a closure of a nonindependent facility, since nonindependent facilities often can fall back on their parent firm during the financially shaky first few start up years. Furthermore, these 6 facilities are represented by a survey facility that might, on the basis of the types of laundry processed, be able to meet the requirements of the rule possibly without having to install any pollution control whatsoever (that is, their current effluent might not exceed the CP–IL based standards). EPA has conservatively assigned this facility compliance costs because the Agency has no sampling data from this facility to support this assertion. Given the above results, EPA finds that not excluding new sources laundering less than one million pounds of incoming laundry per calendar year and less than 255,000 pounds of shop and/or printer towels/rags per calendar year from PSNS will be economically achievable and will present no barriers to entry.

EPA also investigated whether there might be a barrier to entry due to competitive disadvantages for all new sources in markets where excluded facilities are located. According to the Section 308 Survey, excluded facilities process only 0.7 percent of the laundry processed by all facilities represented in the survey. EPA thus concludes that the market share of excluded facilities is so small that excluded facilities are unlikely to have a measurable impact in the market for industrial laundry services. Furthermore, EPA has shown that even if no compliance costs are passed through to customers, the impacts are similar to the results assuming cost pass-through does occur, and thus new sources should be able to compete with excluded facilities on price (by not raising prices) even if they perceive the need. EPA thus concludes that competition with excluded facilities will not pose a barrier to entry.

3. Economic Impacts of Rejected Options

The economic impacts from rejected options are as follows.

The OC option is associated with the lowest level of economic impacts of all options considered. This option is associated with 3 facility closures, and only 22 firms are projected to be likely to fail (but not close) and are thus likely to lose their financial independence. A net direct total of 275 FTEs would be lost in the industrial laundries industry (direct, production-driven losses) had EPA chosen this option, and other

secondary impacts (effects on trade, inflation, and customers) would be negligible. The option basing limits on the lesser performance between DAF–IL and CP–IL is associated with nearly identical impacts as EPA's preferred CP–IL option. Facility closures are estimated to be 33, and 65 firms are estimated to be likely to fail (but not close) and thus are likely to lose their financial independence. A net total of 456 FTEs would be lost in the industrial laundries industry (direct, production-driven losses), and, as for the CP–IL option, this option would most likely have minimal additional secondary impacts.

EPA investigated a variant to the Combo option based on both CP–IL and DAF–IL. In this option, rather than setting limits based on the lesser performance, EPA would set limits based on DAF limits for all those currently operating DAF systems, with CP limits for all others. Costs would be very slightly less than the other CP/DAF option, with impacts being approximately the same (in no case would costs or impacts be less than CP–IL).

Under the DAF–IL option facility closures are estimated to total 34. A total of 66 firms are expected to be likely to fail (but not close) and are thus likely to lose their financial independence. A net 421 FTEs would be lost in the industrial laundries industry (direct, production-driven losses), if EPA had chosen this option. Other secondary impacts would be greater than those for the proposed option, but still minimal. Table VII.C.3.1 compares the economic impacts of the rejected option with those of the preferred option.

TABLE VII.C.3.1.—IMPACTS OF THE PREFERRED OPTION VS. REJECTED OPTIONS

Option	Annualized posttax costs ($ MM 1997)	Facility closures	Firm failures	Net direct employment losses (FTEs) as a result of production losses
OC	$46.0	3	22	275
CP–IL	93.9	33	65	470
Combo-IL2Lim*	≈99	33	65	≈450
Combo-IL	99.5	33	65	456
DAF–IL	118.6	34	66	421

*DAF–IL limits for existing DAF systems; CP–IL limits for all others.

D. Cost-Benefit Analysis

The proposed option is expected to have a total annual social cost of $139.4 million ($1997), which includes $136.4 million in pretax compliance costs, $2.9 million in administrative costs, and $0.1 million in unemployment benefits administration costs. Annual monetized benefits are expected to range from $2.9 million to $10.6 million, which includes $0.09 million to $0.5 million for human health benefits, $1.9 million to $6.7 million for recreational benefits, $0.9 million to $3.4 million from nonuse benefits, and $0.006 million to $0.01 million for POTW sewage sludge benefits. Table VII.D.1 summarizes the results of the cost-benefit analysis.

TABLE VII.D.1.—RESULTS OF THE COST-BENEFIT ANALYSIS

Category	Dollar value (millions $1997)
Costs:	
Pretax Costs of Compliance	$136.4
Administrative Costs of Permitting	2.9
Administrative Costs of Unemployment Benefits	0.1
Total Social Costs	139.4
Monetized Benefits:	
Human Health Benefits	$0.09–0.5
Recreational Benefits	1.9–6.7
Nonuse Benefits	0.9–3.4
Benefits to POTWs	0.006–0.01
Total Monetized Benefits	2.9–10.6

There are a number of additional benefits associated with the proposed IL Standards that could not be monetized. Examples include: reduced noncancer health effects, reduced POTW operating and maintenance costs, reduced administrative costs at the local level to develop and defend individually derived local limits for industrial laundries, improved aesthetic quality of near discharge outfalls, enhanced water-dependent recreation other than fishing, benefits to wildlife and to threatened or endangered species, tourism benefits, and biodiversity benefits.

E. Cost-Effectiveness Analysis

In addition to the foregoing analyses, EPA has conducted cost-effectiveness analyses for all options it considered. Results of these analyses are presented in the Cost-Effectiveness Analysis (C–E), which is included in the rulemaking record. C–E analysis evaluates the relative efficiency of options in removing toxic and nonconventional pollutants. Costs evaluated include the pretax direct compliance costs, such as capital expenditures and O&M costs, including compliance monitoring.

Cost-effectiveness results are expressed in terms of the incremental and average costs per ''pound equivalent'' (PE) removed. PE is a measure that addresses differences in the toxicity of pollutants removed. Total PEs are derived by taking the number of pounds of a pollutant removed and multiplying this number by a toxic weighting factor (TWF). EPA calculates TWFs for priority pollutants and some additional nonconventional pollutants using ambient water quality criteria and toxicity values. The TWFs are then standardized by relating them to a particular pollutant, in this case, copper. As of 1985 the water quality criterion for copper was revised, thus the TWF for copper also has been revised. PEs are calculated only for pollutants for which TWFs have been estimated, thus they do not reflect potential toxicity of some nonconventional and, to date, any conventional pollutants though the newly added TWF for TPH does capture a large portion of the more toxic components of the conventional pollutant, oil and grease. EPA's standard procedure is to rank the options considered for each waste stream in order of increasing PE removed. EPA then calculates incremental cost-

effectiveness as the ratio of the incremental annual costs to the incremental PE removed under each option, compared to the previous (less effective) option. Average cost-effectiveness is calculated for each option as a ratio of total costs to total PE removed. In the case of pretreatment standards, EPA does not include pollutant removals if those pollutants could be removed at the POTW, but only includes the removal of pollutants that would pass through the POTW in its cost-effectiveness determination. (Note that EPA assumes for this analysis that POTW removal efficiency is the same for treated influent as for untreated influent. To the extent that the removal efficiency is lower for influent that has already been pretreated this methodology could overestimated removals resulting from the pretreatment standards. EPA reports annual costs for all cost-effectiveness analyses in 1981 dollars, to enable limited comparisons of the cost-effectiveness among regulated industries. Incremental cost-effectiveness is the appropriate measure for comparing one regulatory option to an alternative, less stringent regulatory option for the same rule. Some believe that it may also be used to compare cost-effectiveness across rules when considering how the last increment of stringency in one rule compares to the last increment of stringency in another. For comparing the overall cost-effectiveness of one rule to another, average cost-effectiveness may be a more appropriate measure, but must be considered in context with caution. (Average cost-effectiveness can be thought of as the ''increment'' between no regulation and the selected option, for any given rule).

As part of the cost-effectiveness analysis for this proposed rule, the nonconventional pollutant parameter TPH (SGT–HEM) was included and individual components of TPH, such as the alkanes, were removed from the cost-effectiveness calculations to avoid double counting removals. Although TPH has not been included in cost-effectiveness calculations for past rules, EPA believes that it is appropriate to include it here because, for this industry, a large portion of the toxic constituents of TPH are compounds not specifically included in the database of toxic substances and associated toxic weighting factors that past cost-effectiveness calculation have relied upon. In fact, TPH constitutes over 90 percent of the pounds equivalent removals that EPA has estimated for this proposed rule.

The inclusion of TPH were based on alkanes data to estimate POTW removal and soluble hydrocarbon data to represent toxicity of TPH to calculate the toxic weighting factor (TWF). The POTW removal of 65 percent was estimated using the U.S. EPA Risk Reduction Engineering Laboratory (RREL) Treatability Data Base's average percent removal for the three N-alkanes with available percent removal data. EPA recognizes that this approach may not adequately characterize removals of the soluble hydrocarbons on which its TWF is based and requests comment on how the estimate might be improved. The TWF was calculated using an aquatic life toxicity value of 560 µg/L for soluble hydrocarbons (EPA's Water Quality Criteria, 1976) multiplied by an application factor of 0.01 (EPA's 1986 Quality Criteria for Water) and divided into the criteria for copper (5.6 µg/L) to give a value of 0.1. EPA solicits additional information and data related to these results and the methodology used to calculate both the POTW removal rate and the TWF. EPA also solicits comments on the appropriateness of its inclusion of TPH in the cost-effectiveness calculation for this proposed rule.

Table VII.E.1. presents the cost-effectiveness of the OC and CP–IL options using TPH data in lieu of the alkanes data. The other options considered for industrial laundries wastewater treatment, DAF–IL, and Combo–IL (including Combo-IL2Lim), are not presented in this table because they remove fewer pollutants at a greater cost. EPA's cost-effectiveness methodology requires non cost-effective options to be removed before incremental cost-effectiveness is calculated, since the incremental cost per pound equivalent removed would be negative for the next higher option. See the C–E for more details. As the table shows, the incremental cost-effectiveness of the proposed option is $108 per PE, and the average cost effectiveness of the proposed option is $206 per PE.

TABLE VII.E.1.—COST-EFFECTIVENESS ANALYSIS RESULTS

Option	Total annual		Incremental		Incremental C–E $1981) ($/lb. eq.)	Average C–E ($1981) ($/lb. eq.)
	PE removed	Cost ($Mil. 1981)	PE removed	Cost ($Mil. 1981)		
OC	5,278	$40.3	5,278	$40.3	$7,640	$7,640
CP–IL	407,358	83.7	402,080	43.4	108	206

Table 4–1 in the Cost-Effectiveness Analysis compares the incremental cost-effectiveness of this proposed rule with the incremental cost-effectiveness of 21 other pretreatment standards that EPA has promulgated previously. The table shows that 18 of these were more cost-effective on an incremental basis than this proposed rule. However, as noted earlier, average (rather than incremental) cost-effectiveness is generally a more appropriate measure to use in comparing the overall cost-effectiveness of one rule to another. Unlike incremental cost-effectiveness, average cost-effectiveness is not affected by the particular choice of alternative options that were considered and rejected. In this proposed rule, the incremental or marginal cost-effectiveness is lower than average cost-effectiveness because the proposed option (CP) is being compared to the (OC) option that costs about half as much as CP but removes only slightly more than one percent of the pound equivalents that are removed by the CP option. Due to data limitations and time constraints, EPA has not included in the Cost-Effectiveness Analysis a comparison of the average cost effectiveness of this proposed rule to that of previously promulgated rules. Such a comparison may show this rule to be even less cost-effective relative to other rules than appears from Table 4–1. Care should be used in interpreting this comparison, however. Because the initial focus of regulatory efforts was on highly polluting manufacturing industries, it is not surprising that over time, fewer and fewer toxic removals should come at higher and higher costs, as the initial less treated, higher pollutant concentration wastewaters are addressed and the focus of regulation move increasingly to less polluting

service industries and those which are already regulated.

EPA also analyzed the cost effectiveness of these same options using the alkanes data and not using the TPH toxic weighting factor and POTW removal. Under this assumption, the incremental cost effectiveness of the proposed option is $1,660 per PE, and its average cost effectiveness is $2,664 per PE.

EPA recognizes that the proposed rule is not very cost-effective. However, cost-effectiveness analysis only considers pollutants for which a toxic weighting factor has been estimated. Although this proposed rule would eliminate over 13 million pounds of toxic and nonconventional pollutants to POTWs (See Table IX.C.1), only 1.3 million pounds of these pollutants are considered in the cost-effectiveness analysis.

Furthermore, cost-effectiveness is not a factor to be directly considered under the CWA in setting such standards. Elsewhere in this preamble, EPA has requested comment on the option of not regulating this industry and on whether such a decision would be consistent with the CWA.

VIII. Non-Water Quality Environmental Impacts

As required by sections 304(b) and 306 of the Clean Water Act, EPA has considered the non-water quality environmental impacts associated with the treatment technology options for the industrial laundries industry. Non-water quality impacts are impacts of the proposed rule on the environment that are not directly associated with wastewater. Non-water quality impacts include changes in energy consumption, air emissions, and solid waste generation of oil and sludge. In addition to these non-water quality impacts, EPA examined the impacts of the proposed rule on noise pollution, and water and chemical use. Based on these analyses, EPA finds the relatively small increase in non-water quality impacts resulting from the proposed rule to be acceptable.

1. Air Pollution

Industrial laundry facilities generate wastewater that contains significant concentrations of organic compounds, some of which are on the list of Hazardous Air Pollutants (HAPs) in Title 3 of the Clean Air Act Amendments (CAAA) of 1990. Atmospheric exposure of the organic-containing wastewater may result in volatilization of both volatile organic compounds (VOCs) and HAPs from the wastewater. VOCs and HAPs are emitted from the wastewater beginning at the point where the wastewater first contacts ambient air. Thus, VOCs and HAPs 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, and sumps, and from wastewater treatment units such as screens, equalization basins, DAF and CP units, and any other units where the wastewater is in contact with the air.

EPA believes that air emissions from industrial laundry wastewater would be similar before and after implementation of the proposed rule because the wastewater from all industrial laundries currently has contact with ambient air as it flows to the POTW. At facilities that do not currently have treatment on site, the wastewater typically flows from the washers to an open or partially open catch basin, then to the sewer and on to the POTW, where the wastewater is typically treated in open aerated basins or lagoons. Air emissions from the wastewater occur as the wastewater flows from the facility to the POTW. At a facility with treatment the wastewater would have more contact with air while still at the facility as it is treated in open units such as equalization basins and CP units prior to flowing through the sewer to the POTW. Air emissions from the treated wastewater occur at the treatment units at the facility, as well as while the wastewater flows to the POTW. Thus, EPA expects that the location of a portion of air emissions from industrial laundry wastewater would shift from the POTW collection and treatment system to the facility treatment system, but EPA believes that the overall amount of air emissions from industrial laundries wastewater would not change.

EPA examined the total air emissions from one industrial laundry's untreated wastewater stream assuming all volatile pollutants volatilize from that stream. EPA considered whether this total amount of air emissions would be acceptable assuming it represented incremental air emissions due to the proposed rule. (EPA does not believe that the total amount of air emissions, as calculated below, represents incremental air emissions because the air emissions would be similar before and after implementation of the rule.) EPA estimated that, in the worst-case scenario, 14 Mg per year of HAPs would be emitted from an industrial laundry's wastewater on an annual basis. Under the CAAA, major sources of HAP(s) emissions are defined as having either a total emission of 25 Mg per year or higher for the total of all HAP emitted by a facility or an emission of 10 Mg per year or higher for a single HAPs emitted by a facility.

Based on the worst-case scenario and this definition industrial laundries would not emit HAP(s) to the degree that they would be classified as a major source as defined by the CAAA. EPA also believes that no adverse air impacts would be expected to occur due to the proposed regulations. Thus, because EPA does not expect an overall increase in the amount of air emissions as a result of the proposed rule and based on EPA's determination of the total emissions from one industrial laundry's untreated wastewater, EPA finds the air emissions impacts of the proposed rule to be acceptable.

2. Solid Waste Generation

The proposed regulations are based on the use of CP followed by dewatering of the sludge generated from CP. Based on information collected in the industrial laundries detailed questionnaires, most industrial laundry sludge from CP or DAF treatment systems is disposed of in nonhazardous landfills. Based on site visits to industrial laundries, EPA has found that some facilities voluntarily dispose of their sludge as hazardous waste even though hazardous waste disposal is not required by law.

EPA estimates that the incremental increase in sludge generation (not including savings in the volume of sludge generated at POTWs that would result from the proposed rule) for the 1,606 facilities in the industry covered by the rule would be 74 thousand tons per year of wet sludge, or 26,000 tons per year of dry solids. For more details, see Chapter 14 of the Development Document. Approximately 430 million tons (dry basis) of industrial nonhazardous waste was sent to landfills in the U.S. in 1986 (Subtitle D Study Phase I: Report EPA No. 530SW86–054). This proposed rule would result in only a 0.006% increase in sludge generation. Data, from the Waste Treatment Industry Phase II: Landfills, suggests that current landfill capacity can accept this increase in solid waste generation. Therefore, EPA believes the solid waste impacts of the proposed rule are acceptable.

3. Energy Requirements

EPA estimates that implementation of the proposed regulation would result in a net increase in energy consumption for the industrial laundries industry. The incremental increase is based on electricity used to operate wastewater treatment equipment at facilities that are not currently operating treatment

systems comparable with the proposed CP option.

EPA estimates that the incremental increase in electricity use for the industrial laundries industry as a result of the proposed rule would be 76 million kilowatt hours per year. Approximately 2,805 billion kilowatt hours of electric power were generated in the U.S. in 1990. The incremental increase in energy use for the industrial laundries industry corresponds to 0.0027% of the national energy requirements. EPA estimates the incremental energy increase to be a small percentage of electricity currently used by the industrial laundries industry to operate all washing, drying, and treatment equipment. For these reasons, energy impacts of the proposed rule are acceptable.

IX. Environmental Benefits Analysis

A. Introduction

This section describes results of EPA's environmental benefits analysis. For more details, see the WQBA.

B. Overview of the Industrial Laundry Industry's Effluent Discharges

EPA's record indicates that industrial laundry facilities nationwide currently discharge to POTWs 4.9 million pounds per year of priority and nonconventional pollutants (excluding COD, TOC, and SGT–HEM), and 35.9 million pounds of HEM. Of the 35.9 million pounds of HEM, 13.2 million pounds are SGT–HEM (see Table IX.C.1 for loadings of all pollutants). SGT–HEM, consisting of polycyclic aromatic hydrocarbons, are components of HEM; SGT–HEM is being used as an indicator for priority and nonconventional pollutants.

For this rulemaking, EPA evaluated the environmental benefits of controlling the pollutant discharges from industrial laundries facilities to POTWs through national analyses of the primary treatment options: OC, DAF–IL, CP–IL, and Combo-IL. Since EPA determined that the OC option removed smaller amounts of organics than the other options, EPA did not perform a separate environmental assessment for this option.

Discharges of priority and nonconventional pollutants into freshwater and estuarine ecosystems may alter aquatic habitats, adversely affect aquatic biota, and adversely impact human health through the consumption of contaminated fish and water. Furthermore, these pollutants may interfere with POTW operations through contamination of sewage sludge, thereby restricting the method of disposal, or through inhibition of the microbes present in activated sewage sludge. Many of the pollutants of concern from industrial laundries have at least one toxic effect (human health carcinogen and/or non-cancer toxicant or aquatic toxicant). In addition, many of these pollutants bioaccumulate in aquatic organisms and persist in the environment.

C. Benefits of the Proposed Rule

EPA estimates that the proposed standards would significantly reduce pollutant discharges to POTWs, as shown by the loadings estimates in Table IX.C.1 for five categories of pollutants. Note that there is significant overlap among some of the pollutants listed. These five categories were segregated in order to minimize the double counting of pollutants within each category, although some overlap remains (*e.g.*, some TOC is also measured as COD). It is not appropriate to sum loadings across categories as there is overlap between categories, for example, BOD and COD. Reductions in industrial laundry pollutant discharges to POTWs would result in a number of benefits, including: reduced cost of disposal or use of municipal sewage sludge that is affected by industrial laundry pollutant discharges; and reduced occurrence of biological inhibition of activated sludge at POTWs. Resulting reductions in discharges from POTWs to surface waters of the US would have additional benefits: improved quality of freshwater, estuarine, and marine ecosystems; increased survivability and diversity of aquatic life and terrestrial wildlife; and reduced risks to human health through consumption of fish or water taken from affected waterways.

TABLE IX.C.1.—SUMMARY OF ESTIMATED POLLUTANT LOADINGS FROM INDUSTRIAL LAUNDRIES TO POTWS

[Natioal Estimates]

Regulatory option	Priority and nonconventional pollutants [1] (million lb/yr)	HEM (million lb/yr) [2]	SGT–HEM (million lb/yr)	Other conventional pollutants (million lb/yr) [3]	Other nonconventional pollutants (million lb/yr) [4]
Baseline	4.9	35.9	13.2	176	346
DAF–IL	2.9	15.9	2.6	137	252
CP–IL	2.9	15.2	2.4	139	258
Combo-IL	3.1	15.9	2.6	139	258

[1] Excludes Total Organic Carbon (TOC), Silica Gel Treated N-Hexane Extractable Material (SGT–HEM), and Chemical Oxygen Demand (COD).
[2] Includes the pounds of SGT–HEM.
[3] Includes Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS).
[4] Includes Chemical Oxygen Demand (COD) and Total Organic Carbon (TOC).

EPA assessed the benefits from the expected pollutant reductions in three broad classes: human health, ecological, and economic productivity benefits. Each class is composed of a number of more narrowly defined benefit categories. EPA expects that benefits will accrue to society in all of these categories. However, because of data limitations and the understanding of how society values some of these benefit categories, EPA was not able to analyze all of these categories with the same level of rigor. At the highest level of analysis, EPA was able to quantify the expected effects for some benefit categories and attach monetary values to them. Benefit categories for which EPA developed dollar estimates include reduction in cancer risk from fish consumption and increased value of recreational fishing opportunities, reduced risk to aquatic life, and other non-use benefits. For other benefit categories, reduced risk of non-cancer toxic effects to human health from consumption of fish and drinking water; and reduced costs of biological inhibition at POTWs, EPA was able to quantify expected effects but not able to estimate monetary values for them. Finally, there is an additional non-quantified, non-monetized benefit

categories of enhanced water-dependent recreation other than fishing. Note that benefits to wildlife and to threatened or endangered species; and biodiversity benefits are often included as non-quantified benefits but in the current analysis an attempt has been made to monetize them.

D. Human Health Benefits

EPA analyzed the following measures of health-related benefits from the proposed rule in the WQBA: reduced cancer risk from fish consumption; reduced risk of non-cancer toxic effects from fish and water consumption; and, reduced occurrence of in-waterway pollutant concentrations in excess of human health-based ambient water quality criteria (AWQC) or in excess of documented toxic effect levels for those chemicals for which EPA has not published water quality criteria. Of these measures, EPA was able to monetize only the reduction in cancer risk.

EPA first predicted steady-state, in-stream pollutant concentrations by assuming complete immediate mixing with no loss from the system. Of the 172 in-scope respondent facilities, EPA was unable to include 33 facilities in the benefits analysis because of incomplete information on the POTWs to which these sample facilities discharge. The remaining 139 facilities are discharging to 118 POTWs that in turn discharge to 113 water bodies (88 rivers/streams, 21 bays/estuaries, and 4 lakes).

EPA then extrapolated the environmental assessment results for the sample facilities to the entire regulated population of industrial laundry facilities nationwide (approximately 1,606 facilities discharging to 1,178 POTWs). For this extrapolation, each sample facility received a sample weight based on the varying number of additional facilities of the same approximate size engaged in similar activities under similar economic conditions. EPA then estimated the change in aggregate cancer risk through consumption of fish in waterbodies where the identified POTWs discharge. EPA predicted pollutant concentrations in fish by using the in-stream pollutant concentration based on modeled POTW effluent concentrations due to pass-through, and pollutant-specific bioconcentration factors that account for the degree to which the pollutant in the water will be concentrated in fish tissue. EPA used data on licensed fishing populations by state and county, presence of fish advisories, fishing activity rates, and average household size to estimate the exposed population of recreational and subsistence anglers and their families that would benefit from reduced pollutant concentrations in fish. EPA used fish consumption rates for recreational and subsistence anglers to estimate the change in cancer risk among these populations.

For the proposed rule, the benefits associated with reduced incidence of cancer from fish consumption are estimated to range from $0.089 million to $0.50 million per year ($1997), depending on the choice of willingness-to-pay value that is used to value the avoided cancer events and depending on the treatment option considered. For combined recreational and subsistence angler household populations, EPA projects that the treatment options would eliminate approximately 0.04 cancer cases per year from a baseline of about 0.1 cases estimated at the current discharge level (see Table IX.D.1). EPA valued the reduced cancer cases using estimated willingness-to-pay values for avoiding premature mortality. The values used in this analysis are based on a range of values recommended by EPA's Office of Policy Analysis from a review of studies quantifying individuals' willingness to pay to avoid increased risks to life. In 1997 dollars, these values range from $2.4 million to $12.5 million per statistical life saved.

TABLE IX.D.1.—ESTIMATED ANNUAL AVOIDED CANCER CASES FROM FRESHWATER FISH CONSUMPTION

Regulatory option	Number of cases avoided (National estimates)
Baseline	—
CP–IL	0.04
DAF–IL	0.04
Combo-IL	0.04

To estimate the reduced risk of non-cancer health effects (e.g., systemic effects, reproductive toxicity, and developmental toxicity) from fish and water consumption for each treatment option, EPA used risk reference doses, in conjunction with in-stream pollutant concentrations, to calculate a hazard score. A value of one or greater for a hazard score indicates the potential for non-cancer hazards to occur. In this analysis, EPA analyzed only pollutant loadings from industrial laundries to particular water bodies, *i.e.*, EPA did not consider background loadings from other sources. The hazard score, which EPA calculated by summing over all pollutants, was less than one for baseline conditions as well as for all treatment options.

EPA also evaluated reduced occurrence of in-waterway pollutant concentrations in excess of human-health based AWQC. At current discharge levels, in-stream concentrations of two pollutants—bis(2-ethylhexyl)phthalate and tetrachloroethene—are projected to exceed human health criteria (developed for consumption of water and organisms) in 9 receiving streams nationwide (see Table IX.D.2) for a total of 17 exceedences. The proposed PSES regulated discharge levels would eliminate the occurrence of pollutant concentrations in excess of the human health-based AWQCs in 7 of 9 affected streams.

TABLE IX.D.2. DISCHARGE REACHES WITH POLLUTANT CONCENTRATIONS EXCEEDING AWQC LIMITS FOR PROTECTION OF HUMAN HEALTH, AND REDUCTIONS ACHIEVED BY REGULATORY OPTIONS

Regulatory option	Number of reaches with concentrations exceeding health-based AWQCs for water and organisms (national basis)
Baseline	9
CP–IL	2
DAF–IL	2
Combo-IL	2

E. Ecological Benefits Valued on the Basis of Enhanced Recreational Fishing Opportunities

EPA analyzed one measure of ecological benefits from the proposed regulation: reduced occurrence of in-waterway pollutant concentrations in excess of acute and chronic AWQCs that protect aquatic life. EPA used the findings from the analysis of reduced occurrence of pollutant concentrations in excess of both EPA's ecological and human health AWQCs to assess improvements in recreational fishing habitats and, in turn, to estimate a monetary value for the enhanced recreational fishing opportunities.

To assess aquatic life benefits, EPA estimated the effect of facility discharges of regulated pollutants on pollutant concentrations in affected waterways. EPA compared the estimated concentrations on a baseline and post-compliance basis, with the Agency's AWQCs for acute and chronic exposure impacts to aquatic life. Pollutant concentrations in excess of these values indicate potential impacts to aquatic life. EPA's analysis found that

78 stream reaches exceed chronic AWQC values at baseline discharge levels for a total of 93 exceedences (see Table IX.E.1). Under three options, EPA estimates that the proposed regulation would eliminate concentrations in excess of the chronic AWQC values for aquatic life in 66 affected reaches. EPA predicts that no pollutants under current or proposed discharge levels would exceed acute AWQC.

EPA expects that society will value improvements in aquatic species habitat, resulting from the reduction of pollutant concentrations in excess of the chronic AWQC values, by a number of mechanisms. For this analysis, EPA estimated a partial monetary value of ecological improvements based on the value of enhanced recreational fishing opportunities. Specifically, the elimination of pollutant concentrations exceeding AWQC limits for protection of aquatic species and human health is expected to generate benefits to recreational anglers. Such benefits are expected to manifest as increases in the value of the fishing experience per day fished or the number of days anglers subsequently choose to fish the cleaner waterways. These benefits, however, do not include all of the benefits that are associated with improvements in aquatic life. For example, recreational benefits do not capture the benefit of increased assimilative capacity of a receiving waterbody, improvements in the taste and odor of the instream flow, or improvements to other recreational activities such as swimming and wildlife observation that may be enhanced by improved water quality.

TABLE IX.E.1.—DISCHARGE REACHES WITH POLLUTANT CONCENTRATIONS EXCEEDING CHRONIC AWQC LIMITS FOR PROTECTION OF AQUATIC SPECIES, AND REDUCTIONS ACHIEVED BY REGULATORY OPTIONS

Regulatory option	Number of pollutants estimated to exceed chronic AWQC limits	Number of reaches with concentrations exceeding chronic AWQC limits	Total exceedences of chronic AWQC limits
Baseline	3	78	93
CP–IL	2	12	19
DAF–IL	2	12	19
Combo-IL	2	12	19

None of the acute AWQC limits were estimated to be exceeded in the baseline.

EPA calculated the value of enhanced recreational fishing opportunities from the proposed rule based on the concept of achievement of a contaminant-free fishery. For this analysis, EPA assumed for an affected waterway that elimination of all instances in which industrial laundry pollutant concentrations exceed AWQCs that protect human health or aquatic species may be interpreted as approximately equivalent to the achievement of a contaminant-free fishery. EPA first estimated a baseline value of those fisheries in which all instances of industrial laundry pollutant concentrations in excess of AWQCs are estimated to be eliminated by regulation. This value is based on the number of annual fishing days at the affected waterway and the value of a fishing day. Second, EPA estimated the value of improving the water quality in these fisheries based on the incremental percentage increase in value to anglers of freeing the fishery of contaminants (Lyke, 1992). Estimates of the increase in value of recreational fishing to anglers range from $1.9 million to $6.7 million annually ($1997) for all three treatment options, depending on the baseline value of the fishery and the estimated incremental benefit values associated with freeing the fishery from contaminants. This analysis does not account for sources of pollutant contamination other than industrial laundries or for pollutants not discharged by industrial laundries.

EPA also estimated non-market non-use benefits. These non-market non-use benefits are not associated with current use of the affected ecosystem or habitat; instead, they arise from (1) the *realization* of the improvement in the affected ecosystem or habitat resulting from reduced effluent discharges and (2) the value that individuals place on the *potential for use* sometime in the future. Because nonuse value is a sizable component of the total economic value of water resources, EPA estimated change in nonuse values in proportion to recreational fishing benefits. For this analysis, as was done in the Great Lakes Water Quality Guidance, EPA conservatively estimated that nonuse benefits compose one-half of recreational fishing benefits. For all three treatment options, this method yields non-use benefits attributable to the proposed regulation ranging from $0.94 million to $3.4 million ($1997) per year.

F. Benefits From Reduced Cost of Sewage Sludge Disposal and Reduced Incidence of Inhibition

EPA expects that reduced effluent discharges from the industrial laundries industry would also yield economic productivity benefits. For this analysis, EPA estimated productivity benefits for two benefit categories: (1) reduced pollutant contamination of effluent discharged by industrial laundry facilities to sewage treatment systems and (2) associated savings in sewage sludge use or disposal costs; and, a reduction in biological inhibition of activated sludge. For the former category, EPA examined the following: (1) whether industrial laundry baseline discharges would prevent POTWs from being able to meet the metals concentration limits required for certain lower cost sewage sludge use or disposal practices—beneficial land application and surface disposal; and (2) whether limitations on the selection of management practices would be removed under regulatory options.

EPA has promulgated regulations establishing standards for sewage sludge when it is applied to the land, disposed of at dedicated sites (surface disposal), and incinerated (40 CFR Part 503). In addition, EPA has also established standards for sewage sludge when it is disposed of in municipal solid waste landfills (40 CFR Part 258). For land application, the regulations include three sets of pollutant limits for ten metals: (1) Pollutant Ceiling Limits, which all land applied sewage sludge must meet with certain limitations, (2) Cumulative Pollutant Loading Limits (which limit the cumulative amount of metal which may be applied to the soil) and (3) more stringent Pollutant Concentration Limits, which provide more favorable terms for land

application of sewage sludge. Sewage sludge that meets only the less stringent Ceiling Limits may be applied to land; however, the use of the sewage sludge is subject to pollutant loading limits, which restrict the quantity of sewage sludge that may be applied to a given site. If the sewage sludge meets the more stringent Concentration Limits, it is considered high quality sewage sludge and is not subject to the cumulative limits on land application and other regulatory requirements in the land application subpart, *i.e.*, general conditions and certain management practices, such as more extensive recordkeeping requirements. Thus, disposing of high quality sewage sludge costs less than disposing of low quality sewage sludge that meets only the ceiling concentrations for metals.

EPA estimated sewage sludge concentrations of ten metals for sample facilities under baseline and post-regulatory options discharge levels. EPA compared these concentrations with the relevant metal concentration limits for the following sewage sludge management options: Land Application-High (Concentration Limits), Land Application-Low (Ceiling Limits), and Surface Disposal. In the baseline case, EPA estimated that concentrations of one pollutant (lead) at 10 POTWs would fail the Land Application-High limits while meeting the Land Application-Low limits. EPA estimated that no POTWs would fail any of the Surface Disposal limits. Under all three options, EPA estimated that all 10 POTWs would meet the Land Application-High limits and that an estimated 6,200 dry metric tons (DMT) of annual disposal of sewage sludge would newly qualify for beneficial use under the Land Application-High limits. EPA estimated the reduced time required for record-keeping for sewage sludge meeting the more stringent Land Application-High criteria, and, on this basis, developed a partial estimate of monetary benefits from reduced metals contamination of sewage sludge. For all three options, the proposed regulation is expected to result in benefits from sewage sludge quality improvements of $0.006 million to $0.01 million ($1997) annually. (EPA notes that the rule would also generate additional metals-contaminated sludge at industrial laundries, but has already included the costs of disposing of this sludge in the compliance costs of the rule.)

EPA estimated inhibition of POTW operations by comparing predicted POTW influent concentrations to available inhibition levels for 45 pollutants. At current discharge levels, EPA estimates POTW concentrations of lead exceed biological inhibition criteria at two POTWs. Under all treatment options, inhibition problems are eliminated.

EPA based the POTW inhibition and sludge values upon engineering and health estimates contained in guidance or guidelines published by EPA and other sources. Because the values used in this analysis are not, in general, regulatory values, EPA did not base the proposed pretreatment discharge standards directly on this approach. However, the values and methodology used in this analysis are helpful in identifying potential benefits for POTW operations and sludge disposal that may result from the compliance with proposed pretreatment discharge requirements.

G. Discussions With POTW Operators and Pre-Treatment Coordinators

To understand the frequency and characteristics of problems to POTWs resulting from industrial laundry discharges, EPA obtained information from discussions with EPA regional staff, and with POTW operators representing 40 POTWs that receive discharges from industrial laundries. Of these 40 POTWs, 11 encounter some difficulty resulting from industrial laundry discharges either currently or in the recent past. A number of the other POTWs that encountered problems with industrial laundry discharges in the past have established local limits applicable to laundries to address those problems. Problems encountered by POTWs, as reported by the operators, included: oil and grease, which may clog pipes and pump stations, inhibit activated sludge and otherwise inhibit POTW operations; metals, which may also inhibit activated sludge; and pH fluctuations, which can injure POTW workers and deteriorate concrete pipes and manholes. The Water Quality Benefits Analysis notes that there are solutions available to POTWs for these problems, although they do entail costs to the POTWs. A further analysis of three case studies do not document substantial problems from industrial laundries discharges that would be reduced by regulation.

X. Related Acts of Congress, Executive Orders, and Agency Initiatives

A. Regulatory Flexibility Act (RFA) as Amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA)

Under the Regulatory Flexibility Act (RFA), 5 U.S.C. 601 *et seq.*, as amended by SBREFA, EPA generally is required to conduct an initial regulatory flexibility analysis (IRFA) describing the impact of the proposed rule on small entities. Under section 605(b) of the RFA, if the Administrator certifies that the rule will not have a significant economic impact on a substantial number of small entities, EPA is not required to prepare the IRFA.

EPA conducted an IRFA pursuant to section 603(b) of the RFA addressing:

- The need for, objectives of, and legal basis for the rule;
- A description of, and where feasible, an estimate of the number of small entities to which the rule would apply;
- The projected reporting, recordkeeping, and other compliance requirements of the rule, including an estimate of the classes of small entities that would be subject to the rule and the types of professional skills necessary for preparation of the report or record;
- An identification, where practicable, of all relevant Federal rules which may duplicate, overlap or conflict with the proposed rule;
- A description of any significant regulatory alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities. Consistent with the stated objectives of the CWA, the analysis discusses significant alternatives such as—

(1) establishing differing compliance or reporting requirements or timetables that take into account the resources available to small entities;

(2) clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;

(3) the use of performance rather than design standards;

(4) an exclusion from coverage of the rule, or any part thereof, for such small entities. The IFRA is presented in Chapter 9 of the EA. Based on the IRFA and other factors, this proposed rule incorporates an exclusion to eliminate disproportionate impacts on small businesses and also reduces the number of small businesses affected by the proposed rule.

Pursuant to the RFA as amended by SBREFA, EPA convened a Small Business Advocacy Review Panel. The Panel is comprised of representatives from three federal agencies: EPA, the Small Business Administration, and the Office of Management and Budget. The Panel reviewed materials EPA prepared in connection with the RFA, and collected the advice and recommendations of small entity representatives. For this proposed rule, the small entity representatives

included owners of small industrial laundries and trade association representatives. The Panel prepared a report (available in the public docket for this rulemaking) that summarizes the outreach to small entities and the comments submitted by the small entity representatives. The Panel's report also presents their findings on issues related to the elements of an IRFA.

As part of the findings, the Panel recommended that the Agency evaluate other thresholds for excluding small businesses, in addition to the proposed one million pounds of total production and 255,000 pounds of shop and/or printer towels. Examples of alternative thresholds that the Panel recommended EPA solicit comment on are three to five million pounds of total production with shop and/or printer towel thresholds between 255,000 and 500,000 pounds.

EPA evaluated a total of 17 threshold combinations as possible bases for excluding small businesses. The analysis of 13 threshold combinations are presented in a table in the final Panel report. In response to the recommendations in the Panel report, EPA analyzed 4 additional threshold combinations. The results of all 17 threshold combinations are found in Appendix E of the EA.

The thresholds (*i.e.*, exemption cutoffs) ranged from one million to five million pounds of production, both with and without cutoffs related specifically to shop and/or printer towels. The shop and/or printer towel cutoffs ranged from 255,000 to 500,000 pounds. In addition, EPA analyzed threshold cutoffs involving only ''heavy production,'' defined as shop and/or printer towels, mops, fender covers, and filters, and excluding all small businesses (as defined by revenues less than $10.5 million per year).

Results of these higher threshold analyses suggest that, by using the three to five million pounds of production levels, between 15 and 34 percent of the pollutant removals would be excluded from regulation. As noted earlier, with EPA's proposed exclusion, the excluded facilities would account for less than 3 percent of the pollutant removals from the waters of the U.S. than would occur if the proposed rule were implemented without the exclusion. Furthermore, with the higher thresholds, approximately 600 to 1000 facilities (depending on the actual threshold) would be excluded from coverage by the proposed regulation, while closures resulting from the proposed rule would be reduced by only two facilities. Costs for the proposed rule could be reduced by up to 60 percent with higher thresholds and cost per toxic pound equivalent removed could also be reduced by up to 40 percent. See the Cost-Effectiveness Analysis. The total amount of removals excluded under the highest threshold considered (about 150,000 PE), while a significant share of potential removals from the industrial laundries industry, is small compared to removals by other effluent guidelines for primary manufacturing industries. The SBREFA Panel also noted the statement by one of the small entity representatives that the number of small facilities has declined since EPA surveyed the industry in 1993. If this is true, it would mean that both the cost savings and the amount of potential removals excluded for any particular small business exclusion would be less than estimated. A table summarizing the results of the 17 threshold analyses is contained in Appendix E of the EA and a table summarizing the results of the original 13 threshold analyses is contained in the Panel report. The Agency solicits comments on these alternative exclusion levels as well as the exclusion level proposed today.

B. 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''. 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.

C. Unfunded Mandates Reform Act (UMRA)

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), P.L. 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that this proposed rule would contain a Federal mandate that may result in expenditures of $100 million or more for the private sector in any one year. Accordingly, EPA has prepared the written statement required by section 202 of the UMRA. This statement is contained in the EA for the rule and is summarized below. EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments and thus this rule is not subject to the requirements of section 203 of UMRA. Nevertheless, EPA has consulted with state and local governments as described in Section III of this preamble.

EPA prepared several supporting analyses for the proposed rule. Throughout this preamble and in the supporting analyses, EPA has responded to the UMRA section 202 requirements. As anticipated by OMB, most considerations with respect to costs, benefits, and regulatory alternatives are addressed in the EA, which is summarized in Sections VII and IX of this preamble and presented in detail in Section Ten of the EA. A very brief summary follows.

The statutory authority for this proposal is found in multiple sections of the CWA (see section I of this preamble). In part, these sections of the CWA authorize EPA to issue standards to address effluent discharges.

EPA prepared a qualitative and quantitative cost-benefit assessment of the federal requirements imposed by today's proposed rule. In large part, the private sector, not other governments, will incur the costs. Specifically, the costs of this federal mandate are compliance costs to be borne by the regulated industrial laundry facilities. In addition, although some States and local governments will incur costs to implement standards, these costs to governments will not exceed the thresholds established by UMRA and in general, these standards will make it easier for POTWs to establish limits on discharges to POTWs.

EPA estimates that the total annualized costs for the private sector to comply with the federal mandate are $93.9 million (post-tax)/$136.4 million (pre-tax). The mandate's benefits are primarily in the areas of reduced health risk and improved water quality. The EA describes, qualitatively, such benefits. The analysis also quantifies a portion of the benefits and monetize a subset of these benefits. EPA estimates that annual monetized benefits would be $2.9 to $10.3 million.

EPA does not believe that there will be any disproportionate budgetary effects of the rule on any particular areas of the country, particular types of communities, or particular industry segments. EPA's basis for this finding is the analysis of economic impacts, which is summarized in section VII of the preamble and in the EA. A key feature of the analysis is the estimation of financial impacts for each facility incurring compliance costs. EPA considered the costs, impacts and other effects and found no disproportionate budgetary effects on any specific regions or individual communities. The EA also describes the rule's effects on the national economy in terms of effects on productivity, economic growth, and international competitiveness; EPA found such effects to be minimal.

For each regulatory decision in today's proposal, EPA believes it has selected the ''least costly, most cost-effective, or least burdensome alternative'' that achieves the objective of the rule. This satisfies the section 205 of the UMRA. Some, including members of the SBREFA panel, have suggested that EPA consider other options including no regulation or higher thresholds for the small business exclusion and EPA is soliciting comments on those alternatives. EPA believes, however, that the proposed option appropriately reflects what is economically achievable for the reasons elsewhere discussed in this preamble.

D. Paperwork Reduction Act

The proposed industrial laundries pretreatment standards contain no new information collection activities beyond that which is already required in 40 CFR Part 403, and therefore, no information collection request will be submitted to OMB for review in compliance with the Paperwork Reduction Act, 44 U.S.C. 3501 et seq.

E. National Technology Transfer and Advancement Act

Under section 12(d) of the National Technology Transfer and Advancement Act, the Agency is required to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, business practices, etc.) that are developed or adopted by voluntary consensus standard bodies. Where available and potentially applicable voluntary consensus standards are not used by EPA, the Act requires the Agency to provide Congress, through the Office of Management and Budget, an explanation of the reasons for not using such standards. This section summarizes EPA's response to the requirements of the NTTAA for the analytical test methods promulgated as part of today's effluent limitations guidelines and standards. EPA performed literature searches to identify any analytical methods from industry, academia, voluntary consensus standard bodies and other parties that could be used to measure the analytes in today's proposed rulemaking. The results of this search formed the basis for EPA's analytical method development and validation in support of this proposed rulemaking.

EPA's analytical test method development is consistent with the requirements of the NTTAA. Although the Agency initiated data collection for these effluent guidelines many years prior to enactment of the NTTAA, traditionally, analytical test method development has been analogous to the Act's requirements for consideration and use of voluntary consensus standards.

The proposed rule would require dischargers to monitor for SGT-HEM, Copper, Lead, Zinc, Bis (2-Ethylhexyl) Phthalate, Ethylbenzene, Naphthalene, Tetrachloroethene, Toluene, m-Xylene, and o-&p-Xylene. Except for SGT-HEM and Xylenes, methods for monitoring these pollutants are specified in tables at 40 CFR Part 136. When available, methods published by voluntary consensus standards bodies are included in the list of approved methods in these tables. Specifically, voluntary consensus standards from the American Society for Testing and Materials (ASTM) and from the 18th edition of Standard Methods (published jointly by the American Public Health Association, the American Water Works Association and the Water Environment Federation) are approved for Copper, Lead and Zinc. In addition, USGS methods are approved for these three inorganic pollutants. Voluntary consensus standards from the 18th edition of Standard Methods are also approved for Bis (2-Ethylhexyl) Phthalate, Ethylbenzene, Naphthalene, Tetrachloroethene, and Toluene.

For SGT-HEM, EPA is proposing to use EPA Method 1664. This method was proposed for promulgation in 40 CFR Part 136 on January 23, 1996 (61 FR 1730). Method 1664 was developed by EPA to replace previously used gravimetric procedures (for determination of oil and grease and total petroleum hydrocarbons) that employed Freon-113, as part of EPA's efforts to reduce the dependency on the use of chlorofluorocarbons pursuant to Title VI of the Clean Air Act. EPA is unaware of the existence of an appropriate non-Freon method from a voluntary consensus standards body.

For the Xylenes, EPA proposes to use EPA Methods 1624 and 624 which are promulgated at 40 CFR Part 136. These analytical methods were used in data collection activities in support of today's proposed limitations although the xylenes are not specified as analytes in the methods. EPA has not identified any methods from a voluntary consensus standards body that could be used to measure these analytes.

EPA requests comments on the discussion of NTTAA, on the

consideration of various voluntary consensus standards, and on the existence of other voluntary consensus standards that EPA may not have found.

XI. Related Rulemakings

A. Office of Solid Waste (OSW) Activities Related to This Effort

Solvent-contaminated industrial shop towels have been a longstanding issue within the Resources Conservation and Recovery Act (RCRA) program. As mentioned earlier, a free liquids inspection policy exists in the industry. The industrial laundry trade association also has established guidance for industrial laundries and their customers to use in the management of solvent-contaminated shop towels—foremost being that the industrial laundry not accept any shop towels bearing free liquids and their customers use a collection system or other process to remove any free liquids. OSW is currently collecting data to better understand the use and management of both disposable and reusable solvent-contaminated industrial shop towels. The objective of this range-finding effort is to assist the Agency in determining whether the Agency's rules and policies should be modified to address current problems with the regulation of these materials. Questions being addressed in this study include:

Site Visits

1. What are the demographics of industry using solvents and shop towels/wipers; *i.e.*, type of industry, size of firm, Material Safety Data Sheets, type of wipers used, number of wipers used monthly or annually, range of solvent amounts put on wiper, amount of solvent used monthly or annually, RCRA regulatory status [Small Quantity Generator (SQG)/Large Quantity Generator(LQG)], other environmental permits, removal technology utilized, material disposition (municipal landfill, laundry, incineration, etc.), etc.

2. What is the variability of solvent amounts placed on shop towels?

3. What is the variability of solvent remaining on shop towels immediately after usage and after 18–24 hours? How were shop towels stored to derive results? What factors explain low evaporation rates?

4. What is the variability of solvents in usage? How often are ''high risk'' solvents used, at what percentage?

5. Does percolation occur during storage? What factors might influence or explain any percolation seen?

6. What removal technologies were used in the site-visits? What are their removal efficiencies?

7. How are shop towels managed after usage? Open containers/closed containers/placed on shelves, etc.

Lab results

8. What are the absorbability rates for different types of shop towels? What factors explain these findings?

9. What were the removal efficiencies for different types of shop towels and solvents? What can we conclude in terms of variability or consistency? What factors might explain these results?

10. What were the evaporation rates we found for different types of solvents and shop towels? What factors help explain these results?

11. What were the percolation rates we found in our experiments? What were the experiments we conducted? What factors might explain results?

Risks

12. What are the relative risks to the air, ground water and surface water for the solvent constituents? What was the methodology used to derive these results?

13. Based upon the above analysis, are there solvent constituents that deserve further analysis to clearly determine whether they pose little or no risk to human health and the environment? Are there solvent constituents that we should clearly discourage?

XII. Regulatory Implementation

A. Upset and Bypass Provisions

A ''bypass'' is an intentional diversion of wastestreams from any portion of a treatment facility in an emergency situation. 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 for indirect dischargers concerning bypasses and upsets are set forth at 40 CFR 403.16 and 403.17.

B. Variances and Modifications

The CWA requires application of the pretreatment standards established pursuant to sections 304 and 307 to all 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 of relief from the application of national pretreatment standards for categories of existing sources.

1. Fundamentally Different Factors (FDFs) Variances

EPA may develop pretreatment standards different from the otherwise applicable requirements for existing sources if an existing facility is fundamentally different with respect to factors considered in establishing the standards applicable to the individual facility. Such a modification is known as a FDF variance. See 40 CFR 403.13. Dischargers subject to PSNS are not eligible for an FDF variance.

In the Water Quality Act of 1987, Congress added new section 301(n) of the Act 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 403 (other than costs) from those considered by EPA in establishing the effluent limitations or pretreatment standards. Section 301(n), also defined the conditions under which 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 the 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 403, authorizing the Regional Administrators to establish alternative standards, further detail the substantive criteria used to evaluate FDF variance requests for existing dischargers to POTWs. Thus, 40 CFR 403.13(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 pretreatment standards. 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 403.13(c)(2), a request for limitations less stringent than the national limitation may be approved only if compliance with the pretreatment standards would result in either (a) a removal cost wholly out of proportion to the removal cost considered during development of the

standards, or (b) a non-water quality environmental impact (including energy requirements) fundamentally more adverse than the impact considered during development of the standards.

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 403.13 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 that are claimed to be fundamentally different are, in fact, fundamentally different from those factors considered by the EPA in establishing the standards. While EPA encourages facilities, or categories of facilities, that believe they qualify for the FDF variance to apply for it, EPA also recognizes that the circumstances under which it can be granted are limited to specific statutory factors that few applicants have satisfied.

2. Removal Credits

The CWA establishes a discretionary program for POTWs to grant ''removal credits'' to their indirect dischargers. This 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. *See* 40 CFR 403.7. EPA has promulgated removal credit regulations as part of its pretreatment regulations. In addition, currently five of the approximately 1500 authorized pretreatment programs have the authority to issue removal credits. Under EPA's pretreatment regulations, the availability of a removal credit for a particular pollutant is linked to the POTW method of using or disposing of its sewage sludge. The regulations provide that removal credits are only available for certain pollutants regulated in EPA's 40 CFR Part 503 sewage sludge regulations (58 FR 9386). The pretreatment regulations at 40 CFR 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 (40 CFR 403.7(a)(3)(iv)(A)).

For this proposed rule, removal credits would be available for the following pollutant parameters being regulated under each of the criteria discussed: (1) land application—Copper, Lead and Zinc; (2) surface disposal—none; (3) incineration—in addition to Lead, removal credits would also be available for Bis(2-Ethylhexyl) Phthalate, Ethylbenzene, Tetrachloroethene, and Toluene if the requirements in 40 CFR part 403, Appendix G.I.(1) are met.

(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 (40 CFR 403.7(a)(3)(iv)(B)).

Under this proposed rule, additional pollutant parameters that would be available for removal credits are as follows: (1) land application—none; (2) surface disposal—Bis(2-Ethylhexyl) Phthalate, Copper, Lead and Zinc and (3) incineration—Copper, and Zinc.

(3) When a POTW disposes of its sewage sludge in a municipal solid waste landfill (MSWLF) that meets the criteria of 40 CFR Part 258, removal credits may be available for any pollutant in the POTW's sewage sludge (40 CFR 403.7(a)(3)(iv)(C)). Thus, given compliance with the requirements of EPA's removal credit regulations,[1] following promulgation of the pretreatment standards being proposed today, removal credits may be authorized for any pollutant subject to pretreatment standards if the applying POTW disposes of its sewage sludge in a municipal solid waste landfill 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 § 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 amendments to the Part 403 regulations (58 FR 9382–9383), 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 include all those pollutants that EPA either specifically regulated in Part 503 or evaluated for regulation and determined would not adversely affect sewage sludge use and disposal.

Consequently, in the case of a pollutant for which EPA did not perform a risk assessment in developing its Round 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.[2]

[1] Under 40 CFR 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).

[2] In the Round One sewage sludge regulation, EPA concluded, on the basis of risk assessments, that certain pollutants (see Appendix G to Part 403)

Continued

EPA has concluded that a POTW discharge of a particular pollutant will not prevent sewage sludge use (or disposal) so long as the POTW is complying with EPA's Part 503 regulations and so long as the POTW demonstrates that use or disposal of sewage sludge containing that pollutant will not adversely affect public health and the environment. Thus, if the POTW meets these two conditions, a POTW may obtain removal credit authority for pollutants other than those specifically regulated in the part 503 regulations. What is necessary for a POTW to demonstrate that a pollutant will not adversely affect public health and the environment will depend on the particular pollutant, the use or disposal means employed by the POTW and the concentration of the pollutant in the sewage sludge. Thus, depending on the circumstances, this effort could vary from a complete 14-pathway risk assessment modeling exercise to a simple demonstration that available scientific data show that, at the levels observed in the sewage sludge, the pollutant at issue is not harmful. As part of its initiative to simplify and improve its regulations, at the present time, EPA is considering whether to propose changes to its pretreatment regulations so as to provide for case-by-case removal credit determinations by the POTWs' permitting authority.

EPA has already begun the process of evaluating several pollutants for adverse potential to human health and the environment when present in sewage sludge. In November 1995, 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 only two pollutants for regulation in the Round Two sewage sludge regulations dioxins/dibenzofurans (all monochloro to octochloro congeners) and polychlorinated biphenyls.

The Round Two sewage sludge 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 propose that removal credits should be authorized for identified 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 pretreatment standards.

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.

Appendix A—Abbreviations, Acronyms, and Other Terms Used in This Notice

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

Agency—The U.S. Environmental Protection Agency.

Annually—For purposes of the exclusion, annually would mean per calendar year.

AWQS—Ambient Water Quality Standards are provisions of State or Federal law that consist of a designated use or uses for the waters of the United States and water quality criteria for such waters based upon such uses. Water Quality Standards are designed to protect health or welfare, enhance the quality of the water and serve the purposes of the Act (40 CFR 131.3).

BADCT—best available demonstrated control technology, as described in section 306 of the CWA.

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

BMPs—Best Management Practices—As authorized by section 304(e) and 402 of the CWA. Gives the Administrator the authority to publish regulations to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage.

BCT—Best Conventional Pollutant Control Technology, as described in section 304(b)(4) of the CWA.

BPT—Best Practicable Control Technology Currently Available, as described in section 304(b)(1) of the CWA.

CAA—Clean Air Act, 33 U.S.C. 7401–7671q.

CBI—Confidential Business Information.

CEB—Chemical Emulsion Breaking.

C–E—Cost-Effectiveness Analysis

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

Cooperative—An enterprise or organization owned by and operated for the benefit of those using its services. For purposes of this rule, a laundry serving like facilities owned by and/or operated for the benefit of those facilities.

CP—Chemical Precipitation.

CWA—Clean Water Act. The Federal Water Pollution Act, 33 U.S.C. 1251 *et seq.*

DAF—Dissolved Air Flotation.

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

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

Dry cleaning—The cleaning of fabrics using an organic-based solvent rather than water-based detergent solution.

EA—Economic Assessment.

EIA—Economic Impact Analysis.

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 that are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean. (CWA Sections 301(b) and 304(b)).

EPA—The U.S. Environmental Protection Agency.

E.O.—Executive Order.

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

FDF—Fundamentally Different Factor—Section 301(n) of the CWA. This section authorizes 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 at 40 CFR 403.13.

FTE—Full-time Equivalent.

HAPs—Hazardous Air Pollutants.

HEM—N-Hexane Extractable Material.

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

IL—Industrial Laundry.

Industrial laundry facility—any facility that launders industrial textile items from off-site as a business activity. Either the industrial laundry facility or the off-site customer may own the industrial laundered textile items. This includes textile rental companies that perform laundering operations.

Industrial textile items—items such as, but are not limited to: shop towels, printer towels/rags, furniture towels, rags, mops, mats, rugs, tool covers, fender covers, dust-control items, gloves, buffing pads, absorbents, uniforms, filters, and clean room garments.

IRFA—Initial Regulatory Flexibility Analysis.

IRIS—Integrated Risk Information System.

IRS—Internal Revenue Service.

Laundering—washing items with water, including water washing following dry cleaning.

Linen—items such as sheets, pillow cases, blankets, bath towels and washcloths, hospital gowns and robes, tablecloths, napkins, tableskirts, kitchen textile items, continuous roll towels, laboratory coats, family laundry, executive wear, mattress pads, incontinence pads, and diapers. This list is intended to be an inclusive list.

LTA—Long Term Average. For purposes of the pretreatment standards, average pollutant levels achieved over a period of time by a facility, subcategory, or technology option. LTAs were used in developing the standards in today's proposed rule.

MACT—Maximum Achievable Control Technology.

NTTAA—National Technology Transfer and Advancement Act

New Source—''New source'' is defined in section 306 of the CWA and at 40 CFR 122.12 and 122.29 (b).

Non-conventional pollutants—Pollutants that are neither conventional pollutants nor priority pollutants listed at 40 CFR part 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 (including energy requirements).

NPDES—The National Pollutant Discharge Elimination System authorized under Section 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—Based on BADCT and apply to all pollutants (conventional, nonconventional, and toxic). Section 306 of the CWA.

OC—Organics Control.

O&G—Oil and Grease.

OMB—Office of Management and Budget.

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

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

OSW—USEPA Office of Solid Waste.

POTW/POTWs—Publicly owned treatment works, as defined at 40 CFR 403.3(o).

Pretreatment standard—A regulation that establishes industrial wastewater effluent quality required for discharge to a POTW.

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

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

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

RCRA—Resources Conservation and Recovery Act (Pub. L. 94–580) of 1976, as amended.

RFA—Regulatory Flexibility Act.

RREL—Risk Reduction Engineering Laboratory.

SBA—Small Business Administration.

SBREFA—Small Business Regulatory Enforcement Fairness Act.

SGT-HEM—Silica Gel Treated N-Hexane Extractable Material.

SIC—Standard Industrial Classification.

Small Business—Businesses with annual revenues less than $10.5 million. This is the higher of the two Small Business Administration definition of small business for SIC codes 7218 and 7213.

TPH—Total Petroleum Hydrocarbons.

TRSA—Textile Rental Services Association of America.

TSS—Total suspended solids.

TWF—Toxic Weighting Factor.

UMRA—Unfunded Mandates Reform Act (PL 104–4), establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local and tribal governments and the private sector.

UTSA—Uniform and Textile Service Association.

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.

VOC—Volatile Organic Compound.

Water washing—The process of washing laundry items in which water is the solvent used.

List of Subjects in 40 CFR Part 441

Environmental protection, Industrial laundry discharges, Water pollution control, Waste treatment and disposal.

Dated: November 7, 1997.

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 441 as follows:

PART 441—THE INDUSTRIAL LAUNDRIES INDUSTRY POINT SOURCE CATEGORY

General Provisions

Sec.

Authority: 33 U.S.C. 1311, 1314, 1316, 1317, 1318, and 1361.

General Provisions

§ 441.1 General definitions.

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

(a) *Dry cleaning*—The cleaning of fabrics using an organic-based solvent rather than water-based detergent solution.

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

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

(d) *Water washing*—The process of washing laundry items in which water is the solvent used.

§ 441.2 Applicability.

(a) Except as stated in paragraphs (b) through (e) of this section, the provisions of this part apply to wastewater discharges from industrial laundry facilities. An industrial laundries facility is any facility that launders industrial textile items from off-site as a business activity (*i.e.*, launders industrial textile items for other business entities for a fee or through a cooperative arrangement). Either the industrial laundry facility or the off-site customer may own the industrial laundered textile items. This definition includes textile rental companies that perform laundering operations. Laundering means washing with water, including water washing following dry cleaning. Industrial textile items include, but are not limited to industrial: shop towels, printer towels/rags, furniture towels, rags, mops, mats, rugs, tool covers, fender covers, dust-control items, gloves, buffing pads, absorbents, uniforms, filters and clean room garments. If any of these items are used by hotels, hospitals, or restaurants, they are not industrial items.

(b) The provisions of this part do not apply to discharges from: on-site laundering at industrial facilities, laundering of industrial textile items originating from the same business entity, and facilities that exclusively launder linen items, denim prewash items, new items (i.e. items directly from textile manufacturers, not yet used for intended purpose), any other items that come from laundering of hotel, hospital, or restaurant items or any combination of these items. This part does apply to hotel, hospital, or restaurant laundering of industrial textile items. In addition, the provisions of this part do not apply to discharges from the oil-only treatment of dust mops. Furthermore, the provisions of this part do not apply to laundering exclusively through dry cleaning.

(c) By linen items EPA means: sheets, pillow cases, blankets, bath towels and washcloths, hospital gowns or robes, tablecloths, napkins, tableskirts, kitchen textile items, continuous roll towels, laboratory coats, household laundry, executive wear, mattress pads, incontinence pads, and diapers. This list is an inclusive list.

(d) For facilities covered under the Industrial Laundry definition, wastewater from all water washing operations is covered, including the washing of linen items as long as these items do not constitute 100 percent of the items washed.

(e) The provisions of this part do not apply to industrial laundry facilities that as of [the effective date of the final rule] always launder less than one million pounds of incoming laundry per year and launder less than 255,000 pounds of shop and/or printer towels/rags per year. By per year, EPA means on a calendar year basis for the industrial laundry facility. If any excluded facility launders one million pounds or more of incoming laundry per year or 255,000 pounds or more of shop and/or printer towels/rags per

year, it will no longer be excluded from the standards.

§ 441.21 Pretreatment Standards for Existing Sources (PSES).

Pursuant to the CWA section 307(b)(1), indirect dischargers are required to comply with pretreatment standards for existing sources by three years of [the effective date of the final rule]. For purposes of this part, indirect dischargers must comply with this part by three years after [the date of publication of the final rule].

§ 441.22 Pretreatment Standards for New Sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this part that introduces pollutants into a publicly owned treatment works must comply with 40 CFR part 403 and achieve as pretreatment standards for new sources (PSNS) the same standards as those specified in § 441.21 for existing sources (PSES).

TABLE 1 TO PART 441—PRETREATMENT STANDARDS

Pollutant parameter	CP—Daily maximum (mg/L)
Bis (2-Ethylhexyl) Phthalate	0.13
Ethylbenzene	1.64
Naphthalene	0.23
Tetrachloroethene	1.71
Toluene	2.76
m-Xylene	1.33
o&p-Xylene	0.95
Copper	0.24
Lead	0.27
Zinc	0.61
SGT–HEM [1]	27.5

[1] Monthly average limitation for SGT–HEM under CP option is 15.4 mg/L.

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