Title 40—Protection of the Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER N—EFFLUENT GUIDELINES AND STANDARDS

[FRL 582-3]

PART 459—PHOTOGRAPHIC POINT SOURCE CATEGORY

Interim Final Rule Making

Notice is hereby given that effluent limitations and guidelines for existing sources to be achieved by the application of best practicable control technology currently available as set forth in interim final form below are promulgated by the Environmental Protection Agency (EPA). The regulation set forth below establishes Part 459, Photographic Point Source Category, and will be applicable to existing sources for the photographic processing subcategory (Subpart A) pursuant to sections 301, and 304 (b) and (c), of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251, 1311 and 1314 (b) and (c), 86 Stat. 816 et seq.; Pub. L. 92-500) (the Act). In the near future, the Agency intends to publish in proposed form effluent limitations and guidelines for existing sources to be achieved by the application of best available technology economically achievable, and standards of performance and pretreatment standards for new point sources. A description and discussion of this legal authority is contained in Appendix A to this preamble.

The photographic point source category was first studied to determine whether separate limitations are appropriate for different segments within the category. This analysis included a determination of whether differences in raw material used, product produced, manufacturing process employed, age, size, wastewater constituents and other factors require development of separate limitations for different segments of the point source category. The raw waste characteristics for this point source were then identified. The control and treatment technologies existing within the category were identified in terms of the amount of constituents and the chemical, physical, and biological characteristics of pollutants, and the effluent level resulting from the application of each of the technologies. This information was then evaluated in order to determine what levels of technology constitute the "best practicable control technology currently available." The data upon which the above analysis was performed included EPA permit applications, EPA sampling and inspections, consultant reports, and industry submissions. A substantial summary of the method of study, the several factors considered in subcategorization and the conclusions reached are set forth as Appendix B to this preamble.

The report entitled "Development Document for Interim Final Effluent Limitations Guidelines and New Source Performance Standards for the Photographic Processing Subcategory of the Photographic Point Source Category" details the analysis undertaken in support of the interim final regulation set forth herein and is available for inspection at the EPA Public Information Reference Unit, Room 2922 (EPA Library), Waterside Mall, 401 M St., S.W., Washington, D.C. 20460, at all EPA Regional offices and at State water pollution control offices. A supplementary analysis prepared for EPA of the possible economic effects of the regulation is also available for inspection at these locations. Copies of both of these documents are being sent to persons or institutions affected by the proposed regulation or who have placed themselves on a mailing list for this purpose (see EPA's Advance Notice of Public Review Procedures, 38 FR 21202, August 6, 1973). An additional limited number of copies of both reports are available. Persons wishing to obtain a copy may write the Environmental Protection Agency, Effluent Guidelines Division, Washington, D.C. 20460, Attention: Distribution Officer, WH-552.

When this regulation is promulgated in final rather than interim form, revised copies of the Development Document will be available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Copies of the economic analysis document will be available through the National Technical Information Service, Springfield, VA 22151.

Prior to this publication, many agencies and groups were consulted and given the opportunity to participate in the development of these limitations, guidelines and standards. All participating agencies have been informed of project developments. An initial draft of the Development Document was sent to all participants and comments were solicited on that report. A summary of these comments and the Agency's response and consideration of these is contained in Appendix C to this preamble.

The Agency today promulgates regulations which are explicitly addressed solely to the control of total cyanides and silver. However, by controlling these two parameters one effectively reduces the BOD5, COD and TSS in photographic processing waste streams. The absence of effluent limitations guidelines for BOD5, COD and TSS is somewhat unusual, but it is warranted by the particular nature of the wastes.

The oxygen demanding properties of these wastes result primarily from the presence of certain inorganic compounds in the wastes. The release of oxygen demanding substances will be reduced when the discharger employs reuse of bleach and silver recovery, both of which are widely practiced. It is estimated that well over half the facilities within this industry utilize these methods, often for purely economic reasons. To meet the 1977 cyanide levels, a discharger can either rely on bleach regeneration and reuse or oxidative destruction of cyanide as an end of the pipe treatment. Due to the close correlation of the presence of inorganic substances with the oxygen consuming properties of these wastes, it should suffice to regulate silver and cyanide.

The 1977 effluent limitations guidelines were derived by application of a widely accepted chemical/physical variability factor to the average levels of cyanide and silver in waste streams, following use of the silver recovery and bleach regeneration.

The Agency has studied the economic and inflationary impact of the costs of these regulations and has made the following conclusions. It was found that most plants may have significant difficulty in implementing a treatment technology based on biological treatment. Therefore biological treatment is not required for the 1977 regulations. They are now based on electrolytic silver recovery and bleach regeneration.

An investment of $1.83 million with annual costs of $0.43 million is required to meet the 1977 regulations. On a unit basis these costs are from 0.3 percent of selling price for the larger plants to 1.9 percent of selling price for the smaller plants to comply with the 1977 requirements. These costs will not be passed on to the consumer, but will probably be absorbed by the plants since they form too small a segment of the industry to exert any effect on prices. None of the 20 plants that are affected by the 1977 regulations are expected to close or curtail production. This analysis meets all of the requirements of economic and inflationary impact statements and is hereby certified by the Administrator in accordance with Executive Order No. 11821.

The facilities within this manufacturing point source subcategory, which produce less than 150 square meters per day of film, paper and other sensitized materials, have been excluded. It was found that there may be an inordinate economic impact were these facilities to be required to meet limitations and standards based upon the full treatment train which the larger facilities can employ. However, it is anticipated that use of less expensive treatment methods may be available and may result in beneficial pollution reduction at the smaller plants. The Agency is reviewing methods of regulating discharges from these smaller plants and may propose regulations in the near future.

The Agency is subject to an order of the United States District Court for the District of Columbia entered in *Natural Resources Defense Council* v. *Train* et al. (Civ. No. 1609-73) which requires the promulgation of regulations for this industry category no later than June 30, 1976. This order also requires that such regulations become effective immediately upon publication. In addition, it is necessary to promulgate regulations establishing limitations on the discharge of pollutants from point sources in this category so that the process of issuing permits to individual dischargers under section 402 of the Act is not delayed.

It has not been practicable to develop and publish regulations for this category in proposed form, to provide a 30 day comment period, and to make any necessary revisions in light of the comments received within the time constraints imposed by the court order referred to

above. Accordingly, the Agency has determined pursuant to 5 U.S.C. 553(b) that notice and comment on the interim final regulations would be impracticable and contrary to the public interest. Good cause is also found for these regulations to become effective immediately upon publication.

Interested persons are encouraged to submit written comments. Comments should be submitted in triplicate to the Environmental Protection Agency, 401 M St., SW., Washington, D.C. 20460, Attention: Distribution Officer, WH-552. Comments on all aspects of the regulations are solicited. In the event comments are in the nature of criticisms as to the adequacy of data which are available, or which may be relied upon by the Agency, comments should identify and, if possible, provide any additional data which may be available and should indicate why such data suggest amendment or modification of the regulation. In the event comments address the approach taken by the Agency in establishing an effluent limitation or guideline, EPA solicits suggestions as to what alternative approach should be taken and why and how this alternative better satisfies the detailed requirements of sections 301 and 304(b) of the Act.

A copy of all public comments will be available for inspection and copying at the EPA Public Information Reference Unit, Room 2922 (EPA Library), Waterside Mall, 401 M Street, SW., Washington, D.C. 20460. A copy of preliminary draft contractor reports, the Development Document and economic study referred to above, and certain supplementary materials supporting the study of the industry concerned will also be maintained at this location for public review and copying. The EPA information regulation, 40 CFR Part 2, provides that a reasonable fee may be charged for copying.

All comments received on or before September 13, 1976, will be considered. Steps previously taken by the Environmental Protection Agency to facilitate public response within this time period are outlined in the advance notice concerning public review procedures published on August 6, 1973 (38 FR 21202). In the event that the final regulation differs substantially from the interim final regulation set forth herein the Agency will consider petitions for reconsideration of any permits issued in accordance with this interim final regulation.

In consideration of the foregoing, 40 CFR Part 459 is hereby established as set forth below.

Dated: July 7, 1976.

JOHN QUARLES,
Acting Administrator.

Subpart A—Photographic Processing Subcategory

Sec.

AUTHORITY: Secs. 301, 304 (b), (c), 306(b), Federal Water Pollution Control Act, as amended (33 U.S.C. 1251, 1311, 1314 (b) and (c) and 1316(b), 86 Stat. 816 et seq.; Pub. L. 92-500) (the Act).

Subpart A—Photographic Processing Subcategory

§ 459.10 Applicability; description of the photographic processing subcategory.

The provisions of this subpart are applicable to point source discharges resulting from the development or printing of paper, prints, slides, negatives, enlargements, movie film, and other sensitized materials except that facilities processing 150 sq. meters (1600 sq. feet) per day or less are not covered. Both commercial and military facilities are covered by this subpart.

§ 459.11 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in Part 401 of this chapter shall apply to this subpart.

(b) The term "product" shall mean articles developed or printed by photographic processes, such as paper prints, slides, negatives, enlargements, movie film and other sensitized materials.

§ 459.12 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

(a) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this paragraph, which may be discharged from a photographic processing point source subject to the provisions of this paragraph after application of the best practicable control technology currently available:

Effluent characteristic	Effluent limitations: Maximum for any 1 day	Effluent limitations: Average of daily values for 30 consecutive days shall not exceed—
Metric units (kilograms per 1,000 m² of product)		
Ag	0.14	0.07
CN	0.18	0.09
pH	Within the range 6.0 to 9.0.	
English units (pounds per 1,000 ft² of product)		
Ag	0.020	0.015
CN	0.033	0.019
pH	Within the range 6.0 to 9.0.	

APPENDIX A—LEGAL AUTHORITY

EXISTING POINT SOURCES

Section 301(b) of the Act requires the achievement by not later than July 1, 1977, of effluent limitations for point sources, other than publicly owned treatment works, which require the application of the best practicable control technology currently available as defined by the Administrator pursuant to section 304(b) of the Act. Section 301(b) also requires the achievement by not later than July 1, 1983, of effluent limitations for point sources, other than publicly owned treatment works, which require the application of best available technology economically achievable which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Administrator pursuant to section 304(b) of the Act.

Section 304(b) of the Act requires the Administrator to publish regulations providing guidelines for effluent limitations setting forth the degree of effluent reduction attainable through the application of the best practicable control technology currently available and the degree of effluent reduction attainable through the application of the best control measures and practices achievable including treatment techniques, process and procedural innovations, operating methods and other alternatives. The regulation herein sets forth effluent limitations and guidelines, pursuant to sections 301 and 304 (b) of the Act, for the photographic process-

ing subcategory (Subpart A) of the photographic point source category.

Section 304(c) of the Act requires the Administrator to issue to the States and appropriate water pollution control agencies information on the processes, procedures or operating methods which result in the elimination or reduction of the discharge of pollutants to implement standards of performance under section 306 of the Act. The report entitled "Development Document for Interim Final Effluent Limitations Guidelines and New Source Performance Standards for the Photographic Processing Subcategory of the Photographic Point Source Category" provides, pursuant to section 304(c) of the Act, information on such processes, procedures or operating methods.

Appendix B—Technical Summary and Basis for Regulations

This Appendix summarizes the basis of interim final effluent limitations and guidelines for existing sources.

(1) *General methodology.* The effluent limitations and guidelines set forth herein were developed in the following manner. The point source category was first studied for the purpose of determining whether separate limitations are appropriate for different segments within the category. This analysis included a determination of whether differences in raw material used, product produced, manufacturing process employed, age, size, wastewater constituents and other factors require development of separate limitations for different segments of the point source category. The raw waste characteristics for each such segment were then identified. This included an analysis of the source, flow and volume of water used in the process employed, the sources of waste and wastewaters in the operation and the constituents of all wastewaters. The constituents of the wastewaters which should be subject to effluent limitations were identified.

The existing control and treatment technologies within each segment were examined. This included an identification of each distinct control and treatment technology, including both in-plant and end-of-process technologies, which exists or is capable of being designed for each segment. It also included an identification of, in terms of the amount of constituents and the chemical, physical, and biological characteristics of pollutants, the effluent level resulting from the application of each of the technologies. The problems along with each treatment and control technology were also identified. In addition, the nonwater quality environmental impact, such as the effects of the application of these technologies upon other pollution problems, including air, solid waste, noise and radiation were examined. The energy requirements of each control and treatment technology were determined as well as the cost of the application of such technologies.

The information outlined above was then evaulated in order to determine what levels of technology constitute the "best practicable control technology currently available." In identifying such technologies, various factors were considered. These included the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application, the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, nonwater quality environmental impact (including energy requirements) and other factors.

The data upon which the above analysis was performed included EPA permit applications, EPA sampling and inspections, consultant reports, and industry submissions.

(2) Summary of conclusions with respect to the photographic processing subcategory (Subpart A), photographic point source category.

(i) *Categorization.* For the purpose of establishing effluent limitations guidelines and standards, photographic processing was considered to be a single subcategory. Factors such as type of product, raw waste loads, water requirements, type of manufacturing processing and treatability of wastewaters were used to establish effluent limitations guidelines and standards of performance. In general, the largest contributing factors are manufacturing operation and treatability of wastewater based on production volume and specific water requirements.

(ii) *Waste characteristics.* The known significant wastewater pollutants and pollutant properties resulting from the photographic processing include pH, total suspended solids, BOD5, COD, cyanide and silver in various forms.

(iii) *Origin of wastewater pollutants.* Sources of wastewater pollutants from photographic processing include working solution losses, replenishment solution losses, equipment cleanup, and washdowns.

Pollutant parameters for the photographic processing subcategory pertain to wastewaters from process operations. Process wastewater pollutants are proportional to the level of production; it was therefore possible to establish limitations and standards on the basis of production. Other pollutant sources within photographic processing subcategory such as utilities, labs, sanitary wastes and others are generally not related to production.

(iv) *Treatment and control technology.* Wastewater treatment and control technologies have been studied for this industry to determine what is the best practicable control technology currently available.

The following discussion of treatment technology provides the basis for the effluent limitations and guidelines. This discussion does not preclude the selection of other wasterwater treatment alternatives which provide equivalent or better levels of treatment.

The major sources of wastewater in the photographic processing industry are photoprocessing solution overflows and wash waters.

Existing control and treatment technology, widely practiced by the industry for economic reasons, includes primarily in-plant pollutant reductions for silver and cyanide through recovery of bleaches and silver. In addition, relatively inexpensive end of pipe alkaline chlorination is an effective treatment technology. Most photographic processing plants discharge their wastewaters to municipal sewer systems; only one plant visited had any end-of-pipe treatment facility, a 20,000-gpd capacity pilot biological treatment system.

The treatment model recommended to attain the required effluent reduction is:

Technology level: BPT.

End-of-pipe treatment model:

In-plant modifications or use of alkaline chlorination.

It is emphasized that in-plant measures to reduce silver and cyanide concentrations as well as end-of-pipe treatment methods are included as part of the recommended treatment technologies. A summary of the general design basis used to size the unit processes is presented in the Development Document for a 5,000 square foot per day and a 50,000 square foot per day photographic processing plant.

The application and performance of various control and treatment technologies to reduce the quantities of pollutants discharged to navigable waters as a result of the production or processing operations in the photographic processing are specific to the product processed and related chemistry. However, many in-process control measures, as well as end-of-pipe treatment systems, may be generally applied to a mix of processing techniques.

Good in-process control is a significant pollution abatement technique for all products processed in the photographic processing subcategory of the photographic point source category. Practices such as minimization and containment of spills and leaks, segregation of waste streams, use of squeegees, recovery of developers, regeneration of ferrocyanide bleach, silver recovery, monitoring process wastewater, water conservation, water reuse, wastewater equalization and good housekeeping, are necessary to eliminate or reduce the volume of process wastewater requiring treatment.

Suspended solids may be present as a result of most photographic finishing processes. These may generally be removed by sedimentation clarification, filtration and centrifugation. Some plants recover metallic silver from these solids by incineration. Ash is sent to a metals refiner for final recovery of silver.

Some chemical manufacturing processes are essentially dry, requiring no additional effluent treatment, because the existing technology averts the discharge of process wastewater pollutants under normal operating conditions.

Solid waste control must be considered. Pollution control technologies generate many different amounts and types of solid wastes and liquid concentrates through the removal of pollutants. These substances vary greatly in their chemical and physical composition and may be either hazardous or nonhazardous. A variety of techniques may be employed to dispose of these substances depending on the degree of hazard.

If thermal processing (incineration) is the choice for disposal, provisions must be made to ensure against entry of hazardous pollutants into the atmosphere. Consideration should also be given to recovery of materials of value in the wastes. In this point source category the recovery of silver from photographic processing wastewaters is an important economic factor.

For those waste materials considered to be nonhazardous where land disposal is the choice for disposal, proper sanitary landfill technology must be followed. The principles set forth in the EPA's Land Disposal of Solid Wastes Guidelines 40 CFR Part 241 may be used as guidance for acceptable land disposal techniques.

Best practicable control technology as known today, requires disposal of the pollutants removed from wastewaters in this industry in the form of solid wastes and liquid concentrates. These constituents may be hazardous and may require special consideration. In order to insure long-term protection of the environment from these hazardous or harmful constituents, special consideration of disposal sites must be made. All landfill sites where such hazardous wastes are disposed should be selected so as to prevent horizontal and vertical migration of these contaminants to ground or surface waters. In cases where geologic conditions may not reasonably ensure this, adequate legal and mechanical precautions (e.g., impervious liners) should be taken to ensure long term protection to the environment from hazardous materials. Where appropriate, the location of solid hazardous materials disposal sites should be permanently recorded in the appropriate office of legal jurisdiction.

(v) *Cost estimates for control of wastewater pollutants.* Capital and annual costs were computed on the basis of the cost per 1,000 square meters of production.

New plants being built can avoid major future waste abatement costs by inclusion of: (1) Dikes, emergency holding ponds, catch basins and other containment facilities for leaks, spills and washdowns, (2) piping, trenches, sewers, sumps, and other isolation facilities to keep leaks, spills and process water separate from cooling and sanitary water, (3) noncontact condensers for cooling water, (4) efficient reuse, recycling and recovery of all possible raw materials and by-products and (5) closed cycle water utilization whenever possible. Closed cycle operation eliminates all waterborne wastes to surface water.

Alternate disposal methods such as incineration or like processes are also commonly used for disposal of highly concentrated and difficult wastes. In any specific case, the manufacturer can best determine the most attractive economic alternatives for in-process controls and end-of-process treatment which will meet the limitations required.

Cost information was obtained directly from industry, engineering firms, equipment suppliers, government sources, and available literature. Costs are based on actual industrial installations or engineering estimates for projected facilities as supplied by contributing companies. In the absence of such information, cost estimates have been developed from either plant-supplied costs for similar waste treatment installations at plants making other similar chemicals or general cost estimates for treatment technology.

(vi) *Energy requirements and nonwater quality environmental impacts.* The major nonwater quality consideration which may be associated with in-process control measures is the use of alternative means of ultimate disposal. As the process raw waste load (RWL) is reduced in volume, alternate disposal techniques become more attractive. Recent regulations are tending to limit the use of ocean discharge and deep-well injection because of the potential long-term detrimental effects associated with these disposal procedures. Incineration is a viable alternative for concentrated waste streams, especially if it results in recovery and reuse of a valuable product (silver). Associated air pollution and the need for auxiliary fuel, depending on the heating value of the waste, are considerations which must be evaluated on an individual basis for each use.

Other nonwater quality aspects, such as noise levels, will not be perceptibly affected. Equipment associated with in-process or end-of-pipe control systems would not add significantly to these levels.

Energy requirements associated with treatment and control technologies may be significant when compared to the total energy requirements for this industry.

(vii) *Economic and inflationary impact analysis.* Executive Order 11821 (November 27, 1974) requires that major proposals for legislation and promulgation of regulations and rules by Agencies of the executive branch be accompanied by a statement certifying that the inflationary impact of the proposal has been evaluated. The Administrator has directed that all regulatory actions that are likely to result in (1) annualized costs of more than $100 million, (2) additional costs of production more than 5 percent of the selling price, or (3) an energy consumption increase equivalent to 25,000 barrels of oil per day will require a certified inflationary impact statement. The analysis indicates that the total investment required to meet these regulations is $1.83 million with an annual cost of $0.43 million. The unit costs are up to 1.9 percent of the selling price. Thus, the limits presented in these criteria have not been exceeded. However, this analysis satisfies all the requirements for an inflationary impact statement and it is hereby certified that the economic and inflationary effects of this proposal have been carefully evaluated in accordance with Executive Order 11821.

The "Economic Analysis of Interim Final Effluent Guidelines for the Photographic Industry" prepared for the Agency indicated that there may be a significant potential economic impact on the smaller plants. The Agency then performed additional analysis that is included as an appendix to the contractor's report. This analysis indicated that only a very few plants would be economically capable of installing a biological treatment system. However, the regulation being issued is based on adequate electrolytic silver recovery and bleach regeneration, and applies to those plants with production of 150 square meters per day or greater.

The Agency has considered the economic impact of the internal and external costs of the effluent limitations and guidelines. Internal costs given in 1976 dollars are defined as investment and annual cost, where annual cost is composed of operating costs, maintenance cost, the cost of capital, and depreciation. External cost deals with the assessment of the economic impact of the internal costs in terms of price increases, production curtailments, plant closures, resultant unemployment, community and regional impacts, international trade, and industry growth.

An investment of $1.83 million with annual costs of $0.43 million is required to meet the 1977 regulations. These regulations cause unit treatment costs to range from 0.3 percent of selling price for the larger plants to 1.9 percent of selling price for the smaller plants. Pre-tax profits could decrease by 25 percent for a small plant with an average rate of return. These costs cannot be passed on to the consumers, since the price is determined primarily by the indirect dischargers which compose 95 percent of the industry. The capital cost to pre-tax income ratio is less than 2 to 1 for these plants, indicating that capital availability should not be an important problem for these plants. However, there may be specific cases where capital availability would be a problem. It is not expected that any of the 20 plants that may be affected by these regulations will choose to stop or curtail production.

Appendix C—Summary of Public Participation

Prior to this publication, the agencies and groups listed below were consulted and given an opportunity to participate in the development of effluent limitations, guidelines and standards proposed for the photographic processing point source category. All participating agencies have been informed of project developments. An initial draft of the Development Document was sent to all participants and comments were solicited on that report. The following are the principal agencies and groups consulted: Effluent Standards and Water Quality Information Advisory Committee (established under section 515 of the Act); all State and U.S. Territory Pollution Control Agencies; Academy of Pharmaceutical Sciences; Reichhold Chemical, Inc.; Chemware-Champion; National Institutes of Health; H. B. Fuller Company; Union Camp Corporation; Naval Facilities Engineering Command; Olin Corporation; Mobay Chemical Corporation; Monsanto Company; Shell Chemical Company; Stauffer Chemical Corporation; Union Carbide Corporation; Bell and Howell, Inc., Micro Photo Division; MTS Chemicals; Hercules, Inc.; Rohm and Haas Company; Defense Mapping Agency; Pfizer, Inc.; CIBA-Giegy Corporation; U.S. Army Audio Visual Activity; U.S. Department of Health, Education, and Welfare; E. I. Du Pont de Nemours and Company; Allied Chemical Corporation; Pepsi Company; Western Agricultural Chemicals Association; Tennessee Eastman Company; Cabot Corporation; CPAC Company; Diamond Shamrock, Inc.; American Cyanamide Corporation; EPAC; Lederle Laboratories; National Ecological Research Center; Office of Pesticides; Dow Chemical Company; National Association of Pharmaceutical Manufacturers; Abbott Laboratories; Eastman Kodak Company; Office of Environmental Affairs; BASF Wyandotte Corporation; Ohio River Valley Sanitation Commission; The Conservation Foundation; Businessmen for the Public Interest; Environmental Defense Fund, Inc.; Natural Resources Defense Council; American Society of Civil Engineers; Water Pollution Control Federation; National Wildlife Federation; Kimberly Clark Corporation; National Pest Control Association; U.S. Army Corps of Engineers; Carbon Adsorption Systems; APWL Environics; WSME; Institute of Makers of Explosives; Pulp Chemical Association; American Carbon Committee; American Hospital Association; Bureau of Explosives, Association of American Railroads; United Pesticides Formulation and Distribution Association; Technical Association of Pulp and Paper Industry; Professional Photographers of America, Inc.; Adhesive and Sealants Council; Smith, Bucklin, and Associates, Inc.; Photo Marketing Association; Carbon Black Producers Traffic Committee; Arundale, Inc.; Enviroengineering, Inc.; U.S. Army Environmental Hygiene Agency; American Defense Preparedness Association; The Fertilizer Institute; National Agricultural Chemicals Association; Walden Research; American Pharmaceutical Association; Pharmaceutical Manufacturers Association; Manufacturing Chemists Association; National Microfilm Association; New England Interstate Water Pollution Control Commission; American Society of Mechanical Engineers; American Medical Association, Public Health Division; U.S. Water Resources Council; U.S. Department of Defense; U.S. Department of Interior; Atlas Powder Company; U.S. Department of the Army; National Association of Photographic Manufacturers; M&T Chemicals, Inc.; FRP Company; Swift Chemical Company; Roberts Consolidated Industries; Eli Lilly and Company; Merck and Company, Inc.; and Parke, Davis and Company.

It should be noted that some of the recipients of the contractor draft documents appear to be and are from areas of interest outside the photographic processing activities covered in this regulation. This situation results from eight industries being handled as one administratively with the project called miscellaneous chemicals.

The following organizations responded with comments for the photographic processing point source category: Effluent Standards and Water Quality Information Advisory Committee; Eastman Kodak Company; North Carolina Department of Natural and Economic Resources; United States Department of Defense; National Association of Photographic Manufacturers, Inc.; and United States Department of Interior.

The primary issues raised by commenters during the development of the interim final effluent limitations and guidelines and the response to these comments are as follows:

(1) One commenter suggested the use of alternate test methods for analysis of silver

thiosulfate and ferrocyanide would be appropriate.

These test procedures are being considered by the Agency but no decision has been reached as to their acceptability. Until such time as a decision is reached EPA standard methods published in the FEDERAL REGISTER Notice 40 CFR Part 136 are the approved test procedures.

(2) A commenter said that the BOD5 and flow values as presented in the contractor's development document were not sufficient to characterize the industry.

Following the receipt of this comment, the National Photographic Manufacturers Association (NPMA) conducted a study of 36 photographic processing plants in order to determine the validity of the contractor's BOD5, COD and flow values. The BOD5 and COD obtained during the survey agreed with the contractors reported values. The flow value obtained during the survey was 4050 gallons as opposed to the contractor's revised 3140 gallons per 1000 square feet of film processed. The data obtained from the NAPM survey have been incorporated into the total data base and the flow, BOD5 and COD values have been revised. However, as noted in the preamble, these regulations are not based upon the direct control of BOD5, COD and TSS.

(3) A commenter stated that the calculations of the cost for BPT appear to be low.

The BPT cost figures have been amended to reflect the revised raw waste loads. The 1972 cost curves are generally known and used for engineering cost calculations. The final calculations of economic impact have been scaled to February 1975 dollars.

(4) One commenter felt that in-plant treatment should be included in the cost model.

In-plant treatment including electrolytic silver recovery, squeegees, and bleach regeneration were included in the cost model but were not identified in the contractor's draft document. The cost of in-plant treatment is $67,570 for the 20,000 gpd system in 1972 figures. The supporting calculation can be found in Supplement A and the development document.

(5) A commenter did not believe that EPA had the power under Section 301 to promulgate effluent limitations for existing sources by regulation. EPA's authority, the commenter felt, is to publish guidelines under Section 304(b), which shall be consulted by the permit issuing authority.

Numerous reviewing courts have upheld the position that EPA has the authority and responsibility to issue national effluent limitations guidelines pursuant to sections 301 and 304.

(6) Another comment received suggested that the waste characterization of the entire industry by a single raw waste load value does not allow for variation in production levels.

The regulations are written in the form of an allowable waste load per unit of production. Thus, this method permits variations in production. The most reliable data available at this time indicate that the average raw waste load generated per unit of production in all types of photographic processing facilities is essentially the same and the type of waste recovery techniques utilized in the industry does not warrant subcategorization.

(7) One commenter suggested "alternate limitations guidelines" for BOD5, COD and flow, based on calculated theoretical values.

The Agency has concluded that it is more desirable to regulate BOD5, COD and flow only in an indirect way, addressing the regulation to cyanide and silver. The Agency cannot accept a calculated value to establish effluent limitations, guidelines and new source performance standards without back-up data to substantiate the calculated values. Subsequent field survey data submitted by the above commenter indicated that the theoretical calculated values were significantly in error.

(8) Several commenters questioned the fact that the regulations were based on grab sampling as opposed to composite sampling.

The characterization of the industrial raw waste load has been expanded to include both grab and composite sampling results. Raw waste loadings did not significantly change as a result of the incorporation of the composite sampling results because the processing is continuous with a constant replenishment rate.

(9) Several commenters felt that the three plants visited of the estimated 650 major plants to be regulated do not sufficiently represent the industry.

The data base for the regulation has been expanded to include an additional thirty-six plants.

(10) One commenter questioned whether ferrocyanide should be limited as "ferrocyanide", or "ferrocyanide as CN".

The companion development document that supports the regulation has been written to regulate the discharge of cyanides as total cyanide since cyanide may also be present in forms other than ferrocyanide.

(11) A comment was made that "treatment technology is proposed for end-of-pipe, however, sampling was performed at end-of-process. For consistency it would appear that end-of-pipe sampling should have been accomplished."

Generally the most accurate way to measure raw waste loads is at their source. Both end-of-process and end-of-pipe sampling were performed; it was found that there were no significant differences in the values. In the case of multiple sources it is necessary to use the building block approach and combine the various waste loads to obtain a composite waste load. Once a composite waste load is obtained a determination is made as to the availability of treatment technology to treat the waste load, the efficiency of that technology and the associated cost. Usually several treatment technologies are evaluated in order to select one model technology that gives the best pollutant reduction at a reasonable cost. The regulations and permissible waste load that can be discharged is established at the end-of-pipe. In essence the quality of end-of-pipe effluent is the result of the raw waste load reduced by in-plant control plus the use of a suitable waste treatment technology.

(12) One commenter questioned whether "sulfites" and "thiosulfate" really have a BOD5 demand.

Sulfites and thiosulfates exert an oxygen demand which can be measured by the standard BOD5 test and COD test.

(13) One commenter advised that the term "silver thiosulfate" used in the development document should be changed to "silver thiosulfate complex."

Since silver can and often does exist in solution in other than the thiosulfate form the development document has been updated to reflect this situation.

(14) One commenter indicated that no evidence existed that either ferrocyanide, silver or non-biodegradable materials discharged by a photoprocessor are or have been toxic to a biological system at the concentration levels encountered.

A typical publicly owned biological waste treatment system is not designed or normally operated to treat ferrocyanide, silver or non-biodegradable materials and thus these pollutants tend to pass through such a system into receiving bodies of water. All of the above materials are known to have an inhibitory effect on the operation of a system not designed to treat them. Any removal of such materials that may occur in a biological treatment system is usually of an incidental nature, essentially settling out in the sludge. Wastes from photoprocessing industry also are known to contain cyanides and silver in other forms which may have potential deleterious effects on a system not normally designed to treat such materials. Existing and readily available technology can reduce these materials to acceptable environmental levels.

(15) An industrial commenter supplied a list of corrections to process descriptions in the development document

The process descriptions have been corrected in accordance with this comment.

(16) One commenter said that because the 20,000 gpd pilot biological plant was utilized for experimental purposes, it should not be considered as a model to which the industry should be compared.

This plant is not used as the treatment model. Because the industry generally has inadequate treatment, the pilot plant was the only end-of-pipe treatment system located during the survey. About 95% of all photographic processing waste goes to municipal treatment plants.

(17) A commenter questioned the use of performance factors transferred from the pharmaceutical industry.

Performance factors have been derived from examination of typical well-designed and well-operated physical/chemical treatment systems.

(18) One commenter stated that the effluent limitations as proposed would not be adequate to protect the water quality of low flowing streams.

The effluent limitations, guidelines and new source performance standards presented herein essentially are based on the practicability and availability of control and treatment technologies. They are not based on anticipated receiving stream effects. More stringent standards may be applied to a point source, pursuant to sections 302 and 303 of the Act, when necessary to preserve water quality.

(19) Several commenters were concerned that the potential effects on ground water as a result of landfilling wastes were not adequately addressed.

No ground water contamination from the photographic processing point source category as a result of landfilling has been found. The engineering technology required to design and operate landfill operations to prevent this problem is readily available and widely practiced.

(20) In the contractor's draft development document it was suggested that some of the waste disposal problems be turned over to a private disposal contractor. Commenters stated that this is an ineffective way of solving problems unless the contractor is covered by the same guidelines. They said that such contractors should be covered under the category of "miscellaneous chemicals industry."

The suggestion that contract disposal systems are available was not meant to imply that the generator of the wastes is relieved of the responsibility for proper disposal.

(21) A commenter felt that the photographic processing regulation should not apply to mobile armed forces processing units.

These regulations do not affect general applicability of the Act, as more specifically set forth in 40 CFR Part 125. However, many of these mobile point sources may be exempted from coverage by these regulations due to economic considerations. The size cutoff in these regulations applies to mobile and permanent facilities.

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