Title 40—Protection of Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER N—EFFLUENT GUIDELINES AND STANDARDS

[FRL 656-3]

PART 421—NONFERROUS METALS MANUFACTURING POINT SOURCE CATEGORY

PRETREATMENT STANDARDS FOR EXISTING SOURCES

Interim Rulemaking, Secondary Aluminum Smelting and Secondary Copper Subcategories

Notice is hereby given that pretreatment standards for existing sources set forth in interim final form below are promulgated by the Environmental Protection Agency (EPA or Agency). On April 8, 1974, EPA promulgated a regulation adding Part 421 to Chapter 40 of the Code of Federal Regulations (39 FR 12822). That regulation with subsequent amendments established effluent limitations and guidelines for existing sources and standards of performance and pretreatment standards for new sources for the nonferrous metals manufacturing point source category. The regulation set forth below will amend 40 CFR Part 421—Nonferrous Metals Manufacturing Point Source Category, by amending § 421.30 and adding § 421.34 to the secondary aluminum smelting subcategory (Subpart C), and amending § 421.60 and adding § 421.64 to the secondary copper subcategory (Subpart F), pursuant to section 307(b) of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251, 1316(b) and 1317(b) and (c), 1251, 1317(b), 86 Stat. 816 et seq.; Pub. L. 92-500) (the Act).

(a) *Legal Authority.* Section 307(b) of the Act requires the establishment of pretreatment standards for pollutants introduced into publicly owned treatment works (POTW) and 40 CFR 128 establishes that the Agency will propose specific pretreatment standards at the time effluent limitations are established for point source discharges. Pretreatment standards for the nonferrous metals manufacturing point source category were proposed on April 8, 1974 (39 FR 12822) and on February 27, 1975 (40 FR 8514). Sections 421.34 and 421.64 set forth below establish pretreatment standards for existing sources within the secondary aluminum smelting subcategory (Subpart C) and the secondary copper subcategory (Subpart F) of the nonferrous metals manufacturing point source category.

(b) *Summary and Basis of Pretreatment Standard for Existing Sources.* The regulation set forth below establishes pretreatment standards for pollutants introduced to publicly owned treatment works from existing sources within the subparts set forth in paragraph (a) above. This regulation is intended to implement the concepts of the general regulation for pretreatment standards for existing sources set forth in 40 CFR Part 128. This general regulation was proposed July 19, 1973 (38 FR 19236), and published in final form on November 8, 1973 (38 FR 30982).

The general pretreatment standard divides pollutants into two broad categories: "compatible" and "incompatible." Compatible pollutants are generally not limited by specific or numerical pretreatment standards. Incompatible pollutants are subject to pretreatment standards as provided in 40 CFR 128.133. The amounts of pollutants which would impede the operation of a publicly owned treatment works are prohibited by the provisions of 40 CFR 128.131. Additionally, local pretreatment requirements may apply pursuant to section 307(b)(4) of the Act.

The general pretreatment regulation (40 CFR Part 128) described above and its application to effluent limitations and standards has sometimes caused confusion. In order to correct any lack of clarity, 40 CFR 128 is set aside for existing sources within the subparts set forth in paragraph (a) above. In its place, the specific pretreatment standards applicable to each subcategory are set forth in detail below as the pretreatment standards for that subcategory. This mechanism will eliminate any possible confusion as to the materials which are limited or controlled by the pretreatment standard for each subcategory.

A supplemental technical study was made to determine the levels of pretreatment requirements which are appropriate considering the limitations established for direct dischargers under sections 301 and 304 and the requirements of section 307(b). The findings of this study and technical rationale for the establishment of pretreatment standards and guidance levels are summarized in Appendix A to this preamble.

The reports entitled "Supplemental for Pretreatment to the Development Document for the Secondary Aluminum Segment of the Nonferrous Metals Manufacturing Point Source Category" and "Supplemental for Pretreatment to the Development Document for the Secondary Copper Segment of the Nonferrous Metals Manufacturing Point Source Category" detail the additional technical analysis undertaken in support of the interim final regulation set forth herein and are 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 these documents are being sent to persons or institutions affected by the 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 these 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 technical documentation 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.

(c) *Public Participation.* Prior to this publication, many agencies and groups were consulted and given an opportunity to participate in the development of these standards. As a result of comments received on the proposed regulation and upon further consideration by the Agency, additional study of the pretreatment requirements for the nonferrous metals category has been made. Immediately prior to this rulemaking the results of this study were circulated for additional comments to persons known to be interested. A summary of public participation in this rulemaking, public comments and the Agency's response and reconsideration of these is contained in Appendix B of this preamble.

(d) *Economic Impact and Inflationary Impact Analysis.* The economic impact is expected to be minimal for the secondary aluminum subcategory. No price increase is anticipated for this subcategory as a result of the regulations. Additionally, no plant closures or production curtailments are anticipated. Total investment cost for this subcategory is estimated at $878,000 while total annual costs are put at $353,000.

The impact of these regulations is expected to be small for the secondary copper industry. No price increase is projected as the regulation impacts such a small portion of the total copper market. One plant is listed as a potential plant closure based on the economic evaluation of the effects of the regulations on the profitability of all the plants. Total investment costs for this subcategory is estimated at $1,060,000 while total annual costs are put at $507,000 per year. The economic impact is discussed in greater detail in Appendix A, which also contains the inflationary impact analysis.

The Agency was 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. 2153-73, 75-0172, 75-1698 and 75-1267) which required the promulgation of pretreatment standards for this industry category no later than October 15, 1976.

It has not been practical to develop and republish regulations for this category in proposed form and to provide a 30 day comment period 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 prior to promulgation would be impractical 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., S.W., Washington, D.C. 20460, Attention: Distribution Officer, WH-552. Comments on all aspects of the regulation 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 pretreatment standards, EPA solicits suggestions as to what alternative approach should be taken and why and how this alternative better satisfies the detailed requirements of section 307(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, S.W., Washington, D.C. 20460. A copy of the technical studies and economic study referred to above, and certain supplementary materials will 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 February 14, 1977 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 consideration of the foregoing, 40 CFR Part 421 is hereby amended as set forth below.

Dated: December 2, 1976.

RUSSELL E. TRAIN,
Administrator.

Part 421 is amended by adding Appendix A and B at the end thereof to read as follows:

APPENDIX A—TECHNICAL SUMMARY AND BASIS FOR REGULATIONS

This Appendix summarizes the basis of interim final pretreatment standards for existing sources.

(1) *General methodology.* The pretreatment standards set forth herein were developed in the following manner. The point source category was first studied for the purpose of determining whether separate standards 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, waste water constituents and other factors require development of separate standards 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 waste waters in the operation and the constituents of all waste water. The compatibility of each raw waste characteristic with municipal treatment works was then considered. The constituents of the waste waters which should be subject to effluent limitations were identified.

The control and treatment technologies existing within each segment were identified. This included an identification of each distinct control and treatment technology, including both in-plant and end-of-process technologies, which is existent or 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, limitations and reliability of each treatment and control technology were also identified. In addition, the nonwater quality environmental impact, such as the effects of the application of such technologies upon other pollution problems, including air, solid waste, noise and radiation were identified. The energy requirements of each control and treatment technology were determined as well as the cost of the application of such technologies.

The information, as outlined above, was then evaluated in order to determine what levels of technology reflected the application of the best practicable pretreatment technologies. In identifying such technologies, various factors were considered. These included the total cost of application of technology, 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 secondary aluminum smelting subcategory (Subpart C) and the secondary copper subcategory (Subpart F) of the nonferrous metals manufacturing point source category.*

(i) *Categorization.* For the purpose of establishing pretreatment standards, secondary aluminum and secondary copper were each considered to be a single subcategory. Factors such as type of product, raw waste load, type of manufacturing process, and treatability of wastewaters were considered in these determinations. In general, the largest contributing factors were the manufacturing operations and the treatability of wastewaters therefrom.

Although pretreatment standards have been previously proposed for the bauxite refining, primary aluminum smelting, primary copper, primary lead and primary zinc subcategories, these subcategories were not included in this rulemaking because very few, if any, of the plants in these industries are known to discharge to municipal treatment plants.

(ii) *Waste characteristics.* (a) Secondary aluminum. The known significant wastewater pollutants and pollutant properties resulting from secondary aluminum smelting include pH, total suspended solids, COD, aluminum, zinc, copper, cadmium, chloride, ammonia, and oil and grease.

(b) Secondary copper. The known significant wastewater pollutants and pollutant properties resulting from secondary copper smelting and refining include pH, total suspended solids, COD, copper, lead, zinc, cadmium, selenium, boron, and oil and grease.

(iii) *Origins of wastewater pollutants.* (a) Secondary aluminum. Wastewaters are generated in metal cooling, demagging and residue milling. Metal cooling involves the direct contact of water on molten or semi-molten aluminum after casting into ingots. Wastewaters from this operation contain oil and grease, COD, suspended solids, small concentrations of metals including aluminum and are slightly acid. The parameter which has been selected for the pretreatment standards is oil and grease. Other parameters were rejected because either they were removable in publicly owned treatment works (POTW) or they are present at relatively low levels.

Wastewaters from demagging are generated by the removal of magnesium from molten aluminum with chlorine or aluminum fluoride and are derived from the scrubber which cleans the furnace off-gas. The wastewaters contain large amounts of chloride and lesser amounts of aluminum, suspended solids, copper, zinc and cadmium and are generally very acidic. Chloride was not selected as a pollutant parameter because it is not removable by relatively inexpensive technologies. Additionally, copper, zinc and cadmium were not selected as pollutant parameters for this subcategory because significant concentrations of these constituents were not found frequently enough to warrant limitations. Plant data suggest that zinc and cadmium may be occasionally present at significant levels. Cadmium is an extremely toxic material which is nonbeneficial and nonessential. It is deposited and accumulated in various body tissues and is found in varying concentrations throughout all areas where people live. Increased industrial production and use of this material during the past two decades has been accompanied by incidences of acute cases of clinically identifiable cadmiosis. Further, cadmium is known to upset POTW operation at concentrations of 1 mg/l and above and has been found to pass through POTW with little or no removal. Cadmium was found at average levels of 1.82, 0.3, 0.18, 0.076 and 0.066 at the five plants in the secondary aluminum industry which were tested, including both indirect and direct dischargers. The highest concentration was found at the plant which also had the highest concentration of zinc. Although five of the eight samples taken at this plant showed cadmium concentrations greater than 1.0 mg/l, none of the other plants exhibited concentrations of this magnitude in their individual samples. Dissolved zinc is generally not susceptible to treatment by biological treatment processes at POTW. In slug doses, and particularly in the presence of copper, dissolved zinc can interfere with or seriously disrupt the operation of POTW using biological processes by reducing overall removal efficiencies, largely as a result of the toxicity of the metal to biological organisms. The average total zinc concentrations found at the five plants were 38.7, 12.0, 3.58, 2.38 and 0.952 mg/l.

Although these levels are somewhat elevated, only two of the plants showed total zinc concentrations greater than 10, and one plant was just marginally over that concentration. Additionally, the dissolved portion of the total metal analysis is the deleterious part, and at a pH around 9, most of the metal is in the suspended form. Because these metals were only found at one single plant in very significant quantities and because the data indicates low flow levels (i.e., 25 gpm) from demagging operations, it was the judgement of the Agency that pretreatment limitations for these metals was not justified for all the plants in the industry. Therefore, guidance limitations are suggested in lieu of pretreatment standards for these metals. In view of the demonstrated health hazards and effects on POTW, a cadmium limitation of 0.2 mg/l (30 day average) and 0.4 mg/l (daily maximum) and a zinc limitation of 2.5 mg/l (monthly average) and 5 mg/l (daily maximum) is recommended as guidance for the purpose of assisting local authorities in carrying out programs of this type. The technology for achieving these limitations as well as the supporting data is detailed in the Supplemental for Pretreatment to the Development Document for the

Secondary Aluminum Segment of the Nonferrous Metals Manufacturing Point Source Category. A pH range was established for this subcategory for the purpose of limiting the concentrations of dissolved aluminum.

Wastewaters from residue milling are generated when the slags, drosses or other residues are milled to recover aluminum. The exact type of waste is somewhat dependent upon the type of residue being processed. Certain types of residues contain aluminum nitrides and when processed, these create ammonia in the wastewater. Chloride, suspended solids, aluminum and oil may also be present. The pH is generally alkaline. The suspended solids levels are generally so high that plants have to employ some sort of settling (akin to scale pits in the steel industry) so that sewer pipes do not plug up. Chloride is not removable by relatively inexpensive technologies. Oil is compatible with POTW at the low concentrations found here. Aluminum was found to be present at low concentrations. Ammonia was selected as a parameter. Although ammonia may not cause interference with POTW operation when present in small quantities, excess concentrations will disrupt POTW operation; causing reduced BOD removal.

(b) Secondary copper. In the secondary copper industry, waste water is generated principally from four operations: cooling of molten unalloyed or alloyed copper, slag quenching and granulation, furnace exhaust scrubbing, and electrolytic refining. A fifth operation, slag milling and classification, generates a process waste water stream at some secondary copper smelters, but this operation was not found at any of those plants which introduce pollutants to POTW. Each of these streams is an integral part of the total water usage at a given plant, although each operation may not be performed at every plant. Water is consumed in these operations by evaporation and/or by removal of sludges.

Waste waters from each of these operations contain certain metals at relatively high levels, usually copper, cadmium, zinc, and lead. Oil and grease used as lubricants in the process is found in trace amounts, as is boron, which is derived from the bux used in furnace operations. Traces of chromium and mercury also appear. Each of these parameters, particularly copper, cadmium, zinc, and lead, were found to pose a threat to the operation of POTW, to pass through POTW, or to plants grown on soil treated with sludge from POTW. The pH of the wastewater was found to depend upon the type of operation producing the stream. Some metal cooling operations and all electrolytic operations produce acidic streams, but it was found that most streams are slightly alkaline. Streams from slag granulation operations were found to be near the optimum pH for metals removal.

(iv) *Treatment and control technology.* Wastewater treatment and control technologies have been studied for these industries to determine what is the best practicable pretreatment technology.

The following discussions of treatment technologies provide the bases for the pretreatment standards. These discussions do not preclude the selection of other wastewater treatment alternatives which provide equivalent or better levels of treatment.

(a) Secondary aluminum. Present treatment technologies employed for metal cooling wastewater include settling and grease traps. While these may assist in removing the oil, better removals would be attained with oil skimmers and this is the best practicable pretreatment technology. Oil skimmers have been thoroughly demonstrated to reduce oil concentrations to less than 10 mg/l, far less than the limitation established here.

Present treatment technologies employed for demagging scrubber wastewater are pH adjustment. In some cases, this neutralization may be performed in 55-gallon drums. Because of the need for precipitation of dissolved aluminum, the best practicable pretreatment technology is pH adjustment to a range of from 5.0 to 10.0. While there are other methods available to the industry for demagging which result in no wastewaters being generated, these would not constitute a pretreatment technology. Two items must be emphasized here—fairly precise pH control and avoidance of the use of waste caustic. Reasonably precise pH control can be attained in very small operations by the use of more accurate pH papers, some of which show increments as small as 0.2 of a pH unit. While waste caustic may be less expensive than "new" caustic, it may also contain metals which are undesirable.

Present pretreatment technology for residue milling wastewaters are settling, as discussed previously. The best practicable pretreatment technology is pH adjustment and ammonia stripping, if necessary. Use of an alkaline milling water largely prevents the generation of ammonia, but not completely. Stripping adds considerably to the cost of meeting the pretreatment standards for the secondary aluminum industry. If the nitride-containing residues are infrequently processed, so that high concentrations of ammonia are only occasionally present, it may be possible to employ equalization of the residue milling wastewater and thereby meet the concentration limitation.

(b) Secondary copper. Existing control technology, widely practiced by the industry for economic reasons, primarily consists of in-plant reuse and recycle of process waste waters. Of the forty-six currently operating secondary copper smelters, seventeen do not discharge process waste waters by virtue of this technology. Nearly all smelters, including the seventeen discharging to POTW, practice some degree of recycle and reuse of process wastewaters.

Seventeen plants in the industry discharge their wastewaters to municipal sewer systems. None of these plants had any end-of-pipe treatment facility that could be considered to be exemplary. Well-operated pH adjusting and settling facilities were identified elsewhere in the secondary copper industry and in other metals industries, which provided the basis for the best practicable pretreatment technology.

The best practicable pretreatment technology for waste water from contact metal cooling and quenching operations is adjusting the pH, if necessary, to between 8 and 10, and settling. This technology can be applied to the individual stream or it may be applied as part of the combined process waste water treatment. Periodic removal, dewatering, and disposal of sludge from settling basins or tanks will be necessary. If a charcoal cover is used, sludge removal requirements will be significantly increased.

The best practicable pretreatment technology for waste water from slag quenching and granulation is settling to reduce suspended solids. The pH should be adjusted, if necessary, to between 8 and 10 before solids removal. This technology can be applied to the specific stream or as part of the combined process waste water treatment before reuse or recycle. An alternative control method applicable to waste water from the quenching of copper-rich slag is to air cool the molten slag in pots and employ mechanical size reduction for handling and subsequent recovery of the contained metal content.

The best practicable pretreatment technology for waste water from furnace exhaust scrubbing is pH adjustment, if necessary, to between 8 and 10 and the removal of solids by settling. This technology is usually applied to the specific stream and kept separate from the combined process waste waters, although this may be accomplished as part of combined process waste water treatment.

The best practicable pretreatment technology for waste water from electrolytic refining is the removal of copper by cementation with iron metal, followed by lime neutralization to a pH between 8 and 10 and settling of the waste stream to remove solids.

It is emphasized that in-plant measures to recycle and reuse process waste to minimize discharges to municipal treatment works are included as part of the recommended pretreatment technology.

Solid waste control must be considered The best pretreatment technologies as known today, require disposal of the pollutants removed from waste waters in the form of solid wastes and liquid concentrates. In most cases these are nonhazardous substances requiring only minimal custodial care. However, some 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 waste water pollutants.* Cost information was obtained directly from industry, engineering firms, equipment suppliers, government sources and available literature. Costs are based on actual industry 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 similar products 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 the recommended pretreatment technologies is the generation of metals-bearing solid wastes from pH adjustment and settling facilities. In some cases these wastes can be reprocessed to recover metals values, but in most cases these wastes will be landfilled.

Other nonwater quality aspects, including energy, noise, and air pollution, will not be perceptibly affected with one exception. In secondary aluminum plants where residue milling is performed, use of the recommended pretreatment technology of ammonia stripping may cause some air quality deterioration in the immediate area. However, because of the small quantities treated and removed, this is expected to be insignificant. Equipment associated with in-process or end-of-pipe control systems would have minimal impact on the non-water quality aspects.

(vii) *Economic impact analysis.* This section summarizes the economic and inflationary impacts of the pretreatment standards for the secondary copper and aluminum subcategories of nonferrous metals manufacturing point source category.

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 which are likely to exceed any of the following four criteria will require certification.

1. Additional national annualized costs of compliance, including capital charges (interest and depreciation), will total $100 million within any calendar year by the attainment date, if applicable, or within five years of implementation.

2. Total additional cost of production of any major product is more than 5 percent of the selling price of the product.

3. Net national energy consumption will be increased by the equivalent of 25,000 barrels of oil a day (equal to 50 trillion BTU per year or 5 billion kilowatt-hours per year).

4. Additional annual demands are created or annual supply is decreased by more than 3 percent for any of the following materials by the attainment date, if applicable, or within five years of implementation: plate steel, tubular steel, stainless steel, scrap steel, aluminum, copper, manganese, magnesium, zinc, ethylene, ethylene glycol, liquefied petroleum gases, ammonia, urea, plastics, synthetic rubber, or pulp.

The following table presents the costs of complying with the pretreatment standards.

Estimated pretreatment costs[1]

Subcategory	Total investment[2]	Total annual costs[2,3]	Percent of selling price[4]
Secondary aluminum	878	353	0.00-0.71
Secondary copper	1,061	507	.03-1.3
Total	1,939	860	0.00-1.3

[1] Represents the additional investment and annual costs required to meet the pretreatment standards for dischargers to publicly owned treatment works.

[2] All costs are in 4th quarter 1975 dollars.

[3] Total annual costs are equal to operation and maintenance costs plus a capital cost based on a 10-yr depreciation and a 10-pct interest rate.

[4] Represents the annual costs per unit of production as a percent of selling price for each of the plants in the subcategory.

SOURCE.—"Supplemental for Pretreatment to the Development Document for the Secondary Aluminum Segment of the Nonferrous Metals Manufacturing Point Source Category," "Supplemental for Pretreatment to the Development Document for the Secondary Copper Segment of the Nonferrous Metals Manufacturing Point Source Category" and "Economic Impact Analysis of Proposed Pretreatment Standards for the Nonferrous Metals Processing Industry, Secondary Aluminum and Copper."

As can be seen above, total national annualized costs of compliance for both of the pretreatment standards are well below $100 million per year. In addition, the increase in cost of production is less than 5 percent of the selling price. Energy consumption will be increased by a nominal amount. Finally, the projected increase in demand or decrease in supply for any of the above materials is nominal. Thus an inflationary impact statement is not necessary.

The Agency has considered the economic impact of the internal and external costs of the effluent limitations guidelines. Internal costs (see table above) are defined as investment and annual cost, where annual cost is composed of operating costs, maintenance costs, 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.

The impact of these regulations is expected to be small for the secondary aluminum industry. No price increase is projected as the regulation impacts such a small portion of the total aluminum market. No production curtailment or plant closures are projected for the secondary aluminum subcategory since the imposition of the pretreatment standards has a negligible effect on the profitability of the secondary aluminum plants. Based on this analysis the effects on employment, industry growth and international trade are expected to be minimal.

The impact of these regulations is expected to be small for the secondary copper industry. No price increase is projected as the regulation impacts such a small portion of the total copper market. One plant is listed as a potential plant closure based on the economic evaluation of the effects of the regulations on the profitability of all the plants. Based on this analysis the effects on employment, industry growth and international trade are expected to be minimal.

APPENDIX B—SUMMARY OF PUBLIC PARTICIPATION

Prior to this publication, copies of the draft documents were sent to industry trade groups, environmental interest groups, Federal agencies, state, local, and territorial pollution control agencies, and ESQWIAC (the Effluent Standards and Water Quality Information Advisory Committee established under Section 515 of the Act). In addition, copies were sent to each secondary copper or secondary aluminum producer discharging to a POTW. Each of these parties was given an opportunity to participate in the development of pretreatment standards by submitting written comments. In addition, a public meeting was held on September 22, 1976 at EPA headquarters in Washington, D.C. at which interested parties were invited to express their views publicly. Public comments were also solicited when pretreatment standards for these segments were proposed in the FEDERAL REGISTER on April 8, 1974 and February 27, 1975.

The following responded with comments: ESQWIAC; U.S. Department of Commerce; State of Ohio Environmental Protection Agency; Aluminum Recycling Association; Vulcan Materials Company; Aluminum Company of America; Reynolds Metals Company; Kaiser Aluminum and Chemical Corporation; and Olin Brass Company.

The primary issues raised by commenters during the development of the pretreatment regulations for the nonferrous metals industry are as follows:

1. Many commenters requested that aluminum be deleted as a pollutant parameter for secondary aluminum, citing lack of toxicity and its use as a coagulant in POTW as rationale.

Upon further examination and reflection, it is the opinion of the Agency that aluminum should not be limited. However, establishing a pH range will effectively limit this parameter in the dissolved form.

2. It was also requested that ammonia be deleted as a parameter for secondary aluminum. One commenter stated that it should be limited only for those smelters which discharge to POTW with nitrification-denitrification facilities, while another stated that ammonia concentrations within the required pH limits should be totally compatible with the treatment capabilities of any POTW.

Discussion during the public meeting indicated that ammonia may be significantly present in the discharge from the cole aluminum plant presently discharging residue milling water up to 10 percent of the time, whereas the data which was gathered in establishing effluent limitations for direct dischargers indicated that this plant was well within limits. Based on this new information, a limitation on ammonia does appear to be needed, and costs were developed for a treatment technology which would effectively remove this parameter. Ammonia can be toxic at high concentrations to the bacteria in a biological treatment system. Excessive ammonia concentrations will adversely affect BOD removal, because the ammonia will create an additional oxygen demand. Ammonia also creates an additional chlorine demand. Ammonia is more prevalent at pH's above 7.0, as is the case in residue milling waters and this form is more toxic than the ammonium form.

3. The use of industry-wide pretreatment standards was protested, it being suggested that the pretreatment standards be established on a case-by-case basis, and not at industry-wide levels achievable by technology.

The Act requires that pretreatment standards be established at uniform national levels, although individual municipalities may establish stricter level than the national standards. The limits are set conservatively due to the toxicity of the regulated pollutants and to the tendency of these pollutants to pass through or interfere with the operation of POTW. They generally reflect the application of available technology as implied in Section 307(b)(2) of the Act, thus providing protection from the above potential hazards. Limitations on zinc and cadmium in the secondary aluminum industry are suggested as guidance for local authorities carrying out pretreatment programs, rather than establishing nationwide limits.

4. Inclusion of additional plant data was requested since some commenters believed that additional plant visits and data would change the conclusions which were drawn.

Additional plants were visited and samples gathered. Although zinc and cadmium were found at some secondary aluminum plants, only one plant had cadmium concentrations greater than 1.0 mg/l and zinc concentrations greater than 12.0. Therefore, no limitations are placed on these parameters, although POTW operators are cautioned that they may be present and a limit may be necessary at some plants. Specific guidance limitations are suggested for these parameters. No significant changes were necessary in the secondary copper subcategory as a result of additional plant visits.

5. Some commenters believed that the oil and grease limitations were too low, while others stated that the limitation should be applied only to oil and grease of a non-animal or non-vegetable nature.

The level for oil and grease has been revised, in that the 30 day average has been deleted and the daily maximum left at 100 mg/l. This was established based on the maximum level which a POTW is capable of treating on a slug basis. However, the limitation has been set without any differentiation between oil of a mineral origin and oil of an animal or vegetable origin. This is because of the extreme difficulty in analyzing for the different types of oil and the potential that both types may be present in a single stream.

6. It was suggested that phenols be limited in the wastewater from ingot or metal casting operations from secondary aluminum facilities.

A review of the data base indicates that phenol, while present in concentrations up to 0.26 mg/l, is generally present at considerably lower levels. Therefore, it was determined that phenol is inappropriate as a pollutant parameter at this time.

7. The primary aluminum manufacturers expressed concern as to whether aluminum remelting, casting and shaping facilities and fabricating are included within the scope of these limitations.

On October 15, 1975, on page 48348 of the FEDERAL REGISTER, EPA amended the applicability of the secondary aluminum smelting subcategory in settlement of a lawsuit with Reynolds Metals Company. It reads: "The provisions of this subpart are applicable to discharges of fume-scrubbing wastewaters where aluminum fluoride or chlorine is used in the magnesium removal process and to wet residue milling and remelting of aluminum scrap to produce metallic aluminum alloys." Shaping and fabricating operations are not included within this scope.

8. Another commenter suggested that the 30 day pretreatment standards for copper and cadmium in the secondary copper subcategory should be relaxed, asserting that the draft pretreatment standards reflected the best operation of pH adjustment and settling technology and concluding that no treatment system can reasonably be expected to average its optimum performance.

Additional data on the performance of pH adjustment and settling operations was collected and evaluated and other pertinent information was reviewed. On the basis of this information, it was concluded that the 30 day pretreatment standard for copper was overly stringent. Available data indicates that a 30 day limit of 0.50 mg/l is routinely attainable for copper (rather than the 0.25 mg/l limit contained in the draft document).

This review also indicated that the draft limit for cadmium was not stringent enough. 0.1 mg/l is achieved at Plants R and V, and data from the primary copper smelting industry and from the electroplating industry revealed that many plants routinely achieve concentrations of 0.1 mg/l or less of cadmium with pH adjustment and settling treatment. One well-operated electroplating plant routinely achieves 0.2 mg/l with this technology, and this limit was selected as a thirty day average, with the daily maximum set at 0.4 mg/l to allow for fluctuations. The standards promulgated herein reflect these changes.

§ 421.30 [Amended]

1. Section 421.30 is amended by inserting the phrase "and to the introduction of pollutants into treatment works which are publicly owned" after the word "discharges".

2. Subpart C is amended by adding section 421.34 as follows:

§ 421.34 Pretreatment Standards for Existing Sources.

For the purpose of establishing pretreatment standards under Section 307 (b) of the Act for a source within the secondary aluminum smelting subcategory, the provisions of 40 CFR Part 128 shall not apply. The pretreatment standards for an existing source within the secondary aluminum smelting subcategory are set forth below.

(a) No pollutant (or pollutant property) introduced into a publicly owned treatment works shall interfere with the operation or performance of the works. Specifically the following wastes shall not be introduced into the publicly owned treatment works:

(1) Pollutants which create a fire or explosion hazard in the publicly owned treatment works.

(2) Pollutants which will cause corrosive structural damage to treatment works, but in no case pollutants with a pH lower than 5.0, unless the works is designed to accommodate such pollutants.

(3) Solid or viscous pollutants in amounts which would cause obstruction to the flow in sewers, or other interference with the proper operation of the publicly owned treatment works.

(4) Pollutants at a flow rate and/or pollutant discharge rate which is excessive over relatively short time periods so that there is a treatment process upset and subsequent loss of treatment efficiency.

(b) In addition to the general prohibitions set forth in paragraph (a) of this section the following pretreatment standard establishes the quality or quantity of pollutants or pollutant properties controlled by this section which may be introduced into a publicly owned treatment works by a source subject to the provisions of this subpart.

(1) Metal cooling:

Pollutant or pollutant property	Pretreatment standard (milligrams per liter)	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Oil and grease	100	----------

(2) Demagging fume scrubbers:

Pollutant or pollutant property	Pretreatment standard (milligrams per liter)	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
pH	Within the range 5 to 10.	

(3) Residue milling:

Pollutant or pollutant property	Pretreatment standard (milligrams per liter)	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Ammonia-N	100	50

§ 421.60 [Amendment]

3. § 421.60 is amended by inserting the phrase "and to the introduction of pollutants into treatment works which are publicly owned" after the word "discharges".

4. Subpart F is amended by adding § 421.64 as follows:

§ 421.64 Pretreatment standards for existing sources.

For the purpose of establishing pretreatment standards under section 307 (b) of the Act for a source within the secondary copper subcategory, the provisions of 40 CFR Part 128 shall not apply. The pretreatment standards for an existing source within the secondary copper subcategory are set forth below.

(a) No pollutant (or pollutant property) introduced into a publicly owned treatment works shall interfere with the operation or performance of the works. Specifically the following wastes shall not be introduced into the publicly owned treatment works:

(1) Pollutants which create a fire or explosion hazard in the publicly owned treatment works.

(2) Pollutants which will cause corrosive structural damage to treatment works, but in no case pollutants with a pH lower than 5.0, unless the works is designed to accommodate such pollutants.

(3) Solid or viscous pollutants in amounts which would cause obstruction to the flow in sewers, or other interference with the proper operation of the publicly owned treatment works.

(4) Pollutants at a flow rate and/or pollutant discharge rate which is excessive over relatively short time periods so that there is a treatment process upset and subsequent loss of treatment efficiency.

(b) In addition to the general prohibitions set forth in paragraph (a) of this section the following pretreatment standard establishes the quality or quantity of pollutants or pollutant properties controlled by this section which may be introduced into a publicly owned treatment works by a source subject to the provisions of this subpart.

Pollutant or pollutant property	Pretreatment standard (milligrams per liter)	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Oil and grease	100.0	----------
Copper	1.0	0.5
Cadmium	.4	.2

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