ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 468

[OW-FRL-2230-5]

Copper Forming Point Source Category Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards

AGENCY: Environmental Protection Agency.

ACTION: Proposed rule.

SUMMARY: EPA is proposing effluent limitations under the Clean Water Act to limit effluent discharges to waters of the United States and the introduction of pollutants into publicly owned treatment works (POTW's) from copper forming facilities. The Clean Water Act and a consent decree require EPA to propose and promulgate this regulation. The purpose of this action is to propose effluent limitations based on best practicable technology and best available technology, new source performance standards based on best demonstrated technology, and pretreatment standards for existing and new indirect dischargers.

DATES: Comments on this proposal must be submitted by January 11, 1983.

ADDRESSES: Send comments to: Mr. David Pepson, Effluent Guidelines Division (WH-552), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460, Attention: Copper Forming Rules. Technical information and copies of technical documents may be obtained from the National Technical Information Service, Springfield, Virginia 22161 (703/487-4600), or from Mr. David Pepson, Effluent Guidelines Division, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460 or call 202/382-7157. The economic analysis may be obtained from Ms. Ann Watkins, Economic Analysis Staff (WH-586), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460, or call 202/382-5387. The supporting information and all comments on this proposal will be available for inspection and copying at the EPA Public Information Reference Unit, Room 2402 (Rear) (EPA Library). The EPA public information regulation (40 CFR Part 2) provides that a reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Ernst P. Hall, 202/382-7126.

SUPPLEMENTARY INFORMATION: These proposed regulations are supported by three major documents available from EPA. Analytical methods are discussed in *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants.* EPA's technical conclusions are detailed in the *Development Document for Effluent Limitations Guidelines and Standards for the Copper Forming Point Source Category.* The Agency's economic analysis is found in *Economic Impact Analysis of Effluent Limitations Guidelines and Standards for the Copper Forming Industry.*

Organization of This Notice

I. Legal Authority

EPA is proposing the regulation described in this notice under the authority of Sections 301, 304, 306, 307, 308, and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, 33 USC 1251 *et seq.*, as amended by the Clean Water Act of 1977, P.L. 95-217) ("the Act"). These regulations also are proposed in response to the Settlement Agreement in *Natural Resources Defense Council, Inc.* v. *Train,* 8 ERC 2120 (D.D.C. 1976), *modified,* 12 ERC 1833 (D.D.C. 1979).

II. Background

A. The Clean Water Act

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

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

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

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

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

Section 402(a)(1) of the 1972 Act does allow requirements for direct dischargers to be set case-by-case; however, Congress intended control requirements to be based for the most part on regulations promulgated by the Administrator of EPA.

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

Sections 304(c) and 306 of the Act require regulations for NSPS.

Sections 304(f), 307(b), and 307(c) require regulations for pretreatment standards.

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

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

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

Several of the basic elements of the Settlement Agreement were incorporated into the Clean Water Act of 1977. This law also makes several important changes in the federal water pollution control program.

Sections 301(b)(2)(A) and 301(b)(2)(C) of the Act now set July 1, 1984 as the deadline for industries to achieve effluent limitations requiring application of BAT for "toxic" pollutants. "Toxic" pollutants here include the 65 toxic pollutants and classes of pollutants which Congress declared "toxic" under Section 307(a) of the Act.

Likewise, EPA's programs for new source performance standards and pertreatment standards are now aimed principally at controlling toxic pollutants.

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

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

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

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

The purpose of this proposed regulation is to establish BPT and BAT effluent limitations and NSPS, PSES, and PSNS effluent standards for the copper forming point source category.

B. General Criteria for Effluent Limitations and Standards

1. *BPT Effluent Limitations.* The factors considered in defining best practicable control technology currently available (BPT) include (1) the total cost of applying the technology relative to the effluent reductions that result, (2) the age of equipment and facilities involved, (3) the processes used, (4) engineering aspects of the control technology, (5) process changes, (6) nonwater-quality environmental impacts (including energy requirements), and (7) other factors as the Administrator considers appropriate. In general, the BPT level represents the average of best existing performance of plants within the industry of various ages, sizes, processes, or other common characteristics. When existing performance is uniformly inadequate, BPT may be transferred from a different subcategory or category. See *Tanner's Council of America* v. *Train,* 540 F. 2d 1188 (4th Cir. 1976). BPT focuses on end-of-process treatment rather than process changes or internal controls, except when these technologies are common industry practice.

The cost—benefit inquiry for BPT is a limited balancing, committed to EPA's discretion, which does not require the Agency to quantify benefits in monetary terms. See e.g., *American Iron and Steel Institute* v. *EPA,* 526 F. 2d 1027 (3rd Cir. 1975). In balancing costs against the benefits of effluent reduction, EPA considers the volume and nature of existing discharges, the volume and nature of discharges expected after application of BPT, the general environmental effects of the pollutants, and the cost and economic impacts of the required level of pollution control. The Act does not require or permit consideration of water quality problems attributable to particular point sources, or water quality improvements in particular bodies of water. Therefore, EPA has not considered these factors. See *Weyerhaeuser Company* v. *Costle,* 590 F. 2d 1011 (D.C. Cir. 1976); *Appalachian Power Company, et al,* v. *Train,* 545 F. 2d 1351 (4th Cir. 1976).

2. *BAT Effluent Limitations.* The factors considered in defining best available technology economically achievable (BAT) include the age of the equipment and facilities involved, the processes used, engineering aspects of the control technology, process changes, nonwater-quality environmental impacts (including energy requirements), and the costs of applying such technology Section 304(b)(2)(B). At a minimum, the BAT level represents the best economically achievable performance of plants of various ages, sizes, processes, or other shared characteristics. As with BPT, uniformly inadequate performance within a category or subcategory may require transfer of BAT from a different subcategory or category. Unlike BPT, however, BAT may include process changes or internal controls, even when these technologies are not common industry practice.

The statutory assessment of BAT "considers" costs, but does not require a balancing of costs against effluent reduction benefits (see *Weyerhaeuser* v. *Costle, supra*). In developing the proposed BAT, however, EPA has given substantial weight to the reasonableness of costs. The Agency has considered the volume and nature of discharges, the volume and nature of discharges expected after application of BAT, the general environmental effects of the pollutants and the costs and economic impacts of the required pollution control levels.

Despite this expanded consideration of costs, the primary factor for determining BAT is the effluent reduction capability of the control technology. The Clean Water Act of 1977 established the achievement of BAT as the principal national means of controlling toxic water pollution from direct discharging plants.

3. *BCT Effluent Limitations.* The 1977 Amendments added Section 301(b)(2)(E) to the Act establishing "best conventional pollutant control technology" (BCT) for discharges of conventional pollutants from existing industrial point sources. Conventional pollutants are those defined in Section 304(a)(4) (biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, and pH) and any additional pollutants defined by the Administrator as "conventional" (oil and grease, 44 FR 44501 (July 30, 1979)).

BCT is not an additional limitation, but replaces BAT for the control of conventional pollutants. In addition to other factors specified in Section 304(b)(4)(B), the Act requires that BCT limitations be assessed in light of a two-part "cost reasonableness" test. *American Paper Institute* v. *EPA*, 660 F.2d 954 (4th Cir. 1981). The first test compares the cost for private industry to reduce its conventional pollutants with the costs to publicly owned treatment works for similar levels of reduction in their discharge of these pollutants. The second test examines the cost effectiveness of additional industrial treatment beyond BPT. EPA must find that limitations are "reasonable" under both tests before establishing them as BCT. In no case may BCT be less stringent than BPT.

EPA published its methodology for carrying out the BCT analysis on August 19, 1979 (44 FR 50732). In the case mentioned above, the Court of Appeals ordered EPA to correct data errors underlying EPA's calculation of the first test and to apply the second cost test. (EPA had argued that a second cost test was not required.)

On October 29, 1982, the Agency proposed a revised BCT methodology. We are deferring proposal of BCT limitations for this category until we can apply the revised methodology to the technologies available for the control of conventional pollutants in this category.

4. *New Source Performance Standards.* The basis for new source performance standards (NSPS) under Section 306 of the Act is the best available demonstrated technology. New plants have the opportunity to design the best and most efficient processes and wastewater treatment technologies.

Therefore, Congress directed EPA to consider the best demonstrated process changes, in-plant controls, and end-of-process treatment technologies that reduce pollution to the maximum extent feasible.

5. *Pretreatment Standards for Existing Sources.* Section 307(b) of the Act requires EPA to promulgate pretreatment standards for existing sources (PSES), which industry must achieve within three years of promulgation. PSES are designed to prevent the introduction of pollutants into a POTW which pass through, interfere with, or are otherwise incompatible with the operation of POTW.

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

Before proposing pretreatment standards, the Agency examines whether the pollutants discharged by the industry pass through the POTW. In determining whether pollutants pass through a POTW, the Agency compares the percentage of a pollutant removed by POTW with the percentage removed by direct dischargers applying the best available technology economically achievable. A pollutant is deemed to pass through the POTW when the average percentage removed nationwide by well-operated POTW meeting secondary treatment requirements, is less than the percentage removed by direct dischargers complying with BAT effluent limitations guidelines for that pollutant.

This definition of pass through satisfies two competing objectives set by Congress: (1) That standards for indirect dischargers be equivalent to standards for direct dischargers, while, at the same time, (2) that the treatment capability and performance of the POTW be recognized and taken into account in regulating the discharge of pollutants from indirect dischargers. The Agency compares percentage removal rather than the mass or concentration of pollutants discharged because the latter would not take into account the mass of pollutants discharged to the POTW from non-industrial sources nor the dilution of the pollutants in the POTW effluent to lower concentrations due to the addition of large amounts of non-industrial wastewater.

6. *Pretreatment Standards for New Sources.* Section 307(c) of the Act requires EPA to promulgate pretreatment standards for new sources (PSNS) at the same time that it promulgates NSPS. These standards are intended to prevent the introduction of pollutants into a POTW which pass through, interfere with, or are otherwise incompatible with a POTW. New indirect dischargers, like new direct dischargers, have the opportunity to incorporate the best available demonstrated technologies—including process changes, in-plant controls, and end-of-process treatment technologies—and to select plant sites that ensure the treatment system will be adequately installed. Therefore, the Agency establishes PSNS after considering the same criteria considered for NSPS. PSNS will have effluent reductions similar to NSPS.

C. Prior EPA Regulation

EPA has not previously proposed or promulgated effluent limitations and standards for the copper forming category.

D. Overview of the Category

Based on information from copper plant data collection portfolios (dcp's), there are approximately 176 facilities in the copper forming category employing about 12,000 employees. Of the 176 copper forming plants, 37 are direct dischargers, 45 are indirect dischargers, and 94 do not discharge any wastewater.

Total category production capacity is estimated to be 3.5 billion kg per year (7.7 billion pounds per year) with individual plant production ranging from 22,700 to 227,000,000 kg (50,000 to 500,000,000 pounds). Most of the copper forming facilities are located in northeastern United States with the remaining facilities fairly evenly distributed throughout the country.

Copper forming facilities use five basic techniques to form copper: Hot rolling, cold rolling, extrusion, drawing, and forging. In addition to these forming operations, there are nine surface cleaning and heat treatment processes which impart desired surface and physical properties to the metal. These ancillary operations are annealing with oil or water, pickling bath and rinse, pickling fume scrubber, alkaline bath and rinse, extrusion press heat treatment, and solution heat treatment (commonly referred to as quench water). Casting of copper and copper alloys, even when conducted in conjunction with copper forming is not covered by this regulation; it is regulated under the metal molding and casting regulation.

With the exception of the forging forming operation, all of the forming and ancillary operations result in the discharge of wastewater. The major pollutants found in the wastewaters from the above operations are toxic metals (specifically chromium, copper, lead, nickel, zinc), toxic organics, suspended solids, and oil and grease.

Copper, lead, nickel, and zinc are present in the wastewater through surface contact of the copper and copper alloy metals during the forming and ancillary operations. Chromium is present primarily from the use of sodium dichromate as a brightening agent in the pickling operation and is present to a lesser extent because it is a constitutent of certain copper alloys.

Oil and grease and toxic organics are present in wastewater discharges from the application of lubricants to reduce friction in the forming equipment. The specific organics found are benzene; 1,1,1-trichloroethane; chloroform; 2,6-dinitrotoluene; ethylbenzene; methylene chloride; naphthalene; N-nitrosodiphenylamine; anthracene; phenanthrene; toluene; and trichloroethylene.

III. Scope of this Rulemaking and Summary of Methodology

EPA first studied the copper forming category to determine whether differences in raw materials, final products, manufacturing processes, equipment, age and size of plants, water usage, wastewater constituents, or other factors required the development of separate effluent limitations and standards for different segments of the category. This involved a detailed analysis of wastewater discharge and treated effluent characteristics, including (1) the sources and volume of water used, the processes employed, and the sources of pollutants and wastewaters in the plant; and (2) the constituents of wastewaters, including toxic pollutants.

EPA also identified several distinct control and treatment technologies (both in-plant and end-of-pipe) applicable to the copper forming category. The Agency analyzed both historical and newly generated data on the performance of these technologies, including their nonwater quality environmental impacts and air quality, solid waste generation, and energy requirements.

The cost of each control and treatment technology was estimated from unit cost curves developed by applying standard engineering analysis to wastewater characteristics. EPA derived the unit treatment costs by applying model plant wastewater characteristics to the unit cost curve of each treatment process.

Using the unit treatment costs, EPA estimated the costs which plants would incur to comply with effluent limitations and pretreatment standards based on each technology option considered. Compliance costs for all copper forming plants were extrapolated from an engineering analysis of 10 direct and six indirect dischargers believed to be representative of the cotegory. A detailed discussion of EPA's engineering analysis and selection of plants is provided in Section VIII of the Development Document.

Consideration of these factors enabled EPA to characterize the various control and treatment technologies as BPT, BAT, PSES, PSNS, and NSPS. The proposed regulations, however, do not require the installation of any particular technology. Rather, they require achievement of effluent limitations and pretreatment standards characteristic of the proper operation of these model technologies.

Except for pH requirements, the BPT, BAT, and NSPS limitations are expressed as mass limitations—a mass of pollutant per unit of production (mg/kg). They are calculated by multiplying the technology based effluent concentration by the regulatory flow for each process waste stream.

Pretreatment standards—PSES and PSNS—are also expressed as mass limitations rather than concentration limits to ensure a reduction in the total quantity of pollutant discharges. Regulation on the basis of concentration alone is not adequate because it will not limit the amount of pollutants which may be discharged. Therefore, the Agency is not proposing concentration based pretreatment standards (40 CFR 403.6).

IV. Data Gathering Efforts

In 1977–1978, under the authority of Section 308 of the Clean Water Act, a data collection portfolio (dcp) was mailed to each of the 475 companies identified in a Dun and Bradstreet list as companies believed to be active in copper forming. Responses were received from approximately 85 percent of the 475 companies originally contacted. The responses provided information on 176 plants that perform manufacturing operations covered under the copper forming category.

In addition to the above data sources, EPA visited 12 copper forming plants. Plant vists were made to sample wastewater sources and treatment effluents and to gather additional information on manufacturing processes, wastewater flows, and wastewater treatment technologies and associated costs. The Agency also collected information on treatment systems not currently used in the industry. In collecting this information, EPA surveyed literature, contacted waste treatment equipment manufacturers, and observed applicable treatment systems used by other industries.

Data related to the performance of the various treatment technology options considered was obtained from copper forming and other industries with similar wastewater. A detailed discussion of these data and its use is found in Section VII of this preamble and in Section VII of the Development Document.

To obtain economic data, EPA marked an economic survey questionnaire to all plants known or believed to be copper formers. This survey was mailed under the authority of Section 308 of the Clean Water act. The agency received 103 responses. The survey was designed to provide accurate and current information on the economic and financial characteristics of the industry. Data Collected included information on Market structure, profitability, and investment in new capital and production costs. The Agency also collected information from plant visits and personal contacts with industry.

In addition to the foregoing data sources, supplementary data were obtained from NPDES permit files in EPA reginal offices and contacts with state pollution control offices. The data gathering program is further discussed in Sections III and V of the Development Document.

V. Sampling and Analytical Program

The sampling and analysis program for this rulemaking concentrated on the toxic pollutants designated in the Clean Water Act. However, conventional and nonconventional pollutants were also sampled and analyzed. Both inorganic and organic toxic pollutants were sampled for in the wastes from the industry. The Agency has not promulgated analytical methods for many of the organic toxic pollutants under Section 304(h) of the Act, although a number of these methods have been proposed (44 FR 69464 (December 3, 1979); 44 FR 75028 (December 18, 1979)). Additional information on the development of sampling and analysis methods for toxic organic pollutants is contained in the preamble to the proposed regulations for the Leather Tanning Point Source Category, 40 CFR Part 425 (44 FR 38749; July 2, 1979).

EPA checked for the presence and magnitude of 65 toxic pollutants and classes of pollutants (as listed in the NRDC Consent Decree) and a smaller group of conventional and nonconventional pollutants suspected to be present in this category's wastewaters. Sampled plants were selected to be representative of the manufacturing processes, the prevalent mix of production among plants, and the current treatment technology in the industry. During the sampling program, EPA sampled 12 copper forming plants. Wastewater flow rates were measured at the sampled plants using standard flow measurement techniques.

Wherever possible, each sample of an individual raw waste stream, a combined waste stream or a treated effluent was collected by an automatic time series compositor during sampling periods as long as 24 hours. Where automatic compositing was not possible, grab samples were taken and composited manually.

EPA used the analytical techniques described in *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants,* revised in April 1977. A very similar method is found among those proposed on December 3, 1979.

VI. Industry Subcategorization

In developing this regulation, the Agency considered whether different effluent limitations and standards are appropriate for different segments of the copper forming industry. The Act requires that EPA consider a number of factors to determine if subcategorization is needed. These factors include raw materials, final products, manufacturing processes, geographical location, plant size and age, wastewater characteristics, nonwater quality environmental impacts, energy costs, and solid waste generation. With the exception of manufacturing processes, the Agency concluded that none of the above factors should be used as the basis for subcategorization.

Copper forming manufacturing processes consist of five forming processes and nine surface cleaning and heat treatment processes which impart desired surface and physical properties to the formed copper product. While these forming and ancillary operations are found at copper forming plants in different combinations, the wastewater discharges from all plants are similar with respect to both the type and concentration of pollutants discharged. The treatment technology options considered in Section VII achieve the same level of pollutant reduction on all copper forming manufacturing waste streams.

Therefore, the Agency has determined that the Copper Forming Category is most appropriately regulated as a single category.

The copper forming regulation presents all effluent limitations and pretreatment standards by waste stream (e.g., hot rolling spent lubricant, pickling bath, etc.). This is done to account for the different regulatory flows associated with these operations, and should not be construed as subcategorization. The pollutants regulated and the technology based effluent concentrations are the same for all streams, and this presentation format incorporates the calculation of individual mass (i.e., flow multiplied by concentration) limitations and standards for each waste stream.

VII. Available Wastewater Control and Treatment Technology

A. Status of In-Place Technology

Wastewater treatment technologies currently used in the copper forming category include both in-process and end-of-pipe waste treatment. In-plant process controls are applied in the manufacturing process. End-of-pipe treatment controls pollutants at the point of discharge.

According to data supplied by industry, all direct dischargers and 50 percent of the indirect dischargers presently treat pickling bath and rinse streams using chemical precipitation and clarification technology with chromium reduction where necessary. Several of these facilities also treat all wastewater streams using end-of-pipe chemical precipitation and preliminary treatment consisting of chromium reduction and oil skimming. In addition, some facilities have thermal emulsion breaking, and end-of-pipe filtration, and one plant has installed reverse osmosis. Plants have installed these treatment technologies to comply with NPDES permits and POTW requirements.

In-process controls are widely used in the copper forming category in order to reduce discharge flows. Flow reduction techniques practiced in the copper forming category include cooling and recycle of contact cooling waters and soluble lubricant streams, spray rinsing rather than stagnant rinsing for pickling and alkaline cleaning operations, and hauling of pickling baths and spent lubricant streams. Almost all of the direct and indirect dischargers practice contract hauling of spent drawing lubricant. Flow reduction techniques and other in-process controls used in the copper forming industry are discussed in greater detail in Section VII of the development document.

B. Control Treatment Options

EPA considered the following treatment and control options as the basis for BPT, BAT, NSPS, PSES, and PSNS for facilities within the copper forming category.

Option 1—End-of-pipe treatment consisting of lime precipitation and settling, and preliminary treatment, where necessary, consisting of chemical emulsion breaking, oil skimming and chromium reduction. This combination of technology reduces toxic metals, conventional pollutants, and also toxic organics through oil skimming.

The flows which are used to calculate mass limitations and standards on Option 1 technology were derived in the following manner. EPA examined the reported discharge flows for each forming and ancillary operation, and then average the flows from plants demonstrating water use practices consistent with the vast majority of plants.

For some wastewater streams, the Option 1 flows are based on recycle when recycle is commonly practiced; in the case of the spent lubricant stream from drawing, the Option 1 flow is zero based on contract hauling of the spent lubricants which is practiced by 85 percent of the category.

The flows discussed above are calculated on a per unit of production basis and are referred to as production-normalized flows.

Option 2—Option 2 is equal to Option 1 plus flow reduction for three waste streams: annealing water, solution heat treatment, and pickling rinse. Flow reduction of the annealing water and solution heat treatment streams is based on recycle, and flow reduction of the pickling rinse stream is based on spray rinsing and recirculation. The Option 1 flows for these streams are reduced by approximately 60 percent, and this reduction will result in a similar decrease of toxic metals and conventional pollutants.

Option 3—Option 3 is equal to Option 2 plus filtration for further reduction of toxic metals and TSS.

Option 4—Option 4 is equal to Option 3 plus further flow reduction gained by countercurrent cascade rinsing applied to the pickling rinse stream. This technology is demonstrated in the copper forming category, as well as other industries, and is proven as an economical and technically effective means of reducing water use and pollutant discharges.

Option 5—Option 5 is equal to Option 1 plus filtration for further reduction of toxic metals and TSS. This option is different from Option 3 in that flow reduction is not included.

In addition, we examined thermal emulsion breaking as a method for treating high oil content emulsions. This treatment process removes water from oil emulsions allowing the water to be reused and the oil to be reused or disposed of efficiently without discharge. This technology has been found to be relatively costly and to have high energy consumption. Other methods of emulsion handling as included in the above options are equally or more effective for this category.

To determine treatment efectiveness, the Agency examined data from copper forming and four other categories and made the technical judgment that wastewaters from copper forming, aluminum forming, coil coating, battery manufacturing, and porcelain enameling are similar in all material respects and that lime and settle treatment was equally effective in treating all such wastewaters. This judgment was further confirmed by a statistical analysis of variance which showed the homogeneity of the combined or pooled data set to be good and to be unaffected by the removal of data from any category. We also attempted to add electroplating wastewater data to the pooled data but found that it substantially reduced the homogeneity of the data set and therefore, electroplating was not included in the pooled data set. Because of this homogeneity we supplemented copper forming lime and settle data with data from the other four categories forming a larger and more substantial data pool for analysis and use. Because of the strength of this more substantial data base the Agency concludes that copper forming wastewaters can be effectively treated by lime and settle technology to achieve the treatment performance derived from the pooled data set.

The Agency also examined the performance of lime, settle and filter based on the performance of full scale commercial systems treating porcelain enameling and nonferrous metals wastewaters. Two copper forming plants reported that they are using a filter, thus this technology is demonstrated on copper forming wastewaters. However, we do not have data specifically on the performance of this technology on copper forming wastewaters. The Agency made the determination that wastewaters from porcelain enameling and copper forming are similar in all material respects based on the analysis of the combined data set for lime and settle treatment. Therefore, the performance of lime, settle and filter can be applied to the copper forming wastewaters. The Agency requests data from copper forming plants that use lime, settle and filter technology.

The treatment performance data is used to obtain maximum daily and monthly average pollutant concentrations. These concentrations (mg/l) along with the copper forming regulatory flows (l/kkg) are used to obtain the maximum daily and monthly average values (mg/kg) for effluent limitations and standards. The monthly average values are based on the average of ten consecutive sampling days. The ten day average value was selected as the minimum number of consecutive samples which need to be averaged to arrive at a stable slope on a statistically based curve relating one day and 30 day average values. The ten day average also approximates the most frequent monitoring requirement of direct discharge permits. The monthly average numbers shown in the regulation are to be used by plants with combined waste streams that use the "combined waste stream formula" set forth at 40 CFR 403.6(e) and by permitting authorities in issuing NPDES permits.

VIII. Selection of Treatment Options and Effluent Limitations

The technology basis for each effluent limitation and standard for the copper forming category is presented below, along with the rationale for selecting the specific treatment option. The wastewater characteristics are discussed in more detail in Section V and the treatment and control technologies are further discussed in Section VII of the Development Document for this regulation.

A. BPT

EPA is proposing BPT effluent mass limitations based on Option 1 which consists of lime precipitation and settling, and, where necessary, preliminary treatment consisting of chemical emulsion breaking, oil skimming, and chromium reduction. The regulated pollutants are chromium, copper, lead, nickel, zinc, oil and grease, TSS, and pH.

Option 1 represents the average of the best existing performance of pollution control technology currently demonstrated by copper forming plants. The Agency estimates that 11 of the 37 direct dischargers presently met the BPT limitations, and an additional 15 plants can achieve the limitations without installing additional treatment technologies as explained below.

In developing the proposed BPT limitations, the Agency considered the amount of water used per unit production in each wastewater stream (production normalized flow). As previously discussed in Section VI of this preamble, these data were used to determine the average water discharge for each waste stream. Plants discharging greater than average production normalized flows for a given stream may have to reduce their discharge rate for that process. Alternatively, in that plants are only required to comply with a total discharge mass based limit, plants have the option of substantially reducing their water discharges from other process operations by any means. Information from plant visits shows that many plants with greater than average flows water use water based on historical considerations without regard to actual process requirements. Consequently, the Agency believes that plants can achieve the BPT regulatory flows without engineering modifications and therefore should not incur significant costs. The Agency requests comment on this conclusion

The Agency considered specifically regulating toxic organic pollutants at BPT, but chose not to because data currently available indicate these pollutants will be controlled by the removal of oil and grease. (These data are presented in Section VII of the Development Document). The Agency has determined that the oil and grease limitation at BPT will adequately control toxic organics and, therefore, is not specifically regulating toxic organics.

The effluent concentrations resulting from the application of the proposed model BPT technology are identical for all wastewater streams, however the mass limitations vary for each waste stream depending on the regulatory flow. The BPT limitations were calculated by multiplying the effluent concentrations achievable by the Option 1 technology by the regulatory flow established for each waste stream.

BPT will remove 27,000 kilograms of toxic pollutants (metals and organics) and 56,000 kilograms of conventional pollutants per year from current discharge levels. The estimated capital investment cost to comply with BPT is $2.43 million (1982 dollars), with a total annual cost of $1.00 million. The Agency has determined that the effluent reduction benefits associated with compliance with BPT limitations justify the costs.

Options 2, 3, 4, and 5 were not selected since they require in-process changes or end-of-pipe technologies which are not widely practiced by the industry and, therefore, are more appropriately considered under BAT.

B. BAT

For BAT, EPA is proposing limitations based on Option 2. The Agency selected Option 2 because it results in substantial reduction of toxic pollutants above the removal achievable by BPT. This technology option is comprised of Option 1 (BPT) plus flow reduction. Flow reduction consists of recycle of the annealing water and solution heat treatment streams, and spray rinsing and recirculation of pickling rinse water. The regulated pollutants are chromium, copper, lead, nickel, and zinc. Toxic organics are not specifically regulated at BAT because the oil and grease limitation proposed at BPT should provide adequate removal (approximately 97 percent).

Flow reduction of the above three streams, in conjunction with the other parts of the BAT model treatment, will result in a significant reduction of the pollutants discharged. The BAT regulatory flows for these three streams were determined by averaging the production normalized flows reported by plants that practice recycle on the annealing water and solution heat treatment, and spray rinsing and recirculation on the pickling rinse stream. The Agency believes that the above technologies can be employed by all facilities with these operations, thus enabling them to achieve the proposed BAT regulatory flows.

The application of the proposed BAT will remove 31,000 kilograms per year of toxic pollutants (metals and organics) from current discharge levels. The estimated capital investment cost is $6.2 million (1982 dollars) and a total annual cost of $2.0 million for equipment and in-process changes not presently in place.

The incremental effluent reduction benefits of BAT above BPT are the removal annually of 4,000 kg of toxic pollutants. The incremental costs of these benefits are $3.8 million capital cost and $1.0 million total annual costs.

Athough EPA is proposing effluent limitations based on technology Option 2, the Agency will give equivalent consideration to promulgating limitations based on technology Option 3. Option 3 consists of Option 2 plus filtration and would remove 5,000 kg/yr of toxic pollutants above BPT. The incremental costs of Option 3 above BPT are $6.9 million capital costs and $1.9 million annual costs. Section VII of the Development Document contains a discussion of the treatment effectiveness that can be achieved using Option 3 and Section II of the Development Document contains effluent limitations tables based on Option 3 technology. The Agency requests comment on these two options. See Section XVII of this preamble for a discussion of the type of information the Agency specifically requests.

Options 4 and 5 were considered for BAT, but were rejected for the reasons discussed below.

Option 4 is based on the installation of countercurrent rinsing for rinse water associated with pickling. This technology option was rejected for BAT because it is only demonstrated at a few copper forming plants and because most of the other existing plants lack sufficient space to add the additional rinse tank and associated piping required for countercurrent rinsing.

Option 5 is based on filtration added to Option 1. Option 5 was considered and ultimately rejected because as compared to Option 2 it provides only one-fourth as much pollutant removal at approximately the same costs.

3. *NSPS.* EPA is proposing NSPS based on technology Option 4. This option consists of BAT (Option 2) plus further flow reduction through countercurrent rinsing applied to the pickling rinse stream and polishing filtration. Countercurrent rinsing and filtration are appropriate technologies for NSPS because they are demonstrated in this category and because new plants have the opportunity to design and implement the most efficient processes without retrofit costs and space availability limitations. All other technology options were rejected for NSPS because the Agency has determined that these options would not meet the statutory standards for NSPS.

The Agency does not believe that standards for new sources based on Option 4 will create a barrier to entry. See Section X of this preamble for further discussion.

The NSPS regulatory flow for the pickling rinse stream was determined from reported production-normalized flows from plants in this category using countercurrent technology. NSPS based on Option 4 will result in the reduction of approximately 2,000 kg/yr of toxic pollutants beyond the option proposed for BAT. The pollutants regulated at NSPS are chromium, copper, lead, nickel, zinc, TSS, oil and grease, and pH.

4. *PSES.* In the copper forming category, the Agency has concluded that the toxic metals that would be regulated under these proposed standards (chromium, copper, lead, nickel, and zinc) pass through the POTW. The nationwide average percentage of these same toxic metals removed by a well-operated POTW meeting secondary treatment requirements is about 50 percent (ranging from 20 to 70 percent), whereas the percentage that can be removed by a copper forming direct discharger applying the best available technology economically achievable is about 90 percent. Accordingly, these pollutants pass through a POTW.

To regulate the toxic metals that pass through a POTW, EPA is proposing PSES based on the application of technology Option 2. Option 2, which is also the basis for BAT limitations, consists of lime precipitation and settling, flow reduction, and preliminary treatment, where necessary, consisting of chromium reduction, chemical emulsion breaking, and oil skimming.

In addition to pass through of toxic metals, available information shows that many of the toxic organics from copper facilities may also pass through a POTW. As previously mentioned, toxic organics are not specifically regulated at BAT because, for direct dischargers, the BPT oil and grease limit will adequately control toxic organics. As demonstrated in the Development Document, direct discharges who comply with the BPT limitation for oil and grease will remove a greater percentage of the toxic organics than a well operated POTW achieving secondary treatment. Accordingly, the Agency believes that there may be pass through of toxic organic pollutants from plants in this category. Given the mix of toxic organic pollutants found in these waste streams and the fact that they may pass through POTW, we propose to establish a pretreatment standard for total toxic organics (TTO) to control these pollutants. The proposed TTO standard is based on the application of oil and grease removal technology which achieves the same removal of TTO as the BPT model treatment technology. Oil and grease removal is a relatively inexpensive technology which may be used to control toxic organics when compared with more conventional treatment technologies such as biological treatment or activated carbon. In addition, oil and grease removal may be an important part of good treatment for metals removal.

EPA proposes to establish a Total Toxic Organics (TTO) limitation based on the data presented in Section VII of the technical development document. The list of organics included under TTO is presented in Appendix C Of this preamble. Analysis of toxic organics is costly and requires delicate and sensitive equipment. Therefore, the agency proposes to establish as an alternative to monitoring for total toxic organics an oil and grease limit equivalent to the BPT limit for which the analysis is much less costly and frequently can be done at the plant. Data indicates that the toxic organics are in the oil and grease and by removing the oil and grease the toxic organics should also be removed. See discussion in Section VII of the Development Document. We request comment on the TTO limit and the alternate monitoring parameter of oil and grease. EPA also requests comments on whether we should simply promulgate an oil and grease limitation to effectively control toxic organics.

The application of PSES will remove 18,700 kilograms per year of toxic pollutants (Metals and organics) beyond current discharge levels. EPA estimates that the capital investment costs of complying with PSES is $8.0 million

(1982 dollars) with a total annual cost of $5.3 million.

The PSES set forth in the proposed regulations are expressed in terms of mass per unit of production rather than concentration standards. Regulation on the basis of concentration only is not appropriate because concentration based standards do not restrict the total quantity of pollutants discharged. Flow reduction is a significant part of the model technology for pretreatment because it reduces the amount of toxic pollutants introduced into a POTW. For this reason, no alternative concentration standards are proposed for indirect dischargers. See 40 CFR 403.6.

In selecting PSES, EPA also considered standards based on technology Options 4 and 5. The reasons discussed for rejecting these options as the basis for BAT limitations are identical to those for rejecting these options for PSES. If the Agency promulgates BAT based on Option 3 as discussed previously, the Agency must give equivalent consideration to promulgating PSES based on Option 3 (Option 2 followed by filtration) because of the pass through criteria. Therefore, the Agency requests comments on these two options. See Section XVII of this premable for a discussion of the type of information the Agency specifically requests.

The Agency proposes that these standards shall become effective three years after the date of promulgation. EPA estimates that existing plants will require that amount of time to install the treatment needed to comply with these standards since few indirect dischargers currently have the necessary treatment technology. The Agency invites comment on this proposed date.

5. *PSNS.* The technology basis for PSNS is Option 4 which is equivalent to NSPS. The Agency has determined that PSNS based on Option 4 is necessary to prevent pass through of toxic metals and organics. In selecting the technology basis for PSNS, the Agency compares the toxic pollutant removal achieved by a well-operated POTW to that achieved by a direct discharger meeting NSPS. New indirect dischargers, like new direct dischargers, have the opportunity to design and implement the most efficient processes without retrofit costs and space availability limitations.

The pollutants regulated at PSNS are chromium, copper, lead, nickel, zinc, and TTO (total toxic organics). PSNS based on Option 4 will result in the reduction of 1500 kg/yr of toxic pollutants above the removals achieved by PSES.

IX. Pollutants and Subcategories Not Regulated

A. Settlement Agreement

The Settlement Agreement contained provisions authorizing the exclusion from regulation, in certain circumstances, of toxic pollutants and industry categories and subcategories. These provisions have been rewritten in a Revised Settlement Agreement which was approved by the District Court for the District of Columbia on March 9, 1979. See *NRDC* v. *Costle,* 12 ERC 1833 (D.D.C. 1979).

Because the Agency has established only a single subcategory under the copper forming category, no subcategories are excluded from regulation. Data supporting exclusion of the pollutants identified below are presented in the Section V of the Development Document for this rulemaking.

B. Exclusion of Pollutants

The Agency has deleted the following three pollutants from the toxic pollutant list: Dichlorodifluoro methane and trichlorofluoromethane, 46 FR 79692 (January 8, 1981); and bis(chloromethyl) ether, 46 FR 10723 (February 4, 1981).

Paragraph 8(a)(iii) of the Settlement Agreement allows the Administrator to exclude from regulation toxic pollutants not detectable by Section 304(h) analytical methods or other state-of-the-art methods. The toxic pollutants not detected and therefore, excluded from regulation are listed in Appendix B to this notice.

Paragraph 8(a)(iii) also allows the Administrator to exclude from regulation toxic pollutants detected in amounts too small to be effectively reduced by technologies known to the Administrator. Appendix B to this notice lists the toxic pollutants which were detected in the effluent in amounts at or below the nominal limit of analytical quantification, which are too small to be effectively reduced by technologies and which, therefore, are excluded from regulation.

Paragraph 8(a)(iii) also allows the Administrator to exclude from regulation toxic pollutants which will be effectively controlled by the technologies upon which are based other effluent limitations and guidelines, standards of performance, or pretreatment standards. Appendix B lists these toxic pollutants.

X. Economic Consideration

A. Costs and Economic Impact

The Agency's economic impact assessment is presented in the report entitled *Economic Impact Analysis of Proposed Effluent Standards and Limitations for the Copper Forming Industry,* EPA 440/2-82-011. This report details the investment and annual costs for the Copper Forming Category. Compliance costs are based on engineering estimates of capital requirements for the effluent control systems described earlier in this preamble. The report assesses the impact of effluent control costs in terms of price changes, production changes, plant closures, employment effects, and balance of trade effects. The impacts for each of the regulatory options are discussed in the report.

In addition, EPA has conducted an analysis of the incremental removal cost per pound equivalent for each of the proposed technology-based options. A pound equivalent is calculated by multiplying the number of pounds of pollutant discharged by a weighting factor for that pollutant. The weighting factor is equal to the water quality criterion for a standard pollutant (copper), divided by the water quality criterion for the pollutant being evaluated. The use of "pound equivalent" gives relatively more weight to removal of more toxic pollutants. Thus for a given expenditure, the cost per pound equivalent removed would be lower when a highly toxic pollutant is removed than if a less toxic pollutant is removed. This analysis is included in the record of this rulemaking, "Cost Effectiveness Analysis of Proposed Effluent Standards and Limitations for the Copper Forming Industry". EPA invites comments on the methodology used in this analysis.

EPA has identified 176 plants in the copper forming category that are covered by this regulation. Of these 176 plants, 37 are direct dischargers and 45 are indirect dischargers. The remaining 94 plants do not discharge wastewater. Total investment for BAT and PSES is estimated to be $14.2 million, with annual costs of $7.3 million, including depreciation and interest. These costs are expressed in 1982 dollars and are based on the determination that plants will build on existing treatment. No plant closures or job losses are projected as a result of compliance costs for this regulation. If all costs were passed on to consumers, price increases would be less than 1 percent. Balance of trade effects are insignificant.

Of the 103 plants responding to the economic survey, 39 (19 direct and 20 indirect dischargers) were included in the closure analysis. (Of the remaining 64, 61 were excluded because they do not discharge wastewater and three were excluded because of insufficient data.)

Using publicly available data, explicit demand and supply functions were developed. These demand and supply functions were used to estimate demand and supply elasticities for each product group (wire mill products, sheet, strip, and plate, etc.). Then a financial model was developed for each of the 39 plants included in the closure analysis. Key variables analyzed for each plant included present profitability, salvage value of the plant, required pollution control investments and the associated increase in annual costs, value added, and plant profitability after installing pollution equipment. An analysis of the market structure identified other factors that were considered in judging the likelihood of closure such as the degree of integration and competition. Given compliance cost estimates and plant specific financial information, the impact of the regulation on the 39 plants was projected. The results were extrapolated to include all copper forming plants which discharge wastewater.

BPT: Nineteen of the 37 direct dischargers responded to the economic survey. Data from these 19 plants were used to estimate the impacts of the regulation. The cost estimates were based on treatment in place, and the reported flows. The BPT regulation is expected to affect 11 plants which do not now meet BPT limitations. BPT for these 11 plants is projected to cost $2.4 million in investment costs and $1.0 million in annual costs (1982 dollars). These costs represent the most economical means of compliance with BPT, and, in some instances, include flow reduction. According to the analysis of economic impact, no potential plant closures are associated with the BPT treatment option. If all costs were passed on to consumers, price increases would be 0.3 percent.

BAT: Compliance costs and resulting impacts for BAT are based on going from existing treatment to installing BAT. Thirty of the 37 direct dischargers will need to install additional control technologies in order to achieve the proposed BAT limitations. These 30 would share investment costs estimate at $6.3 million and total annual costs of $2.0 million (1982 dollars), including depreciation and interest. The Agency believes that this option will not result in any plant closures or job losses. If all costs were passed on to consumers, price increases would be 0.5 percent.

The economic impact analysis of the BAT options is based on information from 19 plants for which adequate data were available. Before promulgation of final BAT limitations, the Agency will reexamine the economic impacts associated with limitations based on technology Options 2 and 3 as discussed under Section VIII of this preamble. Therefore, the Agency requests economic information from plants that have not yet responded to the economic survey. Specifically, the Agency requests information on gross profit margins, annual capital expenditures, annual depreciation, and the quantity and value of production. See Section XVII of this preamble for solicitation of comments.

PSES: Forty-five plants are identified as indirect dischargers and 20 of these responded to the economic survey. The pollution control technology for the proposed pretreatment standards is identical to the proposed BAT treatment technology. Investment costs for the 38 indirect dischargers not now meeting PSES limitations are estimated to total $8.0 million and annual costs are estimated at $5.3 million (1982 dollars). The Agency believes that this option will not result in any closures. If all costs are passed on to consumers, price increases would be 0.4 percent.

As discussed above under the BAT economic analysis, the Agency also requests economic information from indirect dischargers which have not yet responded to the economic survey.

NSPS–PSNS: The copper forming industry is a very mature industry and has not grown rapidly during the last decade. This trend is expected to continue into the future. The copper forming industry is also very sensitive to the behavior of the U.S. economy. The demand for copper products has declined during the current recession during which all copper forming major end-use markets have been depressed, including construction, transportation and electrical and electronic products. EPA believes that this is a temporary condition and that demand for copper formed products will increase. The baseline supply and demand forecasts are based upon empirical models developed over the 1960 to 1979 historical period. While growth in the demand for copper formed products is projected during the next decade, it is expected to be met through expanded capacity at existing plants and from overseas operations. During the next decade, no new copper forming plants are projected to be built.

The Agency has estimated the per plant costs associated with NSPS and PSNS will be approximately equal to those for BAT and PSES. BAT and PSES are based on technology Option 2 consisting of flow reduction, lime and settle, and, where necessary, preliminary treatment with chromium reduction, chemical emulsion breaking, and oil skimming. NSPS is based on Option 4 which is Option 2 plus filtration and greater flow reduction achieved by countercurrent rinsing of the pickling rinse stream. The Agency believes that the additional costs of filtration for NSPS will be offset by the lower treatment costs associated with smaller wastewater flows using countercurrent rinsing. Therefore, new sources regardless of whether they are plants with major modifications or greenfield sites, will have costs approximately equivalent to the costs existing sources will incur in achieving BAT and PSES. The Agency believes that neither NSPS nor PSNS will deter entry into the copper forming industry. The Agency requests comment on the conclusions that costs for PSNS and NSPS are approximately equal to BAT and PSES costs and that greenfield and major modification plants will incure similar costs.

B. Executive Order 12291

Executive Order 12291 requires EPA and other agencies to perform regulatory impacts analyses of major regulations. Major rules are those which impose a cost on the economy of $100 million a year or more or have certain other economic impacts. This regulation is not a major rule because its annualized cost of $9.2 million is less than $100 million and it meets none of the other criteria specified in paragraph (b) of the Executive Order. The economic impact analysis prepared for this proposed rulemaking meets the requirements for nonmajor rules.

C. Regulatory Flexibility Analysis

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

XI. Nonwater Quality Aspects of Pollution Control

The elimination or reduction of one form of pollution may add to other environmental problems. Therefore, Sections 304(b) and 306 of the Act require EPA to consider the nonwater quality environmental impacts (including energy requirements) of certain regulations. In compliance with these provisions, EPA has considered the effect of this regulation on air pollution, solid waste generation, water scarcity, and energy consumption. While it is difficult to balance pollution problems against each other and against energy utilization, EPA is proposing regulations which it believes best serve often competing national goals.

The following are the nonwater quality environmental impacts (including energy requirements) associated with the proposed regulations:

A. Air Pollution

Imposition of BPT and BAT limitations and NSPS, PSES, and PSNS will not create any substantial air pollution problems. The technologies used as the basis for this regulation precipitate pollutants found in wastewater which are then settled or filtered from the discharged wastewater. These technologies do not emit pollutants into the air.

B. Solid Waste

EPA estimates that copper forming facilities generated 39,000 metric tons of solid wastes (wet basis) in 1978 as a result of wastewater treatment in place. These wastes were comprised of treatment system sludges containing toxic metals, including chromium, copper, lead, nickel, zinc, and spent lubricants.

EPA estimates that the proposed BPT will contribute an additional 13,000 metric tons per year of solid wastes. Proposed BAT and PSES will increase these wastes by approximately 11,000 metric tons per year beyond BPT levels. These sludges will necessarily contain additional quantities (and concentrations) of toxic metal pollutants. While NSPS and PSNS will generate additional sludge, its quantity is insignificant in relation to the amounts generated by BAT and PSES.

The Agency examined the solid wastes that would be generated at copper forming plants by the suggested treatment technologies and believes they are not hazardous under Section 3001 of the Resource Conservation and Recovery Act (RCRA). This judgment is made based on the recommended technology of lime precipitation. By the addition of a small excess of lime during treatment, similar sludges, specifically toxic metal bearing sludges, generated by other industries such as the iron and steel industry passed the EP toxicity test. See 40 CFR 261.24 (45 FR 33084 (May 19, 1980)). Thus, the Agency believes that the copper forming wastewater sludges will similarly not be found toxic if the recommended technology is applied. Since the copper forming solid wastes are not believed to be hazardous, no estimates were made of costs for disposing of hazardous wastes in accordance with RCRA requirements. The Agency requests comments on its judgment of the wastewater sludges generated by treatment of copper forming wastewaters. We specifically request cost information if there is reason to believe these sludges would be classified as hazardous.

Although it is the Agency's view that solid wastes generated as a result of these guidelines are not expected to be classified as hazardous under the regulations implementing Subtitle C of the Resource Conservation and Recovery Act (RCRA), generators of these wastes must test the waste to determine if the wastes meet any of the characteristics of hazardous waste. See 40 CFR 262.11 (45 FR 12732-12733 (February 26, 1980)). The Agency may also list these sludges as hazardous pursuant to 40 CFR 261.11 (45 FR 33121 (May 19, 1980), as amended at 45 FR 76624 (November 19, 1980)).

If these wastes are identified as hazardous, they will come within the scope of RCRA's "cradle to grave" hazardous waste management program, requiring regulation from the point of generation to point of final disposition. EPA's generator standards would require generators of hazardous copper forming wastes to meet containerization labeling, record keeping, and reporting requirements; if copper formers dispose of hazardous wastes off-site, they would have to prepare a manifest which would track the movement of the wastes from the generator's premises to a permitted off-site treatment, storage, or disposal facility. See 40 CFR 262.20 (45 FR 33142 (May 19, 1980). The transporter regulations require transporters of hazardous wastes to comply with the manifest system to assure that the wastes are delivered to a permitted facility. See 40 CFR 263.20 (45 FR 33151 (May 19, 1980), as amended at 45 FR 86973 (December 31, 1980)). Finally, RCRA regulations establish standards for hazardous waste treatment, storage, and disposal facilities allowed to receive such wastes. See 40 CFR Part 464 (46 FR 2802 (January 12, 1981), 47 FR 32274 (July 26, 1982)).

Even if these wastes are not identified as hazardous, they still must be disposed of in compliance with the Subtitle D open dumping standards, implementing 4004 of RCRA. See 44 FR 53438 (September 13, 1979). The Agency has calculated as part of the costs for wastewater treatment the cost of hauling and disposing of these wastes. For more details, see Section VIII of the technical development document.

C. Consumptive Water Loss

Treatment and control technologies that require extensive recycling and reuse of water may require cooling mechanisms. Evaporative cooling mechanisms can cause water loss and contribute to water scarcity problems—a primary concern in arid and semi-arid regions. While this regulation assumes water reuse, the quantity of water involved is not regionally significant. We conclude that the pollution reduction benefits of recycle technologies outweigh their impact on consumptive water loss.

D. Energy Requirements

EPA estimates that the achievement of proposed BAT effluent limitations will result in a net increase in electrical energy consumption of approximately 0.6 million kilowatt-hours per year. To achieve the proposed BAT effluent limitations, a typical direct discharger will increase total energy consumption by less than 1 percent of the energy consumed for production purposes. NSPS will not significantly add to total energy consumption.

The Agency estimates that proposed PSES will result in a net increase in electrical energy consumption of approximately 0.5 million kilowatt-hours per year. To achieve proposed PSES, a typical existing indirect discharger will increase energy consumption by less than 2 percent of the energy consumed for production purposes. PSNS, like NSPS, will not significantly add to total energy consumption.

XII. Best Management Practices (BMP)

Section 304(e) of the Clean Water Act authorizes the Administrator to prescribe "best management practices" ("BMP"), described in Section II of this preamble. EPA is not proposing BMP for the copper forming category.

XIII. Upset and Bypass Provisions

A recurring issue is whether industry limitations and standards should include provisions that authorize noncompliance during "upsets" or "bypasses." An upset, sometimes called an "excursion," is unintentional noncompliance beyond the reasonable control of the permittee. EPA believes that upset provisions are necessary because upsets will inevitably occur, even if the control equipment is properly operated. Because technology-based limitations can require only what technology can achieve, many claim that liability for upsets is improper. When confronted with this issue, courts have been divided on the questions of whether an explicit upset or excursion exemption is necessary or whether upset or excursion incidents may be handled through EPA's enforcement discretion. Compare *Marathon Oil Co.* v. *EPA*, 564 F.23 1253 (9th Cir. 1977) with *Weyerhaeuser* v. *Costle, supra* and *Corn Refiners Association, et al.* v. *Costle*, No. 78-1069 (8th Cir. April 2, 1979). See also *American Petroleum Institute* v. *EPA*, 540 F.2d 1023 (10th Cir. 1976); *CPC International, Inc.* v. *Train*, 540 F.2d 1320 (8th Cir. 19760; and *FMC Corp.* v. *Train*, 539 F.2d 973 (4th Cir. 1976).

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

EPA has both upset and bypass provisions in NPDES permits, and the NPDES portions of the Consolidated Permits regulations include upset and bypass permit provisions. See 40 CFR 11.60, 44 FR 32854, 32862-3 (June 7, 1979). The upset provision establishes an upset as an affirmative defense to prosecution for violation of technology-based effluent limitations. The bypass provision authorizes bypassing to prevent loss of life, personal injury, or severe property damage. Since permittees in the copper forming category are entitled to the upset and bypass provisions in NPDES permits, this proposed regulation does not repeat these provisions. Upset provisions are also contained in the General Pretreatment regulation.

XIV. Variances and Modifications

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

The only exception to the BPT effluent limitations is EPA's "fundamentally different factors" variance. See *E. I. duPont de Nemours and Co.* v. *Train, supra* and *Weyerhaeuser Co.* v. *Costle, supra*. This variance recognizes characteristics of a particular discharger in the category regulated that are fundamentally different from the characteristics considered in this rulemaking. This variance clause is included in the NPDES regulations and not in this proposed regulation. See 40 CFR 125.30.

Dischargers subject to the BAT limitations are also eligible for EPA's "fundamentally different factors" variance. BAT limitations for nonconventional pollutants may be modified under Sections 301(c) and (g) of the Act. These statutory modifications do not apply to toxic or conventional pollutants.

Indirect dischargers subject to PSES are eligible for the "fundamentally different factors" variance and for credits for toxic pollutants removed by POTW. See 40 CFR 403.7 and 403.13 (46 FR 9404 (January 28, 1981)). Indirect dischargers subject to PSNS are only eligible for the credits provided for in 40 CFR 403.7. New sources subject to NSPS are not eligible for EPA's "fundamentally different factor" variance or any statutory or regulatory modifications. See *E. I. duPont de Nemours* v. *Train, supra*.

XV. Relation to NPDES Permits

The BPT and BAT limitations and NSPS in this regulation will be applied to individual plants through NPDES permits issued by EPA or approved state agencies under Section 402 of the Act. Under the proposed regulation for the copper forming category, all limitations are mass based.

The preceding section of this preamble discussed the binding effect of this regulation on NPDES permits, except when variances and modifications are expressly authorized. The following adds more detail on the relation between this regulation and NPDES permits.

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

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

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

XVI. Public Participation

EPA did not make the copper forming draft development document available for public review and comment because time requirement of the court order did not permit. We did have meetings with the industry association and private companies to discuss technical aspects of data collection and treatment technology.

XVII. Solicitation of Comments

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

EPA particularly requests additional comments and information on the following issues:

(1) As previously discussed in Section VIII of this preamble, the Agency considered both Options 2 and 3 as the technology basis for BAT and PSES. Option 2 includes flow reduction, while Option 3 includes both flow reduction and filtration. While the Agency is proposing BAT and PSES based on Option 2, we will further examine the economic impacts of both options before promulgating effluent limitations and standards.

To determine the economic impact of this regulation, the Agency first calculated the costs of installing BPT, BAT, PSES, NSPS and PSNS at copper forming plants and then determined the impact of these costs on plants for which economic data were available. The details of the estimated costs and other impacts are presented in Section VIII of the technical development document and in the Economic Impact Analysis document. Based on these analyses, the agency projects no plant closures and no employment losses as a result of this regulation. The Agency invites comment on these analyses and projections. We particularly seek comments on whether copper formers, especially small or less profitable plants, can incur the estimated compliance costs. The commenters should focus not only on the likelihood of plant closures and employment losses, but should also include data on the effects of the regulation on: Modernization or expansion of production costs, the ability to finance non-environmental investments, product prices, profitability, international competitiveness, and the availability of less costly technology.

(2) The Agency examined the solid wastes that would be generated at copper forming plants by the suggested treatment technologies and believes they are not hazardous as defined by Section 3001 of the Resource Conservation and Recovery Act (RCRA). Therefore, the agency did not estimate costs for disposing of hazardous wastes in accordance with RCRA requirements. The Agency requests comment on its judgment that these sludges are not hazardous under RCRA. Commenters who believe these sludges would be classified as hazardous are also requested to submit cost information.

(3) For PSES, the Agency is proposing to limit total toxic organic (TTO) based an oil skimming technology. To reduce monitoring costs, the agency is proposing an alternate oil and grease limit in lieu of monitoring for all of the toxic organics. We request comment on this alternative. Monitoring parameter and whether EPA should promulgate an oil and grease standard as a means of effectively controlling toxic organics.

(4) As discussed in Sections VI and VII of this preamble, EPA based the proposed BPT flows on the average of reported production normalized discharge flows from plants demonstrating water use practices consistent with the majority of plants. We further state that plants discharging flows greater than the average flows do so because of water use practices based on historical considerations rather than actual process requirements. Consequently, the Agency believes that plants can achieve the BPT flows without process modifications and therefore should not incur significant costs. The Agency requests comment on this conclusion. Commenters who do not agree with EPA's above finding should provide information as to the types and associated costs of process modifications needed to achieve the BPT regulatory flows.

(5) In section VII of this preamble, EPA states that treatment performance data for filters is being transferred from the porcelain enameling category. While filters are demonstrated in the copper forming category, the Agency does not have filter treatment data from copper forming plants. The agency requests copper forming plants which have installed filters to submit performance data.

List of Subjects in 40 CFR Part 468

Copper forming, Water pollution control, Waste treatment and disposal.

The regulation was submitted to the Office of Management and Budget (OMB) for review as required by Executive Order 12291.

Dated: October 29, 1982.

Anne Gorsuch,

Administrator.

XVIII. Appendices

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

Act—The Clean Water Act.

Agency—The U.S. Environmental Protection Agency.

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

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

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

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

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

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

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

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

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

POTW—Publicly owned treatment works.

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

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

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

Appendix B—List of Pollutants Excluded From Regulation

The following nine (9) pollutants are being excluded under Paragraph 8(a)(iii) because they are present in amounts too small to be effectively reduced by technologies known to the Administrator: antimony, arsenic, beryllium, cadmium, cyanide, mercury, selenium, silver, and thallium.

The following one hundred and eight (108) pollutants are being excluded under Paragraph 8(a)(iii) because they were not detected in the effluent of sampled copper forming facilities:

1. acenaphthene
2. acrolein
3. acrylonitrile
5. benzidine
6. carbon tetrachloride
7. chlorobenzene
8. 1,2,4-brichlorobenzene
9. hexachlorobenzene
10. 1,2-dichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. Deleted
18. bis(2-chloroethyl) ether
19. 2-chloroethyl vinyl ether
20. 2-chloronaphthalene
21. 2,4,6-trichlorophenol
22. p-chloro-m-cresol
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidine
29. 1,1-dichloroethylene
30. 1,2-*trans*-dichloroethylene
31. 2,4-dichlorophenol
32. 1,2-dichloropropane
33. 1,3-dichloropropylene
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
37. 1,2-diphenylhydrazine
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl) ether
43. bis(2-chloroethoxy) methane
45. methyl chloride
46. methyl bromide
47. bromoform
48. dichlorobromomethane
49. Deleted
50. Deleted
51. chlorodibromomethane
52. hexachlorobutadiene
53. hexachlorocyclopentadiene
54. isophorone
56. nitrobenzene
57. 2-nitrophenol
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
63. N-nitrosodi-n-propylamine
64. pentachlorophenol
65. phenol
66. bis(2-ethylhexyl) phthalate
67. butyl benzyl phthalate
68. di-n-butyl phthalate
69. di-n-octyl phthalate
70. diethyl phthalate
71. dimethyl phthalate
72. benzo(a)anthracene
73. benzo(a)pyrene
74. benzo(b)fluoranthene
75. benzo(k)fluoranthene
76. chrysene
77. acenaphthylene
79. benzo(ghi)perylene

80. fluorene
82. dibenzo(a,h)anthracene
83. indeno(1,2,3-c,d)pyrene
84. pyrene
85. tetrachloroethylene
88. vinyl chloride
89. aldrin
90. dieldrin
91. chlordane
92. 4,4'-DDT
93. 4,4'-DDE
94. 4,4'-DDD
95. alpha-endosulfan
96. beta-endosulfan
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
102. alpha-BHC
103. beta-BHC
104. gamma-BHC
105. delta-BHC
106. PCB-1242(a)
107. PCB-12254(a)
108. PCB-1221(a)
109. PCB-1232(b)
110. PCB-1248(b)
111. PCB-1260(b)
112. PCB-1016(b)
113. toxaphene
114. antimony
115. arsenic
116. asbestos
118. beryllium
119. cadmium
121. cyanide
123. mercury
125. selenium
126. silver
127. thallium
129. 2,3,7,8-tetrachlorodibenzo-p-dioxin

The following twelve (12) pollutants are being excluded from regulation for direct dischargers under Paragraph 8(a)(iii) because they are effectively controlled by limitations upon which other limitations are based:

C. List of Toxic Organics Comprising Total Toxic Organics (TTO)

4. benzene
11. 1,1,1-trichloroethane
23. chloroform
36. 2,6-dinitrotoluene
38. ethylbenzene
44. methylene chloride
55. naphthalene
62. N-nitrosodiphenylamine
78. anthracene
81. phenanthrene
86. toluene
87. trichloroethylene

EPA proposed to establish a new Part 468 in 40 CFR to read as follows:

PART 468—COPPER FORMING POINT SOURCE CATEGORY

General Provisions

Subpart A—Copper Forming Subcategory

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

General Provisions

§ 468.01 Applicability.

The provisions of this subpart are applicable to discharges resulting from the manufacture of formed copper and copper alloy products. The forming operations covered are hot rolling, cold rolling, drawing, extrusion, and forging. The casting of copper and copper alloys is not controlled by this Part. (See 40 CFR Part 451.)

§ 468.02 Specialized definitions.

In addition to the definitions set forth in 40 CFR Part 401 and the chemical analysis methods in 40 CFR Part 136, the following definitions apply to this part:

(a) The term "Total Toxic Organics (TTO)" shall mean the sum of the masses or concentrations of each of the following toxic organic compounds which is found at a concentration greater than 0.010 mg/l.

Benzene
1,1,1-Trichloroethane
Chloroform
2,6-Dinitrotoluene
Ethylbenzene
Methylene Chloride
Naphthalene
N-Nitrosodiphenylamine
Anthracene
Phenanthrene
Toluene
Trichloroethylene

(b) The term "off-kilogram" (off-pound) shall mean the kilogram (pounds) of product from the manufacturing process. When a material must be passed more than one time through a process (e.g. double drawn wire) the kilogram of product from each pass shall considered to be off-kilograms.

§ 468.03 Monitoring and reporting requirements.

The following special monitoring requirements apply to all facilities controlled by this regulation.

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

(b) As an alternate monitoring procedure for TTO, indirect dischargers may monitor for oil and grease and meet the alternate monitoring standards for oil and grease established for PSES and PSNS. Any indirect discharger meeting the alternate monitoring oil and grease standard shall be considered to meet the TTO standard.

§ 468.04 Compliance date for PSES.

The compliance date for pretreatment standards for existing sources is proposed to be three years after promulgation of this regulation.

Subpart A—Copper Forming Subcategory

§ 468.10 Applicability; description of the copper forming subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introduction of pollutants into publically owned treatment works from the forming of copper and copper alloys.

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

Except as provided in 40 CFR 125.30-32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available:

(a) *Subpart A—Hot Rolling Spent Lubricant BPT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of—copper hot rolled English Units—lb/1,000,000 lb of copper hot rolled	
Chromium	0.044	0.018
Copper	0.20	0.11
Lead	0.016	0.014
Nickel	0.15	0.11
Zinc	0.14	0.06
Oil and Grease	2.06	1.24
TSS	4.23	2.06
pH	(1)	(1)

[1]Within the range of 7.5 to 10.0 at all times.

(b) *Subpart A—Cold Rolling Spent Lubricant BPT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of—copper hot rolled English Units—lbs/1,000,000 lb of copper hot rolled	
Chromium	0.19	0.078
Copper	0.88	0.46
Lead	0.069	0.060
Nickel	0.65	0.46
Zinc	0.61	0.26
Oil and Grease	9.22	5.53
TSS	18.90	9.22
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) *Subpart A—Drawing Spent Lubricant BPT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper drawn English Units—lbs/1,000,000 lbs of copper drawn	
Chromium	0	0
Copper	0	0
Zinc	0	0
Lead	0	0
Nickel	0	0
Zinc	0	0
Oil and Grease	0	0
TSS	0	0
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(d) *Subpart A—Solution Heat Treatment BPT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg if copper heat treated English Units—lbs/1,000,000 lbs of copper heat treated	
Chromium	1.07	0.43
Copper	4.83	2.54
Lead	0.38	0.33
Nickel	3.58	2.54
Zinc	3.38	1.42
Oil and Grease	50.82	30.49
TSS	104.18	50.82
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(e) *Subpart A—Extrusion Heat Treatment BPT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper heat treated on an extrusion press English Units—lbs/1,000,000 lbs of copper heat treated on an extrusion press	
Chromium	0.00084	0.00034
Copper	0.0038	0.0020
Lead	0.00030	0.00026
Nickel	0.0028	0.0020
Zinc	0.0026	0.0011
Oil and Grease	0.040	0.024
TSS	0.082	0.040
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(f) *Subpart A—Annealing with Water BPT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper anneales English Units—mg/kg if copper annealed	
Chromium	2.38	0.97
Copper	10.77	5.67
Lead	0.85	0.74
Nickel	7.99	5.67
Zinc	7.54	3.17
Oil and Grease	113.34	68.00
TSS	232.35	113.34
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(g) *Subpart A—Annealing with Oil BPT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper annealed English Units—lbs/1,000,000 lbs of copper annealed	
Chromium	0	0
Copper	0	0
Lead	0	0
Nickel	0	0
Zinc	0	0
Oil and Grease	0	0
TSS	0	0
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(h) *Subpart A—Alkaline Cleaning Rinse BPT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper alkaline cleaned English Units—lbs/1,000,000 lbs of copper alkaline cleaned	
Chronium	1.77	0.72
Copper	8.01	4.21
Lead	0.63	0.55
Nickle	5.94	4.21
Zinc	5.60	2.36
Oil and Grease	84.28	50.57
TSS	172.77	84.28
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(i) Subpart A—Alkaline Cleaning Bath BPT Effluent Limitations.

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper alkaline cleared English Units—lbs/1,000,000 lbs of copper alkaline cleaned	
Chronium	0.020	0.0080
Copper	0.089	0.047
Lead	0.0070	0.0061
Nickle	0.066	0.047
Zinc	0.062	0.026
Oil and Grease	0.93	0.56
TSS	1.91	0.93
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(j) *Subpart A—Pickling Rinse BPT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	1.52	0.62
Copper	6.88	3.62
Lead	0.54	0.47
Nickel	5.12	3.62
Zinc	4.82	2.03
Oil and Grease	72.44	43.46
TSS	148.50	72.44
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(k) *Subpart A—Pickling Bath BPT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Copper	0.22	0.12
Zinc	0.15	0.06
Nickel	0.16	0.12
Chromium	0.049	0.020
Lead	0.017	0.015
Oil and Grease	2.32	1.39
TSS	4.76	2.32
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(l) *Subpart A—Pickling Fume Scrubber BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.26	0.11
Copper	1.19	0.63
Lead	0.094	0.081
Nickel	0.88	0.63
Zinc	0.83	0.35
Oil and Grease	12.52	7.51
TSS	25.67	12.52
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

§ 468.12 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided 40 CFR 125.30–32, any existing point source subject to this subpart must effluent limitations representing the degree of achieve the following effluent reduction attainable by the application of the best available technology economically achievable:

(a) *Subpart A—Hot Rolling Spent Lubricant BAT Effluent Limitations.*

Pollutant of pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper hot rolled English Units—lbs/1,000,000 lbs of copper hot rolled	
Chromium	0.050	0.020
Copper	0.20	0.11
Lead	0.016	0.014
Nickel	0.15	0.11
Zinc	0.14	0.06

(b) *Subpart A—Cold Rolling Spent Lubricant BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper cold rolled English Units—lbs/1,000,000 lb of copper cold rolled	
Chromium	0.19	0.078
Copper	0.88	0.46
Lead	0.069	0.060
Nickel	0.65	0.46
Zinc	0.61	0.26

(c) *Subpart A—Drawing Spent Lubricant BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kf og copper drawn English Units—lbs/1,000,000 lbs of copper drawn	
Chromium	0	0
Copper	0	0
Lead	0	0
Nickel	0	0
Zinc	0	0

(d) *Subpart A—Solution Heat Treatment BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper heat treated English Units—lbs/1,000,000 lbs of copper heat treated	
Chromium	0.27	0.11
Copper	1.23	0.65
Lead	0.097	0.084
Nickel	0.91	0.65
Zinc	0.86	0.36

(e) *Subpart A—Extrusion Heat Treatment BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper heat treated on an extrusion press English Units—lbs/1,000,000 lbs of copper heat treated on an extrusion press	
Copper	0.0038	0.0020
Chromium	0.00084	0.00034
Lead	0.00030	0.00026
Nickel	0.0028	0.00020
Zinc	0.0026	0.0011

(f) *Subpart A—Annealing with Water BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/ks of copper annealed English Units—mg/ks of copper annealed	
Chromium	0.52	0.21
Copper	2.36	1.24
Lead	0.19	0.16
Nickel	1.75	1.24
Zinc	1.65	0.69

(g) *Subpart A—Annealing with Oil BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper annealed English Units—lbs/1,000,000 lbs of copper annealed	
Chromium	0	0
Copper	0	0
Lead	0	0
Nickel	0	0
Zinc	0	0

(h) *Subpart A—Alkaline Cleaning Rinse BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper alkalin cleared English Units—lbs/1,000,000 of copper alkaline cleared	
Chromium	1.77	0.72
Copper	8.01	4.21
Lead	0.63	0.55
Nickel	5.94	4.21
Zinc	5.60	2.36

(i) *Subpart A—Alkaline Cleaning Bath BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper alkaline cleared English Units—lbs/1,000,000lbs of copper alkaline cleared	
Chromium	0.020	0.0080
Copper	0.089	0.047
Lead	0.0070	0.0061
Nickel	0.066	0.047
Zinc	0.062	0.026

(j) *Subpart A—Pickling Rinse BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/ks of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.55	0.22
Copper	2.48	1.31
Lead	0.20	0.17
Nickel	1.84	1.31
Zinc	1.74	0.73

(k) *Subpart A—Pickling Rinse BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/ks of copper pickled English Units—lbs/ 1,000,000 lbs of copper pickled	
Chromium	0.049	0.020
Copper	0.22	0.12
Lead	0.017	0.015
Nickel	0.16	0.12
Zinc	0.15	0.06

(l) *Subpart A—Pickling Fume Scrubber BAT Effluent Limitations.*

Pollutant or pollutant property	Maximum For Any 1 Day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/ 1,000,000 lbs of copper pickled	
Chromium	0.26	0.11
Copper	1.19	0.63
Lead	0.094	0.081
Nickel	0.88	0.63
Zinc	0.83	0.35

§ 468.13 New source performance standards.

The following standards of performance establish the quantity or quality of pollutants or pollutant properites, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart:

(a) *Subpart A—Hot Rolling Spent Lubricant NSPS.*

Pollutant or pollutant property	Maximum For Any 1 Day	Maximum for monthly average
	Metric Units—mg/kg of copper hot rolled English Units—lna/ 1,000,000 lbs of copper hot rolled	
Chromium	0.038	0.016
Copper	0.13	0.063
Lead	0.011	0.0093
Nickel	0.057	0.038
Zinc	0.11	0.043
Oil and Grease	1.03	1.03
TSS	1.55	1.13
pH	(¹)	(¹)

¹Within the range of 7.5 to 10 at all times.

(b) *Subpart A—Cold Rolling Spent Lubricant NSPS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper cold rolled English Units—lbs/ 1,000,000 lbs of copper cold rolled	
Chromium	0.17	0.070
Copper	0.59	0.28
Lead	0.046	0.042
Nickel	0.25	0.17
Zinc	0.47	0.19
Oil and Grease	4.61	4.61
TSS	6.92	5.07
pH	(¹)	(¹)

¹Within the range of 7.5 to 10 at all times.

(c) *Subpart A—Drawing Spent Lubricant NSPS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper drawn English Units—lbs/ 1,000,000 lbs of copper drawn	
Chromium	0	0
Copper	0	0
Lead	0	0
Nickel	0	0
Zinc	0	0
Oil and Grease	0	0
TSS	0	0
pH	(¹)	(¹)

¹Within the range of 7.5 to 10 at all times.

(d) *Subpart A—Solution Heat Treatment NSPS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper heat treated English Units—lbs/ 1,000,000 lb of copper heat treated	
Chromium	0.24	0.097
Copper	0.83	0.39
Lead	0.065	0.058
Nickel	0.36	0.24
Zinc	.066	0.27
Oil and Grease	6.46	6.46
TSS	9.69	7.11
pH	(¹)	(¹)

¹Within the range of 7.5 to 10 at all times.

(e) *Subpart A—Extrusion Heat Treatment NSPS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper heat treated on an extrusion press English Units—lbs/ 1,000,000 lb of copper heat treated on an extrusion press	
Chromium	0.00090	0.00037
Copper	0.0031	0.0015
Lead	0.00024	0.00022
Nickel	0.0013	0.00090
Zinc	0.0025	0.0010
Oil and Grease	0.020	0.020
TSS	0.030	0.022
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(f) *Subpart A—Annealing with Water NSPS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper annealed English Units—lbs/ 1,000,000 lb of copper annealed	
Chromium	0.46	0.19
Copper	1.59	0.76
Lead	0.13	0.11
Nickel	0.68	0.46
Zinc	1.26	0.52
Oil and Grease	12.40	12.40
TSS	18.60	13.64
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(g) *Subpart A—Annealing with Oil NSPS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper annealed English Units—lbs/ 1,000,000 lb of copper annealed	
Chromium	0	0
Copper	0	0
Lead	0	0
Nickel	0	0
Zinc	0	0
Oil and Grease	0	0
TSS	0	0
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(h) *Subpart A—Alkaline Cleaning Rinse NSPS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper annealed English Units—lbs/ 1,000,000 lb of copper alkaline cleared	
Chromium	1.56	0.63
Copper	5.39	2.57
Lead	0.42	0.38
Nickel	2.32	1.56
Zinc	4.30	1.77
Oil and Grease	42.14	42.14
TSS	63.21	46.35
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(i) *Subpart A—Alkaline Cleaning Bath NSPS Standards.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper alkaline cleared English Units—lbs/1,000,000 lbs of copper alkaline cleared	
Chromium	0.017	0.0070
Copper	0.060	0.029
Lead	0.0047	0.0042
Nickel	0.026	0.017
Zinc	0.048	0.020
+Oil and Grease	0.47	0.47
TSS	0.70	0.51
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(j) *Subpart A—Pickling Rinse NSPS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.22	0.088
Copper	0.75	0.36
Lead	0.059	0.053
Nickel	0.32	0.22
Zinc	0.60	0.25
Oil and Grease	5.85	5.85
TSS	8.78	6.44
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(k) *Subpart A—Pickling Bath NSPS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.043	0.018
Copper	0.15	0.071
Lead	0.012	0.011
Nickel	0.065	0.043
Zinc	0.12	0.048
Oil and Grease	1.16	1.16
TSS	1.74	1.28
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(l) *Subpart A—For Pickling Fume Scrubber NSPS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.23	0.094
Copper	0.81	0.38
Lead	0.063	0.057
Nickel	0.35	0.23
Zinc	0.64	0.26
Oil and Grease	6.26	6.26
TSS	9.39	6.89
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

§ 468.14 Pretreatment standards for existing sources.

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

The mass of wastewater pollutants in each of the following copper forming process wastewater streams introduced into a POTW shall not exceed the following values:

(a) *Subpart A—Hot Rolling Spent Lubricant PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper hot rolled English Units—lbs/1,000,000 lbs of copper hot rolled	
Chromium	0.038	0.016
Copper	0.13	0.063
Lead	0.011	0.0093
Nickel	0.057	0.038
Zinc	0.11	0.043
TTO	0.051	0.025
Oil and Grease (for alternate monitoring)	2.06	1.24

(b) *Subpart A—Cold Rolling Spent Lubricant PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper cold rolled English Units—lbs/1,000,000 lbs of copper cold rolled	
Chromium	0.17	0.070
Copper	0.59	0.28
Lead	0.046	0.042
Nickel	0.25	0.17
Zinc	0.47	0.19
TTO	0.23	0.12
Oil and Grease (for alternate monitoring)	9.22	5.53

(c) *Subpart A—Drawing Spent Lubricant PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper drawn English Units—lbs/1,000,000 lbs of copper drawn	
Chromium	0	0
Copper	0	0
Lead	0	0
Nickel	0	0
Zinc	0	0
TTO	0	0
Oil and Grease (for alternate monitoring)	0	0

(d) *Subpart A—Solution Heat Treatment PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg copper heat treated English Units—lbs/1,000,000 lbs of copper heat treated	
Chromium	0.24	0.097
Copper	0.83	0.39
Lead	0.065	0.058
Nickel	0.36	0.24
Zinc	0.66	0.27
TTO	0.32	0.16
Oil and Grease (for alternate monitoring)	50.82	30.49

(e) *Subpart A—Extrusion Heat Treatment PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper heat treated on an extrusion press English Units—lbs/1,000,000 lbs of copper heat treated on an extrusion press	
Chromium	0.00090	0.00037
Copper	0.0031	0.0015
Lead	0.00024	0.00022
Nickel	0.0013	0.00090
Zinc	0.0025	0.0010
TTO	0.012	0.00060
Oil Grease (for alternate monitoring)	0.040	0.024

(f) *Subpart A—Annealing with Water PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper annealed English Units—lbs/1,000,000 lbs of copper annealed	
Chromium	0.46	0.19
Copper	1.59	0.76
Lead	0.13	0.11
Nickel	0.68	0.46

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Zinc	1.26	0.52
TTO	0.62	0.31
Oil Grease (for alternate monitoring)	113.34	68.00

(g) *Subpart A—Annealing with Oil PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper annealed English Units—lbs/1,000,000 lbs of copper annealed	
Chromium	0	0
Copper	0	0
Lead	0	0
Nickel	0	0
Zinc	0	0
TTO	0	0
Oil Grease (for alternate monitoring)	0	0

(h) *Subpart A—Alkaline Cleaning Rinse PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg copper alkaline cleaned English Unit—lbs/1,000,000 lbs of copper alkaline	
Chromium	1.56	0.63
Copper	5.39	2.57
Lead	0.42	0.38
Nickel	2.32	1.56
Zinc	4.30	1.77
TTO	2.11	1.06
Oil and Grease (for alternate monitoring)	84.28	50.57

(i) *Subpart A—Alkaline Cleaning Bath PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper alkaline cleared English Unit—lbs/1,000,000 lbs of copper alkaline	
Chromium	0.017	0.0070
Copper	0.060	0.029
Lead	0.0047	0.0042
Nickel	0.026	0.017
Zinc	0.048	0.020
TTO	0.024	0.012
Oil and Grease (for alternate monitoring)	0.93	0.56

(j) *Subpart A—Pickling Rinse PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.13	0.051
Copper	0.44	0.21
Lead	0.034	0.031
Nickel	0.19	0.13
Zinc	0.35	0.14
TTO	0.17	0.086
Oil and Grease (for alternate monitoring)	72.44	43.46

(k) *Subpart A—Pickling Bath PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.043	0.018
Copper	0.15	0.071
Lead	0.012	0.011
Nickel	0.065	0.043
Zinc	0.12	0.048
TTO	0.059	0.030
Oil and Grease (for alternate monitoring)	2.32	1.39

(l) *Subpart A—Pickling Fume Scrubber PSES.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.23	0.094
Copper	0.81	0.38
Lead	0.063	0.057
Nickel	0.35	0.23
Zinc	0.64	0.26
TTO	0.032	0.16
Oil and Grease (for alternate monitoring)	12.52	7.51

§ 468.15 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in each of the following copper forming process wastewater streams introduced into a POTW shall not exceed the following values:

(a) *Subpart A—For Hot Rolling Spent Lubricant PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper hot rolled English Units—lbs/1,000,000 lbs of copper hot rolled	
Chromium	0.038	0.016
Copper	0.13	0.063
Lead	0.011	0.0093
Nickel	0.057	0.038
Zinc	0.11	0.043
TTO	0.051	0.051
Oil and Grease (for alternate monitoring)	1.03	1.03

(b) *Subpart A—Cold Rolling Spent Lubricant PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper cold rolled English Units—lbs/1,000,000 lbs of copper cold rolled	
Chromium	0.17	0.070
Copper	0.59	0.28
Lead	0.046	0.042
Nickel	0.25	0.17
Zinc	0.47	0.19
TTO	0.23	0.23
Oil and Grease (for alternate monitoring)	4.61	4.61

(c) *Subpart A—Drawing Spent Lubricant PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper drawn English Units—lbs/1,000,000 lbs of copper drawn	
Chromium	0	0
Copper	0	0
Lead	0	0
Nickel	0	0
Zinc	0	0
TTO	0	0
Oil and Grease (for alternate monitoring)	0	0

(d) *Subpart A—Solution Heat Treatment PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Milligrams Per Kilogram (mg/kg) English Units—lbs/1,000,000 lbs of copper drawn	
Chromium	0.24	0.097
Copper	0.83	0.39
Lead	0.065	0.058
Nickel	0.36	0.24

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Zinc	0.66	0.27
TTO	0.32	0.32
Oil and Grease (for alternate monitoring)	6.46	6.46

(e) *Subpart A—Extrusion Heat Treatment PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper heat treated on an extrusion press English Units—lbs/1,000,000 lbs of copper heat treated on an extrusion press	
Chromium	0.00090	0.00037
Copper	0.0031	0.0015
Lead	0.00024	0.00022
Nickel	0.0013	0.00090
Zinc	0.0025	0.0010
TTO	0.012	0.012
Oil and Grease (for alternate monitoring)	0.020	0.020

(f) *Subpart A—Annealing with Water PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper annealed English Units—lbs/1,000,000 lbs of copper annealed	
Chromium	0.46	0.19
Copper	1.59	0.76
Lead	0.13	0.11
Nickel	0.68	0.46
Zinc	1.26	0.52
TTO	0.62	0.62
Oil and Grease (for alternate monitoring)	12.40	12.40

(g) *Subpart A—Annealing with Oil PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper cnnealed English Units—lbs/1,000,000 lb of copper annealed	
Chromium	0	0
Copper	0	0
Lead	0	0
Nickel	0	0
Zinc	0	0
TTO	0	0
Oil and Grease (for alternate monitoring)	0	0

(h) *Subpart A—Alkaline Cleaning Rinse PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper alkaline cleaned English Units—lbs/1,000,000 lb of copper alkaline cleaned	
Chromium	1.56	0.63
Copper	5.39	2.57
Lead	0.42	0.38
Nickel	2.32	1.56
Zinc	4.30	1.77
TTO	2.11	2.11
Oil and Grease (for alternate monitoring)	42.14	42.14

(i) *Subpart A—Alkaline Cleaning Bath PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper alkaline cleared English Units—lbs/1,000,000 lbs of copper alkaline cleared	
Chromium	0.017	0.0070
Copper	0.060	0.029
Lead	0.0047	0.0042
Nickel	0.026	0.017
Zinc	0.048	0.020
TTO	0.024	0.024
Oil and Grease (for alternate monitoring)	0.47	0.47

(j) *Subpart A—Pickling Rinse PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.058	0.023
Copper	0.20	0.094
Lead	0.015	0.014
Nickel	0.085	0.058
Zinc	0.16	0.063
TTO	0.076	0.076
Oil and Grease (for alternate monitoring)	5.85	5.85

(k) *Subpart A—Pickling Bath PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for montly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.043	0.018
Copper	0.15	0.071
Lead	0.012	0.011
Nickel	0.065	0.043
Zinc	0.12	0.048
TTO	0.059	0.059
Oil and grease (for alternate monitoring)	1.16	1.16

(l) *Subpart A—Pickling Fume Scrubber PSNS.*

Pollutant or pollutant property	Maximum for any 1 day	Maximum for montly average
	Metric Units—mg/kg of copper pickled English Units—lbs/1,000,000 lbs of copper pickled	
Chromium	0.23	0.094
Copper	0.81	0.38
Lead	0.063	0.057
Nickel	0.35	0.23
Zinc	0.64	0.26
TTO	0.032	0.032
Oil and Grease (for alternate monitoring)	6.26	6.26

§ 468.16 [Reserved]

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