ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 469

[FRL 2472-2]

Electrical and Electronic Components Point Source Category Pretreatment Standards, and New Source Performance Standards; (Phase II)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This regulation limits the discharge of pollutants into navigable waters and publicly owned treatment works (POTWs) from cathode ray tube and luminescent materials manufacturing facilities. The Clean Water Act and a Settlement Agreement require EPA to issue this regulation.

The purpose of this regulation is to provide new source performance standards (NSPS) for direct dischargers and pretreatment standards for new and existing indirect dischargers.

DATES: In accordance with 40 CFR 100.01 (45 FR 26048), this regulation shall be considered issued for purposes of judicial review at 1:00 p.m. Eastern time on December 28, 1983. These regulations shall become effective January 27, 1984.

The compliance date for new source performance standards (NSPS) and pretreatment standards for new sources (PSNS) for both subcategories is the date the new source begins operations. The compliance date for pretreatment standards for existing sources (PSES) for the cathode ray tube subcategory is July 14, 1987 for control of specified toxic metals, fluoride, and total toxic organics (TTO).

Under Section 509(b)(1) of the Clean Water Act judicial review of this regulation can be obtained only by filing a petition for review in the United States Court of Appeals within 90 days after these regulations are considered issued for purposes of judicial review. Under Section 509(b)(2) of the Clean Water Act, the requirements of the regulations may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

ADDRESSES: Technical information may be obtained by writing to Mr. John Newbrough, Effluent Guidelines Division (WH-552), EPA, 401 M Street, SW., Washington, D.C. 20460, or by calling him at (202) 382-7158. Copies of the technical documents will be available from the National Technical Information Service, Springfield, Virginia 22161 (703) 487-4600. Economic information may be obtained by writing to Ms. Renee Rico, Office of Analysis and Evaluation (WH-586), 401 M Street, SW., Washington, D.C. 20460 or by calling her at (202) 382-5386. The economic analysis will also be available from the National Technical Information Service.

The record supporting this rulemaking will be available for public review approximately six weeks from publication in the **Federal Register** in EPA's Public Information Reference Unit, Room 2404 (Rear) (EPA Library), 401 M Street, SW., Washington, D.C. The EPA information regulation (40 CFR Part 2) provides that a reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: John Newbrough at (202) 382-7158.

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I. Legal Authority

This regulation is being promulgated under the authority of Sections 301, 304, 306, 307, 308, 309, and 501 of the Clean Water Act. This regulation is also being promulgated in response to the Settlement Agreement in *Natural Resources Defense Council, Inc. v. Train,* 8 ERC 2120 (D.D.C. 1976), *modified* 12 ERC 1833 (D.D.C. 1979), modified by order dated October 26, 1982.

II. Scope of this Rulemaking

The purpose of this rulemaking is to establish new source performance standards and pretreatment standards for existing and new cathode ray tube and luminescent materials manufacturing facilities. This regulation applies to wastewater from cathode ray tube and luminescent materials manufacturing process operations at these facilities, all of which are in the Electrical and Electronic Components (E&EC) Category.

EPA estimates that there are 24 cathode ray tube plants in the United States; one of these plants is a direct discharger and 23 plants discharge to POTW's. The Luminescent Materials Subcategory is comprised of five plants; two are direct dischargers, two are indirect dischargers, and one plant achieves zero discharge through evaporation.

For the Cathode Ray Tube Subcategory, EPA is promulgating pretreatment standards for existing and new sources (PSES and PSNS) and new source performance standards (NSPS) for direct dischargers. For the Luminescent Material Subcategory, EPA is promulgating new source standards for direct and indirect dischargers (NSPS and PSNS).

III. Background

A. The Clean Water Act and the NRDC Settlement Agreement

The Federal Water Pollution Control Act Amendments of 1972 established a comprehensive program to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," Section 101(a).

- Section 301(b)(1)(A) set a deadline of July 1, 1977, for existing industrial direct dischargers to achieve "effluent limitations requiring the application of the best practicable control technology currently available" ("BPT").

• Section 301(b)(2)(A) set a deadline of July 1, 1983, for these dischargers to achieve "effluent limitations requiring the application of the best available technoloby economically achievable * * * which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants" ("BAT").

• Section 306 required that new industrial direct dischargers comply with new source performance standards ("NSPS"), based on best available demonstrated technology.

• Section 307 (b) and (c) required pretreatment standards for new and existing dischargers to publicly owned treatment works ("POTW"). While the requirements for direct dischargers were to be incorporated into National Pollutant Discharge Elimination System (NPDES) permits issued under Section 402, the Act made pretreatment standards enforceable directly against dischargers to POTWs (indirect dischargers).

• Section 402(a) of the 1972 Act does allow requirements for direct dischargers to be set case-by-case. However, Congress intended control requirements to be based for the most part on regulations promulgated by the Administrator of EPA.

• Section 304(b) required regulations that establish effluent limitations reflecting the ability of BPT and BAT to reduce effluent discharge.

• Section 304(c) and 306 of the Act required regulations for NSPS.

• Section 304(g), 307(b), and 307(c) require regulations for pretreatment standards.

• In addition to these regulations for designated industry categories, Section 307(a) required the Administrator to promulgate effluent standards applicable to all dischargers of toxic pollutants.

• Section 308 gave the Administrator authority to collect information necessary to develop and enforce regulations.

• Finally, Section 501(a) authorized the Administrator to prescribe any additional regulations "necessary to carry out his functions" under the Act.

The EPA was unable to promulgate many of these regulations by the deadlines contained in the Act, and as a result, in 1976, EPA was sued by several environmental groups. In settling this lawsuit, EPA and the plaintiffs executed a "Settlement Agreement" which was approved by the Court. This agreement required EPA to develop a program and meet a schedule for controlling 65 "priority" pollutants and classes of pollutants. In carrying out this program EPA must promulgate BAT effluent limitations guidelines, equivalent pretreatment standards, and new source performance standards for 21 major industries. See *National Resources Defense Council, Inc. v. Train,* 8 ERC 2120 (D.D.C. 1976) as modified, 12 ERC 1833 (D.D.C. 1979) and by order dated October 26, 1982.

Several of the basic elements of the Settlement Agreement program were incorporated into the Clean Water Act of 1977. That law also made several important "mid-course corrections" to the Federal water pollution control program:

• Sections 301(b)(2)(A) and 301(b)(2)(C) of the Act now set July 1, 1984 as the deadline for industries to achieve effluent limitations requiring application of BAT for "toxic" pollutants. "Toxic" pollutants here includes the 65 "priority" pollutants and classes of pollutants which Congress declared "toxic" under Section 307(a) of the Act. They are the same as those listed in the Settlement Agreement.

• Likewise, EPA's programs for new source performance standards and pretreatment standards are now aimed principally, but not exclusively, at controlling toxic pollutants.

• To strengthen the toxics control program, Section 304(e) of the Act authorizes the Administrator to prescribe certain "best management practices" ("BMPs"). These BMPs are to prevent the release of toxic and hazardous pollutants from: (1) Plant site runoff, (2) spillage or leaks, (3) sludge or waste disposal, and (4) drainage from raw material storage if any of those events are associated with, or ancillary to, the manufacturing or treatment process.

In keeping with its emphasis on toxic pollutants, the Clean Water Act of 1977 also revised the control program for non-toxic pollutants.

• For "conventional" pollutants identified under Section 304(a)(4) (including biochemical oxygen demand, suspended solids, fecal coliform and pH), the new Section 301(b)(2)(E) requires "effluent limitations requiring the application of the best conventional pollutant control technology" ("BCT")—instead of BAT—to be achieved by July 1, 1984. The factors considered in assessing BCT for an industry include the relationship between the cost of attaining a reduction in effluents and the effluents reduction benefits attained, and a comparison of the cost and level of reduction of such pollutants by publicly owned treatment works and industrial sources.

For those pollutants which are neither "toxic" pollutants nor "conventional" pollutants, Sections 301(b)(2)(A) and (b)(2)(F) require achievement of BAT effluent limitations within three years after their establishment or by July 1, 1984, whichever is later, but not later than July 1, 1987.

B. Prior EPA Regulations

No national guidelines or standards are now applicable to the Cathode Ray Tube and Luminescent Material Subcategories of the E & EC category. On April 8, 1983, EPA promulgated Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards as "Phase I" regulations for two subcategories of the electrical and electronic components category (48 FR 15382). Those subcategories were Semiconductors and Electronic Crystals. EPA also determined at that time that 17 subcategories of this industry did not require national guidelines or standards.

C. Overview of the Industry

The Electrical and Electronic Components Point Source Category (E&EC) includes plants which are a subset of the Standard Industrial Classification (SIC) Major Group 36, Electrical and Electronic Machinery, Equipment and Supplies.

EPA originally considered 21 subcategories in the E&EC industry (48 FR 15382). As part of the Phase I rulemaking, seventeen (17) subcategories were excluded from regulation under Paragraph 8 of the NRDC Settlement Agreement, which provides that national guidelines need not be issued for sources which are, generally, not discharging significant toxic pollutants. In Phase I EPA promulgated standards for two subcategories (Semiconductors and Electronic Crystals) on April 8, 1983, 48 FR 15382. EPA also announced that two other subcategories—Luminescent Materials and Electron Tubes—would be the subject of these Phase II Standards. In developing these standards, however, EPA has realized that the Electron Tubes Subcategory should be divided into two subcategories, Cathode Ray Tubes (CRT) and Receiving and Transmitting Tubes (RTT), because the first subcategory (CRT) is comprised of operations which result in wastewater discharges while the second subcategory (RTT) consists of operations which are primarily dry.

Luminescent materials (phosphors) are those materials that emit electromagnetic radiation (light) upon excitation by such energy sources as photons, electrons, applied voltage, chemical reaction, or mechanical

energy. These luminescent materials are used for a variety of applications, including flourescent lamps, high-pressure mercury vapor lamps, color television picture tubes and single phosphor tubes.

The Luminescent Materials Subcategory consists of two (2) direct dischargers, two (2) indirect dischargers and one (1) plant which used an evaporation pond with no surface water discharge. The major pollutants discharged by luminescent materials plants are cadmium, fluoride, zinc, antimony and suspended solids.

Cathode ray tubes (CRTs) are devices in which high velocity electrons are focused through a vacuum within a gas tight glass envelope to generate an image on a luminescent surface in a pattern controlled by electrostatic and electrodynamic forces applied to the tube. Products are comprised of two CRT types:

- Aperture mask tubes which are cathode ray tubes that contain multiple color phosphors and use an aperture (shadow) mask. This type of tube is referred to as a color television picture tube.
- Cathode ray tubes that contain a single phosphor and no aperture mask are referred to as single phosphor tubes. These are manufactured for usage in display systems such as word processors, computer systems and arcade video games.

The Cathode Ray Tube Subcategory is comprised of twenty-four (24) plants: Twenty-three (23) are indirect dischargers and one is a direct discharger. The major pollutants discharged by CRT plants are cadmium, zinc, chromium, lead, toxic organics, fluroide, and suspended solids.

The Receiving and Transmitting Tube Subcategory includes electronic devices in which conduction of electrons takes place through a vacuum or a gaseous medium within a sealed glass, quartz, metal or ceramic casing.

- Receiving tubes are multiterminal devices that conduct electricity more easily in one direction than in the other and are noted for their low voltage and low power application. They are used to amplify electrical signals in radio and television receivers, computers, and sensitive control and measuring equipment.
- Transmitting tubes are characterized by the use of electrostatic and electromagnetic fields applied externally to a stream of electrons to amplify a radio frequency signal. There are several different types of transmitting tubes such as klystrons, magnetrons, and traveling wave tubes. In addition, some specialized transmitting tubes are manufactured such as image intensifiers and photomultipliers.

The assembly process for receiving and transmitting tubes is primarily a dry process. Any wastewaters that are produced in the manufacturing processes are covered by other categorical standards.

IV. Data Gathering Efforts and Derivation of the Final Limitations

The methodology and data gathering efforts used in developing the proposed regulations were discussed in the preamble to the March 1983 proposal. In summary, before proposal, the Agency conducted a data collection program at several cathode ray tube and luminescent materials plants. This program stressed the acquisition of data on the presence and treatability of the toxic pollutants. It used analytical methods discussed in *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants* (U.S. EPA, April 1977). Based on the results of that program, EPA identified several distinct treatment technologies, including both end-of-pipe and in-plant technologies, that are or can be used to treat wastewaters from these industries.

For each of these technologies, the Agency complied and analyzed historical and newly generated data on the performance of these technologies, considered the non-water quality impacts (including impacts on air quality, solid waste generation and energy requirements), and estimated the costs and economic impacts of applying each technology industrywide.

The data gathering effort was the basis for the Agency's first two critical determinations. First, pursuant to Section 307(b) of the Act, EPA identified those pollutants that were present and determined which would pass through or interfere with a POTW, or its sludge. Second, EPA evaluated existing and potential pollution control technologies. It discovered that a basic and "classic" pollution control technology was widely practiced in the industry. The system is designed to remove toxic metals from raw wastestreams and it has two principal components—precipitation and clarification. Filters are also used to control typical pollutants.

EPA then analyzed the data to discover what those commonly used treatment devices could achieve. For each regulated pollutant EPA looked for two key figures: The average concentration that properly operated technology would achieve over time, and the variability from that average that might occur even at well-operated plants.

To find long-term concentration averages for toxic metals and fluoride, EPA examined the pollutant concentrations measured in the wastewaters of plants which had been sampled by the Agency and/or had submitted data to EPA. EPA then deleted data that did not represent good treatment. In the CRT Subcategory long-term concentration averages were based on data from one EPA sampled plant and on industry submitted data from two plants. For the Luminescent Materials Subcategory long-term concentration averages for toxic metals and fluoride were based on two EPA-sampled plants. If a plant intends to comply consistently with the regulatory limit it should use the concentration averages as the basis for design and operation. They are listed, for each pollutant, in Section VII of the Development Document. The concentration averages were the basis for the costs considered in this rulemaking.

Estimates of variability are also included in the development of effluent pollutant concentrations. The regulations specify daily maximum and monthly average limitations. The monthly and daily limitations require different estimates of variability. The daily limitations include estimates of variability that express the variation expected among observations from one day. The monthly average maximum limitations include estimates of variability that express the variation expected among the averages of ten pollutant concentration values from ten different days.

Finally, the Agency multiplied the resulting variability factors by the expected long-term concentration averages. The results were effluent concentration limits based on actual observations of well-operated plants which allowed for the variability observed at all well-operated reporting facilities. EPA has assessed the cost of this regulation on the assumption that plants design and operate to meet these long-term concentration averages. The final limits represent monthly and daily limits which a well-designed and operated plant can meet approximately 95 and 99 percent of the time,

respectively. If a plant designs and operates its treatment system to achieve the concentration average and control variability, then there should be a very low expectation that any individual sampling of the discharge will exceed the promulgated limit.

Costs and economic impacts of the technology options considered are discussed in detail in *Economic Impact Analysis of Effluent Limitations Guidelines and Standards for the Electrical and Electronic Components Industry—Phase II.* A more complete description of the Agency's study methodology, data gathering efforts, and analytical procedures supporting the regulation can be found in the *Development Document for Effluent Limitations Guidelines and Standards for the Electrical and Electronic Components Point Source Category—Phase II.*

V. Industry Subcategorization

In developing this regulation, the Agency considered whether different effluent limitations and standards are appropriate for different segments of the Electrical and Electronic Components manufacturing industry. The Act requires EPA to consider a number of factors to determine if subcategorization is needed. These factors include raw materials, final products, manufacturing processes, geographical location, plant size and age, wastewater characteristics, non-water-quality environmental impacts, treatment costs, energy costs, and solid waste generation.

After considering the above factors the Agency concluded that product type was the appropriate basis for subcategorization. Product type determines both the raw and process material requirements and the number and type of manufacturing processes used. Plants manufacturing the same product were found to have similar wastewater characterists. Other factors affected the wastewater characteristics, but were not significant enough in themsleves to be used as the basis for subcategorization.

Using product type as a basis, EPA identified the Luminesecent Materials Subcategory and the Electron Tube Subcategory. Then it refined the Electron Tube Subcategory as: (1) Receiving and Transmitting Tubes and (2) Cathode Ray Tubes.

This redefinition was necessary because electron tube manufacturing is comprised of two distinct product types employing different raw materials and manufacturing processes, with very different wastewater characteristics. Therefore this subcategory has been divided into the above subcategories, based on the products produced.

Luminescent material products generates significant wastewater and EPA has retained it as a subcategory. Cathode ray tube manufacture also employs raw materials and process operations which generate wastewater. Today's standards cover wastewater from those processes. However, production of receiving and transmitting tubes is primarily a dry process. Thus EPA is not promulgating standards to cover the Receiving and Transmitting Tubes Subcategory (See Section IX below).

The Development Document provides further background on decisions concerning subcategorization and on the make-up of the regulated subcategories.

VI. Available Wastewater Control and Treatment Technology

A. Status of In-Place Technology

This section describes the status of in-place technology for the subcategories regulated by this rulemaking: Cathode Ray Tubes and Luminescent Materials.

Wastewater treatment techniques currently used in the Cathode Ray Tube Subcategory include both in-process and end-of-pipe waste treatment. In-plant process waste treatment is designed to remove pollutants from contaminated manufacturing process wastewater at some point in the manufacturing process. End-of-pipe treatment is wastewater treatment at the point of discharge.

In-process control techniques with widespread use in the Cathode Ray Tube Subcategory are: (1) Collection of spent solvents for resale, reuse or disposal, and (2) segregation of spent acid wastes for contract hauling. Contract hauling refers to the industry practice of contracting a firm to collect and transport wastes for off-site disposal.

End-of-pipe controls in the Cathode Ray Tube Subcategory generally include neutralization. In addition, nine of the cathode ray tube plants use end-of-pipe precipitation/clarification for control of toxic metals. One plant treats wastewater by filtration, following precipitation/clarification.

In the Luminescent Materials Subcategory the two direct dischargers have central end-of-pipe treatment systems that utilize precipitation/clarification technologies. Of the three other plants in the subcategory, one plant achieves zero discharge through the use of an evaporation pond and two are indirect dischargers, one of which neutralizes its wastes end-of-pipe, while the other uses precipitation/clarification technology to control toxic metals prior to discharge.

B. Water Use

EPA attempts, when possible, to set production-based effluent limitations which will tend to reduce water usage. In the case of the CRT and Luminescent Material Subcategories, the Agency is not establishing production-based limitations and standards. We believe that available data do not support the establishment of such limitations and standards on a nation-wide basis and that existing economic incentives already minimize wastewater discharge flows.

The water used in the production of CRTs is deionized (DI) water produced by using an ion exchange process. Because of the higher costs associated with deionizing water, the industry practice is to reuse and conserve water to whatever extent practical. Therefore, further wastewater flow reduction by increased water conservation does not appear practicable. Moreover, the Agency was unable to determine a nationally applicable relation between production and wastewater discharge. This was because the degree to which plants practice water reuse and conservation depends on product quality requirements and, to a lesser extent, site-specific water supply factors.

C. Control Treatment Options

EPA considered the following treatment and control options for wastewater discharges from facilities within the Cathode Ray Tube and Luminescent Materials Subcategories. The options evaluated are based on treatment observed in plants EPA visited or which described their own treatment processes. They are discussed in further detail in the Development Document, in Chapter VII.

Option 1—Neutralization for pH control.

Option 2—Option 1 plus preliminary chromium reduction, and end-of-pipe precipitation/clarification for treatment of toxic metals (cadmium, chromium, antimony, lead, zinc), fluoride, and total suspended solids (TSS).

Option 3—Option 2 plus filtration for further reduction of toxic metals.

Option 4—Solvent management for control of toxic organics. Solvent management is not an end-of-pipe treatment system, but rather an in-plant control which consists of segregation and collection of used solvents for resale or contract disposal. Process wastewater is the only other source of toxic organics for these subcategories.

Since the spent solvents would not be discharged into the wastewater, toxic organic limitations based on this control would be equivalent to the maximum "background" concentration of toxic organics found in the discharge as a result of process wastewater contamination. Because it is an in-plant control, this option could be used in consort with any of the other options and it was considered in connection with the effect of each other option.

Option 5—End-of-pipe carbon adsorption for additional removal of toxic organics.

As previously stated, one plant in the Luminescent Materials Subcategory utilizes an evaporation pond to achieve zero discharge. Evaporation ponds were rejected as the basis for national standards because of their limited effectiveness, except in dry, arid, regions of the country. In addition, evaporation ponds require significant space availability.

The only plant now using evaporation as a control technology had process wastewater flows below those generally observed at larger plants. Flow reductions to an equivalent level may not be achievable by some larger plants since, as discussed above, plants that use DI water already have incentives to minimize process water use.

VII. General Criteria for Effluent Limitations Considered Under This Regulation

1. *Pretreatment Standards for Existing Sources.* Section 307(b) of the Act requires EPA to promulgate pretreatment standards for existing sources (PSES), which industry must comply with within a time period not to exceed three years from promulgation. PSES are designed to prevent the discharge of pollutants which pass through, interfere with, or are otherwise incompatible with the operation of POTWs.

The legislative history of the 1977 Act indicates that pretreatment standards are to be technology-based and analogous to the best available technology for removal of toxic pollutants. The General Pretreatment Regulations which serve as the framework for the pretreatment standards are in 40 CFR Part 403, 46 FR 9404 (January 28, 1981).

EPA has generally determined that there is pass through of pollutants if the percent of pollutants removed by a well-operated POTW achieving secondary treatment is less than the percent removal by the best available technology (BAT) model treatment system.

This regulation does not promulgate a BAT standard, because neither subcategory contains more than two direct dischargers and these plants already have technology in-place, as required by existing permits. However, in assessing pass-through EPA has assumed a BAT equivalent to the treatment technology already installed by direct discharging plants (i.e. end-of-pipe precipitation/clarification), which is the same as that selected for PSES.

A study of 40 well-operated POTWs with biological treatment and meeting the secondary treatment criteria showed that the toxic metals regulated by this regulation (cadmium, chromium, antimony, lead, and zinc) are typically removed at rates varying from 20 to 70 percent. POTWs with only primary treatment have even lower rates of removal. In contrast to POTWs, BAT level treatment by sources in this industrial category can remove these metals at rates of approximately 96 percent or more. Accordingly, these metals "pass through" POWs.

The same POTW study indicates that one-fourth of well-operated POTWs with secondary treatment achieved removals of less than 40 percent for chloroform, less than 85 percent for 1,1,1,-trichloroethane, less than 29 percent for methylene chloride, less than 34 percent for bis(2-ethylhexyl) phthalate, less than 88 percent for toluene, and less than 87 percent for trichloroethylene. By comparison, sound solvent management practices achieve a TTO reduction of greater than 99 percent. Accordingly, pass-through of toxic organic pollutants does occur.

There is no significant removal of fluoride by typical POTW treatment systems, while BAT level treatment consisting of precipitation/clarification has been shown to remove as much as 95 percent from these waste streams. Thus, pass-through of fluoride does occur.

These standards rely upon precipitation and clarification for metals removal. This treatment system will also remove fluoride to the levels required by this regulation. We are regulating fluoride in the Cathode Ray Tube Subcategory because the levels of fluoride in the raw waste in that Subcategory are very high—up to 970 mg/l. This is in contrast to the limits for Phase I of this category which did not rely on end-of-pipe treatment and which did not set limits on fluoride. In Phase I the highest occurrence of fluoride in raw wastewater—in the semiconductor subcategory—was only 146 mg/l.

2. *Pretreatment Standards for New Sources.* Section 307(c) of the Act requires EPA to promulgate pretreatment standards for new sources (PSNS) at the same time that it promulgates NSPS. These standards are intended to prevent the discharge of pollutants which pass through, interfere with or are otherwise incompatible with a POTW. New indirect dischargers, like new direct dischargers, have the opportunity to incorporate the best available demonstrated technologies—including process changes, in-plant controls, and end-of-process treatment technologies and to select plant sites that ensure the treatment system can be adequately installed. Therefore, the Agency sets PSNS after considering the same criteria considered for NSPS. Indirect discharging new sources in these subcategories are expected to have the same pass through of pollutants as existing sources; both luminescent materials plants and CRT plants have high levels of fluoride in their raw effluent—indicating a need to regulate that pollutant for both subcategories.

3. *New Source Performance Standards.* The basis for new source performance standards (NSPS) under Section 306 of the Act is the best available demonstrated technology. New plants have the opportunity to design the best and most efficient processes and wastewater treatment technologies. Therefore, Congress directed EPA to consider the best demonstrated process changes, in-plant controls, and end-of-process treatment technologies that reduce pollution to the maximum extent feasible.

VIII. Summary of Final Regulations and Changes From Proposal

This section describes the technology basis and final effluent limitations for each subcategory and discusses the changes we have made in response to public comments.

A. Cathode Ray Tube Subcategory

Within this subcategory the pollutant parameters of concern that were detected in EPA's sampling and analysis efforts are pH, chromium, TSS, fluoride, cadmium, lead, zinc, and numerous toxic organics.

EPA is promulgating the same technology control options that it proposed. No commenters suggested that the Agency promulgate final regulations based on other technologies.

1. BPT, BAT, and BCT. The Agency is not regulating existing direct dischargers for the reasons cited in Section IX (Pollutants and Subcategories Not Regulated).

2. PSES. For PSES, EPA has selected precipitation/clarification (Option 2) for

the control of toxic metals and fluoride and solvent management (Option 4) for control of toxic organics. As noted above, this technology is widely demonstrated in this industry (as well as in other industries with similar raw wastes). Metal removals greater than 96 percent have been demonstrated. Option 1 (pH neutralization alone) was rejected because data indicated that greater removals were achievable at Option 2 which was economically achievable and already widely utilized. Filtration (Option 3) has not been selected because the additional 1496 annual pounds of national pollutant reduction accomplished by Option 3 are not significant in comparison to the low effluent levels already accomplished by Option 2 in the treatment train. This would only increase expected removals by 1.5 percent. Option 3 would have an additional capital cost of about 1.2 million. Also, no commenters suggested that the Agency promulgate final regulations based on Option 3. For all of these reasons, EPA has decided not to promulgate standards based upon Option 3 technology. Section VII of the Development Document contains a discussion and tables concerning the effluent concentrations that can be achieved using lime precipitation/clarification (Option 2) and those that would be achieved by the addition of a filter (Option 3). Option 5 (carbon adsorption for toxic organics) was rejected for technical reasons. EPA calculated the theoretical concentrations of organics that Option 5 would lead to, and found that it would result in TTO levels equal to, or perhaps worse than, those achieved by proper solvent disposal.

The Agency estimates that implementation of PSES will result in the removal of 109,000 pounds per year of toxic metals and 894,000 pounds per year of fluoride. Plants not presently in compliance with PSES are expected to incur capital costs of $6.5 million and annual costs of $3.4 million. The Agency projects no plant closures or job losses as a result of this regulation. Therefore, PSES is economically achievable.

As in the proposed rule, cadmium, chromium, lead, zinc, and fluoride are being regulated. Following proposal, various industrial sources submitted additional data. EPA has considered these data and consequently both the long-term concentration averages and the variability factors have undergone some changes.

With regard to long-term concentration averages only slight changes were made. The data base was revised for all of the above pollutants. The long-term concentration average (in mg/l) for cadmium changed from 0.019 to 0.020, for chromium from 0.20 to 0.23, for lead from 0.28 to 0.27, for zinc from 0.34 to 0.40, and for fluoride from 20.5 to 14.5.

In calculating variability factors, changes were made to both the daily maximum variability and monthly variability. These changes were partly a result of changes to the data base. They also reflected the change from a monthly average, based on the average variability expected for 22 samples, to a monthly average based on the average variability expected for 10 samples. Sampling frequency is specified by individual control authorities, but 10 times per month is a typical figure for this industry and for other industrial categories.

As in the proposed rule, toxic organics are being regulated as the total of all listed toxic organics found in the discharge at concentrations greater than 0.01 milligrams per liter. This cumulative limit is defined as total toxic organics (TTO) and the specific toxic organic compounds included in the total are listed in Appendix B of this preamble and in §469.31. The TTO list has been revised to reflect those organics found in wastes from plants in the CRT Subcategory. Toxic organics were not found at significant levels in the Luminescent Materials Subcategory.

In addition, as a result of new information and submitted data, the proposed TTO limit of 0.15 milligrams per liter has been changed to 1.58 milligrams per liter. The Agency is not promulgating a 30-day average limitation for TTO. The daily maximum limitation for TTO is based on solvent management which, unlike most treatment options, does not entail pollution control equipment and is therefore not subject to significant performance variations. (See Section XII for a further discussion of the basis for the TTO limit).

3. NSPS and PSNS. For NSPS and PSNS, the Agency is establishing limitations based on Options 3 and 4. This technology consists of solvent management plus end-of-pipe precipitation/clarification, followed by filtration.

Option 3 was selected over Option 2 for new source standards because the installation of filtration technology has been demonstrated by the one existing direct discharger and will accomplish additional removal of toxic metals. Furthermore, new plants have the opportunity to install the best demonstrated technology in the most efficient way. Option 1 was rejected for the same reasons as cited under PSES and because NSPS and PSNS should not be less stringent than PSES. These standards are not expected to cause a barrier to entry.

Since proposal, the Agency has revised the limitations due to revisions of the data base. In many cases this has caused the limitation to increase. For further discussion of the derivation of these limits see Sections IV and XII of this notice and Section VII of the Development Document for Effluent Limitations Guidelines and Standards for the Electrical and Electronic Components Point Source Category—Phase II.

4. Definitions. In response to a comment concerning the coverage of this subcategory, EPA has revised the definition of cathode ray tubes. The term "cathode ray tubes" means electronic devices in which electrons focus through a vacuum to generate a controlled image on a luminescent surface. This definition does not include receiving and transmitting tubes.

5. TTO Monitoring. The TTO certification which control authorities may allow in lieu of monitoring has been changed to reflect concerns expressed by commenters. It is now identical to the promulgated Phase I regulations for this industry (40 CFR Part 469.13 (a) (b) (c) and (d), 48 FR 15394), and similar to provisions of the categorical standards for the metal finishing and electroplating industry. (40 CFR Parts 433 and 413, 48 FR 32462). Indirect dischargers should note that plants which plan to request certification in lieu of monitoring for TTO must still submit a baseline monitoring report as required by 40 CFR 403.12(b). Among other information, this report must show the discharge concentration of all regulated pollutants, including the six toxic organics comprising TTO.

B. Luminescent Materials Subcategory

The technology basis for each standard for the Luminescent Materials subcategory is presented below, along with the rationale for selecting the specific treatment option. The technologies and wastewater characteristics are discussed in more detail in the Development Document. The Agency is not regulating existing direct or indirect dischargers in this subcategory for the reasons cited in Section IX (Pollutants and Subcategories Not Regulated). Therefore, BPT, BAT, BCT and PSES effluent limitations and standards have not been promulgated.

1. NSPS and PSNS. For NSPS and PSNS, EPA is promulgating limitations and standards based on end-of-pipe

precipitation/clarification (Option 2), which has been demonstrated within the industry. This option will control cadmium, antimony, zinc, and fluoride in both the NSPS and PSNS, and also TSS and pH in NSPS. Option 1 alone (pH neutralization) was not selected because Option 2 achieved greater removals of toxic metals at reasonable costs which will not impose a barrier to entry. Option 3 (Option 2 plus filtration) was not selected because the installation of filtration technology would have an insignificant effect (only an additional 0.16 percent) on pollutant removals. Option 4 (control of solvents) was not selected because TTO were not detected in significant quantities in this industry. Option 5 (carbon adsorption) was not selected for similar reasons.

Since proposal, the Agency has revised the limitations due to additions to the data base. In most cases these revisions have caused the limitations to increase. For further discussion of the derivation of these limits see Sections IV and XII of this Notice and Section VII of the Development Document.

2. Definition. EPA has amended the proposed definition to include specific examples of luminescent materials.

IX. Pollutants and Subcategories Not Regulated

A. Settlement Agreement and Exclusion of Subcategories and Toxic Pollutants

The Settlement Agreement specified 65 categories of toxic pollutants as of "priority" concern. EPA, by regulation, has specified 126 pollutants and parameters as measures for those 65 categories. The Agreement also specified certain industrial categories, including the Electrical and Electronics industry, as of "priority" concern. The agreement did contain provisions authorizing the exclusion from regulation, in defined circumstances, of toxic pollutants and industrial categories or subcategories..

EPA is now setting standards for some of the specified 126 pollutants in segments of two subcategories of this industry. EPA has also found it appropriate not to regulate other pollutants in these same subcategories and to exclude certain subcategory segments and one additional subcategory from these standards. Data supporting exclusion of the pollutants and subcategories and subcategory segments identified below are presented in the Development Document for this rulemaking.

1. Exclusion of Pollutants. Toxic pollutants identified in Appendix C to this notice are excluded from regulation for the Cathode Ray Tube Subcategory and the Luminescent Materials Subcategory under Paragraph 8(a)(iii) of the Settlement Agreement.

For the Cathode Ray Tube Subcategory, ten (10) pollutants are excluded because they are present in amounts too small to be effectively reduced by available technologies, and one hundred and six (106) pollutants are excluded because they were not detected in the effluent.

For the Luminescent Materials Subcategory, eleven (11) pollutants are excluded because they are present in amounts too small to be effectively reduced by available technologies, and one hundred twelve (112) pollutants are excluded because they were not detected in the effluent.

2. Exclusion of Subcategories and Subcategory Segments. The manufacture of Receiving and Transmitting Type Electron Tubes is a dry process. That subcategory, therefore, will be excluded from regulation under the provisions of paragraph 8(a)(iv) of the Settlement Agreement.

The Agency is excluding existing direct dischargers in the Cathode Ray Tube Subcategory from this regulation. This exclusion from regulation is under the provisions or Paragraph 8(a)(iv) of the Settlement Agreement, on the basis that there is only one direct discharger which is already subject to an NPDES permit, and has Option 3 (precipitation/ clarification/ filtration) treatment in place. Its current discharge of toxic pollutants is less then 2 pounds/day. Thus, as Paragraph 8(a)(iv) provides, "The amount and toxicity of each pollutant in the discharge does not justify developing national standards."

The Agency is also exluding from regulations all existing dischargers in the Luminescent Materials Subcategory under the provisions of Paragraph 8(a)(iv) of the Settlement Agreement. Of the five (5) plants in this subcategory, 2 are in the direct dischargers segment. Each of these 2 plants discharges (after treatment required by existing NPDES permits) less than 1 pound of toxic metals per plant per day. Two of the remaining plants in the Luminescent Materials Subcategory are indirect dischargers. EPA is excluding these plants form national categorical pretreatment standards under the provisions of paragraph 8(b)(ii) of the Decree on the basis that only two such plants exist and the amount of toxic pollutants that those 2 plants introduce into POTWs is less than 2 pounds per plant per day. The remaining plant in the Luminescent Materials Subcategory utilizes an evaporation pond which does not discharge to surface water.

B. Conventional Pollutants

BOD and oil and grease are not being regulated for either subcategory because they were found only at concentrations below treatability.

IX. Cost and Economic Impact

A. Economic Impact

The Agency's economic impact assessment is presented in the report entitled "Economic Impact Analysis of Effluent Guidelines and Standards for the Electrical and Electronic Components Industry Phase II—Cathode Ray Tubes and Luminescent Materials Subcategories", EPA 440/2-83-012. This report details the investment and annual costs for the Phase II portion of the Electrical and Electronic Components Category. Compliance costs are based on engineering estimates of capital requirements and operations and maintenance costs for the effluent control systems described earlier in this preamble. The report assesses the impact of effluent control costs in terms of production changes, plant closures, employment effects, and balance of trade effects.

EPA requested comments on this analysis at the time of proposal. It has revised this report as a result of public comment and continued analysis. The compliance costs for individual plants have changed as a result of additional data submitted to the Agency. EPA has also revised its estimates of the expected growth in the industry as a result of new publicly available information. EPA has identified 29 plants in the Phase II subcategories that are covered by this regulation. Of these 29 plants, 3 are direct dischargers, 25 are indirect dischargers, and one discharges no wastewater. Only 17 of the plants are expected to incur costs to comply with the PSES regulations for the Cathode Ray Tube Subcategory. All other plants either have appropriate equipment in place or were exempted from national standards for reasons discussed above in Section IX.

PSES

Seventeen of the 23 indirect dischargers in the Cathode Ray Tube Subcategory are expected to incur cumulative compliance costs of $6.5 million in capital investment and $3.4 million annually (1982 dollars). These costs are primarily associated with installation of Option 2 (precipitation/ clarification). In addition, these costs include compliance monitoring at twelve times per month for metals and fluoride and once per month for TTO. EPA expects that average industry

profitability will be reduced by a maximum of 1.8 percent. No plant closures or job losses are projected as a result of this regulation.

The control of toxic organics is expected to result in minimal additional costs because all facilities already practice solvent management to some extent and because the solvents can be collected and sold for reuse. Nevertheless, EPA performed a sensitivity analysis on the costs of compliance for those facilities that the Agency is uncertain already meet the toxic organic limit. That estimate of compliance costs for these facilities assumed that spent solvents would be disposed of as hazardous wastes under the Resource Conservation and Recovery Act (RCRA). The analysis showed that these costs would further decrease profitability by a maximum of only 0.2 percent and would not result in any plant closures or job losses. EPA, therefore, has determined that these standards are economically achievable even if additional spent solvents need to be disposed of in accordance with RCRA.

PSNS

For model plants in the CRT subcategory, incremental capital investment costs range from $5,830 to $228,500 and incremental annualized costs range from $2,400 to $94,800 depending on assumptions concerning plant size (1982 dollars). The capital investment costs represent less than a 13 percent increase over treatment costs for similarly sized existing plants. That increment is an insignificant part of the total cost of constructing new plants. The ratios of annual treatment costs to annual plant sales range from 0.01 to 0.14 percent of sales and are not likely to result in a competitive disadvantage for new sources.

For the Luminescent Materials Subcategory, new source costs reflect the total cost of the treatment technology (not incremental) because no pretreatment standards are proposed for existing indirect dischargers. However, the existing plants do have some treatment installed. Therefore, the impacts stated here are the maximum possible impact. Capital investment costs range from $100,500 to $1.2 million depending on the size of the plant. Total annualized costs range from $58,990 to $583,000. The analysis of new source costs for this subcategory compares annual treatment costs to annual plant sales. The impacts on either an average or large new plant are small and are not expected to result in significant barriers to their entry into the subcategory. The impacts on the smallest new plants, while larger than for the other sizes, are also not expected to cause barriers to entering the industry. Total annual treatment costs as a percentage of sales are expected to range from 1.4 to 7.8 percent for a new small plant.

NSPS

For model plants in the CRT subcategory, new source costs for direct dischargers reflect the total costs of the pollution control technology. Capital investment ranges from $129,400 to $1.8 million, and total annualized costs range from $71,700 to $921,100 depending on plant size (1982 dollars). The total annual treatment costs as a percentage of sales are expected to range from 0.1 to 1.3 percent. However, it should be noted that the one direct discharger already has Option 3 technology installed; thus this cost assessment actually overstates the likely difference in cost. These impacts are considered to be small.

For new sources in the Luminescent Materials Subcategory, the costs and impacts are the same for both direct and indirect dischargers. The costs and comparisons to sales are shown above, under PSNS. No significant barriers to entry are expected.

B. Executive Order 12291

Executive Order 12291 requires EPA and other agencies to perform regulatory impact analyses on major regulations. Major rules are those which impose a cost on the economy of $100 million a year or more or have certain other economic impacts. This regulation is not a major rule because its annualized cost of $3.4 million is less than $100 million and it meets none of the other criteria specified in Section 1(b) of the E.O. 12291.

C. Regulatory Flexibility Analysis

Public Law 96-354 requires EPA to prepare an initial Regulatory Flexibility Analysis for all proposed regulations that have a significant impact on a substantial number of small entities. This analysis may be done in conjunction with or as a part of any other analysis conducted by the Agency. The economic impact analysis described above indicates that there will not be a significant impact on any segment of the regulated population, large or small. Therefore, a formal regulatory flexibility analysis is not required.

D. SBA Loans

The Agency is continuing to encourage small plants to use Small Business Administration (SBA) financing as needed for pollution control equipment. The three basic programs are: (1) The Guaranteed Pollution Control Bond Program, (2) the Section 503 Program, and (3) the Regular Guarantee Program. All the SBA loan programs are only open to businesses that have: (a) Net assets of less than $6 million, and (b) an average annual after-tax income of less than $2 million, and (c) fewer than 250 employees.

For further information on the Guaranteed Pollution Control Bond Program contact: U.S. Small Business Administration, Office of Pollution Control Financing, 4040 North Fairfax Drive, Rosslyn, Virginia 22203, (703) 235-2902.

The Section 503 Program, as amended in July 1980, allows long-term loans to small- and medium-sized businesses. These loans are made by SBA approved local development companies. These companies are authorized to issue Government-backed debentures that are bought by the Federal Financing Bank, an arm of the U.S. Treasury.

Through SBA's Regular Guarantee Program, loans are made available by commercial banks and are guaranteed by the SBA. This program has interest rates equivalent to market rates.

For additional information on the Regular Guarantee and Section 503 Programs contact your district or local SBA office. The coordinator at EPA Headquarters is Ms. Frances Desselle, who may be reached at (202) 382-5373.

XI. Non-Water Quality Aspects of Pollution Control

The elimination or reduction of one form of pollution may aggravate other environmental problems. Sections 304(b) and 306 of the Act require EPA to consider the non-water quality environmental impacts of these regulations including air and noise pollution, radiation, solid waste generation, and energy requirements. While balancing pollution problems against each other, and against energy use, is difficult, EPA believes that this final regulation best serves overall national goals.

Compliance with the regulation, including PSES, NSPS, and PSNS will have no effect on air, noise, or radiation pollution and will only result in minimal solid waste generation and minimal increased energy usage. The amount of solid waste generated per year will be 1,200 metric tons beyond that now generated. However, PSES and PSNS will result in less contamination of sludge being produced by POTWs. Available information indicates that the solid waste generated will not be hazardous as defined in the Resource Conservation and Recovery Act

(RCRA). Energy requirements associated with these regulations will be 390,000 kilowatt-hours per year or only 65 kilowatt-hours per day per facility, beyond that now used for wastewater treatment.

EPA's relevant program offices have had an opportunity to review this analysis. Based on the above non-water quality impacts from these regulations, the Agency has concluded that the effluent reduction benefits justify any non-water quality environmental impacts and that this regulation best serves overall national environmental goals.

XII. Public Participation and Response to Major Comments

On March 9, 1983, the Agency published proposed rules for effluent limitations guidelines, pretreatment standards, and new source performance standards under the Clean Water Act for the Cathode Ray Tube and Luminescent Materials Subcategories of the Electrical and Electronic Components Point Source Category. Following the publication of the proposed rules, we provided the technical development document and economic document supporting the proposed rules to industry, environmental groups, government agencies, and the public sector. A workshop was held on the Electrical and Electronic Components Phase II Rulemaking in Philadelphia, Pennsylvania on April 29, 1983. On May 4, 1983, in Washington, D.C., a pretreatment public hearing was held at which no persons presented testimony.

The comment period closed on May 9, 1983. Comments were received from the following: Sanitary District of Rockford, Clinton Electronics Corporation, Philips ECG, Litton Electron Tube Division, American Electronics Association, Vulcan Chemicals, Electronic Industries Association, RCA Corporation, General Electric Company.

All comments received have been carefully considered, and appropriate changes in the regulations have been made whenever available data and information supported these changes. Major issues raised by commenters are addressed in Section VIII and this section. A summary of all comments received and our responses to them is included in a report "Response to Public Comments, Electrical and Electronic Components Effluent Guidelines and Standards": Phase II, which is a part of the public record for this regulation.

1. *Comment.* Commenters contended that the data in the record to support the TTO limit are insufficient. They argued that TTO data from one plant were insufficient and not representative, and that plants could not achieve the limit using solvent management technology. In addition, the proposed TTO limit was said to be too stringent because the contributions of TTO from individual process streams were allegedly not reflected.

Response: EPA visited and sampled representative CRT facilities. All of these facilities practice solvent management by segregating and collecting spent solvents used in the manufacturing process. Sampling data generally showed very low quantities of TTO. Data from one plant (11114) were unusable at proposal because available flow data did not allow the Agency to account for dilution problems. Because of limited data, the proposed limit for TTO (0.15 mg/l) was in fact based on the maximum TTO observed during three days of sampling at one plant. Recognizing the limited data base, EPA requested in the preamble to the proposed regulations that additional data be submitted by industry.

In response to this request one facility submitted usable data for one-day sampling . Another plant also submitted data; however, the sampling methodology used did not comply with EPA sampling protocol since the grab samples were not composited for analysis. Therefore that data was not used in evaluating the TTO limit. Additionally, Plant 11114 submitted flow-data which allowed us to calculate the TTO value for one observation by deleting the dilution of cooling water and other non-related process streams. Combining the two additional usable data points with the three data points from the plant used at proposal provided a total of five treated effluent data points from three plants. These data ranged from .045 mg/l to 1.58 mg/l of TTO. Based on information submitted by industry and on engineering site visits to all three plants, the Agency believes that the available TTO data reflect effective solvent management. Accordingly, the TTO limit is being revised to 1.58 mg/l. This reflects the maximum background concentration at any known plant practicing effective solvent management and precipitation/clarification, the BAT-level control options selected for this parameter.

Regarding the concern about individual process streams, the TTO limit is based on effluent data after mixing of process streams. Thus it accounts for the contribution of TTO from all of the process streams. EPA, therefore, is not persuaded by the comment that the TTO limit is not achievable because it does not account for residual toxic organic contamination from all process wastewater streams. The contribution of process streams is reflected in the final effluent from a plant.

The Agency examined carbon adsorption (Option 5) to determine if this end-of-pipe treatment technology would achieve greater toxic organic reduction than in-plant control using solvent management. The Agency calculated the theoretical discharge of toxic organics after treatment with carbon adsorption. It found that effluent TTO levels would be approximately the same as, and perhaps greater than, the TTO concentration from residual process contamination at plants practicing solvent management. Therefore, EPA rejected the option of carbon adsorption for technological reasons. See Section VII of the Development Document for a further discussion of toxic organic removal achieved by carbon adsorption.

2. *Comment:* Commenters contended that the proposed CRT effluent concentration limits for toxic metals are too stringent. They argued that a larger data base was needed and that variability factors should be based on consistent assumptions about the number of observations that will be taken each month. Commenters also had a few critiques relevant to specific metals, most of which concerned cadmium. Commenters asserted that treatment for cadmium was itself difficult, and could also make it hard to meet limits for other metals. (For further discussion of comments on EPA's metal limitations, see EPA's Response to Comments Document.)

RESPONSE: EPA has significantly revised its data base for calculation of all toxic metals limitations. It is now using additional self-monitoring effluent data submitted by industry. EPA sampling data is now used in conjunction with that data to calculate appropriate effluent limits. EPA has also recalculated all limitations, using new variability factors based on an expectation of ten observations per month. That frequency is the same as that assumed for many similar guidelines and standards and the economic analysis was based on assumptions that monitoring would occur at least that often. The revised limitations generally allow somewhat greater effluent concentrations.

The Agency has also considered the more specific issues commenters raised about specific metals. In regard to cadmium for example, one commenter stated that treatment of some process streams could produce cadmium hydroxide, a form of cadmium that is particularly difficult to remove. EPA

considered the possibility that this could lead to a plant's inability to meet the cadmium limit. Actual data from EPA samplings and data submitted by dischargers suggested that this is not a serious problem in actual practice. The measured effluent concentrations of cadmium were consistently below these regulatory limits, whether or not cadmium hydroxide was formed.

Another commenter asserted that cadmium treatment required pH levels that would make it impossible to meet the regulatory limit for chromium. Data did not support that claim. In fact there was ample evidence that cadmium and chromium could be adequately controlled at the same time. The commenter had cited the theoretical pH level for *optimal* cadmium control; however, the data base indicated that cadmium could be reduced to the regulatory limit over a broader range of pH levels, including pH levels that allowed adequate control of chromium and other toxic metals.

Other commenters questioned the derivation of specific metals limitations. The Development Document and Response to Comments Document in the record further explain how specific metals limitations were derived.

3. *Comment:* Commenters argued that fluoride should not be regulated since it is not found on the priority pollutant list and because it was not regulated in the semiconductor subcategory (E&EC Phase I). They also contended that the proposed limits are not consistently achievable on a long-term operating basis with the identified technology. In addition, two commenters stated that CRT plants with lower fluoride raw waste concentrations should be exempt from the proposed fluoride standard, either because there contributions were not significant or because low concentrations were difficult to treat.

Response: Although fluoride is not listed as a toxic pollutant, it is a pollutant of concern because it can be harmful to livestock and plants, and can cause tooth mottling in humans. A fluoride limit was proposed for PSES in the CRT subcategory and for all new sources because the levels of fluoride in raw wastes are very high; a maximum of 970 mg/l and a mean of 360 mg/l were observed. Fluoride discharged at 360 mg/l would increase the concentration in receiving waters by up to 3.3 mg/l at low flow, which exceeds drinking water standards. In contrast, the occurrence of fluoride in the raw waste of the semiconductor subcategory (regulated in Phase I) was a maximum of 146 mg/l and a mean of 66 mg/l, and in the electronic crystals subcategory (Phase I) was a maximum of 380 mg/l and a mean of 129 mg/l.

Furthermore, unlike Phase I, Phase II CRT limits are based on end-of-pipe technology (lime precipitation/clarification) which requires only minimal technology additions to control fluoride. The costs associated with the added technology are quite small (see Section IX of the Development Document). Economic analysis of model plants has shown that this cost would not result in any plant closures or job losses.

EPA considered relying on limits for other pollutants as an indirect way of controlling fluoride, but decided that it could not. This is because plants in the CRT subcategory with treatment systems designed to control toxic metals, but not fluoride, have been found to discharge concentrations of fluoride as high as 275–350 mg/l.

There is no justification for exempting some CRT plants because fluoride concentrations in their raw wastes are lower than the CRT raw waste average of 360 mg/l. Available data indicate that one commenter with low concentrations of fluoride in raw wastes is achieving that by dilution with cooling water. Nor is there any evidence that low concentrations of fluoride make compliance infeasible. The commenter who suggested this was not using calcium chloride, which EPA has costed for, and relied upon, as part of its model treatment technology. Thus it did not have adequate control for fluoride in place. Plants that treat fluoride properly do meet the limits consistently. Studies of categories where raw waste concentrations of fluoride are often lower also demonstrate that limits comparable to these can be achieved.

4. *Comment:* Commenters asserted that EPA's conclusion that compliance costs to meet the proposed TTO Limit will not be significant is inaccurate and not supported by the record. They stated that plants that collect solvents but do not meet the proposed limit will need to install and operate very expensive treatment technologies, such as carbon adsorption and air strippers. They also challenged EPA's assumption that solvents used as degreasers and paint strippers could be profitably recovered. They contended that it was not true for dilute aqueous organic wastes such as rinses and scrubber effluents and that these solvents frequently cannot be segregated in order to sell them to reclaimers. In addition, in order to accumulate solvents in sufficient quantities to make them marketable, a small facility would probably be subject to RCRA requirements and associated costs.

Response: Available data show that representative CRT plants are already collecting solvents and are in compliance with the TTO revised limit of 1.58 mg/l. The degree to which plants practice solvent management can vary, but EPA does not believe that treatment technology (beyond that required for Option 2) will be required to meet the TTO limit. A plant will, at most, need to improve its solvent collection and management practices. The costs associated with these activities are minimal and would in most cases be offset by the recoverable value of recovered solvents.

One commenter correctly noted that there was little market for dilute aqueous organic wastes such as rinses and scrubber effluents. However, the commenter was incorrect in his assumption that those wastes would often need to be sold or contract hauled. Dilute aqueous streams of that nature will not have significant organic contamination in them if a good solvent management plan is practiced, thus they will not need to be sold or contract hauled. The specified TTO limit has been developed to reflect the minor, unavoidable, contamination that may occur. In addition, there is an alternative to using solvents for some cleaning and degreasing operations. At least one large CRT manufacturer has an alkaline cleaning process in place and uses no solvents for cleaning.

A plant not already in compliance (if any such plant exists) could potentially incur costs for the disposal of an incremental amount of spent solvents needed to comply with the TTO limit. An EPA sensitivity analysis for the Cathode Ray Tube Subcategory showed the impact of these costs is insignificant, even if the spent solvents are all sent to RCRA permitted hazardous waste facilities and even if they are shipped often enough to ensure that plants did not need to secure RCRA permits to operate as hazardous waste storage facilities.

Available information indicate that some reclaimers have no minimum quantity limitation on solvent reclamation services and do provide services to small generators.

The proposed rule included a provision which allows plants (with the consent of their control authorities) to certify that they are in compliance with the TTO limit, rather than monitoring for numerous toxic organics. The certification language in this final regulation has been changed to be consistent with that in other guidelines,

including Phase I for this industry and Part 433 for the Metal Finishing Industry. Our intent is to provide industry with a less costly way of showing compliance with the TTO limit. Some dischargers may still find the certification language to be too restrictive or their specific control authority may not agree to their use of certification. Such dischargers will have to monitor. Based on contact with state and regional permitters, we estimate that, on average, monitoring for TTO will be required once per quarter for those who do not certify. In some cases, plants may be required to monitor more frequently, sometimes as often as once per month. The annualized monitoring costs for monthly monitoring are estimated to be $13,700 per year. We estimate that these costs will not result in any economic impacts.

5. *Comment*: The factors supporting the price increases EPA calculated in the economic analysis are not identified in the report. Our customers will not accept price increases for our product, and the prices of our inputs to production (bulbs, phosphors, etc.) have increased greatly.

Response: The revised analysis responds to this comment in two ways. First, it is assumed that cost increases due to additional wastewater treatment are not passed on by the industry in terms of price increases, but are reflected in reduced profitability of the plants. Both the impact and closure analyses are based on this assumption and therefore the conclusions that are drawn account for the difficulties firms have experienced with price increases. This is a conservative assumption. To the extent that it is in error, the economic analysis will tend to over predict likely impacts and closures.

Second, a sensitivity analysis was conducted on the manufacturing costs and profit levels used for each plant in the TV tube and other CRT industry segments. The sensitivity analysis used an alternative profit level ten percentage points lower (i.e., assuming a ten percent increase in costs) than that used in the impact analysis. This alternative accounts for the possibility that manufacturing input costs may increase faster than the rate assumed (five to six percent inflation rate) for other costs and may therefore lead to decreased profits. As the sensitivity analysis shows, none of the impact measures are significantly affected by this alternative analysis and no conclusions would be changed as a result.

6. *Comment*: Foreign competition has increased greatly over the last few years. We are struggling to survive in the marketplace and additional cost of production increases due to regulations are intolerable.

Response: The revised analysis responds to these comments. The economic analysis for the proposed rules assumed two alternatives: one, that increased costs incurred by plants to comply with the required wastewater treatment standards would be passed on as price increases to customers; and two, that these increased costs would be absorbed by the plants, thus reducing their profitability. Closure analysis was based on both these assumptions. In the revised analysis for the final rules, because of the above comments which emphasized the severity of foreign competition and other comments that discussed domestic competition and the difficulties of increasing prices, it was decided that the industry would not be likely to respond to increased treatment cost requirements by passing them on as price increases. In light of these considerations, the only reasonable assumption would be that plant profitability would be reduced and that the closure analysis would depend on the severity of that impact. Therefore, EPA based its analysis on that assumption.

XIII. Best Management Practices

Section 304(e) of the Clean Water Act authorizes the Administrator to prescribe "best management practices" ("BMP"), described in Section III of this preamble. EPA is not now promulgating BMP for the electrical and electronic components category.

XIV. Upset and Bypass Provisions

A recurring issue is whether industry limitations and standards should include provisions that authorize noncompliance during "upsets" or "bypasses." An upset, sometimes called an "excursion," is unintentional noncompliance beyond the reasonable control of the permittee. EPA believes that upset provisions are necessary, because upsets will inevitably occur, even if the control equipment is properly operated. Because technology based limitations can require only what technology can achieve, many claim that liability for upsets is improper. When confronted with this issue, courts have been divided on the questions of whether an explicit upset or excursion exemption is necessary or whether upset or excursions incidents may be handled through EPA's enforcement discretion. Compare *Marathon Oil Co. v. EPA*, 564 F. 2d 1253 (9th Cir. 1977) with *Weyerhaeuser v. Costle, supra* and *Corn Refiners Association, et al. v. Costle*, No. 78-1069 (8th Cir., April 2, 1979). See also *American Petroleum Institute v. EPA*, 540 F. 2d 1023 (10th Cir. 1976); (*CPC International, Inc. v. Train*, 540 F. 2d 1320 (8th Cir. 1976); *FMC Corp. v. Train*, 539 F. 2d 973 (4th Cir. 1976).

Unlike an upset—which is an unintentional episode—a bypass is an intentional noncompliance to circumvent waste treatment facilities during an emergency.

EPA has both upset and bypass provisions in the NPDES regulations. See 40 CFR 122.41, 48 FR 14151, 14168 (April 1, 1983). The upset provision establishes an upset as an affirmative defense to prosecution for violation of technology-based effluent limitations. The bypass provision authorizes bypassing to prevent loss of life, personal injury, or severe property damage. Permittees in the Cathode Ray Tube and Luminescent Materials Subcategories are entitled to the upset and bypass provisions in NPDES permits. Thus, this regulation does not repeat those provisions. Upset provisions are also contained in the General Pretreatment regulation.

XV. Variances and Modifications

When the final regulation for a point source category is promulgated, subsequent Federal and State NPDES permits to direct dischargers must enforce the effluent standards. Also, the pretreatment limitations apply directly to indirect dischargers.

EPA has not promulgated BPT or BAT standards for direct dischargers in these subcategories. It is, however, promulgating NSPS for new source direct dischargers. Those limits must be followed when NPDES permits are issued for any relevant new sources.

Indirect dischargers subject to PSES have, in the past, been eligible for the "fundamentally different factors" (FDF) variance. See 40 CFR 403.13. However, on September 20, 1983, the United States Court of Appeals for the Third Circuit held that "FDF variances for toxic pollutants are forbidden by the Act," and remanded § 403.13 to EPA. *NAMF et al.* v. *EPA*, Nos. 79-2256 et al. (3rd Cir., September 20, 1983). EPA is considering the effect of that decision. Since the opinion addressed only the availability of FDF variances for toxic pollutants, indirect dischargers are still eligible for FDF variances for nonconventional pollutants. The agency will soon amend 40 CFR 403.13 in accordance with the court's opinion.

In a few cases, information which would affect these PSES may not have been available to EPA or affected parties in the course of this rulemaking. As a result it may be appropriate to issue specific categorical standards for

such facilities, treating them as a separate subcategory with more, or less, stringent standards as appropriate. This will only be done if a different standard is appropriate because of unique aspects of the factors listed in Section 304(b)(2)(B) of the Act: The age of equipment and facilities involved, the process employed, the engineering aspects of applying control techniques, nonwater quality environmental impacts (including energy requirements) or the cost of required effluent reductions (but not of ability to pay that cost).

Indirect dischargers and other affected parties may petition the Administrator to examine those factors and determine whether these PSES are properly applicable in specific cases or should be revised. Such petitions *must* contain specific and detailed support data, documentation, and evidence indicating why the relevant factors justify a more, or less, stringent standard, and must also indicate why those factors could not have been brought to the attention of the Agency in the course of this rulemaking. The Administrator will consider such rulemaking petitions and determine whether a rulemaking should be initiated.

XVI. Implementation of Limitations and Standards

A. Relation to NPDES Permits

The NSPS in this regulation will be applied to individual plants through NPDES permits issued by EPA or approved State agencies under Section 402 of the Act. Under this regulation for the Electrical and Electronic Components Category, all limitations are concentration based for reasons presented in Section VI-B. On a case-by-case basis permitting authorities may derive mass based limitations by multiplying the concentration limit by the undiluted discharge flow. The Effluent Guidelines Division can assist the permitting authorities in making this determination, especially with respect to the validity of the flow levels which a permittee asserts are representative of its plant.

One subject that has received different judicial rulings is the scope of NPDES permit proceedings when effluent limitations and standards do not exist. Under current EPA regulations, State and EPA regions that issue NPDES permits before regulations are promulgated must do so on a case-by-case basis. This regulation provides a technical and legal base for new permits.

Another issue is how the regulation affects the authority of those that issue NPDES permits. EPA has developed the limitations and standards in this regulation to cover the typical facility for this point source category. In specific cases, the NPDES permitting authority may have to establish permit limits on toxic pollutants that are not covered by this regulation. This regulation does not restrict the power of any permit-issuing authority to comply with law or any EPA regulation, guideline, or policy. For example, if this regulation does not control a particular pollutant, the permit issuer may still limit the pollutant on a case-by-case basis, when such action conforms with the purposes of the Act. In addition, if State water quality standards or other provisions of State or Federal law require limits on pollutants not covered by this regulation (or require more stringent limits on covered pollutants), the permit-issuing authority *must* apply those limitations.

B. Indirect Dischargers

For indirect dischargers, PSES and PSNS are implemented under National Pretreatment Program procedures outlined in 40 CFR 403. The table below may be of assistance in resolving questions about the operation of that program. A brief explanation of some of the submissions indicated on the table follows:

A "request for category determination" is a written request, submitted by an indirect discharger or its POTW, for a certification on whether the indirect discharger falls within a particular subcategory listed in a categorical pretreatment standard. This assists the indirect discharger in knowing just which PSES or PSNS limits it will be required to meet. See 40 CFR 403.6(a).

A "request for fundamentally different factors variance" for non-toxic, nonconventional, pollutants is a mechanism by which a categorical pretreatment standard may be adjusted, making it more or less stringent, on a case-by-case basis. If an indirect discharger, a POTW, or any interested person believes that factors relating to a specific indirect discharger are fundamentally different from those factors considered during development of the relevant categorical pretreatment standard for any nonconventional pollutant and that the existence of those factors justifies a different discharge limit from that specified in the categorical standard, then they may submit a request to EPA for such a variance. See 40 CFR 403.13.

A "baseline monitoring report" is the first report an indirect discharger must file following promulgation of a standard applicable to it. The baseline report includes: An identification of the indirect discharger; a description of its operations; a report on the flows of regulated streams and the results of sampling analyses to determine levels of regulated pollutants in those streams; a statement of the discharger's compliance or noncompliance with the standard and a description of any additional steps required to achieve compliance. See 40 CFR 403.12(b).

A "report on compliance" is required of each indirect discharger within 90 days following the date for compliance with an applicable categorical pretreatment standard. The report must indicate the nature and concentration of all regulated pollutants in the facility's regulated process wastestreams; the average and maximum daily flows of the regulated streams; and a statement of whether compliance is consistently being achieved, and if not, what additional operation and maintenance and/or pretreatment is necessary to achieve compliance. See 40 CFR 403.12(d).

A "periodic compliance report" is a report on continuing compliance with all applicable categorical pretreatment standards. It is submitted twice per year (June and December) by indirect dischargers subject to the standards. The report shall indicate the precise nature and concentrations of the regulated pollutants in its discharge to the POTW; the average and maximum daily flow rates of the facility; the methods used by the indirect discharger to sample and analyze the data, and a certification that these methods conformed to those methods outlined in the regulation. See 40 CFR 403.12 (e) and (g).

Item/Event	Applicable Sources	Date or time period	Measured from	Item submitted to
Request for category determination	Existing	60 days..... Or 60 days.....	From effective date of standard..... From FEDERAL REGISTER Development Document Availability.....	Director (1).

Item/Event	Applicable Sources	Date or time period	Measured from	Item submitted to
	New	Prior to commencement of discharge to POTW.		
Request for fundamentally different factors variance	Existing nonconventional pollutants only.	180 days	From effective date standard	Director (1).
		Or 30 days	From final decision on category determination	
Baseline monitoring report	All	180 days	From effective date of standard or	Control Authority (2).
		Or 30 days	From final decision on category determination	
Report on compliance	Existing	90 days	From date for final compliance	Control Authority (2).
	New	90 days	From commencement of discharge to POTW	
Periodic compliance reports	All	June and December.		Control Authority (2).

(1) Director=a) Chief Administrative Officer of a State water pollution control agency with an approved pretreatment program or b) EPA Regional Water Division Director, if State does not have an approved pretreatment program.
(2) Control Authority=a) POTW if its pretreatment program has been approved or b) Director of State water pollution control agency with an approved pretreatment program or c) EPA Regional Administrator, if state does not have an approved pretreatment program.

The provisions of 40 CFR 403.6(e) also provide a "combined waste stream formula" for determining pretreatment standards when waste streams subject to this regulation are combined with significant quantities from other waste streams. Since the plants covered by this regulation rarely combine wastes with significant quantities of other waste streams, that provision should seldom be needed for these subcategories.

C. Applicability and Compliance Dates

The Electrical and Electronic Phase II regulations are applicable to discharges from the manufacture of cathode ray tubes and luminescent materials. Cathode ray tube manufacturers are subject to PSES, PSNS and NSPS regulations. Luminescent materials manufacturers are subject to PSNS and NSPS regulations.

The compliance dates for the two subcategories are presented in the table below. PSNS and NSPS compliance dates are specified by the Clean Water Act. For PSES for cathode ray tube facilities, the Agency is allowing 31 months for compliance with metals and fluoride limitations. One commenter indicated that 30 months might be required to install and "fine tune" pollution control equipment. Similarly, a survey conducted under the metal finishing project showed that, on average, plants need thirty one months to design, install, and "start-up" the treatment system (lime precipitation/clarification) used as the basis for the limits in that industry and for the regulated metals and fluoride standards in the E & EC industry. For TTO, the compliance date is also thirty-one months. The TTO limit reflects a solvent management plan and also removals achieved by precipitation/clarification. Thus EPA is establishing a compliance date which allows for the installation of that technology.

Regulation	Compliance date
Cathode Ray Tubes, PSES for metals, fluoride, and TTO.	July 14, 1987.
Cathode Ray Tubes, NSPS and PSNS.	From commencement of discharge.
Luminescent Materials, NSPS and PSNS.	From commencement of discharge.

D. Enforcement

A final topic of concern is the operation of EPA's NPDES enforcement program, which was an important consideration in developing this regulation. The Agency emphasizes that although the Clean Water Act is a strict liability statute, EPA can initiate enforcement proceedings at its discretion (*Sierra Club v. Train*, 557, F. 2d 485, 5th Cir., 1977). EPA has exercised and intends to exercise that discretion in a manner that recognizes and promotes good-faith compliance.

XVII. Availability of Technical Information

The basis for this regulation is detailed in four major documents. Analytical methods are discussed in *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants.* EPA's technical conclusions are detailed in *Development Document for Effluent Guidelines, New Source Performance Standards, and Pretreatment Standards for the Electrical and Electronic Components Point Source Category—Phase II.* The Agency's economic analysis is presented in *Economic Impact Analysis of Effluent Limitations and Standards for the Electrical and Electronic Components Industry—Phase II.* A summary of the public comments received on the proposed regulation is presented in a report "Responses to Public Comments, Proposed Electrical and Electronic Components Effluent Guidelines and Standards" Phase II, which is part of the public record for this regulation.

Technical information may be obtained by writing to John Newbrough, Effluent Guidelines Division (WH–552), EPA, 401 M Street, SW., Washington, D.C. 20460 or through calling (202) 382–7158.

Additional information concerning the economic impact analysis may be obtained from Ms. Renee Rico, Economic Analysis Staff (WH–586), EPA, 401 M Street, SW., Washington, D.C. 20460 or by calling (202) 382–5386. Copies of the technical and economic documents will be available from the National Technical Information Service, Springfield, Virginia 22161 (703) 487–4600.

XVIII. OMB Review

The regulation was submitted to the Office of Management and Budget for review as required by Executive Order 12291. Any comments from OMB to EPA and any EPA response to those comments are available for public inspection at Room M2404, U.S. EPA, 401 M Street, SW., Washington, D.C. 20460 from 9:00 a.m. to 4:00 p.m. Monday-Friday excluding federal holidays.

In accordance with the Paperwork Reduction Act of 1980 (Pub. L. 96–511), the reporting and recordkeeping provisions in 40 CFR 469.32 that are included in this regulation will be submitted for approval to OMB. They are not effective until OMB approval is obtained and the public is notified to that effect through a technical amendment to this regulation.

XIX. List of Subjects in 40 CFR Part 469

Electrical and electronic equipment, Water pollution control. Waste treatment and disposal.

Dated: November 30, 1983
William D. Ruckelshaus,
Administrator.

XX. Applendices

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

Act—The Clean Water Act.

Agency—The U.S. Environmental Protection Agency.

BAT—The best available technology economically achievable under Section 304(b)(2)(B) of the Act.

BCT—The best conventional pollutant control technology, under Section 304(b)(4) of the Act.

BMP—Best management practices under Section 304(e) of the Act.

BPT—The best practicable control technology currently available under Section 304(b)(1) of the Act.

Clean Water Act—The Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251 et seq.), as amended by the Clean Water Act of 1977 (Public Law 95–217).

Direct Discharger—A facility which discharges or may discharge pollutants into waters of the United States.

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

NPDES Permit—A National Pollutant Discharge Elimination System permit issued under Section 402 of the Act.

NSPS—New source performance standards under Section 306 of the Act.

POTW—Publicly owned treatment works.

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

PSNS—Pretreatment standards for new sources of direct discharges under Section 307 (b) and (c) of the Act.

RCRA—Resource Conservation and Recovery Act (Pub. L. 94–580) of 1976. Amendments to Solid Waste Disposal Act.

Appendix B—List of Toxic Organics Comprising Total Toxic Organics (TTO) for the Cathode Ray Tube Subcategory

1,1,1
chloroform
trichloroethane
methylene chloride
bis(2-ethylhexyl) phthalate
toluene
trichloroethylene

Appendix C—List of Toxic Pollutants Excluded From Regulation

The following nine (9) pollutants are being excluded from further regulations for both subcategories under Paragraph 8(a)(iii) of the NRDC consent decree because they are present in amounts too small to be effectively reduced by technologies known to the administrator:

1. Arsenic
2. Beryllium
3. Copper
4. Mercury
5. Nickel
6. Selenium
7. Silver
8. Thallium
9. Cyanide

The following list of one hundred and six pollutants are excluded from further regulation for both subcategories under Paragraph 8(a)(iii) of the NRDC consent decree because they were not detected in the effluent.

1. Acenaphthene
2. Acrolein
3. Acrylonitrile
4. Benzene
5. Benzidine
6. Carbon Tetrachloride
7. Chlorobenzene
8. 1,2,4, Trichlorobenzene
9. Hexachlorobenzene
10. 1,2-Dichloroethane
11. Hexachloroethane
12. 1,1-Dichloroethane
13. 1,1,2-Trichloroethane
14. 1,1,2,2-Tetrachloroethane
15. Chloroethane
16. Bis(2-Chloroethyl) Ether
17. 2-Chloroethyl Vinyl Ether (Mixed)
18. 2-Chloronaphthalene
19. 2,4,6 Trichlorophenol
20. Parachlorometa Cresol
21. 2-Chlorophenol
22. 1,2-Dichlorobenzene
23. 1,3-dichlorobenzene
24. 1,4-Dichlorobenzene
25. 3,3-Dichlorobenzidine
26. 1,1-Dichloroethylene
27. 1,2-Trans-Dichloroethylene
28. 2,4-Dichlorophenol
29. 1,2-Dichloropropane
30. 1,3-Dichloropropylene
31. 2,4-Dimethylphenol
32. 2,4-Dinitrotoluene
33. 2,6-Dinitrotoluene
34. 1,2-Diphenylhydrazine
35. Ethylbenzene
36. Fluoranthene
37. 4-Chlorophenyl Phenyl Ether
38. 4-Bromophenyl Phenyl Ether
39. Bis(2-chloroisopropyl) Ether
40. Bis-(2-chloroethoxy) Methane
41. Methyl Chloride
42. Methyl Bromide
43. Bromoform
44. Dichlorobromomethane
45. Chlorodibromomethane
46. Hexachlorobutadiene
47. Hexachlorocyclopentadiene
48. Isophorone
49. Naphthalene
50. Nitrobenzene
51. 2-Nitrophenol
52. 4-Nitrophenol
53. 2,4-dinitrophenol
54. 4,6-dinitro-o-cresol
55. N-nitrosodimethylamine
56. N-nitrosodiphenylamine
57. N-nitrosodi-n-propylamine
58. Pentachlorophenol
59. Phenol
60. Butyl benzyl phthalate
61. Di-n-butyl phthalate
62. Di-n-octyl phthalate
63. diethyl phthalate
64. dimethyl phthalate
65. Benzo(a)anthracene
66. Benzo(a)pyrene
67. Benzo(b)fluoranthene
68. Benzo(k)fluoranthene
69. Chrysene
70. Acenaphthylene
71. Anthracene
72. Benzo(ghi)perylene
73. Fluorene
74. Phenanthrene
75. Dibenyo(a,h)anthracene
76. Indeno(1,2,3-c,d)pyrene
77. Pyrene
78. Tetrachloroethylene
79. 2,3,7,8-tetrachlorodibenzo-p-dioxin
80. Vinyl Chloride
81. Aldrin
82. Dieldrin
83. Chlordane
84. 4,4'-DDT
85. 4,4'-DDE
86. 4,4'-DDD
87. Alpha-endosulfan
88. Beta-endosulfan
89. Endosulfan Sulfate
90. Endrin
91. Endrin Aldehyde
92. Heptachlor
93. Heptachlor Epoxide
94. Alpha-BHC
95. Beta-BHC
96. Depta-BHC
97. Gamma-BHC
98. PCB-1242
99. PCB-1254
100. PCB-1221
101. PCB-1232
102. PCB-1248
103. PCB-1260
104. PCB-1016
105. Toxaphene
106. Asbestos

Eight additional toxic pollutants are being excluded from regulation in the Luminescent Materials subcategory under Paragraph 8(a)(iii) of the NRDC consent decree because they are not present at detectable concentrations. These pollutants are:

Chloroform
1,1,1, trichloroethan
Methylene chloride
Bis(2-ethylhexyl) phthalate

Toluene
Trichloroethylene
Lead
Chromium

An additional toxic pollutant, antimony, is excluded from regulation in the CRT subcategory under Paragraph 8(a)(iii), because it was found in amounts too small to be effectively treated.

For the reasons stated above, EPA is adding new subparts C and D to Part 469 of 40 CFR, Chapter I and amending the table of contents to read as follows:

PART 469—ELECTRICAL AND ELECTRONIC COMPONENTS POINT SOURCE CATEGORY

* * * * *

Subpart C—Cathode Ray Tube Subcategory

Sec.
469.30 Applicability.
469.31 Specialized definitions.
469.32 Monitoring requirements.
469.34 Pretreatment standards for existing sources (PSES).
469.35 New source performance standards (NSPS).
469.36 Pretreatment standards for new sources (PSNS).

Subpart D—Luminescent Materials Subcategory

469.40 Applicability.
469.41 Specialized definitions.
469.42 New source performance standards (NSPS).
469.43 Pretreatment standards for new sources (PSNS).

Authority: Secs. 301, 304, 306, 307, 308, 309, and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, as amended by the Clean Water Act of 1977, 33 U.S.C. 1311, 1314, 1316, 1317, 1318, and 1361; 86 Stat. 816, Pub. L. 92-500; 91 Stat. 1567, Pub. L. 95-217).

Subpart C—Cathode Ray Tube Subcategory

§ 469.30 Applicability.

(a) The provisions of this subpart are applicable to discharges resulting from the manufacture of cathode ray tubes.

(b) The compliance deadline for PSES shall be no later than July 14, 1987.

§ 469.31 Specialized definitions.

The definitions in 40 CFR Part 401 and the chemical analysis methods in 40 CFR Part 136 apply to this subpart. In addition,

(a) The term "cathode ray tubes" means electronic devices in which electrons focus through a vacuum to generate a controlled image on a luminescent surface. This definition does not include receiving and transmitting tubes.

(b) The term "total toxic organics (TTO)" means the sum of the concentrations for each of the following toxic organic compounds which is found in the discharge at a concentration greater than ten (10) micrograms per liter:

1,1,1
chloroform
trichloroethane
methylene chloride
bis (2-ethylhexyl) phthalate
toluene
trichloroethylene

§ 469.32 Monitoring requirements.

The certification alternative to monitoring for TTO specified in 469.13 (a), (b), (c) and (d), is applicable to this subpart.

§ 460.34 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources (PSES):

Pollutant or pollutant property	Maximum for any 1 day	Monthly average shall not exceed
	Milligrams per liter (mg/l)	
TTO [1]	1.58	
Cadmium	0.06	0.03
Chromium	0.65	0.30
Lead	1.12	0.41
Zinc	1.38	0.56
Fluoride	35.0	18.0

[1] Total toxic organics.

§ 469.35 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

Pollutant or pollutant property	Maximum for any 1 day	Monthly average shall not exceed
	Milligrams per liter (mg/l)	
pH	(2)	(2)
TTO [1]	1.58	
Cadmium	0.06	0.03
Chromium	0.56	0.26
Lead	0.72	0.27
Zinc	0.80	0.33
Fluoride	35.0	18.0
TSS	46.0	24.0

[1] Total toxic organics.
[2] Within the range of 6.0 to 9.0.

§ 469.36 Pretreatment standards for new source (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources (PSNS):

Pollutant or pollutant property	Maximum for any 1 day	Monthly average shall not exceed
	Milligrams per liter (mg/l)	
TTO [1]	1.58	
Cadmium	0.06	0.03
Chromium	0.56	0.26
Lead	0.72	0.27
Zinc	0.80	0.33
Fluoride	35.0	18.0

[1] Total toxic organics.

Subpart D—Luminescent Materials Subcategory

§ 469.40 Applicability.

The provisions of this subpart are applicable to discharges resulting from the manufacture of luminescent materials.

§ 469.41 Specialized definitions.

The definitions in 40 CFR Part 401 and the chemical analysis methods in 40 CFR Part 136 apply to this subpart. In addition,

(a) The term "luminescent materials" shall mean materials that emit light upon excitation by such energy sources as photons, electrons, applied voltage, chemical reactions or mechanical energy and which are specifically used as coatings in fluorescent lamps and cathode ray tubes. Luminescent materials include, but are not limited to, calcium halophosphate, yttrium oxide, zinc sulfide, and zinc-cadmium sulfide.

§ 469.42 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

Pollutant or pollutant property	Maximum for any 1 day	Monthly average shall not exceed
	Milligrams per liter (mg/l)	
pH	(1)	(1)
Cadmium	0.55	0.26
Antimony	0.10	0.04
Zinc	1.64	0.67
Fluoride	35.0	18.0
TSS	60.0	31.0

[1] Within the range of 6.0 to 9.0.

§ 469.43 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and

achieve the following pretreatment standards for new sources (PSNS):

Pollutant property	For any 1 day	Monthly average shall not exceed
	Milligrams per liter (mg/l)	
Cadmium	0.55	0.26
Antimony	0.10	0.04
Zinc	1.64	0.67
Fluoride	35.0	18.0

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